CITY OF
Grand Junction
COLORADO

LETTER OF INTENT

Date: January 24, 2020

Company: Carollo Engineers, Inc.

Project: 2020 Persigo WWTP Master Plan Development Project SOQ-4728-19-DH

Based upon recent negotiations with your Firm, it is the intent of the City of Grand Junction to award the contract for the 2020 Persigo WWTP Master Plan Development Project SOQ-4728-19-DH to your Firm as is listed in the RFP documents; your proposal response; the successfully negotiated project scope and pricing; project schedule, etc.

This project must now be approved by the City Council prior to award and a contract being issued.

The Council meeting is currently set for February 5, 2020.

Upon receipt of a fully signed contract, please contact Kurt Carson, Wastewater Services Manager at 970-256-4171 for project start and coordination, and also provide the Purchasing Division your Insurance Certificate, as per the solicitation documents.

Please feel free to contact me with any questions at 970-244-1545.

Thank you and Best Regards

Duane Hoff Jr., Senior Buyer

CITY OF GRAND JUNCTION, COLORADO

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CONTRACT

This CONTRACT made and entered into this 5th day of March, 2020 by and between the **City of Grand Junction, Colorado,** a government entity in the County of Mesa, State of Colorado, hereinafter in the Contract Documents referred to as the "Owner" and **Carollo Engineers, Inc.** hereinafter in the Contract Documents referred to as the "Firm."

WITNESSETH:

WHEREAS, the Owner advertised that sealed Responses would be received for furnishing all labor, tools, supplies, equipment, materials, and everything necessary and required for the Project described by the Contract Documents and known as **2020 Persigo WWTP Master Plan Development Project SOQ-4728-19-DH**.

WHEREAS, the Contract has been awarded to the above named Firm by the Owner, and said Firm is now ready, willing and able to perform the Services specified in accordance with the Contract Documents;

NOW, THEREFORE, in consideration of the compensation to be paid the Firm, the mutual covenants hereinafter set forth and subject to the terms hereinafter stated, it is mutually covenanted and agreed as follows:

ARTICLE 1

Contract Documents: It is agreed by the parties hereto that the following list of instruments and documents which are attached hereto, bound herewith, or incorporated herein by reference constitute and shall be referred to either as the "Contract Documents" or the "Contract", and all of said instruments and documents taken together as a whole constitute the Contract between the parties hereto, and they are fully a part of this agreement as if they were set out verbatim and in full herein:

The order of contract document governance shall be as follows:

a. The body of this contract agreement;
b. Solicitation Documents for the Project; **2020 Persigo WWTP Master Plan Development Project;**
c. Negotiated Terms, Conditions, and Pricing through Best and Final Offer;
d. Firms Response to the Solicitation;
e. Services Change Requests (directing that changed Services be performed);

f. Amendments.

ARTICLE 2

Definitions: The clauses provided in the Solicitation apply to the terms used in the Contract and all the Contract Documents.

ARTICLE 3

Contract Services: The Firm agrees to furnish all labor, tools, supplies, equipment, materials, and all that is necessary and required to complete the tasks associated with the Services described, set forth, shown, and included in the Contract Documents as indicated in the Solicitation Document.

ARTICLE 4

Contract Price and Payment Procedures: The Firm shall accept as full and complete compensation for the performance and completion of all of the Services specified in the Contract Documents, the cost not to exceed price as stated in the Firm's submitted Best and Final Offer of **Five Hundred Seventy Five Thousand Seven Hundred Seventy Eight and 00/100 Dollars $575,778.00).** If this Contract contains unit price pay items, the Contract Price shall be adjusted in accordance with the actual quantities of items completed and accepted by the Owner at the unit prices quoted in the Solicitation Response. The amount of the Contract Price is and has heretofore been appropriated by the Grand Junction City Council for the use and benefit of this Project. The Contract Price shall not be modified except by Amendment or other written directive of the Owner. The Owner shall not issue a Amendment or other written directive which requires additional Services to be performed, which Services causes the aggregate amount payable under this Contract to exceed the amount appropriated for this Project, unless and until the Owner provides Firm written assurance that lawful appropriations to cover the costs of the additional Services have been made.

Unless otherwise provided in the Solicitation, monthly partial payments shall be made as the Services progresses. Applications for partial and Final Payment shall be prepared by the Firm and approved by the Owner in accordance with the Solicitation.

ARTICLE 5

Contract Binding: The Owner and the Firm each binds itself, its partners, successors, assigns and legal representatives to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents. The Contract Documents constitute the entire agreement between the Owner and Firm and may only be altered, amended or repealed by a duly executed written instrument. Neither the Owner nor the Firm shall, without the prior written consent of the other, assign or sublet in whole or in part its interest under any of the Contract Documents and specifically, the Firm shall not assign any moneys due or to become due without the prior written consent of the Owner.

ARTICLE 6

Severability: If any part, portion or provision of the Contract shall be found or declared null, void or unenforceable for any reason whatsoever by any court of competent jurisdiction or any governmental agency having the authority thereover, only such part, portion or provision shall be effected thereby and all other parts, portions and provisions of the Contract shall remain in full force and effect.

IN WITNESS WHEREOF, City of Grand Junction, Colorado, has caused this Contract to be subscribed and sealed and attested in its behalf; and the Firm has signed this Contract the day and the year first mentioned herein.

The Contract is executed in two counterparts.

CITY OF GRAND JUNCTION, COLORADO

DocuSigned by:
By: Duane Hoff Jr., Senior Buyer - City of Grand Junction 3/6/2020 | 14:47 MST
9F789E7D30F14BC...
Duane Hoff Jr., Senior Buyer Date

Carollo Engineers, Inc.

DocuSigned by:
By: Becky Luna, PE - Carollo Engineers, Inc. 3/6/2020 | 13:19 MST
E30E843D73154E4...
Becky Luna, PE Senior Vice President Date

Carollo Engineers, Inc.

DocuSigned by:
David Pier Associate Vice President 3/6/2020 | 13:28 MST
F49306141E39462...
David Pier

CITY OF Grand Junction COLORADO

Statement of Qualifications
SOQ-4728-19-DH

2020 Persigo WWTP Master Plan Development Project

RESPONSES DUE:
December 6, 2019 Prior to 3:30 p.m.

Accepting Electronic Responses Only
Responses Only Submitted Through the Rocky Mountain E-Purchasing System
https://www.rockymountainbidsystem.com/default.asp
(Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor MUST contact RMEPS to resolve issue prior to the response deadline. 800-835-4603)

PURCHASING REPRESENTATIVE:
Duane Hoff Jr.
Senior Buyer
duaneh@gjcity.org
970-244-1545

This solicitation has been developed specifically for a Statement of Qualifications intended to solicit competitive responses for this solicitation, and may not be the same as previous City of Grand Junction solicitations. All offerors are urged to thoroughly review this solicitation prior to submitting. Submittal by **HARD COPY, FAX, OR E-MAIL IS NOT ACCEPTABLE** for this solicitation.

ADMINISTRATIVE INFORMATION & CONDITIONS FOR SUBMITTAL

Issuing Office: This Statement of Qualifications (SOQ) is issued by the City of Grand Junction, in conjunction with Mesa County, on behalf of the Persigo Wastewater Treatment Plant (WWTP). All contact regarding this SOQ is directed to:

SOQ Questions:
Duane Hoff Jr.
duaneh@gjcity.org

The City would like to remind all Contractors, Sub-Contractors, Vendors, Suppliers, Manufacturers, Service Providers, etc. that (with the exception of Pre-Bid or Site Visit Meetings) all questions, inquiries, comments, or communication pertaining to any formal solicitation (whether process, specifications, scope, etc.) must be directed (in writing) to the Purchasing Agent assigned to the project, or Purchasing Division. Direct communication with the City assigned Project Managers/Engineers is not appropriate for public procurement, and may result in disqualification.

Purpose: The City of Grand Junction, in conjunction with Mesa County, is requesting qualifications from interested engineering firms capable of performing the planning study described in the proposed scope of work for the 2020 Persigo WWTP Master Plan Development Project.

Non-Mandatory Pre-Proposal/Site Visit Meeting: Prospective Offerors are encouraged to attend a non-mandatory pre-proposal/site visit meeting on November 25, 2019 at 2:00 pm. Meeting location shall be in the Persigo Wastewater Treatment Plant Conference Room, located at 2145 River Road, Grand Junction, CO. The purpose of this visit will be to inspect and to clarify the contents of this Request for Proposals (RFP).

The Owner: The Owner is the City of Grand Junction and is referred to throughout this Solicitation. The term Owner means the Owner or his authorized representative.

Compliance: All participating Offerors shall agree to comply with all conditions, requirements, and instructions of this SOQ as stated or implied herein. Should the Owner omit anything from this packet which is necessary to the clear understanding of the requirements, or should it appear that various instructions are in conflict, the Offerors shall secure instructions from the Purchasing Division prior to the date and time of the submittal deadline shown in this SOQ.

Submission: Please refer to section titled "Administrative Requirements and Instructions" for what is to be included. ***Each proposal shall be submitted in electronic format only, and only through the Rocky Mountain E-Purchasing website (https://www.rockymountainbidsystem.com/default.asp).*** *This site offers both "free" and "paying" registration options that allow for full access of the Owner's documents and for electronic submission of proposals.* *(Note: "free" registration may take up to 24 hours to process. Please Plan accordingly.)* Please view our **"Electronic Vendor Registration Guide"** at http://www.gjcity.org/BidOpenings.aspx for details. For proper comparison and evaluation, the City requests that proposals be formatted as directed in section titled "Administrative Requirements and Instructions". Submittals received that fail to follow this format may be ruled non-responsive. (Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline. **800-835-4603**).

Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion: The bidder/offeror certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offeror or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

Altering Submittals: Any alterations made prior to opening date and time must be initialed by the signer of the submittal, guaranteeing authenticity. Submittals cannot be altered or amended after submission deadline.

Withdrawal of Submittal: A submittal must be firm and valid for award and may not be withdrawn or canceled by the Offeror prior to the sixty-first (61st) day following the submittal deadline date and only prior to award. The Offeror so agrees upon their submittal. After award this statement is not applicable.

Acceptance of Submittal Content: The contents of the submittal of the successful Offeror shall become contractual obligations if acquisition action ensues. Failure of the successful Offeror to accept these obligations in a contract shall result in cancellation of the award and such vendor shall be removed from future solicitations.

Exclusion: No oral, telegraphic, or telephonic submittals shall be considered.

Addenda: All Questions shall be submitted in writing to the appropriate person as shown in Section 1.1. Any interpretations, corrections and changes to this SOQ or extensions to the opening/receipt date shall be made by a written Addendum to the SOQ by the City Purchasing Division. Sole authority to authorize addenda shall be vested in the City of Grand Junction Purchasing Representative. Addenda will be issued electronically through the City's website at www.gjcity.org by selecting the Bids link. Offerors shall acknowledge receipt of all addenda in their submittal.

Exceptions and Substitutions: All submittals meeting the intent of this SOQ shall be considered for award. Offerors taking exception to the specifications/scope of work/scope of services shall do so at their own risk. The Owner reserves the right to accept or reject any or all substitutions or alternatives. When offering substitutions and/or alternatives, Offeror must state these exceptions in the section pertaining to that area. Exception/substitution, if accepted, must meet or exceed the stated intent and/or specifications/scope of work/scope of services. The absence of such a list shall indicate that the Offeror has not taken exceptions, and if awarded a contract, shall hold the Offeror responsible to perform in strict accordance with the specifications/scope of work/scope of services contained herein.

Confidential Material: All materials submitted in response to this SOQ shall ultimately become public record and shall be subject to inspection after contract award. "Proprietary or Confidential Information" is defined as any information that is not generally known to competitors and which provides a competitive advantage. Unrestricted disclosure of proprietary information places it in the public domain. Only submittal information clearly identified with the words "***Confidential***

Disclosure" shall establish a confidential, proprietary relationship. Any material to be treated as confidential or proprietary in nature must include a justification for the request. The request shall be reviewed and either approved or denied by the Purchasing Manager. If denied, the proposer shall have the opportunity to withdraw its entire submittal, or to remove the confidential or proprietary restrictions. Neither cost nor pricing information nor the total proposal shall be considered confidential or proprietary.

Response Material Ownership: All submittals become the property of the Owner upon receipt and shall only be returned to the Offeror at the Owner's option. Selection or rejection of the submittal shall not affect this right. The Owner shall have the right to use all ideas or adaptations of the ideas contained in any submittal received in response to this SOQ, subject to limitations outlined in the section 1.9 entitled "Confidential Material". Disqualification of a submittal does not eliminate this right.

Minimal Standards for Responsible Prospective Offerors: A prospective Offeror must affirmably demonstrate their responsibility. A prospective Offeror must meet the following requirements:

- Have adequate financial resources, or the ability to obtain such resources as required.
- Be able to comply with the required or proposed completion schedule.
- Have a satisfactory record of performance.
- Have a satisfactory record of integrity and ethics.
- Be otherwise qualified and eligible to receive an award and enter into a contract with the Owner.

Open Records: Submittals shall be received and publicly acknowledged at the location, date, and time stated herein. Offerors, their representatives and interested persons may be present. Submittals shall be received and acknowledged only so as to avoid disclosure of process. However, all submittals shall be open for public inspection after the contract is awarded. Trade secrets and confidential information contained in the submittal so identified by Offeror as such shall be treated as confidential by the Owner to the extent allowable in the Open Records Act.

SOLICITATION TERMS AND CONDITIONS

Acceptance of SOQ Terms: An Offeror's submittal in response to this SOQ shall constitute a binding offer. Acknowledgment of this condition shall be indicated on the Letter of Interest or Cover Letter by the autographic signature of the Offeror or an officer of the Offeror legally authorized to execute contractual obligations. A submission in response to the SOQ acknowledges acceptance by the Offeror of all terms and conditions including compensation, as set forth herein. An Offeror shall identify clearly and thoroughly any variations between its submittal and the Owner's SOQ requirements. Failure to do so shall be deemed a waiver of any rights to subsequently modify the terms of performance, except as outlined or specified in the SOQ.

Execution, Correlation, Intent, and Interpretations: Owner will provide the contract. By executing the contract, the Offeror represents that he/she has familiarized himself/herself with the local conditions under which the Work/Services is to be performed, and correlated his/her observations with the requirements of the Contract Documents. The Contract Documents are complementary, and what is required by any one, shall be as binding as if required by all. The intention of the documents is to include all labor, materials, equipment and other items necessary for the proper execution and completion of the scope of work/scope of services as defined in the technical specifications and/or drawings contained herein. All drawings, specifications, and scopes copies furnished by the Owner are, and shall remain, Owner property. They are not to be used on any other project, and with the exception of one contract set for each party to the contract, are to be returned to the owner on request at the completion of the work/services.

Permits, Fees, & Notices: The Offeror shall secure and pay for all permits, governmental fees and licenses necessary for the proper execution and completion of the services. The Offeror shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the services. If the Offeror observes that any of the Contract Documents are at variance in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be adjusted by approximate modification. If the Offeror performs any services knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall assume full responsibility and shall bear all costs attributable.

Responsibility for those Performing the Services: The Offeror shall be responsible to the Owner for the acts and omissions of all his employees and all other persons performing any of the work/services under a contract with the Offeror.

Changes in the Services: The Owner, without invalidating the contract, may order changes in the services within the general scope of the contract consisting of additions, deletions or other revisions. All such changes in the services shall be authorized by Change Order/Amendment and shall be executed under the applicable conditions of the contract documents. A Change Order/Amendment is a written order to the Offeror signed by the Owner issued after the execution of the contract, authorizing a change in the services or an adjustment in the contract sum or the contract time.

Minor Changes in the Services: The Owner shall have authority to order minor changes in the services not involving an adjustment in the contract sum or an extension of the contract time and not inconsistent with the intent of the contract documents.

Uncovering & Correction of Services: The Offeror shall promptly correct all services found by the Owner as defective or as failing to conform to the contract documents. The Offeror shall bear all costs of correcting such rejected services, including the cost of the Owner's additional services thereby made necessary. The Owner shall give such notice promptly after discover of non-conforming services. All such non-conforming services under the above paragraphs shall be corrected to comply with the contract documents without cost to the Owner.

Amendment: No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All amendments to the contract shall be made in writing by the Owner Purchasing Division.

Assignment: The Offeror shall not sell, assign, transfer or convey any contract resulting from this SOQ, in whole or in part, without the prior written approval from the Owner.

Compliance with Laws: Submittals must comply with all Federal, State, County and local laws governing or covering this type of service and the fulfillment of all ADA (Americans with Disabilities Act) requirements.

Confidentiality: All information disclosed by the Owner to the Offeror for the purpose of the services to be done or information that comes to the attention of the Offeror during the course of performing such services is to be kept strictly confidential.

Conflict of Interest: No public official and/or Owner employee shall have interest in any contract resulting from this SOQ.

Contract: This Statement of Qualifications, submitted documents, and any negotiations, when properly accepted by the Owner, shall constitute a contract equally binding between the Owner and Offeror. The contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the submittall documents. The contract may be amended or modified with Change Orders, Field Orders, or Addendums.

Project Manager/Administrator: The Project Manager, on behalf of the Owner, shall render decisions in a timely manner pertaining to the services proposed or performed by the Offeror. The Project Manager shall be responsible for approval and/or acceptance of any related performance of the Scope of Services.

Contract Termination: This contract shall remain in effect until any of the following occurs: (1) contract expires; (2) completion of services; (3) acceptance of services or, (4) for convenience terminated by either party with a written *Notice of Cancellation* stating therein the reasons for such cancellation and the effective date of cancellation at least thirty days past notification.

Employment Discrimination: During the performance of any services per agreement with the Owner, the Offeror, by submitting a Proposal, agrees to the following conditions:

- The Offeror shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, disability, citizenship status, marital status, veteran status, sexual orientation, national origin, or any legally protected status except when such condition is a legitimate occupational qualification reasonably necessary for the normal operations of the Offeror. The Offeror agrees to post in conspicuous places, visible to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

- The Offeror, in all solicitations or advertisements for employees placed by or on behalf of the Offeror, shall state that such Offeror is an Equal Opportunity Employer.

- Notices, advertisements, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

Immigration Reform and Control Act of 1986 and Immigration Compliance: The Offeror certifies that it does not and will not during the performance of the contract employ illegal alien workers or otherwise violate the provisions of the Federal Immigration Reform and Control Act of 1986 and/or the immigration compliance requirements of State of Colorado C.R.S. § 8-17.5-101, *et.seq.* (House Bill 06-1343).

Expenses: Expenses incurred by prospective proposers in preparation, submission and presentation of this SOQ are the responsibility of the Offeror and cannot be charged to the Owner.

Ethics: The Offeror shall not accept or offer gifts or anything of value nor enter into any business arrangement with any employee, official, or agent of the Owner.

Failure to Deliver: In the event of failure of the Offeror to deliver services in accordance with the contract terms and conditions, the Owner, after due oral or written notice, may procure the services from other sources and hold the Offeror responsible for any costs resulting in additional purchase and administrative services. This remedy shall be in addition to any other remedies that the Owner may have.

Failure to Enforce: Failure by the Owner at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the Owner to enforce any provision at any time in accordance with its terms.

Force Majeure: The Offeror shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions, and acts of God beyond the control of the Offeror, unless otherwise specified in the contract.

Indemnification: Offeror shall defend, indemnify and save harmless the Owner, State of Colorado, and all its officers, employees, insurers, and self-insurance pool, from and against all liability, suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the Offeror, or of any Offeror's agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from proposal award. Offeror shall pay any judgment with cost which may be obtained against the Owner growing out of such injury or damages.

Independent Firm: The Offeror shall be legally considered an Independent Firm and neither the Firm nor its employees shall, under any circumstances, be considered servants or agents of the Owner. The Owner shall be at no time legally responsible for any negligence or other wrongdoing by the Firm, its servants, or agents. The Owner shall not withhold from the contract payments to the Firm any federal or state unemployment taxes, federal or state income taxes, Social Security Tax or any other amounts for benefits to the Firm. Further, the Owner shall not provide to the Firm any insurance coverage or other benefits, including Workers' Compensation, normally provided by the Owner for its employees.

Nonconforming Terms and Conditions: A submittal that includes terms and conditions that do not conform to the terms and conditions of this Statement of Qualifications is subject to rejection as non-responsive. The Owner reserves the right to permit the Offeror to withdraw nonconforming terms and conditions from its proposal prior to a determination by the Owner of non-responsiveness based on the submission of nonconforming terms and conditions.

Ownership: All plans, prints, designs, concepts, etc., shall become the property of the Owner.

Oral Statements: No oral statement of any person shall modify or otherwise affect the terms, conditions, or specifications stated in this document and/or resulting agreement. All modifications to this request and any agreement must be made in writing by the Owner.

Patents/Copyrights: The Offeror agrees to protect the Owner from any claims involving infringements of patents and/or copyrights. In no event shall the Owner be liable to the Offeror for any/all suits arising on the grounds of patent(s)/copyright(s) infringement. Patent/copyright infringement shall null and void any agreement resulting from response to this SOQ.

Venue: Any agreement as a result of responding to this SOQ shall be deemed to have been made in, and shall be construed and interpreted in accordance with, the laws of the City of Grand Junction, Mesa County, Colorado.

Sovereign Immunity: The Owner specifically reserves its right to sovereign immunity pursuant to Colorado State Law as a defense to any action arising in conjunction to this agreement.

Public Funds/Non-Appropriation of Funds: Funds for payment have been provided through the Mesa County budget, approved by the Board of County Commissioners for the stated fiscal year only. State of Colorado statutes prohibit the obligation and expenditure of public funds beyond the fiscal year for which a budget has been approved. Therefore, anticipated orders or other obligations that may arise past the end of the stated Mesa County fiscal year shall be subject to budget approval. Any contract will be subject to and must contain a governmental non-appropriation of funds clause.

Collusion Clause: Each Offeror by submitting a proposal certifies that it is not party to any collusive action or any action that may be in violation of the Sherman Antitrust Act. Any and all proposals shall be rejected if there is evidence or reason for believing that collusion exists among the proposers. The Owner may or may not, at the discretion of the Owner Purchasing Representative, accept future proposals for the same service or commodities for participants in such collusion.

Gratuities: The proposer certifies and agrees that no gratuities, kickbacks or contingency fees were paid in connection with this contract, nor were any fees, commissions, gifts or other considerations made contingent upon the award of this contract. If the proposer breaches or violates this warranty, the Owner may, at their discretion, terminate this contract without liability to the Owner.

Safety Warranty: Offeror also warrants that the services performed shall conform to the standards declared by the US Department of Labor under the Occupational Safety and Health Act of 1970.

OSHA Standards: All Offerors agree and warrant that services performed in response to this invitation shall conform to the standards declared by the US Department of Labor under the Occupational Safety and Health Act of 1970 (OSHA). In the event the services do not conform to OSHA Standards, the Owner may require the services to be redone at no additional expense to the Owner.

Performance of the Contract: The Owner reserves the right to enforce the performance of the contract in any manner prescribed by law or deemed to be in the best interest of the Owner in the event of breach or default of resulting contract award.

Benefit Claims: The Owner shall not provide to the Offeror any insurance coverage or other benefits, including Worker's Compensation, normally provided by the Owner for its employees.

Default: The Owner reserves the right to terminate the contract immediately in the event the Offeror fails to meet delivery or completion schedules, or otherwise perform in accordance with the accepted proposal. Breach of contract or default authorizes the Owner to purchase like services elsewhere and charge the full increase in cost to the defaulting Offeror.

Multiple Offers: Offerors must determine for themselves which services to offer. If said Offeror chooses to submit more than one offer, THE ALTERNATE OFFER must be clearly marked "Alternate Submittal". The Owner reserves the right to make award in the best interest of the Owner.

Cooperative Purchasing: Purchases as a result of this solicitation are primarily for the Owner. Other governmental entities may be extended the opportunity to utilize the resultant contract award with the agreement of the successful provider and the participating agencies. All participating entities will be required to abide by the specifications, terms, conditions and pricings established in this Submittal. The quantities furnished in this submittal document are for only the Owner. It does not include quantities for any other jurisdiction. The Owner will be responsible only for the award for our jurisdiction. Other participating entities will place their own awards on their respective Purchase Orders through their purchasing office or use their purchasing card for purchase/payment as authorized or agreed upon between the provider and the individual entity. The Owner accepts no liability for payment of orders placed by other participating jurisdictions that choose to piggy-back on our solicitation. Orders placed by participating jurisdictions under the terms of this solicitation will indicate their specific delivery and invoicing instructions.

Public Disclosure Record: If the Offeror has knowledge of their employee(s) or sub-Offerors having an immediate family relationship with a Owner employee or elected official, the Offeror must provide the Purchasing Representative with the name(s) of these individuals. These individuals are required to file an acceptable "Public Disclosure Record", a statement of financial interest, before conducting business with the Owner.

DEFINITIONS

"Consultant" or "Firm" refers to the person, partnership, firm or corporation entering into an Agreement with the Owner for the services required and the legal representatives of said party or the agent appointed to act for said party in the performance of the service(s) contracted for.

"Offeror" refers to the person or persons legally authorized by the Consultant to make an offer and/or submit a bid (fee) proposal in response to the Owner's SOQ.

The term "Services" includes all labor necessary to produce the requirements by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such services.

"Owner" is The City of Grand Junction and is referred to throughout the Contract Documents. The term Owner means the Owner or his authorized representative. The Owner shall, at all times, have access to the services wherever it is in preparation and progress. The Offeror shall provide facilities for such access. The Owner will make periodic visits to the site to familiarize himself generally with the progress and quality of services and to determine, in general, if the services are proceeding in accordance with the contract documents. Based on such observations and the Offeror's Application for Payment, the Owner will determine the amounts owing to the Offeror and will issue Certificates for Payment in such amounts, as provided in the contract. The Owner will have authority to reject services which does not conform to the Contract documents. Whenever, in his reasonable opinion, he considers it necessary or advisable to insure the proper implementation of the intent of the Contract Documents, he will have authority to require the Offeror to stop the services or any portion, whether or not such services can be then be completed. The Owner will not be responsible for the acts or omissions of the Offeror, and sub-Contractor, or any of their agents or employees, or any other persons performing any of the services.

“Offeror” is the person or organization identified as such in the Agreement and is referred to throughout the Contract Documents. The term Offeror means the Offeror or his authorized representative. The Offeror shall carefully study and compare the General Contract Conditions of the Contract, Scope of Services, Addenda and Modifications and shall at once report to the Owner any error, inconsistency or omission he may discover. Offeror shall not be liable to the Owner for any damage resulting from such errors, inconsistencies or omissions. The Offeror shall not commence services without clarifying such.

INSURANCE REQUIREMENTS

Insurance Requirements: The selected Firm agrees to procure and maintain, at its own cost, policy(s) of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by the Firm pursuant to this Section. Such insurance shall be in addition to any other insurance requirements imposed by this Contract or by law. The Firm shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Section by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types.

Firm shall procure and maintain and, if applicable, shall cause any Subcontractor of the Firm to procure and maintain insurance coverage listed below. Such coverage shall be procured and maintained with forms and insurers acceptable to The Owner. All coverage shall be continuously maintained to cover all liability, claims, demands, and other obligations assumed by the Firm pursuant to this Section. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Minimum coverage limits shall be as indicated below unless specified otherwise in the Special Conditions:

(a) Worker Compensation insurance to cover obligations imposed by applicable laws for any employee engaged in the performance of work under this Contract, and Employers' Liability insurance with minimum limits of:

ONE MILLION DOLLARS ($1,000,000) each accident,
ONE MILLION DOLLARS ($1,000,000) disease - policy limit, and
ONE MILLION DOLLARS ($1,000,000) disease - each employee

(b) General Liability insurance with minimum combined single limits of:

ONE MILLION DOLLARS ($1,000,000) each occurrence and
ONE MILLION DOLLARS ($1,000,000) per job aggregate.

The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision.

(c) Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than:

ONE MILLION DOLLARS ($1,000,000) each occurrence and
ONE MILLION DOLLARS ($1,000,000) aggregate

(d) Professional Liability & Errors and Omissions Insurance policy with a minimum of:

ONE MILLION DOLLARS ($1,000,000) per claim

This policy shall provide coverage to protect the contractor against liability incurred as a result of the professional services performed as a result of responding to this Solicitation.

With respect to each of Consultant's owned, hired, or non-owned vehicles assigned to be used in performance of the Services. The policy shall contain a severability of interests provision. The policies required by paragraphs (b) above shall be endorsed to include the Owner and the Owner's officers and employees as additional insureds. Every policy required above shall be primary insurance, and any insurance carried by the Owner, its officers, or its employees, or carried by or provided through any insurance pool of the Owner, shall be excess and not contributory insurance to that provided by Consultant. No additional insured endorsement to any required policy shall contain any exclusion for bodily injury or property damage arising from completed operations. The Consultant shall be solely responsible for any deductible losses under any policy required above.

OVERVIEW AND INFORMATION

Through this Statement of Qualifications (SOQ) process, it is the intent of the City of Grand Junction, in conjunction with Mesa County to hire a professional engineering firm experienced in Master Plan development and Wastewater Treatment Plant design and operations.

The intent of the 2020 Persigo Master Plan Project is to provide the City of Grand Junction and Mesa County with two (2) strategic planning documents focused on near- and long-term infrastructure improvements for the Persigo Sewer System to address asset condition, hydraulic capacity, treatment capacity, and regulatory requirements.

1. Guide development of a Persigo Wastewater Treatment Plant Facility Master Plan
2. Update the existing 2008 Comprehensive Wastewater Basin Study Update

This Project will evaluate components of the wastewater collection system, wastewater treatment plant, and supporting infrastructure. The Consultant will have access to facility records, drawings, process control data, and other relevant information to conduct this planning effort. The Project will be completed as a collaborative effort between the Consultant and City/County staff, with scope tasks conducted by the Consultant and informed by staff knowledge of the facility history, business practices, innovation goals, and facility specific information.
The primary mission of the Project is to develop a near- and long-term prioritized capital improvement and asset replacement program to meet the City's wastewater collection and treatment facility needs now through buildout. For the purposes of this Project the term "buildout" refers to achieving full land use zoning capacity/potential of our service area as is currently contemplated by the 201 Service Area in the Comprehensive Plan long-range planning scenarios.

Non-Mandatory Pre-Proposal/Site Visit Meeting: **Prospective Offerors are encouraged to attend a non-mandatory pre-proposal/site visit meeting on November 25, 2019 at 2:00 pm**. Meeting location shall be in the Persigo Wastewater Treatment Plant Conference Room, located at 2145 River Road, Grand Junction, CO. The purpose of this visit will be to inspect and to clarify the contents of this Request for Proposals (RFP).

SOQ GOALS

It is the intent of this SOQ to provide interested firms with sufficient information to enable them to prepare and submit statements of qualifications for the project. Based on a rating of the qualified submittals by the evaluation team, a "short list" of the most qualified firms will be developed. Only the top "short list" firms will be invited for interviews and pricing proposals.

Pricing is not to be included with this SOQ submittal.

SCOPE OF SERVICES

Background:

The City of Grand Junction Utilities Department is dedicated to maintaining and improving the quality of life in Grand Junction by planning for future needs, promoting environmental quality, building and maintaining municipal water and wastewater infrastructure, managing public investments, and protecting health and safety. The Utilities Department helps meet this goal by ensuring the City water and wastewater systems are planned, engineered, built, operated, and maintained according to industry best practices.

The Persigo Sewer System is a regional wastewater collection and treatment facility that is jointly owned by the City of Grand Junction and Mesa County. The Persigo Wastewater Treatment Plant (WWTP) was commissioned for service 35 years ago in 1984 and is administered according to rules, goals, and policy guidance specified in the 1998 Persigo Intergovernmental Agreement between the City of Grand Junction and Mesa County.

The Persigo Sewer System is comprised of:

- The 201 Service Area which defines the geographic area in which all the properties within are intended to connect to, and be served by the Persigo Sewer System, to the exclusion of septic or other individual sewage disposal systems.
- The 12.5 million gallons per day (mgd) rated Persigo Wastewater Treatment Plant which is located at 2145 River Road in Grand Junction, Colorado. Note: the original design of the WWTP at full buildout is 25 mgd.
- An expansive wastewater collection system consisting of approximately 600 miles of wastewater collection sewer lines, 14,000 manholes, 27 lift stations, and 2 syphon structures.

Scope of Services:

1. **Coordination with the Comprehensive Plan –** The City of Grand Junction is in the process of completing a Comprehensive Plan through the year 2040. The Comprehensive Plan is a long-range plan that looks at where and how the City and County will grow over the next 20 years. The update will include planning for residential and commercial growth and needed services and

infrastructure (parks, utilities, roads, police, fire, etc.), potential changes to the City's growth boundary, identifying risks and vulnerabilities of natural and human caused hazards and identifying goals, strategies and actions that reflect the community's values and vision. The Comprehensive Plan is independent from the 2020 Persigo Master Plan however; it will set the future land use and ultimate buildout assumptions that will need to dovetail into the Persigo Master Plan. The Comprehensive Plan will be completed over an 18-month period (2019-2020).

2. **Sustainability and Resource Stewardship –** The City of Grand Junction has implemented a number of successful conservation programs, projects and initiatives over the years. These programs help the City become better stewards of natural resources and make more economical choices which improve the efficiency of City facilities. City sustainability and stewardship efforts can be categorized as:
   - Energy
   - Fleet and Infrastructure
   - City Parks and Green Spaces
   - Recycling
   - Plans and Partnerships

3. **Hydraulic and Organic Loading Capacity –** The Persigo WWTP is currently operating at 80% throughput for flow and 82% for organic loading on the 30-day average basis in regards to permitted rated capacity. The projected years to achieve 95% throughput are 2032 and 2029, respectively.

4. **Staff Health and Safety –** Continuous improvement in staff health and safety is a fundamental consideration and value to the Utilities Department. We believe considerable advances in technology, equipment, and design approaches that enhance worker health and safety have occurred since the sewer collection and treatment facilities were originally constructed.

5. **Biosolids Management –** The Persigo WWTP produces a biosolid that does not meet Class B nor Class A quality standards and as such, disposes of all biosolids at the Mesa County Landfill. About 15 years ago the WWTP collaborated with the landfill to evaluate composting biosolids within the existing landfill composting operation. At that time the Persigo WWTP was the first Utility to attempt to beneficially use biosolids in Mesa County and even though the biosolids composting pilot demonstrated the ability to produce a Class A quality product, there was significant community pushback on reusing biosolids in the area. As a result, the concept to compost biosolids was abandoned without further analysis.

   Today there is a renewed interest in understanding all viable long-term biosolids management approaches. Some of the factors that have shifted in the last 15 years are:

   - Escalating biosolids disposal cost at the landfill (staff time, hauling and tipping fees)
   - Dewatering equipment at the WWTP is nearing the end of its useful service life (original 1980s belt filter presses)
   - Solids handling unit process may need to be expanded within the planning horizon

- Poor dewatering and digestion performance seasonally
- Local public perception of biosolids may have shifted. Other local WWTPs are beneficially reusing biosolids in the area

6. **Aging Infrastructure –** The facility is now over 35 years old and although all mechanical equipment has been maintained and replaced as needed, there are some classes of assets that are in need of condition assessment and an asset replacement plan. In particular, electrical (switch gear, transformers, VFDs), instrumentation & control (telemetry, HMI), and some process equipment (aeration blowers, dewatering equipment, clarifier mechanisms) are some areas where we expect increased asset replacement within the planning horizon.

7. **Effluent Diffuser Discharge to Colorado River –** In March 2019, the Persigo WWTP completed construction of an effluent diffuser. The project involved rerouting the WWTP's outfall from Persigo Wash to the Colorado River and discharging the treated wastewater via an effluent diffuser on the bottom of the Colorado River. This project allowed the Persigo WWTP to meet Regulation #31 instream water quality standards in the Colorado River for total phosphorus and total inorganic nitrogen at current effluent concentrations. This resulted in the Persigo WWTP being except from Regulation #85 total phosphorus and total inorganic nitrogen effluent limits as allowed under 85.5(3)(b)(iv).

8. **Onsite Solar Farm –** The Persigo WWTP owns and operates a 98kW ground mounted photovoltaic system at the plant site. The system was designed and constructed in 2012 and it successfully provides electricity to the plant. There is significant space available at the WWTP to support expansion of the photovoltaic system and further reduce the WWTP's reliance on purchased electricity and potentially offset additional operating costs.

9. **Asset Management Program –**The Utility Department's asset management mission statement is: *"Manage City of Grand Junction Water & Wastewater infrastructure assets through a holistic approach for continuous improvement in the most cost effective manner to minimize service interruptions & environmental impacts with reliable high quality service to the customer. "*

   The Utilities Department is working to enhance our asset management strategies and improve infrastructure reliability across all Utility workgroups. This includes investing in expanding our CMMS system, adopting the NASSCO pipeline and manhole condition assessment program and adding dedicated staff to our asset management team.

10. **Odor Control Study –** The Wastewater Division is currently working with a consultant to complete an air management and odor control study for the wastewater collection system and at the WWTP. The study includes an extensive sampling campaign, source identification and characterization, evaluation of best practices to mitigate odors, alternatives analysis, and summary report with recommended air management and odor mitigation projects prioritized by the City. The results of this study will be available for the Master Planning Consultant in the first quarter 2020. Furthermore, funds have been budgeted in FY20 to implement odor control improvements.

11. **Lift Station Elimination Study –** In 2019, the Wastewater Division worked with a consultant to complete a lift station elimination study for several lift stations in the collection system. The results from this study are available to the selected Master Planning Consultant upon contract execution.

12. **Tiara Rado Forcemain Replacement –** The Wastewater Division will be working with a consultant to develop an approach to replace the Tiara Rado forcemain from the Tiara Rado lift station on the south side of the Colorado River to the Persigo WWTP on the north side of the Colorado River. The initial effort will be to determine whether a bridge or under river option is preferred for the forcemain replacement. The results of this effort will be available to the selected Master Planning Consultant in the first quarter 2020.

13. **Sewer Improvement Districts –** In 2000, the City and the County passed a joint resolution establishing the septic system elimination program to provide incentives to property owners to eliminate septic systems. There are still approximately 1,500 properties that remain on septic systems within the Persigo 201 Sewer Area. The program has not yet achieved the goal of eliminating septic systems and making available connection to the sewer system to all properties within the service area. The last sewer improvement district was completed in 2010. Funding is budgeted for 2020 and beyond to revitalize the incentive program by targeting completion of existing and new sewer improvement districts over the next 10 years.

14. **Persigo WWTP Structural Assessment –** The Wastewater Division is currently working with a consultant to complete a structural assessment of the raw sewage pump station, aeration basin gallery, aerobic and anaerobic digesters, dewatering building, and primary clarifiers at the WWTP. There are several distresses observed in these structures. The objective of this project is to perform an engineering investigation that will quantify the condition of facility concrete & structural steel and then identify and evaluate alternatives for repair and replacement to provide continued reliable operation of the Persigo WWTP. The results of this study will be available for the selected Master Planning Consultant in the first quarter 2020.

15. **BioCNG Storage and Automation –** The Wastewater Division is currently pursuing a grant with the Department of Local Affairs (DOLA) under their "Renewable and Clean Energy Challenge" to construct additional biogas storage and enhance the fleet fueling station automation. Currently about 20% of the biogas produced in the anaerobic digesters is flared to the atmosphere due to inadequate storage and due to an offset in the timing of biogas production compared to fueling station use. We estimate that through completion of these improvements we can beneficially reuse approximately 100% of the available biogas and further reduce greenhouse gas emissions by an additional 500,000 lbs-CO_2 annually. Once this is complete it will open the door to explore opportunities to increase net biogas production over current levels.

Project Goal

The overall goal of this Project it to provide the City and County with two strategic master planning documents focused on infrastructure investments decisions in the near- and long-term. One document will focus on the Persigo WWTP and the other document will focus on the Persigo collection system. The City and County would like to produce strategic, "action-oriented" documents that highlight specific measures and triggers that support decision making over the next few years, while maintaining a 20-year planning horizon. To be successful we would like the Project to:

1. Achieve a high level of staff engagement and collaboration.
2. Support implementation of the City of Grand Junction's 2019 Strategic Plan in the goal area of planning and infrastructure.
3. Support development of Persigo's Asset Management Program through coordination efforts and condition assessment data integration.
4. Support sustainability and resource stewardship through identification of applicable innovative approaches, technologies, and best practices in use at peer wastewater agencies

Preliminary Scope of Work

Below is a preliminary scope of work (SOW); the final SOW will be determined with the selected Consultant. Major tasks in the final SOW will include, but are not limited to:

- Project Management
- Project Initiation and Coordination
- Data Collection, Review and Organization
- Alternative Development and Evaluation
- Meetings and Workshops
- Report Presentations

Development of Persigo Wastewater Treatment Plant Facility Master Plan

The selected Consultant will work with staff to guide development WWTP facility master plan which includes a prioritized, near- and long-term capital improvement program (CIP) that addresses regulatory drivers and treatment plant capacity requirements now through buildout, including infrastructure and asset replacement needs. A major objective is to develop a strategic recommendation for treatment plant expansion requirements at the Persigo WWTP to meet the needs of both current and future users of the system. Key elements of this study include:

- Update wastewater flow and load projections
- Prepare and validate a wastewater process model and plant hydraulic model to assist in alternative evaluations of treatment plant expansion options.
- Evaluate options to re-rate the existing WWTP to an increased hydraulic capacity and organic loading capacity.
- Evaluate energy use and opportunities to increase energy efficiency.
- Evaluate and recommend treatment process improvements that will meet future regulations and growth projections.
- Evaluate and recommend solids handling improvements.
- Evaluate and recommend a biosolids management approach.
- Evaluate and recommend electrical, instrumentation, and control improvements.

- Develop a near- and long-term prioritized Capital Improvement Plan (CIP) with planning level cost estimations to the meet the plant capacity needs now through buildout.
- Develop a near- and long-term prioritized asset replacement plan to meet aging infrastructure replacement needs.
- Develop a financial approach to meeting future treatment capacity expansion requirements by reviewing the current Plant Investment Fee and Trunkline Extension Fee basis and provide recommendations on future fee formulation to fund expansion needs.

Update the 2008 Comprehensive Wastewater Basin Study Update

Policy makers are considering changes to the boundaries of the 201 Service Area. Wastewater conveyance infrastructure capacity and the ability to serve outlying areas of the current 201 Service Area will be key to future land use recommendations. Key elements of the study will include:

- Conduct flow monitoring in the collection system.
- Prepare and validate a wastewater collection system hydraulic model to assist in alternative evaluations.
- Update the wastewater basin boundaries, flow criteria, and infrastructure facilities.
- Identify infrastructure requirements and costs to serve the 201 Service Area and outlying areas.
- Benchmark and recommend collection system maintenance needs (staff, equipment, etc.).
- Evaluate sewer infrastructure capacity based on land use recommendations associated with the Comprehensive plan (only one scenario).
- Review Sewer System Elimination Program (SSEP) and provide recommendations on sewer improvement district boundary updates and other enhancements to the existing SSEP.
- Re-evaluation of sewer trunk extensions to various drainage basins (Figure 4-1 of the 2008 study revision effort). This would include areas outside the current 201 planning area. Update recommendation for required route alternatives and line sizes to adequately serve designated basins including estimate of costs for each line extension.

Attachments

2008 Comprehensive Wastewater Basin Study Update for general orientation and general reference

Special Conditions/Provisions:

Oral Interviews: Should the Owner determine interviews are necessary, only respondents who demonstrate the required qualifications and experience for this project will be considered for participation in oral presentations. It is the intent of the Owner to invite those firms that are determined to be qualified to be a participant in the creation of a qualified pool of firms, to prepare a detailed pricing proposal and participate in oral interviews for the required services.

Fees: ***DO NOT INCLUDE ANY PRICING OR FEE SCHEDULES WITH YOUR SUBMITTAL TO THIS SOQ***. If your firm is selected as one of the finalists, you may be invited for an oral interview. At that time, you will be required to provide a complete list of standard fees and payment schedule requirements in a separate sealed envelope. Any additional consultant fees must also be included. All fees will be considered by the Owner to be negotiable based on the final scope of services and deliverables. The fee proposals will not be opened by the Owner until a prospective awarded firm has been determined. Then, only the fee proposal of the successful preferred proposer will be opened. However, the Owner reserves the right to open competing fee proposals and consider their contents if a contract agreement cannot be negotiated with the number one selected firm or if it is considered in the best interest of the Owner to do so.

Short Listed Firms: Finalist, short listed firms, may be provided detailed questions developed by the evaluation committee during the review process that finalists will be required to respond. Firms will be limited to a previously determined amount of time for their presentations. It is the intent of the Owner to participate in oral interviews with a maximum of no more than three (3) firms. Presentations should be made by principals and key personnel who can respond to any additional questions the evaluation team may pose during the oral interviews. Presentations are to be professional in nature, but concise and to the point with illustrations relevant to the firm's abilities with regard to the prospective project. Visual aids to include Power Point or other objective information that will assist the evaluation team are recommended, but not required.

Should the Owner not be able to agree on the details of the contract with the top rated firm through good-faith negotiations, they will proceed to the next highest ranked firm and enter into negotiations.

Questions Regarding Scope of Services:
Duane Hoff Jr., Senior Buyer
duaneh@gjcity.org

ANTICIPATED SCHEDULE OF ACTIVITIES

• Statement of Qualifications Available	November 15, 2019
• Non-Mandatory Pre-Proposal/Site Visit Meeting	November 25, 2019
• Inquiry Deadline (no questions after this date)	December 2, 2019
• Addendum Posted	December 3, 2019
• Due Date for Submittals	December 6, 2019
• Owner Evaluations and Review	December 9-13, 2019
• Interviews (if required)	December 19, 2018
• Negotiations (if required)	December 20-31, 2019
• City Council Approval	February 5, 2019
• Contract Execution	February 6, 2019
• Contract Services Begin	Upon Contract Execution

ADMINISTRATIVE REQUIREMENTS AND INSTRUCTIONS

Submission: ***Each proposal shall be submitted in electronic format only, and only through the Rocky Mountain E-Purchasing website (https://www.rockymountainbidsystem.com/default.asp).*** *This site offers both "free" and "paying" registration options that allow for full access of the Owner's documents and for electronic submission of proposals.* *(Note: "free" registration may take up to 24 hours to process. Please Plan accordingly.)* Please view our "**Electronic Vendor Registration Guide"** at http://www.gjcity.org/BidOpenings.aspx for details. (Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline **800-835-4603**). For proper comparison and evaluation, the City requests that proposals be formatted as directed in the section titled "Administrative Requirements and Instructions". Offerors are required to indicate their interest in this Project, show their specific experience and address their capability to perform the Scope of Services in the Time Schedule as set forth herein. For proper comparison and evaluation, the Owner requires that proposals be formatted **A** to **H**:

A. **Cover Letter:** Cover letter shall be provided which explains the Firm's interest in the project. The letter shall contain the name/address/phone number/email of the person who will serve as the firm's principal contact person with Owner's Contract Administrator and shall identify individual(s) who will be authorized to make presentations on behalf of the firm. The statement shall bear the signature of the person having proper authority to make formal commitments on behalf of the firm. By submitting a response to this solicitation the Firm agrees to all requirements herein.

B. **Qualifications/Experience/Credentials:** Proposers shall provide their qualifications for consideration as a contract provider to the Owner and include prior experience in the development of master plans, specifically for wastewater treatment plants for counties and municipalities.

C. **Strategy and Implementation Plan:** Describe your (the firm's) interpretation of the Owner's objectives with regard to this SOQ. Describe the proposed strategy and/or plan for achieving the objectives of this SOQ The Firm may utilize a written narrative or any other printed technique to demonstrate their ability to satisfy the Scope of Services. The narrative should describe a logical progression of tasks and efforts starting with the initial steps or tasks to be accomplished and continuing until all proposed tasks are fully described and the SOQ objectives are accomplished. Include a **time schedule** for completion of your firm's implementation plan and an estimate of time commitments from Owner staff.

D. **References:** A minimum of five summaries and project descriptions of at least five (5) projects completed within the last five (5) years similar in nature, scope, complexity and size. Include project information, and reference names, telephone numbers and email addresses for each project.

E. **Fees:** See Item titled "Fees" under the Special Conditions/Provisions section.

F. **Financial Statements:** **DO NOT SUBMIT FINANCIAL STATEMENTS WITH PROPOSAL**. If Owner deems necessary, Proposer shall provide a financial statement, as prepared by a certified public accountant, for their prior fiscal year, consisting of a balance sheet, profit and loss statement and such other financial statements as may be appropriate, which shall demonstrate that the proposer possesses adequate financial ability and stability to enable the Proposer to fulfill their obligations under the terms of this

SOQ. If requested by the Proposer, such information shall be treated as confidential by the Owner and shall not be subject to public disclosure. These documents must depict the financial status of that entity, subsidiary, division, or subdivision thereof, which will actually provide services. If the Proposer is a partnership or joint venture, individual financial statements must be submitted for each general partner or joint venture thereof. Consolidated balance sheets and profit/loss statements depicting the financial status of a Parent Corporation or joint venture shall not be considered an acceptable response.

G. **Solicitation Response Form:** Proposers shall complete and submit the attached Solicitation Response Form with their proposal response.

H. **Additional Data (optional):** Provide any additional information that will aid in evaluation of your qualifications with respect to this project.

EVALUATION CRITERIA AND FACTORS

Evaluation: An evaluation team shall review all responses and select proposals that best demonstrate the capability in all aspects to perform the scope of services and possess the integrity and reliability that will ensure good faith performance.

Intent: Only respondents who meet the qualification criteria will be considered.
Therefore, it is imperative that the submitted proposal clearly indicate the firm's ability to provide the services described herein.

Submittal evaluations will be done in accordance with the criteria and procedure defined herein. The Owner reserves the right to reject any and all Statements. The following parameters will be used to evaluate the submittals (in no particular order of priority):

- Responsiveness of submittal to the SOQ
- Understanding of the project and the objectives
- Experience & Required Skills developing master plans specifically to wastewater treatment plants
- Necessary resources
- Strategy & Implementation Plan
- References
- Financial Stability (If Owner deems necessary)

The Owner will undertake negotiations with the top rated firm and will not negotiate with lower rated firms unless negotiations with higher rated firms have been unsuccessful and terminated. Should the Owner not be able to agree on the details of the contract with the top rated firm through good-faith negotiations, they will proceed to the next highest ranked firm and enter into negotiations.

Oral Interviews (if required): It is the Owner's intent to invite (if required) up to three of the most qualified rated Offerors to participate in oral interviews.

Award: Firms shall be ranked or disqualified based on the criteria listed herein. The Owner reserves the right to consider all of the information submitted and/or oral presentations, if required, in selecting the project Offeror.

SOLICITATION RESPONSE FORM

SOQ-47285-19-DH "2020 Persigo WWTP Master Plan Development Project"

Offeror must submit entire Form completed, dated and signed.

The Owner reserves the right to accept any portion of the services to be performed at its discretion

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The undersigned has thoroughly examined the entire Statement of Qualifications and therefore submits the proposal and schedule of fees and services attached hereto.

This offer is firm and irrevocable for sixty (60) days after the time and date set for receipt of proposals.

The undersigned Offeror agrees to provide services in accordance with the terms and conditions contained in this Statement of Qualifications and as described in the Offeror's proposal attached hereto; as accepted by the Owner.

Prices in the proposal have not knowingly been disclosed with another provider and will not be prior to award.

- Prices, when submitted, have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.
- No attempt has been made nor will be to induce any other person or firm to submit a proposal for the purpose of restricting competition.
- The individual signing this proposal certifies they are a legal agent of the offeror, authorized to represent the offeror and is legally responsible for the offer with regard to supporting documentation and prices provided.
- Direct purchases by the City of Grand Junction are tax exempt from Colorado Sales or Use Tax. Tax exempt No. 98-903544. The undersigned certifies that no Federal, State, County or Municipal tax will be added to the above quoted prices.
- City of Grand Junction payment terms shall be Net 30 days.
- Prompt payment discount of ________ percent of the net dollar will be offered to the Owner if the invoice is paid within ___________ days after the receipt of the invoice. Payment Terms _______.

RECEIPT OF ADDENDA: the undersigned Firm acknowledges receipt of Addenda to the Solicitation, Specifications, and other Contract Documents.

State number of Addenda received: ___________.

It is the responsibility of the Proposer to ensure all Addenda have been received and acknowledged.

______________________________	______________________________
Company Name – (Typed or Printed)	Authorized Agent – (Typed or Printed)
______________________________	______________________________
Authorized Agent Signature	Phone Number
______________________________	______________________________
Address of Offeror	E-mail Address of Agent
______________________________	______________________________
City, State, and Zip Code	Date

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Abbreviations and Acronyms

Abbreviation	Definition
1992 Study	Comprehensive Wastewater Basin Study
1997 Update	Update to the Comprehensive Wastewater Basin Study
2008 Comp Plan	2008 Comprehensive Plan Update
2008 Update	2008 Comprehensive Wastewater Basin Update
ADDF	average daily dry weather flow
Bio-P	biological phosphorous
Black & Veatch	Black & Veatch Corporation
CCI	Construction Cost Index
CGVSD	Central Grand Valley Sanitation District
City	City of Grand Junction, Colorado
DUs	dwelling units
ENR	Engineering News Record
EPS	extended period simulation
GIS	Geographic Information System
gpcd	gallons per capita per day
gpd	gallons per day
gpd/sq ft	gallons per day per square foot
gpm	gallons per minute
gpm/sq ft	gallons per minute per square foot
HDR	HDR Engineering, Inc.
I-70	Interstate 70
ID	identification
IFAS	integrated fixed film activated sludge
mgd	million gallons per day
mg-P/L	milligrams of phosphorus per liter
mil gal	million gallons
MPO	Metro Planning Organization
OMSD	Orchard Mesa Sanitation District
PE	population equivalent
ppd	pounds per day
RDTs	rotary drum thickeners
SRT	solids retention time
SWD	side water depth
TAZs	traffic analysis zones
TM 1	Technical Memorandum No. 1
TM 2	Technical Memorandum No. 2
TM 3	Technical Memorandum No. 3

Abbreviation	Definition
TM 4	Technical Memorandum No. 4
TM 5	Technical Memorandum No. 5
TM 6	Technical Memorandum No. 6
WAS	waste activated sludge
WWTP	Wastewater Treatment Plant

BLACK & VEATCH CORPORATION

TECHNICAL MEMORANDUM NO. 1

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin Study Update

B&V Project 160319.0100
B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Introduction

Technical Memorandum No. 1 (TM 1) provides an overview of the 2008 Comprehensive Wastewater Basin Study Update (2008 Update).

A. Background

The City of Grand Junction, Colorado (City) hired Black & Veatch Corporation (Black & Veatch) to provide updates to the Comprehensive Wastewater Basin Study (1992 Study) completed by HDR Engineering, Inc. (HDR) in 1992. In 1997, HDR updated the 1992 Study to reflect updates in the area north of Interstate 70 (I-70) (1997 Update). Since the 1992 Study and the 1997 Update, there have been significant changes to the City's wastewater collection system, including:

- Extending service to serve new developments.
- Replacing the Duck Pond Lift Station with a gravity line.
- Replacing the Scenic School and Redlands Parkway lift stations with the Connected Lakes Lift Station.
- Providing service to the Panorama Sanitation District, which is now part of the City.
- Dissolution of the Fruitvale Sanitation District on January 1, 2009, which is now a part of the City.

In addition, the City is expecting Orchard Mesa and Central Grand Valley sanitation districts to dissolve in the next 10 years and become part of the City.

The 2008 Update is being completed in conjunction with the City's 2008 Comprehensive Plan Update (2008 Comp Plan) and the recommendations for future capacity and expansion reflect the land use planning from the 2008 Comp Plan as of March 2009. Figure TM1-1 shows the existing 201 Planning Area Boundary, the future service area boundary used for this study, other sanitation district boundaries, and the existing wastewater collection system.

B. Study Objectives

The goal of the 2008 Update is to update the 1992 Study and 1997 Update to provide a guidance document for the City wastewater collection system facilities based on the 2008 Comp Plan land use development plan (as of March 2009) and the Future Service Area developed in conjunction with City staff. Key elements of this update include:

- Updating the wastewater basin boundaries, flow criteria, and collection system facilities.
- Preparing and validating a wastewater system model to assist in alternative evaluations.
- Identifying infrastructure requirements and costs to serve the future service area boundary.

C. Data Sources

The development and evaluation of the hydraulic model required compiling data from many sources. Table TM1-1 summarizes the data used and the apparent source of the data.

Table TM1-1

2008 Update Data Sources

Source	Data
City of Grand Junction Geographic Information System (GIS) Department	Traffic analysis zones (TAZs), County parcels, City limits, other sanitation district limits, roads, sewer lines, manholes, existing zoning data and hydrologic features
City of Grand Junction Public Works and Planning Department	Sewer line plan and profile drawings, large contributor data, existing population and land use information
City of Grand Junction Wastewater Treatment Plant (WWTP)	WWTP flow data and collection system flow metering data
Winston Associates	Future land use planning options and 2008 Comp Plan land use data

pjr
Attachment

BLACK & VEATCH CORPORATION

TECHNICAL MEMORANDUM NO. 2

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin Study Update

B&V Project 160319.0100
B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Inventory and Model Construction

Technical Memorandum No. 2 (TM 2) provides a description of the existing and future planning areas defined for this study and the methods used in constructing the dynamic model to perform system-wide hydraulic analyses of the major interceptors within the City's collection system.

A. Planning Area

The wastewater collection system and treatment plant are jointly owned by the City and Mesa County. The City operates and maintains the system. The planning area boundaries are the 201 Planning Area Boundary which includes the City, portions of Mesa County outside of the City limits, and two sanitation districts (Fruitvale Sanitation District was dissolved as of January 1, 2009 and is now part of the City collection system):

- Central Grand Valley Sanitation District (CGVSD)
- Orchard Mesa Sanitation District (OMSD)

Although the City does not serve the entire 201 Planning Area Boundary at this time, in the future, it is expected that they will absorb the two districts mentioned above, as well as expand service as growth continues. Clifton and Whitewater are not expected to be incorporated into the City's collection and treatment system.

For the 2008 Update, major interceptors were identified to characterize the collection system. All the flow collected and conveyed through this system is discharged to the Persigo WWTP, which has a current design capacity of 12.5 million gallons per day (mgd). The Persigo WWTP is located in the northwestern corner of the City and discharges treated effluent to the Colorado River.

1. Existing Service Area

The City currently provides wastewater collection and treatment to approximately 78,000 residents through roughly 520 miles of collection pipelines within the 201 Planning Area Boundary.

The existing service area, which spans over 64 square miles, is divided into twenty basins as shown on Figure TM2-1. These basins represent the areas of the City being serviced by a particular interceptor or lift station. The existing basin boundaries were updated from the 1992 Study and 1997 Update by incorporating the Panorama Improvement District into the Tiara Rado basin, extending the Orchard Mesa boundary to the south and east, and extending the northern edge of the 201 Boundary to accommodate recent infill and growth in the northern reaches of the City.

2. Future Service Area

Future growth is expected to include redevelopment of the downtown area, north of the City toward J Road and along the eastern peripheries of the existing Orchard Mesa boundary. A future service area boundary was identified. Existing basin boundaries were modified into future basin boundaries by extending boundaries to the future service area limits. In addition, four new basins were created: two to incorporate the area north of the existing 201 Boundary, a new pumped area in Orchard Mesa, and the area north of the Airport. The future service area boundary and basins are shown on Figure TM2-2.

B. Data Collection

Information about the existing wastewater collection system was obtained from the City's GIS data, as-built drawings, survey information for manholes, and other lift station information available from City records. After the initial survey and model construction, areas with missing information were identified and the City attempted to locate further GIS data and as-builts for the areas of concern.

1. Available Data

Black & Veatch used GIS shape files and as-built information provided by the City to construct a collection system model, including the major interceptors within the City's service area. The GIS data consists of two shape files:

- Collection system structures such as manholes and lift stations.
- Pipes, including gravity mains, force mains, and siphons.

The GIS shape files were used to spatially locate the pipes and other structures in the model. This data also contained structure characteristics such as length, diameter, and material. Most of the GIS pipe shape file was missing pipe invert elevation data and manhole rim elevations, so Black & Veatch input both upstream and downstream invert elevation data, as well as rim elevations from as-builts provided by the City. Appendix TM2A lists the as-built drawings used to input data into the model.

2. Calculable Data

Once the available information from the GIS and drawings was entered, values were calculated for as much of the missing information as possible. Calculated values included the following:

- Invert elevations calculated from pipe length and slope.
- Rim elevations calculated from invert elevation and depth information.
- Pipe length calculated from pipe slope and difference in invert elevations.

3. Assumed Data

Data gaps remaining after data collection and calculations were filled making assumptions about the system. Additional assumptions were made to rectify conflicting information. Assumptions were generally made using other information about the system and were discussed with the City. For example, diameter assumptions were made by looking at upstream and downstream information.

Two interceptors have assumed slopes along a majority of the pipe length. In these areas, an assumed pipe slope (matching the slope upstream or downstream of the missing invert data) is used to project the invert elevations along the length of the interceptor. The following pipe segments contain assumed slopes and invert elevations:

- **Connected Lakes.** The slope of the pipeline was estimated from Manhole E2-222-050 (along South Rim Drive east of Redlands Parkway) upstream to Manhole E2-231-035 (at Eagle Point Court) and again from Manhole D3-232-018 (along West Scenic Drive) upstream to Manhole D2-241-006 (along Sandia Drive).

- **15th Street Interceptor.** The slope of the pipeline for the upstream reach north of Patterson Road (Manhole F1-271-103 to Manhole F1-271-101) was estimated by extending the known pipe slope of the downstream reach. The pipe slope was also estimated for the pipe south of Cedar Avenue (Manhole E3-271-123) downstream to the Colorado Avenue Interceptor (at Manhole D1-271-017).

The Connected Lakes Interceptor was also missing rim elevations, so assumed rim elevations were input to the model by estimating the elevation between the nearest known rim elevations and the hypsography from the 2005 aerial photography available from the City.

C. Hydraulic Model

In order to evaluate the ability of the wastewater collection system to handle existing and future peak flow conditions, a wastewater collection system hydraulic model was developed. The computer model developed for this project used H2OMap Sewer Pro Version 8.0 (by MWH Soft). Wastewater collection system facilities, including manholes, wetwells, outfalls, interceptors, force mains, and lift station pumps, are represented in the model.

1. Data Input and Checking

The first step in the hydraulic model construction is to input the collection system inventory. The GIS Exchange tool in H20MAP Sewer was utilized to import the shape files into the model and convert them into links and nodes while assigning the GIS attributes to predefined model attributes. Table TM2-1 shows how the shape file attributes were mapped to the model attributes.

Table TM2-1

Attribute Fields

GIS Shape File Attribute Field	H2OMAP Sewer Attribute Field
Structure Shape File	
MA_MANHOLE	(ID)
MA_MHID	Description
MA_DIA	Diameter
MA_RIM_ELE	Rim Elevation
MA_STRC_TY	Type
Int_Name (1)	INT_Name
Pipe Shape File	
NT_USMAN	Link: From
NT_DSMAN	Link: To
NT_USMAN (2)	(ID)
NT_NUMBER	Pipe: Description
NT_LENGTH	Pipe Hyd: Length
NT_DIA	Pipe Hyd: Diameter
NT_DT_CONS	Installation Year
NT_DIST_TY	Zone
NT_MAT_TY	Material
NT_LINR_TY	Lining
Int_Name(1)	INT_Name

(1) Int_Name attribute was added to shape file by Black & Veatch. It contains the name of the major interceptor.

(2) The pipe identification (ID) in the model is the upstream manhole ID.

Hydraulic inventory data was provided by the City in the form of GIS shape files and as-built drawings. The hydraulic parameters extracted from these data sets included manhole coordinates, rim elevations, pipe diameter, length, invert elevations, and other special structures information. The model was constructed to include all major interceptor lines greater than 12 inches in diameter and other major wastewater collection system facilities located along these interceptors. Smaller sewer lines were included if they were considered important or needed for continuity. Following importation of the data, additional checks were made to locate and correct adverse slopes, improper connections, missing data, and other model problems. Where necessary, assumptions were made, especially with relation to the pipe inverts and manhole rim elevations, to alleviate these data discrepancies.

2. Collection System Inventory

Figure TM2-1 shows the existing interceptor wastewater collection system as constructed in the model. The following paragraphs summarize the system inventory.

a. Persigo WWTP

All flow collected within the City's wastewater collection system is treated at the Persigo WWTP. Evaluation of the capacity and treatment facilities at the Persigo WWTP was not included in the scope of the 2008 Update; however, Technical Memorandum No. 5 includes additional information about options for expanding the capacity and treatment facilities at the existing site. In addition, Table TM2-2 summarizes the design conditions and 2007 flow data.

Table TM2-2

Persigo WWTP Summary

Criteria	Flow (mgd)
Design Capacity Flow	12.5
2007 Annual Average Flow	8.1
2007 Instantaneous Maximum Flow	18.6

Note: 2007 flow values based on data from the flowmeter on the River Road interceptor.

b. Gravity Interceptors

The City operates and maintains approximately 520 miles of gravity sewers (including Orchard Mesa and CGVSD) in the wastewater collection system. For the 2008 Update, approximately 50 miles of the larger diameter pipelines were hydraulically analyzed under various scenarios. A summary of the modeled interceptor lengths and diameter ranges are included in Table TM2-3.

c. Lift Stations, Wetwells, and Force Mains

There are currently 26 lift stations in use by the City. Five of the lift stations were included in the model as they significantly influence the hydraulics of the interceptors they are tributary to. Table TM2-4 summarizes available data on the lift stations and their associated force mains. Modeled lift stations are shown on Figure TM2-1.

Table TM2-3

Existing Gravity Interceptor
Modeled Collection System Summary (1)

Interceptor	Basin	Diameter (inch)	Length(2) (feet)
15th Street	15th Street	15	11,000
24 Road	24 Road	10 - 15	11,000
24 ½ Road	Paradise Hills	15 - 18	6,700
B ½ Road	Orchard Mesa	10 - 12	13,300
Colorado Avenue/Crosby Avenue	Colorado Avenue	18 - 24	10,900
Connected Lakes	Goat Wash	8 - 12	3,700
Frontier Street	Orchard Mesa	8 - 10	4,200
Grand Avenue	Grand Avenue	18 - 30	9,000
Goat Wash	Goat Wash	8 - 21	14,000
Horizon Drive	Horizon Drive	15 - 24	21,900
Highway 50	Orchard Mesa	10 - 15	7,300
Lime Kiln	Lime Kiln	8	400
Orchard Mesa	Orchard Mesa	14 - 24	12,700
Paradise Hills	Paradise Hills	8 - 18	19,700
Redlands	Goat Wash	8	3,600
River Road	--	18 - 54	28,500
Ridges	Rosevale	8 - 12	6,600
River Trunk	River Trunk	10 - 27	8,300
Rood Avenue	Rood Avenue	15	5,100
Scenic School	Goat Wash	8	4,600
South Avenue	River Trunk	21 - 27	6,700
South Camp	Goat Wash	8 - 12	9,200
South Side	South Side	20 - 30	14,400
Tiara Rado	Tiara Rado	8 - 15	9,600
Unaweep Avenue	Orchard Mesa	10 - 12	7,200
Total			**249,600**

(1) Data from summary of hydraulic model output.

(2) Force main lengths not included in pipe length totals.

Table TM2-4

Lift Station and Force Main Summary (1)

Lift Station Name	Location	Lift Station		
		Number of Pumps	Pump Capacity (2) (gallons per minute [gpm])	Total Dynamic Head (feet)
Alpine Meadows (3)	776 Sedona Court	2	83	30
Brach (3)	East end of Monument Road	2	93	22
Cheyenne (3)	2770 Cheyenne Drive	2	183	50
Connected Lakes	2380 North San Miguel	4	147	137.8
Coors (3)	559 Sandhill Lane	2	317	--
Corn (3)	365 32 Road	2	93	24
D.O.E. (3)	2591 B 3/4 Road	2	210	90
Desert Hills (3)	479 Escondido Circle	2	90	119
El Poso (3)	445 Crosby Avenue	2	146	11
Falls (3)	Grand Falls Drive and 28 1/4 Road	2	244	45
Fifth Street (3)	725 South 5th Street	1	30	Not available
Grand Valley Byproducts (3)	347 27½ Road	2	391	43
Heather Ridge (3)	2523 Snowmass Court	2	93	Not available
Lime Kiln Gulch (also know as Redlands Village)	2206 Crestline Circle	4	388	150
Mesa Mall (3)	2432 Highway 6 and 50	2	94	37
Monument (3)	329 Dakota Circle	2	146	40
Panorama 2 (3)	2122 Sequoia Court	2	170	60
Railhead (3)	River Road and Railhead Circle	2	244	20
Redlands Mesa (3)	373 High Desert Road	2	97	56
Ridges 1	425 Sandstone Drive	2	298	10
Ridges 2 (3)	408 1/2 Ridgeway Drive	1	30	80
Riverbend (3)	3110 Kerset Court	2	80	25
Rosevale	2526 Broadway	2	475	35

Table TM2-4

Lift Station and Force Main Summary [1]
(Continued)

Lift Station Name	Location	Lift Station		
		Number of Pumps	Pump Capacity [2] (gallons per minute [gpm])	Total Dynamic Head (feet)
Safeway [3]	29 Road and F Road	2	140	11
Tiara Rado (also known as River View North)	2078 Raindance Court	2	2,272	80
Wellington [3]	2078 Raindance Court	2	225	30

[1] Lift station data provided by the City.

[2] All pumps in the lift station are the same capacity.

[3] Lift station was not included in the hydraulic modeling.

d. Siphons

There are currently four siphons used by the City. Siphons are segments of pressurized sewer, which allow the City to convey wastewater under low areas in the system (such as a river) without requiring a lift station. Table TM2-5 summarizes available data on the siphons. Siphon locations are shown on Figure TM2-1.

Table TM2-5

Siphon Summary [1]

Name	Location	Diameter (inch)	Length (feet)
28 Road	28 Road and Grand Avenue	15	100
Broadway Street	US Highway 340 and Monument Road	8 and 10	2,200 each
High Street	Crosses Colorado River just west of US 50 Highway Bridge	12 and 14	1,000 each
River Road	River Road and I-70	18, 24, and 30	150 each

pjr
Attachment

TECHNICAL MEMORANDUM NO. 3

City of Grand Junction, Colorado	B&V Project 160319.0100
2008 Comprehensive Wastewater Basin Study Update	B&V File B
	August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Population and Flows

Technical Memorandum No. 3 (TM 3) provides a review of the methodology used to compute residential and non-residential wastewater generation for both the existing and buildout collection systems for the City.

A. Existing Population and Flows

The Grand Valley Metro Planning Organization (MPO) provided the population and employment densities by TAZ for year 2005, which was assumed to be the population and employment for the existing year modeling in the 2008 Update. Figure TM3-1 shows the TAZ data in relation to the study area and drainage basin boundaries.

1. TAZ Population and Employment Data

The spatial distribution of population by basin for 2005 was calculated based on the TAZ data. The resulting residential and employment estimates were then used to determine the wastewater unit rates for each basin in the study area.

TAZs represent a geographic area, as defined by the United States Bureau of Census, used for analytical and planning purposes. By intersecting the TAZ data with the drainage basin shape file, population and employment totals were calculated for each drainage basin. Table TM3-1 summarizes the population by basin for the existing system.

Table TM3-1

Existing Population and Employment by Basin [(1)]

Basin	Area (acres)	Employment	Population	Population Equivalent [(2)]
15th Street	700	500	3,400	3,650
24 Road		2,250	950	2,100
CGVSD [(3)]	6,250	3,050	18,550	20,050
Colorado Avenue	350	3,300	2,150	3,800
Fruitvale [(3)]	1,200	3,450	6,950	8,650
Goat Wash	2,850	400	4,100	4,300
Grand Avenue	1,350	8,450	8,150	12,350
Horizon Drive	2,450	5,550	3,700	6,500
Lime Kiln	750	200	1,650	1,750
Orchard Mesa	4,400	2,450	10,750	11,950
Paradise Hills	2,550	4,000	5,800	7,850
Ridges	650	100	950	1,000
River Road North	1,250	1,300	200	850
River Road North B	400	1,600	1,550	2,350
River Road South	650	500	50	300
River Trunk	500	2,500	1,550	2,800
Rood Avenue	450	1,500	3,500	4,250
Rosevale	1,050	200	800	900
South Side	200	850	100	550
Tiara Rado	2,150	350	3,300	3,450
Total	**31,000**	**42,500**	**78,150**	**99,400**

(1) Data Calculated from TAZ and Basin shape file intersection and reflects 2005 population estimates. Rounded to the nearest 50.

(2) Population Equivalent = (Employment) * 0.5 + Population.

(3) CGVSD and Fruitvale are represented in the model as point loads into the collection system.

Population data was used to account for the base per capita sanitary wastewater flow from residential land uses, and employment data was used for the commercial and industrial land uses. In order to simplify unit flows, population and employment data was combined, and an equivalent population number developed. A population equivalent (PE) was defined at one resident or two employees.

2. Flow Metering Data

Flow meter data was provided by the City for 14 permanent flow metering locations and Persigo WWTP. Flow data is summarized in Table TM3-2 for 2007, which was the data used for validation of the hydraulic model. Not all the meters have recorded data for every month. Appendix TM3A includes additional detail from the flowmeters and typical diurnal curves. The metering locations are shown on Figure TM3-2.

Flow balancing was performed using the 2007 average daily dry weather flow (ADDF) calculated from the flow records at each metering site. Flow balancing is used to confirm understanding of how various areas of the collection system are connected. In addition, it is used to identify flow metering records which do not appear to reflect expected flows for a tributary area. Figure TM3-3 shows a schematic of the basin connectivity and the 2007 ADDF for the flowmeters. Based on the flow balancing procedures, the flowmeters for 15th Street, Colorado Avenue, Rood Avenue, and South Side were not included since they were either too low, less than 50 (gallons per capita per day (gpcd) or too high, greater than 200 gpcd to be considered realistic. Figure TM3-3 shows in red the 2007 ADDF balanced flows that were included in determining unit flows in Section 4.

Table TM3-2

2007 Meter Data

Interceptor	Location	Diameter (inches)	Instantaneous Maximum Flow (mgd)	ADDF (mgd)
15th Street	13th Street and Main Street	15	0.37	0.15
24 Road	Patterson and Highway 6 and 50	10	1.18	0.18
Colorado Avenue	Crosby Avenue and West Main Street	24	2.47	1.14
Goat Wash	23 1/4 Road and River Road	21	1.11	0.32
Grand Avenue	City Fleet Shops	27	6.81	0.93
Horizon Drive Lower	25 Road and Independent Avenue	24	1.98	0.76
Horizon Drive Upper	Willowbrook Road and Northridge Drive	15	1.56	0.49
Orchard Mesa	1654 Canon Avenue	24	0.65	1.96
Paradise Hills	24 1/2 Road and Highway 6 and 50	18	2.18	0.80
River Road	2145 River Road	54	18.60	8.08
River Trunk	Riverside Park	21	0.77	0.25
Scenic School	River Road and Broadway Street	10	--	--
Southside	West Avenue and West Main Street	30	5.68	2.70
Tiara Rado	2155 River Road	12	0.86	0.29

3. Large Producer Flows

February water use from the largest commercial and industrial water customers was provided by the City and Ute Water. Since there are no large industries in the City that consume water in production (such as a bottling company), it was assumed that all water delivered to these businesses was returned to the wastewater collection system (no outdoor irrigation in February). Large producers were defined as those consuming more than 100,000 gallons of wastewater during February 2007. Since Ute Water also serves areas outside the City's collection system, only large producers within the collection system service area were included.

The total ADDF from the large producers was 1.04 mgd. Based on the physical location within the collection system, a large producer's flow was point loaded to the nearest manhole in the existing collection system model. A detailed list of the large producers and the corresponding model manhole to which the load was assigned is included in Appendix TM3B. Figure TM3-2 shows the locations of the large users.

4. Unit Flows by Basin

For each of the City's existing wastewater basins, unit flow rates were developed. Unit flow rates for flow metered basins are presented in Table TM3-3 and were developed in the following manner:

- The population equivalent of each basin was determined from the TAZ data population and employment densities.
- The large producers within a given basin were subtracted from the basin's monitored flow to calculate a remaining flow for each basin.
- The remaining flow in each basin was divided by the equivalent population to calculate the unit rate in gallons per day per PE (or per capita).

Table TM3-3

Wastewater Unit Rate Summary for Existing System Basins with Flow Metering Data

Basin	February 2007 Large Producer Flow	2007 ADDF	Population Equivalents	Calculated Unit Rate [1]	Rounded Unit Rate
	(mgd)	(mgd)		(gpcd)	(gpcd)
24 Road	--	0.18	2,100	85.7	85
Goat Wash [2]	--	0.32	6,050	52.9	55
Grand Avenue	0.24	0.93	12,350	55.8	55
Fruitvale [3]	--	0.87	8,650	N/A	N/A
Horizon Drive	0.24	0.76	6,500	80.6	80
Orchard Mesa	0.13	1.96	11,950	153.3	150
Paradise Hills	0.02	0.80	7,850	99.7	100
River Trunk	0.06	0.25	2,800	66.4	65
Tiara Rado	--	0.28	3,450	81.2	80
Sum of Flows	**0.69**	**6.35**	--	--	--

(1) Calculated Unit Rate = (2007 ADDF – February 2007 Large Producer Flow)/Population Equivalents.

(2) Includes Lime Kiln population and employment.

(3) Fruitvale was point loaded into the model.

Basins that either had no flow metering data, or had meter data that was discounted, were grouped together and an average for all of these areas was determined: The five basins that did not have flow data are Ridges, River Road North, River Road North B, River Road South, and Rosevale. The discounted flow meter basins are 15th Street, Colorado Avenue, Rood Avenue, and Southside. (Although the Lime Kiln Basin did not have flow metering, it was combined with Goat Wash, since it is directly upstream from this meter.) Table TM3-4 summarizes the unit flow calculations for the combined areas.

Flow from CGVSD and Fruitvale Sanitation District were point loaded into the model. A summary of existing demand by basin used in the hydraulic modeling is included in Table TM3-5.

B. Future Population and Flows

Future population and flows from the 2008 Update are based on 2035 population and land use information from the 2008 Comp Plan (as of March 2009).

1. Comprehensive Planning Efforts

The City is completing the 2008 Comp Plan, which includes population projections through the year 2035. Winston Associates is the planning consultant assisting the City with completing the 2008 Comp Plan. The 2008 Update is using the current 2008 Comp Plan land use projections for year 2035 (March 2009 contained in the file Preferred3-25-9.gdb from Winston Associates). The land use projections are not finalized at this time, and the final 2008 Comp Plan may include some changes in land use and/or changes in total projected population or employment.

Table TM3-4

Wastewater Unit Rate Summary for Existing System Basins without Flow Metering Data

Basin	February 2007 Large Producer Flow	Population Equivalents	2007 ADDF	Calculated Unit Rate(1)	Rounded Unit Rate
15th Street	0.03	3,650	--	--	80
Colorado Avenue	0.11	3,800	--	--	80
Ridges	--	1,000	--	--	80
River Road North	0.02	850	--	--	80
River Road North B	0.06	2,350	--	--	80
River Road South	0.07	300	--	--	80
Rood Avenue	0.05	4,250	--	--	80
Rosevale	--	900	--	--	80
Southside	0.01	550	--	--	80
Total	**0.35**	**17,650**	--	**78.2**	--
Persigo WWTP	--	--	8.08	--	--
Sum of Flows from Table TM3-3	--	--	**6.35**	--	--

(1) Calculated Unit Rate = (2007 ADDF Persigo WWTP – Sum of Flows from Table 3-3-February 2007 Large Producer Flow)/Population Equivalents.

Table TM3-5

Existing ADDF by Basin
(mgd)

Basin	Large Producers	Residential and Non-residential [1]	Total
15th Street	0.03	0.29	0.32
24 Road	--	0.18	0.18
CGVSD	--	0.94	0.94
Colorado Avenue	0.11	0.30	0.41
Fruitvale	--	0.87	0.87
Goat Wash [2]	--	0.33	0.33
Grand Avenue	0.24	0.68	0.92
Horizon Drive	0.24	0.52	0.76
Orchard Mesa	0.13	1.79	1.92
Paradise Hills	0.02	0.79	0.81
Ridges	--	0.08	0.08
River Road North	0.02	0.07	0.09
River Road North B	0.06	0.19	0.25
River Road South	0.07	0.02	0.09
River Trunk	0.06	0.18	0.24
Rood Avenue	0.05	0.34	0.39
Rosevale	--	0.07	0.07
South Side	0.01	0.04	0.05
Tiara Rado	--	0.28	0.28
Total	**1.04**	**7.96**	**9.00**

[1] Population equivalents from Table TM3-1 multiplied by the rounded unit rate from Tables TM3-3 and TM3-4.

[2] Includes Lime Kiln population and employment.

2. Future Population and Land Use

The 2008 Comp Plan land use projections include significant residential, commercial and industrial development within the planning period. Based on information from the land use projections and input from the City, a Future Service Area Boundary was developed. It is anticipated that the City will not extend service beyond this boundary within the planning period.

The 2008 Comp Plan future land use projection is shown on Figure TM3-4 along with the Future Service Area Boundary. The 2008 Comp Plan includes a variety of land uses and densities. The land use model from the 2008 Comp Plan included the anticipated number of dwelling units (DUs) and employment expected by year 2035 for each land use type. Based on anticipated wastewater flows and the City's ability to cost-effectively provide sewer service, it was assumed that the following land uses would not be served by the City's wastewater collection system: Agriculture, Agricultural/Forestry Transition, Agricultural/Forestry, Conservation, Open Space, Park, Parks/Open Space, and Residential Very Low (Rural). Table TM3-6 summarizes the housing and employment projections by land use for the Future Service Area.

Land use information was combined with the basin boundaries to develop the population and employment by basin for year 2035. Table TM3-7 summarizes the additional and total year 2035 projections for population, employment, and population equivalents by basin.

Since the Future Service Area is not expected to be fully developed by 2035, some of the development areas will have development densities lower than the land use projection.

Table TM3-6

Housing Units, Population, and Employment for Year 2035 by Land Use for the Future Service Area (1)

Land Use	Density Range	Projected Housing Units	Population	Employment
Ag/Forestry Transition	--	50	140	0
Agricultural/Forestry	--	0	0	0
Agriculture	> 35 acres	0	0	0
Business Park	8 DU/acre 32 jobs/acre	3,280	9,840	11,250
Commercial	20 jobs/acre	0	0	4,680
Commercial/Industrial	15 jobs/acre	0	0	12,080
Conservation	1 DU/5 acres	60	190	0
Cooperative Planning Area	Average 5 acres	110	320	0
Downtown	24 + DU/acre 96 jobs/acre	950	2,840	3,240
Estate	1 - 3 acres	390	1,160	0
Industrial	15 jobs/acre	0	0	5,110
Open Space	--	0	0	0
Park	--	0	0	0
Parks/Open Space	--	0	0	0
Public	20 jobs/acre	0	0	480
Residential High	14 - 16 DU/acre 4 jobs/acre	3,290	9,860	570
Residential Low	0.5 - 2 DU/acre	7,880	23,620	0
Residential Med/High	8 - 16 DU/acre	3,710	11,120	0
Residential Medium	4 - 8 DU/acre	12,350	37,040	0
Residential Urban	24 + DU/acre 4 jobs/acre	3,070	9,210	330
Residential Very Low	--	1,210	3,620	0
Town Center	6 DU average 10 jobs/acre	3,120	9,340	10,690
URR-5	1 DU/2 acres	890	2,670	0
Village Center	7 DU average 28 jobs/acre	1,040	3,120	1,490
Total	--	**41,370**	**124,100**	**49,900**

(1) Does not include assigned land uses outside of the Future Service Area Boundary. Based on information provided in "Preferred3-25-9.gdb" from Winston Associates.

Table TM3-7

Projected Year 2035 Population and Employment by Basin [(1)]

	Additional			Total		
Basin	**Employment**	**Population**	**Population Equivalent [(2)]**	**Employment**	**Population**	**Population Equivalent [(2)]**
15th Street	61	923	953	540	4,306	4,576
21 Road	2,181	1,481	2,572	2,181	1,481	2,572
24 Road	5,272	13,302	15,938	7,497	14,262	18,010
Airport	153	94	170	153	94	170
Baseline	2	331	332	2	331	332
CGVSD [(3)]	10,297	26,353	31,501	13,332	44,908	51,575
Colorado Avenue	1,246	1,447	2,070	4,525	3,586	5,848
Fruitvale [(3)]	1,730	2,738	3,603	5,155	9,677	12,255
Future River Road North	2,008	13,356	14,360	2,008	13,356	14,360
G Road	2,946	951	2,424	2,946	951	2,424
Goat Wash	200	6,324	6,424	581	10,431	10,721
Grand Avenue	1,208	1,435	2,039	9,677	9,561	14,400
Horizon Drive	6,418	6,089	9,298	11,987	9,804	15,798
Lime Kiln	80	1,102	1,142	273	2,766	2,902
Orchard Mesa	2,542	23,949	25,220	4,985	34,679	37,171
Paradise Hills	2,445	9,591	10,814	6,457	15,411	18,640
Ridges	0	1,910	1,910	99	2,883	2,932
River Road North	4,767	3,933	6,317	6,042	4,124	7,145
River Road North B	474	1,329	1,566	2,070	2,871	3,906
River Road South	2,741	484	1,855	3,220	505	2,115
River Trunk	2,276	1,712	2,850	4,759	3,243	5,623
Rood Avenue	250	533	658	1,773	4,013	4,899
Rosevale	84	1,864	1,905	287	2,661	2,804
South Side	96	159	207	942	261	732
Tiara Rado	0	1,857	1,857	328	5,150	5,313
Total	**49,477**	**123,247**	**147,985**	**91,819**	**201,315**	**247,223**

[(1)] Data calculated from "Preferred3-25-9.gdb" from Winston Associates and the Future Basin shape file intersection.

[(2)] Population Equivalent = (Employment) * 0.5 + Population.

[(3)] CGVSD and Fruitvale are represented in the model as point loads into the collection system.

3. Future Wastewater Flow

The 1992 Study and 1997 Update used an average residential flow of 105 gpcd for future growth. Since these evaluations, the City has continued to eliminate remaining combined sewer systems and address areas of high infiltration and inflow. In addition, the use of lower water demand fixtures in homes and businesses has resulted in lower wastewater flows. Based on the review of 2007 data and expectations with regard to design and construction practices for new development a unit flow of 85 gallons per day (gpd) per population equivalent was chosen for future growth. Table TM3-8 summarizes projected ADDF for year 2035 based on existing flows and projected growth.

pjr
Attachments

Table TM3-8

Projected ADDF for Year 2035

Basin	Existing Large Producer Flow (mgd)	Existing ADDF (mgd)	Additional 2035 ADDF (mgd)	Total ADDF (mgd)
15th Street	0.03	0.29	0.08	0.40
21 Road	--	--	0.22	0.22
24 Road	--	0.18	1.35	1.53
Airport	--	--	0.01	0.01
Baseline	--	--	0.03	0.03
CGVSD	--	0.94	2.68	3.62
Colorado Avenue	0.11	0.30	0.18	0.59
Fruitvale	--	0.87	0.31	1.18
Future River Road North	--	--	1.17	1.17
G Road	--	--	0.21	0.21
Goat Wash	--	0.33	0.55	0.88
Grand Avenue	0.24	0.68	0.17	1.09
Horizon Drive	0.24	0.52	0.79	1.55
Lime Kiln	--	0.10	0.08	0.19
Orchard Mesa	0.12	1.79	2.15	4.05
Paradise Hills	0.02	0.79	0.92	1.73
Ridges	--	0.08	0.16	0.30
River Road North	0.02	0.07	0.54	0.63
River Road North B	0.06	0.19	0.13	0.38
River Road South	0.07	0.02	0.16	0.25
River Trunk	0.06	0.18	0.24	0.48
Rood Avenue	0.05	0.34	0.06	0.45
Rosevale	--	0.07	0.16	0.23
South Side	0.01	0.04	0.02	0.07
Tiara Rado	--	0.28	0.16	0.44
Total	**1.04**	**7.96**	**12.55**	**21.7**

(1) Does not include assigned land uses outside of the Future Service Area Boundary. Based on information provided in "Preferred3-25-9.gdb" from Winston Associates.

BLACK & VEATCH CORPORATION

TECHNICAL MEMORANDUM NO. 4

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin
Study Update

B&V Project 160319.0100
B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Wastewater Collection System Modeling

Technical Memorandum No. 4 (TM 4) provides a summary of the input parameters and an evaluation of the hydraulic analyses for both the existing and Year 2035 collection system hydraulic models for the City.

A. Modeling Inputs

Hydraulic model construction requires the inventory of the collection system, system flows, and design parameters. TM 2 describes the construction of the collection system model in terms of physical facilities and an existing system inventory. To complete the modeling process, the following paragraphs describe the remaining modeling inputs required for the creation of the collection system:

- Dry weather diurnal curve.
- Wet weather diurnal curve.
- Flow allocation.

1. Flow Components

Wastewater flow consists of the ADDF, wet weather infiltration, and inflow. In 2007, the City had 13 flowmeters located throughout the collection system to provide flow information in specific drainage basins. Of these 13 flowmeters, only two had flow information for all 12 months of the year. For the 2008 Update, the ADDF was approximated using the average flow from each flow meter based on the available 2007 data provided by the City.

Infiltration is defined as groundwater entering the collection system through defective pipes, pipe joints, and manhole structures. The rate of infiltration depends on the depth of groundwater above the defects, the size of the defects, and the percentage of collection system submerged. The variation in groundwater levels and the associated infiltration is seasonal and weather dependent. For the 2008 Update, dry weather infiltration contributions are accounted for in the per capita contributions from each basin.

Inflow is rainfall-related water which enters the collection system from sources such as private sewer laterals, downspouts, manholes, defective piping, and foundation drains. Inflow is directly influenced by the intensity and duration of a storm event. Inflow was accounted for in the model by applying a design storm curve to the entire system.

2. Diurnal Curve

Flow within a collection system varies continuously in response to the diurnal pattern of flow input from system users. Typically, peak flow occurs in the morning, with a secondary peak in the evening. The lowest flows typically occur overnight. The collection system flow response changes in different parts of the collection system as flows are added at different locations. The resulting flow pattern recorded at the WWTP may differ significantly from the input pattern, with peaking attenuated and timing shifted, as a result of the collection system geometry.

For the 2008 Update, an extended period simulation (EPS) hydraulic model was used, which allows for evaluation of the collection system response over time as flow is routed through the hydraulic model. H2OMAP Sewer uses input patterns, which consist of a series of factors applied to the base load, to model the variations in flow over the course of a day. The 24-hour patterns are repeated and applied to a 48-hour EPS run so that the effect of initial system filling can be accounted for in the first 24 hours and repeatable results can be provided in the second 24 hours.

The diurnal curve is based on flowmeter data provided by the City and discussed previously in TM 3. Appendix TM3A includes sample diurnal curves from each of the flowmeters. Meter data from several of the flowmeters that were not downstream from a lift station were analyzed to determine a typical dry weather flow pattern. Several of the flowmeters, including Orchard Mesa and Colorado Avenue, had diurnal curves that appeared to be significantly influenced by upstream large producers, large collection system areas, or both. To provide a more consistent pattern for the entire system, a single diurnal curve was developed and applied to the entire system. The 24 Road diurnal curve (F1-232-013) was used because it had no large producers, the least flow, and the least pipe and, therefore, the least attenuate pattern. This curve was normalized (i.e., an average flow value of one over 24 hours) so its value can be used as multipliers to create the input pattern required for the hydraulic model. Figure TM4-1 shows the ADDF diurnal curve input to the model, which shows a projected, dry weather diurnal peaking factor of 1.8.

3. Wet Weather Curve

In order to estimate the impact of rainfall events on the collection system, separate wet weather patterns were developed. The potential impact of rainfall events on the collection system can be difficult to estimate, because rainfall events typically vary widely in intensity, duration, location, and antecedent conditions, all of which can have a significant impact on either a single basin or the system as a whole.

A five-year, six-hour rainfall event was used to help generate a "typical" pattern for evaluation of the wastewater collection system. Storms produce the greatest peak inflow when their duration is equal to or greater than the travel time from the furthest point in the collection system to the WWTP (also known as the time of concentration). It is estimated that the time of concentration in the collection system is less than six hours. Even though a shorter storm may have a higher intensity level, a longer storm produces a higher peak flow since all areas of the collection system are contributing at the same time.

The Rational Method was chosen to estimate the runoff volume from the five-year event. The Rational Method uses the formula Q = KiA (where "Q" is the runoff in mgd, "K" is runoff coefficient, "i" is the rainfall intensity in inches/hour, and "A" is the area in acres) to estimate the runoff based on the rainfall intensity, area, and a runoff coefficient. Based on information from the *Mesa County/City of Grand Junction Stormwater Management Manual* (December 2007), a rainfall intensity and time distribution were determined. Because the collection system only sees runoff from a rainfall event via system defects, the runoff coefficients are much lower than for a stormwater collection system. For the 2008 Update, runoff coefficients were adjusted to produce the modeled flow at the outlet of the basin. In addition, it was assumed that only 50 percent of the service area contributes runoff. Appendix TM4A includes additional information on development of the wet weather diurnal patterns.

Based on the results of the wet weather diurnal curve development, the projected peak flow at the Persigo WWTP for existing conditions is 19.4 mgd. Although Persigo WWTP has received influent flows of over 20 mgd, flows in excess of 18 mgd are diverted to a flow equalization basin and flows over 20 mgd cannot be measured with the current configuration of the influent flowmeter. Since the City completed the Combined Sewer Elimination Project in 2005, wet weather influent flow to the Persigo WWTP is greatly reduced (both peak flow and volume). Based on the available information, the model appears to approximate peak flows at the Persigo WWTP.

For each time step, the projected runoff was compared to the projected base flow and a new peaking factor was developed. For conservatism, the wet weather pattern was superimposed over the diurnal pattern so that the peaks would coincide. Figure TM4-2 shows the resulting wet weather diurnal patterns.

4. Average Daily Dry Weather Flow

The first step in allocating the model was to manually assign the flow from CVGSD, Fruitvale, and the large producers to individual manholes. This allocation is detailed in Appendix TM3B. The remaining flow of 6.14 mgd is generated by population and employment throughout the collection system. The existing loading was allocated to the model based on the unit rates calculated for each basin that was described in TM 3.

For each basin, a manhole selection set was identified as the loading manholes. This exercise excluded manholes that were in areas where there was no contributing development and helped assign the flow to appropriate manholes for each area. The "Allocation Manager" tool in H2OMAP Sewer was used to create Thiessen polygons around the manhole selection set or junctions to which the ADDF was allocated. Where appropriate, additional "dummy" manholes were added to the allocation manager to improve model allocation in areas where there were no modeled pipes. Figure TM4-3 shows an example of the existing system allocation methodology. Flow allocated to the dummy manholes is then assigned to the manhole where the collection system would connect to the interceptors, rather than at the closest manhole. The basin boundaries were also used in the creation process to ensure the Theissen polygons followed basin boundaries. Table TM4-1 summarizes the allocation of flow to the hydraulic model for the existing wastewater collection system analysis.

Table TM4-1

Existing ADDF Summary

Parameter	Flow (mgd)
CGVSD (1)	0.94
Fruitvale (1)	0.80
Ute Large Users (2)	0.39
Grand Junction Large Users (2)	0.65
Residential and Non-residential Flow (3)	6.14
Total ADDF	**8.92**

(1) Based on annual average flow records provided by the City.

(2) Provided by the City.

(3) Based on TAZ data converted to population equivalents.

B. Model Calibration

Model calibration is the process of checking the simulated results versus field observations. A dry weather calibration of the Grand Junction model was performed by matching the daily average simulated flows at the various flowmeter locations with the annual dry weather average flows calculated from the City's flowmeters. The model was run for a total of 48 hours to allow for the system to "fill" during the first 24-hour period, and flow averages were calculated in the model during the second 24-hour period. Table TM4-2 summarizes the ADDF results from the model compared to the 2007 flowmeter results provided by the City. Additional detail on model results for all modeling is included in Appendix TM4B.

Table TM4-2

Calibration Summary

Basin (Flowmeter Manhole)	ADDF 2007 Flowmeter (mgd)	ADDF Model Results (mgd)	Peak Wet Weather 2007 Flowmeter (mgd)	Peak Wet Weather Model Results (mgd)
Flowmeters Used in Flow Balancing				
24 Road (F1-232-013)	0.18	0.18	1.18	1.18
Goat Wash (F1-231-003)	0.35	0.36	1.11	1.37
Grand Avenue (D2-252-011)	0.93	1.09	6.81	7.06
Fruitvale (D2-272-011)	0.87	0.86	1.53	2.41
Horizon Drive (E1-242-002)	0.76	0.76	1.98	2.11
Orchard Mesa (C1-261-024)	1.96	1.82	3.71	3.76
Paradise Hills (E3-241-034)	0.80	0.80	2.18	2.06
River Trunk (D1-252-010)	0.25	0.14	0.77	0.73
Tiara Rado (G1-211-003)	0.29	0.28(1)	0.86	0.81
Persigo WWTP (G3-211-018)	8.08	9.07	18.60	19.62
Flowmeters Excluded from Flow Balancing				
15th Street (D2-271-023)	0.15	0.33	0.37	0.83
Colorado Avenue (D2-252-069)	1.14	1.90	2.47	4.05
Horizon Drive Upper (F1-261-026)	0.49	0.69	1.56	2.20

(1) ADDF calculated at inflow into the Tiara Rado Lift Station.

The results show that there was good correlation of ADDF between monitored flow and resulting modeled flow for those basins that had flow meters included in the flow balancing discussed in TM 3. As expected, in those basins where the flowmeter data was not used did not match well.

For calibration of peak wet weather flows, K values, which are the runoff coefficient and are an indicator of the relative inflow contribution from the basin, were adjusted until the peak flow from each basin correlated with the monitored flow. As expected, although the minimum K values were used for the 15th Street, Colorado Avenue, and Horizon Drive Upper basins, the model results still over predicted the flow metering results. Since these flowmeters had previously been excluded from the flow balancing, no further effort was made to try to match the flowmeter data.

C. Existing System Hydraulic Evaluation and Analyses

Using the calibrated model, the existing system was evaluated for its ability to handle existing dry and wet weather flows.

1. Collection System Evaluation

The objective of the collection system evaluation is to identify and alleviate system deficiencies capable of causing the system to overflow or a basement backup. To identify possible areas where deficiencies exist in the City's main interceptors, the ratio of peak wet weather flow to full pipe flow (Q_p/Q_c) was reviewed for every pipe in the model.

The criteria used for hydraulic analysis and design of the wastewater collection system are shown in Table TM4-3. For all gravity sewers, a Manning's "n" value of 0.013 was assumed. Force mains were assumed to have a Hazen-Williams "C" value of 110.

Based on the results of the evaluation, recommendations for facility improvements were made.

Table TM4-3

Hydraulic Evaluation and Criteria

Parameter	Value
Evaluation Criteria for the Existing Collection System	
Velocity – Gravity Sewer (at Peak ADDF)	
Minimum	2.5 feet per second (fps)
Maximum	10 fps
Velocity – Force Main (when lift station is operating)	
Minimum	2.0 fps
Maximum	12 fps
Flow Depth Ratio (d/D) in existing gravity lines	
<0.80	Adequate capacity
0.80 – 1.20	Watch List
>1.20	Recommended improvement
Pump Start/Stop	
<1 per day	Configuration change to avoid hydrogen sulfide problems.
1 – 4 per hour	Properly sized lift station
>4 per hour	Expand lift station
Design Criteria for Recommended Improvements	
Flow Depth Ratio (d/D)	
Interceptor Sewers (≥12 inch)	0.7
Collector Sewers (<12 inch)	0.6
Minimum Pipe Slope (feet per foot)	
Pipe Size (inches)	
8	0.0040
10	0.0030
12	0.0022
15	0.0015
18	0.0012
21	0.0010
24	0.0008

2. Existing System Analysis

The existing system was modeled under both dry and wet weather conditions to identify any areas with existing capacity limitations. The hydraulic model studies were all performed using EPS or dynamic modeling. This approach considers diurnal variations in flow input and differences in travel time for system flow peaks (time of concentration) as well as system filling and draining. The model was run for two 48-hour simulations, one for dry weather and another for wet weather. In both cases, results were used from the second 24-hour period to allow the model to fill during the initial 24-hour period.

Table TM4-4 summarizes the percent capacity utilization results for the existing system in tabular format. Figure TM4-4 shows the percent capacity results of the wet weather hydraulic model. In general, the City's interceptor system has adequate capacity for existing flows. The areas that do not have adequate capacity are generally flat areas or interceptors that have had additional flows from upstream development added.

Table TM4-4

Existing Interceptor System Capacity Utilization – Peak Flow Wet Weather

Capacity Utilization (percent)	Dry Weather Length (feet)	Dry Weather Percent	Wet Weather Length (feet)	Wet Weather Percent
<50	219,747	88	177,470	71
50 to 80	19,218	8	46,783	19
80 to 120	10,111	4	16,657	7
>120	0	0	8,166	3

The Orchard Mesa Sanitation District has been identified as having infiltration issues, and this is reflected in the highest per capita flow rate in the City (150 gpcd). The District is working to reduce infiltration with an aggressive rehabilitation project. Over time, the City may see a reduction in flow contribution from this basin, which may address some of the capacity concerns.

The Colorado Avenue Line, which includes the Fruitvale Sanitation District flows, also showed up as having potential capacity issues.

D. Future System Model Inputs

Based on the future land use assumptions from the 2008 Comp Plan, service extensions were identified and added to the hydraulic model to extend service throughout the Future Service Area. Figure TM4-5 shows the extensions included in the model. Extensions were divided into two types:

- Developer Extensions
- Trunk Extensions

The developer extensions are areas that can be served by 8- or 10-inch sewer lines and serve a single development area or an area with limited future growth. In order for service to be extended to these areas, a developer would likely have to construct the connection to the existing system. Developer extensions are identified in Table TM4-5.

Trunk extensions, on the other hand, are generally 12-inch and larger and will serve multiple developments or areas of more intense development. These extensions are summarized in Table TM4-6 and may be eligible for cost sharing with the City if the following criteria are met:

Table TM4-5

Future Developer Extensions

Name	Basin	Description	Diameter (inch)	Length (feet)
21 Road	21 Road	21 Road from J Road to H Road. Southeast along Highway 6 frontage to Pritchard Wash. Lift from Pritchard Wash to existing 8-inch sewer line.	8 10	5,300 7,200
25 Road	24 Road	25 Road from Oleaster Court south to connect to 26 Road Extension at the I-70 Frontage Road.	8 12	1,800 2,400
26 Road	24 Road	26 Road from south of Kayden Court to H Road. West on H Road to 25 3/4 Road. South on 25 3/4 Road to I-70 Frontage Road. West along I-70 to 24 1/2 Road. South on 24 1/2 Road to G Road. Connect to existing 10-inch line in G Road. Also includes spur from 24 1/4 Road along the north side of I-70 to 24 1/2-Road.	8 12 15	11,950 700 3,000
Alcove Drive	Goat Wash	Starting from the connection to the existing 6-inch line at the southern end of Alcove Drive and continuing ¾ mile southwest along the drainage.	8	3,800
Bella Pago Road	Rosevale	Bella Pago Road from its end to tie into the existing system at Country Club Road.	8	2,050
Broadway	Tiara Rado	South Broadway from Wingate Drive north across Highway 340. Continuing northeast to connect to 8-inch line at Washington Court.	8	8,100
C Road	Orchard Mesa	C Road from 30 3/4 Road alignment west to 30 Road. A lift station at 30 Road lifts flow into a 6-inch force main from C Road to B 1/2 Road.	6 10	2,650 3,900
E 1/2 Road	Tiara Rado	E 1/2 Road and the 20 3/4 Road alignment. Northwest to E 3/4 Road. West of E 3/4 Road to connect to the existing 12-inch line in 20 1/2 Road.	12	2,100
Easter Hill	Goat Wash	West side of Easter Hill going west and connecting into the existing 12-inch line in Redland Parkway.	8	1,900
Greenwood Drive	Lime Kiln	Starting from the existing 8-inch line in Monarch Point heading south and then east along Broadway Street. Continue along Broadway Street and connect to the 8-inch line in Lime Kiln Gulch.	8	2,400
Hwy 50	Orchard Mesa	Along the northeastern boundary of the Veterans Memorial Park (along Highway 50). Connect into existing 15-inch line at Highway 50 and 27 3/4 Road.	8	2,550
Lime Kiln Gulch	Lime Kiln	From the corner of Escondido Circle and Desert Hills Road southwest along the drainage to connect into the existing line at Broadway and Lime Kiln Gulch.	8	6,350
Mira Monte Road	Rosevale	Starting from the end of the 8-inch line in Mt. Sopris Drive and continuing south along Mira Monte Road.	8	3,000
Monument Road	Ridges	Along Monument Road from southwest of Mariposa Drive to the base of the hill below Country Club Park Drive. Flow will be lifted into the 6-inch line in Country Club Park Drive.	8	5,200
Redlands 23 Road	Goat Wash	From the south end of the existing line in 23 Road southwest.	8	3,600

Table TM4-5

Future Developer Extensions (Continued)

Name	Basin	Description	Diameter (inch)	Length (feet)
Rosevale Road	Rosevale	Rosevale Road from Little Park Road north to connect to the existing 8-inch line at C 1/2 Road.	8	2,150
Wildwood	Tiara Rado	Starting at the 8-inch line at the south end of Escondido Drive. One line south along Wildwood Drive and a second line following Lime Kiln Gulch south.	8	6,300

Table TM4-6

Future Trunk Extensions

Name	Basin	Description	Diameter (inch)	Length (feet)
22 Road	Future River Road North	22 Road from J Road south to Highway 6. West on Highway 6 to existing 8-inch line at Valley Court.	8 10 12 18	5,300 3,100 3,500 2,800
23 Road	Future River Road North	23 Road from J Road south to H Road. West on H Road to Foxfire Court. South on Foxfire Court to G 3/4 Road. West on G 3/4 Road to connect into 22 Road Extension.	8 10 12 15 18	3,850 1,350 3,650 5,200 2,950
24 1/2 Road	24 Road	24 1/2 Road from I Road south to I-70.	8 10 12	4,100 1,200 2,300
29 Road	Orchard Mesa	A 1/2 Road from 30 3/4 Road west to 30 Road. North on 30 Road to B 1/2 Road. West on B 1/2 Road to 29 Road. North on 29 Road. Cross the Colorado River on the 29 Road alignment and continue north to C 1/2 Road. West on C 1/2 Road to 28 3/4 Road. North on 28 3/4 Road to C 3/4 Road. Parallel existing 18-inch line in C 3/4 Road back to the Southside Interceptor.	15 18 24	9,250 11,750 8,900
G Road	G Road	G Road from 23 3/4 Road alignment west to 23 1/4 Road alignment. South along 23 1/4 Road alignment to Highway 6. Cross Highway 6 and Denver and Rio Grande Western Railroad tracks and connect to existing 54-inch River Road Interceptor.	12	5,200
I-70	CGVSD	Starting from the connection to the existing 8-inch line at the northern end of 29 Road. Continuing north across I-70 in Highline Canal Road. North of I-70, one segment to the west for 1/2 mile and then north. A second segment going east approximately 1-1/2 miles to the alignment of 30 3/4 Road and then heading northeast.	8 12 15	9,700 3,700 3,600

- The extension is identified in the 2008 Update.
- The area is expected to see additional development within the next three years.
- The developer is able to pay for 15 percent of the total cost.

The designation of developer or trunk extension may vary based on changes in City policy, planned development at the time of construction, or other factors.

Several of the extensions do not connect directly to interceptor sewers. For modeling purposes, these areas were loaded into the model either as a point load at the nearest downstream interceptor manhole, or a pipe was added to connect them to the model. In either case, the capacity of the smaller collection system lines was not evaluated as part of the 2008 Update. The following extensions were not connected directly into the model:

- 21 Road
- 24 1/2 Road
- 29 Road
- Alcove Drive
- Bella Pago
- Broadway
- C Road
- Greenwood Drive
- Lime Kiln Gulch
- Mira Monte Road

- Monument Road
- I-70
- Redlands 23 Road
- Rosevale Road
- Wildwood

E. Future System Hydraulic Analyses

Following the base year analyses, the interceptors were analyzed under the projected buildout conditions. The initial future model runs included extensions with an assumed diameter and future flow allocated to the model. The only change to the existing modeled pipes was City's planned abandonment of the Ridges Lift Station and rerouting of the flow to the Connected Lakes Lift Station. Table TM4-7 and Figure TM4-6 show the impact of future growth on the capacity of the City's interceptor system. Additional detail on model results is included in Appendix TM4B.

Table TM4-7

Future Interceptor System Capacity Utilization – Wet Weather

Capacity Utilization (percent)	Length (feet)	Percent of Wastewater Collection System
<50	308,700	56
50 to 80	148,300	27
80 to 120	57,400	10
>120	34,900	7

The Redlands area (south of the Colorado River and west of the Gunnison

River) has limited potential for significant growth, and the existing system will be able to handle the additional flows.

Additional growth in the Orchard Mesa Basin will cause additional stress on the existing collection system in this basin. The 29 Road Extension is planned to move some of the Orchard Mesa flow into the CGVSD basin. The 29 Road Extension flows, in combination with the additional growth in CGVSD, will exceed the capacity of the existing Southside Interceptor.

Growth in the 24 Road, Paradise Hills, and Horizon Drive basins may result in localized capacity issues especially in the 24 Road and Horizon Drive interceptors.

Based on the results of the future modeling and the evaluation criteria in Table TM4-3, a series of improvements were developed. Pipe segments of concern (utilization over 80 percent) were reviewed and placed into either a watch list or improvement list. TableTM4-8 identifies pipe segments, which are of concern from an existing or future capacity standpoint, but do not justify an improvement. It is difficult to tell in these areas when, or if, relief will be needed. The City should monitor these areas to determine appropriate action and be cautious of allowing additional upstream development without additional investigation. These watch list areas are shown on Figure TM4-7. Pipe improvements were identified for areas that showed significant capacity issues. Improvements were developed as either parallel or replacement pipes, with guidance from City staff as to the type of improvement. In general, parallel replacements were identified for areas in which diverting flow to a new alignment was possible and if the existing pipe is in good condition. Replacement pipes were recommended in more restricted areas and for pipes that have a shorter remaining service life. Figure TM4-7 shows the sizing and location of the various improvements, which are summarized in Table TM4-9.

Table TM4-8

Watch List

Name	Basin	Description
24 1/2 Road	Paradise Hills	24 1/2 Road from Industrial Boulevard to Highway 6.
B 1/2 Road	Orchard Mesa	B 1/2 Road from 27 1/2 Road to 29 Road.
Horizon Drive 1	Horizon Drive	Horizon Place from 12th Street to 7th Street. Continue west to 1st Street and North Ridge Drive.
Horizon Drive 2	Horizon Drive	25 1/2 Road from Pinyon Avenue to F Road.
Patterson Road	Paradise Hills	F Road from Northgate Drive west to 241/2 Road. South to River Road.
Redlands	Goat Wash	Tiffany Drive from Village Way to Redlands Parkway.
River Trunk	--	River Road from 23 3/4 Road northwest to Valley Court.
Unaweep Avenue	Orchard Mesa	Unaweep Avenue from Mountain View Street to Hopi Drive.

Table TM4-9

Recommended Improvements

Name	Basin	Description	Diameter (inches)	Length (feet)
Replacement Line				
24 Road	24 Road	G Road one segment east of 24 1/2 Road west to 24 Road. South on 24 Road to F 1/2 Road. West of F 1/2 Road to the end of the street. South to F Road. Across Highway 6 to the River Trunk Interceptor.	18	8,800
Connected Lakes	Goat Wash	(1) Replace 300 feet of 8-inch line with 12-inch directly upstream of the lift station. (2) Expand Connected Lakes Lift Station with 2, 500-gpm pumps. (3) Replace force main from the Connected Lakes Lift Station along the existing alignment to South Rim Drive and Promontory Court. (4) Replace gravity line from South Rim Drive and Promontory Court to South Rim Drive and Redlands Parkway (2,700 feet).	8 12	3,550 3,000
Crosby Avenue	--	West Gunnison Avenue from Crosby Avenue to River Road.	27	400
Orchard Mesa Lines	Orchard Mesa	(1) Unaweep Avenue from Mountain View Street to 27 Road. 27 Road south to B 3/4 Road. (2) 27 1/2 Road north 600 feet, west across Parkview Drive. Diagonally northwest to B 3/4 Road. West on B 3/4 Road to 27 Road. (3) B 3/4 west from 27 Road to Gary Drive. North 600 feet then west to Linden Avenue. North on Linden Avenue to Glenwood Drive.	15 24 30	4,600 3,500 7,250
Paradise Hills	Paradise Hills	Along Leach Creek beginning at manhole H1-261-009 to H Road. Cross H Road and continue south to Manhole G4-261-017.	10 12	1,550 300
Southside	Southside	Riverside Parkway and C 3/4 alignment west to 15th Street. South on 15th Street to Winters Avenue. West on Winters to 10th Street. Southwest to Noland Avenue. West on Noland Avenue to 7th Street. South approximately 150 feet then continue west beyond Highway 50. Northwest along Riverside Park Drive to West Colorado Avenue. North approximately 750 feet.	30 36	6,400 6,500

Table TM4-9

Recommended Improvements
(Continued)

Name	Basin	Description	Diameter (inches)	Length (feet)
Parallel Line				
Colorado Avenue	Colorado Avenue	Colorado Avenue from 7th Street to Spruce Avenue. Spruce Avenue to Main Street.	15	3,650
Ridges	Ridges	Reroute flow from the Ridges lift station across South Broadway and northeast down to the Redlands Power Canal. Continue northwest along the Canal to the Connected Lakes Lift Station.	8 12	2,900 4,300
River Road	--	River Road from 21 1/2 Road southeast approximately 600 feet.	36	650
Rood Avenue	Rood Avenue	Grand Avenue from 28 Road to 21st Street. South to Rood Avenue. Rood Avenue to 14th Street.	21	7,900

pjr
Attachments

BLACK & VEATCH CORPORATION

TECHNICAL MEMORANDUM NO. 5

City of Grand Junction, Colorado	B&V Project 160319.0100
2008 Comprehensive Wastewater Basin Study Update	B&V File B
	August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Persigo WWTP Site Expansion Considerations

Technical Memorandum No. 5 (TM 5) provides a discussion of considerations for expanding the Persigo WWTP beyond the current capacity. The objective is to determine if the plant site has adequate space to accommodate future projected flows based on the City's Comprehensive Plan (as of March 2009) and the 2008 Update.

A. Introduction and Projected Flows

The existing Persigo WWTP was constructed in 1980 with a maximum month design capacity of 12.5 mgd for basic secondary treatment and disinfection, but without ammonia removal. The plant site was laid out and designed for expansion to 25 mgd at build-out.

1. Introduction and Existing Flows

The 2007 annual average and instantaneous maximum flows were 8.1 and 18.6 mgd, respectively, as summarized in Table TM5-1. The existing facility is an activated sludge treatment plant that utilizes primary clarifiers and both anaerobic and aerobic digestion for solids processing. Unit processes include influent headworks and pumping, primary clarification, activated sludge aeration, final clarification, sludge pumping, and gaseous chlorine and sulfur dioxide for disinfection and dechlorination.

Table TM5-1

Design and Current Flows at the Persigo WWTP

Criteria	Flow (mgd)
Design Maximum Month Flow	12.5
2007 Annual Average Flow	8.1
2007 Instantaneous Maximum Flow	18.6

Note: 2007 flow values based on data from the flowmeter on the River Road Interceptor.

2. Projected Flows

The year 2035 annual average daily flow for this study is projected to be 20.8 mgd. The maximum month flow, which is the basis for the plant capacity rating is projected to be 1.25 times the average flow, or 25.75 mgd. Therefore, the hydraulic capacity of the WWTP can be expanded to meet the City's needs for the foreseeable future.

However, this evaluation considered other factors such as how potential future regulatory requirements may impact the space needed for future treatment facilities. The next section discusses that evaluation.

B. Future Expansion Considerations and Requirements

This evaluation considered the following in determining land area requirements for future treatment facilities:

- Physical space available to accommodate expansion for hydraulic flows and biological loads.
- Additional facilities that may be needed to meet future discharge permit limits.

In addition, the City requested that the north area of the plant site be reserved for future solar power generation facilities.

It is anticipated that future regulatory and discharge permit requirements may include:

- Tighter ammonia limits.
- Partial or full denitrification (nitrate reduction) to limit nutrient loadings.
- A high level of phosphorous removal to limit nutrient loadings.
- Increased waste strength concentrations due to drought conditions, reductions in infiltration and inflow, and the reduction of storm flows from the elimination of the combined sewer system.

The approach for the evaluation of future facility requirements was to forecast the major unit process land area requirements and allow another 50 percent for access roads, set backs from other structures, and support facilities. Existing facilities were assumed to be used to the maximum extent possible. The evaluation was based on providing 37.5 mgd of maximum month treatment capacity.

1. Storm Water Basins

Since storm flows have been reduced to the WWTP, no expansion of the overflow basins is anticipated.

2. Headworks and Influent Pumping

The existing flow metering, screening, grit facilities, and influent pumping can be expanded to meet future capacity needs. If expanded headworks facilities are needed, there is sufficient land area immediately to the east of the existing headworks.

3. Primary Clarifiers

Additional Primary Clarifiers 3 and 4 can be added to the east of the existing units, based on a design maximum month overflow rate of between 800 and 900 gallons per day per square foot (gpd/sq ft).

4. Three-Stage Activated Sludge

Three-stage activated sludge treatment, including biological phosphorous (Bio-P) removal, first-stage denitrification, and nitrification, will respectively require 45, 75, and 420 minutes of detention time at summer maximum month flow conditions. Consequently, additional activated sludge basins will be required.

5. Secondary Clarifiers

If the integrated fixed film activated sludge (IFAS) process is used, it is assumed the secondary clarifiers will be hydraulically limited to 800 gpd/sq ft at maximum month flow. With the IFAS scenario, two additional clarifiers, both 115 feet in diameter, will be required. If IFAS is not used, it is anticipated that the secondary clarifiers will be solids limited, with an equivalent hydraulic loading rate of about 600 gpd/sq ft. In this case, three additional, 115-foot secondary clarifiers will be needed.

6. UV Disinfection

The existing chorine contact facilities can be retrofitted to accommodate UV disinfection. Therefore, no additional area will be required.

7. Anaerobic Digestion

For anaerobic digestion, it was assumed that all primary and waste activated sludge (WAS) solids would be anaerobically digested, with energy recovery of the digester gas and phosphorous recovery from the phosphorous-rich WAS. A combined primary and WAS generation rate of 2,000 pounds per million gallons (mil gal), or 75,000 pounds per day (ppd), was assumed for 37.5 mgd. A combined primary and WAS solids concentration of 4 percent is anticipated, based on the use of rotary drum thickeners (RDTs) for the WAS. This resulted in a total estimated feed flow to the anaerobic digesters of 225,000 gpd. For a 15-day solids retention time (SRT), the required capacity would be 3.375 mil gal. Each of the two existing digesters has a capacity of 590,000 gallons. Therefore, a total of six anaerobic digesters, or four additional units would be needed.

8. Sludge Thickening and Dewatering

RDTs were assumed for WAS thickening and centrifuges for dewatering of the anaerobically digested sludge. Three, 200-gpm RDTs and three centrifuges will be needed based on the following estimates:

WAS Thickening Rate (assume 24/7 wasting):

1,000 lbs/mil gal x 37.5 mgd = 37,500 ppd @ 0.7% underflow

37,500 ppd x 100/0.7 x 1 gal/8.34 lbs = 642,000 gpd
@ 200 gpm/RDT = 3 units

Dewatering of Anaerobically Digested Sludge:

75,000 ppd x 0.6 x 100/2.5 (based on 2.5% digested sludge solids concentration) x 1 gal/8.34 lbs = 216,000 gpd

@ 1 dewatering shift per day, 7 days per week, and assume 150 gpm/centrifuge = 3 centrifuges

9. Sludge Drying Beds

No additional drying beds were assumed. The existing beds were assumed to be used as emergency dewatered sludge storage pads.

10. Second-Stage Activated Sludge Denitrification/Sludge Reaeration

Activated sludge Stages 4 and 5 can be added onto the end of the existing three stages, based on the following summer maximum month calculations:

45 minutes for Second-Stage Denitrification with Methanol

15-minute Reaeration to burn off excess methanol for a total of 60 minutes at maximum month flow

$V = t_d \times Q$ = 1/24 x 37.5 mgd = 1.6 mg @ 15 ft side water depth (SWD) = 14,260 sq ft or 0.32 acres

11. Advanced Waste Treatment for Phosphorus Polishing

It was assumed that coagulation, flocculation, sedimentation, and filtration will need to meet a total phosphorus limit of less than 0.05 milligrams of phosphorus per miter (mg-P/L). Assuming an aided sedimentation rate of 5 gallons per minute per square feet (gpm/sq ft) and 30 minutes of detention time for coagulation and flocculation, then the sedimentation area of 5 gpm/sq ft

= 37.5 mgd/(1440 x 5 gpm/sq ft) = 5,200 sq ft. Adding 7,200 sq ft for coagulation and flocculation = 12,400 sq ft total (0.28 acre). Assuming a granular media filtration rate of 4 gpm/sq ft at maximum month flows, the filter area required = 37.5 mgd/(1,440 x 5 gpm/sq ft) = 6,500 sq ft (0.15 acre). The combined total for the Advanced Waste Treatment = 7,200 sq ft for coagulation and flocculation plus 5,200 sq ft for sedimentation, and 6,500 sq ft for filtration for a total of 18,900 sq ft, or 0.43 acre.

Figure TM5-1 shows the projected plant layout and facility area requirements.

C. Conclusion

The existing plant site should be adequate to accommodate expansion of the facility to at least 37.5 mgd, which is well in excess of the projected 2035 capacity of 25.75 mgd. In addition, there is sufficient land area to accommodate the solar facilities at the north end of the plant. This evaluation should be used as a preliminary planning guide only. As permit regulations are more clearly defined and treatment processes identified to meet the regulations, the land area requirements need to be revisited and confirmed.

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Attachment

BLACK & VEATCH CORPORATION

TECHNICAL MEMORANDUM NO. 6

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin
Study Update

B&V Project 160319.0100
B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Recommendations, Phasing, and Capital Costs

Technical Memorandum No. 6 (TM 6) provides a summary of the recommendations from the 2008 Update. In addition, planning level capital costs and phasing have been prepared for recommended improvements and extensions.

A. Recommendations

Recommendations were developed for several types of improvements during the course of the 2008 Update. Although many of the improvements are described in other parts of the report, they are summarized here for convenience. In addition, Figure TM6-1 shows all of the recommended capital improvements related to the interceptor system. These recommendations include:

- Extensions (Trunk or Developer)
- Ridges Lift Station Abandonment
- Connected Lakes Lift Station Expansion
- Capacity Improvements (Parallel or Replacement)
- 29 Road Extension Alternative
- Watch List
- Changes in Development Density

- Persigo WWTP
- Other Recommendations

1. Extensions

Based on land use development from the 2008 Comp Plan and the future service area boundary, extensions were identified to serve all residential or commercial land uses in the future (no extensions were identified for agricultural or open space land uses). Preliminary alignments were identified and slopes calculated from available information on ground elevation. It was assumed that manholes would be at least 4 feet deep and that they would not exceed 20 feet in depth. Using land use density information from the 2008 Comp Plan, the extension lines were sized using the criteria in Table 4-3. Extensions were then split into developer and trunk extensions based on their size and type of development served. Final alignment, slope, and size will need to be adjusted when additional information is available based on the approved development plat. Table TM6-1 summarizes the extensions, which are shown on Figure TM6-1.

a. Trunk Extensions

In areas where there is higher density development planned, multiple developers, or a larger line size is needed, the City is willing to participate with developers in providing service to new areas if the following criteria are met:

- The extension is identified in the current Comprehensive Wastewater Basin Study.
- The served area is expected to develop in the next three to five years.
- The developer is willing to contribute 15 percent of the cost.

Table TM6-1

Future Extensions

Name	Basin	Diameter (inches)	Length (feet)
Developer Extensions			
21 Road	21 Road	8 10	5,300 7,200
25 Road	24 Road	8 12	1,800 2,400
26 Road	24 Road	8 12 15	11,950 700 3,000
Alcove Drive	Goat Wash	8	3,800
Bella Pago Road	Rosevale	8	2,050
Broad way	Tiara Rado	8	8,100
C Road	Orchard Mesa	6 10	2,650 3,900
E 1/2 Road	Tiara Rado	12	2,100
Easter Hill	Goat Wash	8	1,900
Greenwood Drive	Lime Kiln	8	2,400
Hwy 50	Orchard Mesa	8	2,550
Lime Kiln Gulch	Lime Kiln	8	6,350
Mira Monte Road	Rosevale	8	3,000
Monument Road	Ridges	8	5,200
Redlands 23 Road	Goat Wash	8	3,600
Rosevale Road	Rosevale	8	2,150
Wildwood	Tiara Rado	8	6,300

Table TM6-1

Future Extensions (Continued)

Name	Basin	Diameter (inches)	Length (feet)
Trunk Extensions			
22 Road	Future River Road North	8	5,300
		10	3,100
		12	3,500
		18	2,800
23 Road	Future River Road North	8	3,850
		10	1,350
		12	3,650
		15	5,200
		18	2,950
24 1/2 Road	24 Road	8	4,100
		10	1,200
		12	2,300
29 Road	Orchard Mesa	15	9,250
		18	11,750
		24	8,900
G Road	G Road	12	5,200
I-70	CGVSD	8	9,700
		12	3,700
		15	3,600

b. Developer Extensions

For smaller development areas and line sizes, the developer is expected to bear the full cost of the sewer line. These lines are then turned over to the City before any service connections are allowed.

2. Ridges Lift Station Abandonment

The Ridges Lift Station is nearing the end of its service life. In addition, construction of the Connected Lakes Lift Station has provided a way for the Ridges Lift Station to be replaced with a gravity line to the Connected Lakes Lift Station. The proposed alignment of the Ridges Line is shown on Figure TM6-1. The size and length of this line is shown in Table TM6-2.

3. Connected Lakes Lift Station Expansion

The additional flows from the Ridges Lift Station, in combination with additional higher density development in the Goat Wash Basin, is projected to exceed the capacity of the Connected Lakes Lift Station, as well as the downstream force main and some of the downstream gravity lines. The requirements for the future lift station are included in Table TM6-2.

4. Capacity Improvements

Modeled flows which caused pipes to exceed 120 percent of capacity were grouped into capacity improvements. For the 2008 Update, it was assumed that the improvement would be along the same alignment and slope as the existing interceptor. When the improvement is constructed an alternate alignment or changes in slope are possible and may affect the diameter or length of the improvement. Table TM6-2 summarizes recommended capacity improvements, which are shown on Figure TM6-1.

Table TM6-2

Recommended Capacity Improvements

Name	Basin	Diameter (inches)	Length (feet)
Replacement Line			
24 Road	24 Road	18	8,800
Connected Lakes Lift Station	Goat Wash	8 (force main) 12 1,300-gpm lift station	3,550 3,000 --
Crosby Avenue	--	27	400
Orchard Mesa Lines	Orchard Mesa	15 24 30	4,600 3,500 7,250
Paradise Hills	Paradise Hills	10 12	1,550 300
Southside	Southside	30 36	6,400 6,500
Parallel Line			
Colorado Avenue	Colorado Avenue	15	3,650
Ridges	Ridges	8 12	2,900 4,300
River Road	--	36	650
Rood Avenue	Rood Avenue	21	7,900

a. Parallel Lines

In areas where there was adequate space and the existing pipe is in good condition, parallel lines were used to alleviate capacity concerns.

b. Replacement Lines

In areas with poor pipe condition or limited space, replacement of the existing line is the preferred approach.

5. 29 Road Extension Alternative

The 29 Road Extension requires crossing the Colorado River along the 29 Road alignment. As an alternative to this extension, the line along B1/2 Road could be replaced with a larger line and the Orchard Mesa Interceptor Improvements upsized. Although the load on the eastern half of the Southside Interceptor would be decreased, this line would still need to be replaced and upsized to handle projected flows from CGVSD. Figure TM6-2 shows the improvements and sizing required with both the 29 Road Extension and the alternate. Table TM6-3 summarizes the differences in line length and diameter for the two alternatives.

6. Watch List

For areas with peak flows greater than 80 percent of pipe capacity, but less than 120 percent, a Watch List was developed. Although no capacity recommendations were made for these areas, the City should remain vigilant with these areas. If the pipe condition deteriorates and it requires replacement, consideration should be given to upsizing the pipe. If upstream development density is higher than projected, this area should be reevaluated to determine if there is adequate capacity in the line. Table TM6-4 summarizes the Watch List Areas shown on Figure TM6-1.

Table TM6-3

29 Road Extension Alternatives

Name	Diameter (inches)	Length (feet)
Alternative 1 – 29 Road Extension, Orchard Mesa Replacements, and Southside Replacement		
29 Road Extension	15	9,250
	18	11,750
	24	8,900
Orchard Mesa Replacements	15	4,600
	24	3,500
	30	7,250
Southside Replacement	30	6,400
	36	6,500
Alternative 2 – Orchard Mesa Replacements and South Side Replacement		
29 Road Extension	15	7,900
	18	1,300
Orchard Mesa Replacements	15	4,600
	21	13,300
	24	3,500
	30	7,250
Southside Replacement	30	6,400
	36	6,500

Table TM6-4

Watch List

Name	Basin	Description
24 1/2 Road	Paradise Hills	24 1/2 Road from Industrial Boulevard to Hwy 6.
B1/2 Road	Orchard Mesa	B1/2 Road from 27 1/2 Road to 29 Road.
Horizon Drive 1	Horizon Drive	Horizon Place from 12th Street to 7th Street. Continue west to 1st Street and North Ridge Drive.
Horizon Drive 2	Horizon Drive	25 1/2 Road from Pinyon Avenue to F Road.
Patterson Road	Paradise Hills	F Road from Northgate Drive west to 24 1/2 Road. South to River Road.
River Trunk	--	River Road from 23 3/4 Road northwest to Valley Court.
Unaweep	Orchard Mesa	Unaweep Avenue from Mountain View Street to Hopi Drive.

7. Changes in Development Density

The 2008 Update is based on projected development densities from the 2008 Comp Plan (March 2009). When development occurs, however, it may be significantly different from the current projections. To assist the City in evaluating development plans in the future compared to current planning recommendations, two tools have been developed.

a. Slope and Capacity Curves

Based on the design criteria in Table 4-3 and 85 gpcd, Figures TM6-3 and TM6-4 were developed to help estimate the PEs that can be served with various pipe sizes assuming minimum pipe slope and a Qp/Qf of either 70 or 85 percent for pipes less than 12-inch diameter and 12-inch diameter or larger, respectively. This tool can be used as a "rule of thumb" to give City staff a feel for the appropriate pipe size. Often, pipes can be laid at slopes greater than the minimum slope providing additional capacity.

b. Alternate Extension Sizing

For areas north of I-70 and in Orchard Mesa, extensions were sized both for the projected development density, as well as a density half or double the projected density. This will help give City staff a feel for the sensitivity of the pipe sizing to the development density. Table TM6-5 summarizes this information, which is also shown on Figure TM6-1.

Table TM6-5

Alternate Extension Sizing

Extension	Projected Development, PEs			Diameter (inches) – Length(feet)		
	2008 Comp Plan	Development at 50 Percent of 2008 Comp Plan	Development at 200 Percent of 2008 Comp Plan	2008 Comp Plan	Development at 50 Percent of 2008 Comp Plan	Development at 200 Percent of 2008 Comp Plan
North of I-70						
21 Road	2,550	1,300	5,100	8 – 5,300 10 – 7,200	8 – 12,500	8 – 5,300 12 – 7,200
22 Road	5,150	2,550	10,250	8 – 5,300 10 – 3,100 12 – 3,500 21 – 2,800	8 – 8,400 10 – 3,500 15 – 2,800	8 – 3,950 10 – 1,300 12 – 3,100 15 – 3,500 24 – 2,800
23 Road	9,100	4,550	18,200	8 – 3,850 10 – 1,350 12 - 3,650 15 – 5,200 18 – 2,950	8 – 5,200 10 – 3,650 12 – 8,200	8 – 3,850 12 – 5,000 18 – 4,300 21 – 3,900
24 1/2 Road	4,550	2,300	9,100	8 – 4,100 10 – 1,200 12 – 2,300	8 – 5,300 10 – 2,300	10 – 4,100 12 – 1,200 15 – 2,300
25 Road	300	150	650	8 – 1,800 12 – 2,400	8 – 1,800 12 – 2,400	8 – 1,800 12 – 2,400
26 Road	1,700	850	3,400	8 – 11,950 12 – 700 15 – 3,000	8 – 11,950 12 – 3,700	10 – 11,950 12 – 700 18 – 3,000
G Road	2,100	1,050	4,200	12 – 5,200	12 – 5,200	12 – 5,200
I-70	6,000	3,000	11,950	8 – 9,700 12 – 3,700 15 – 3,600	8 – 9,700 10 – 3,700 12 – 3,600	8 – 5,200 10 – 4,500 15 – 3,700 21 – 3,600
Orchard Mesa						
C Road	2,500	1,250	5,050	10 – 3,900	8 – 3,900	12 – 2,600 15 – 1,300
29 Road	11,850	5,900	23,650	15 – 9,250 18 – 11,750 24 – 8,900	12 – 9,250 15 – 11,750 18 – 8,900	18 – 2,050 21 – 7,200 24 – 11,750 30 – 8,900
Southside (1)	11,850	5,900	23,650	30 - 4,100 36 – 8,750	30 - 6,500 36 - 6,350	36 - 6,500 42 – 6,350

(1) Southside sees the same growth as the 29 Road Extension.

8. Persigo WWTP

The existing plant site should be adequate to accommodate expansion of the facility to at least 37.5 mgd, which is well in excess of the projected 2035 capacity of 25.75 mgd. As permit regulations are more clearly defined and treatment processes identified to meet the regulations, the land area requirements need to be revisited and confirmed.

9. Other Recommendations

Although hydraulic modeling of the interceptor system is a good tool for assessing the hydraulic capacity of the large sewer conduits within the collection system, there are other areas of the collection system that should also be addressed.

a. Additional Collection System Modeling

In addition to capacity issues in the main lines, there is also the potential for capacity problems in the smaller 8- and 10-inch lines that were not included in the hydraulic modeling. This is especially true in areas where significantly higher density growth has occurred than was originally planned or in areas where there has been or is planned significant growth upstream of existing lines. Good examples of this potential are identified extensions, which are not tied directly into the modeled system (indicating that they will be connecting directly to smaller lines). These include the following extensions:

- 24 1/2 Road
- 25 and 26 Road
- Alcove Drive
- Bella Pago Road
- Broadway

- Greenwood Drive
- I-70
- Lime Kiln Gulch
- Monument Road
- Mira Monte Road
- Redlands 23 Road
- Rosevale Road
- Wildwood

Prior to allowing these areas to connect to the existing sewer system, the capacity of the smaller lines should be investigated to ensure that the additional flow will not create capacity issues.

b. Condition Assessments

The City should continue its inspection and maintenance program on manholes and sewer lines. These efforts will result in a continued reduction in infiltration from defects and extend the life of the existing infrastructure. Where feasible, improvements should be coordinated with street repairs, storm sewer improvements, or other utility work.

c. Flow Monitoring

The City has several permanent flow monitors in place, which provided valuable information for evaluation of existing flow patterns and unit contributions. Some of the flow monitors, however, provided data that was inconsistent with other upstream and downstream data. These monitors may have lost calibration or no longer are installed properly. On a regular basis, the City should review the data and perform some flow balancing analysis to ensure that the monitors are accurately measuring flow in the system.

The flow monitor for the Tiara Rado Basin is installed downstream of the lift station. This provides good data for observing lift station operation, but is does not provide helpful information about unit flows and flow patterns. The City may want to consider providing a second monitoring location upstream of the lift station.

B. Capital Costs and Phasing

Based on the recommended improvements outlined previously, capital costs and a phasing plan were developed.

Planning level costs for each recommendation were developed. The opinions of capital cost were based on recent similar City and Black & Veatch projects. Engineering and legal (20 percent) and contingency (20 percent) were included in the capital costs. April 2009 is the time reference for costs when the Engineering News Record (ENR) – Construction Cost Index (CCI) was 8528.

Table TM6-6 shows the phased improvements with projected capital costs for the City. Capital costs for developer extensions were not included. For trunk extensions, additional costs may be incurred to upsize smaller lines that were not included in the hydraulic model. Additional cost detail is included in Appendix 6A. This is a planning level document, so once a project has been selected for construction, the scope of work, design criteria, and costs should be updated. Alignment and line sizes may change significantly once the scope of work is more specifically defined.

pjr
Attachments

Table TM6-6

Capital Cost and Phasing Summary

Project	Priority	Capital Cost ($)	Comments
Rood Avenue Parallel	1	2,986,000	Existing problem area.
Ridges Lift Station Abandonment	1	1,346,000	Reroute flow to Connected Lakes Lift Station.
Orchard Mesa Replacement	2	6,669,000	Construct prior to significant additional growth in Orchard Mesa.
Crosby Avenue Replacement	2	194,000	Construct prior to significant additional growth Grand Avenue Basin.
29 Road Extension	2	10,149,000	Construct in conjunction with development at 30 Road in Orchard Mesa.
Southside Replacement	2	7,668,000	Construct in conjunction with 29 Road Extension.
Paradise Hills Replacement	2	344,000	Construct in conjunction with additional development in Paradise Hills near airport.
G Road Extension	2	1,123,000	Construct in conjunction with development in G Road Basin.
1-70 Extension	3	3,168,000	Construct in conjunction with development north of I-70 at 29 Road.
Colorado Avenue Parallel	3	986,000	Construct in conjunction with I-70 Extension.
24 1/2 Road Extension	3	1,303,000	Construct in conjunction with development north of I-70 at 24 1/2 Road.
24 Road Replacement	3	2,851,000	Construct in conjunction with 24 1/2 Road.
Connected Lakes Lift Station Replacement	3	1,509,000	Construct in conjunction with higher density development in Goat Wash Basin.
River Road Parallel	3	421,000	Construct to address increasing demands from the entire system.
22 Road Extension	3	3,136,000	Construct in conjunction with development in the western portion of the Future River Road North Basin.
23 Road Extension	3	3,946,000	Construct in conjunction with development in the eastern portion of the Future River Road North Basin.
Total	**--**	**47,799,000**	**--**

BLACK & VEATCH CORPORATION

TECHNICAL MEMORANDUM NO. 7

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin
Study Update

B&V Project 160319.0100
B&V File B
September 30, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Errata

After the 2008 Update was completed, an error was discovered in one of the basin boundaries. In addition, two planned development extensions were added. Copies of the affected pages are attached and should replace the original pages. The affected pages are listed below along with a description of the changes made. A description of the changes are included in the following sections.

A. Text Changes

The following pages had text changes:

- Page TC-1. Technical Memorandum No. 7 was added to the Table of Contents.
- Page TC-3. Updated page numbering for tables in TM4.
- TM3-12, Table TM3-7. Updated Population projections for Lime Kiln and Tiara Rado basins.
- TM3-14, Table TM3-8. Updated flow projections for Lime Kiln and Tiara Rado basins.
- TM4-12 and TM4-13, Table TM4-5. Added Lime Kiln Gulch and Redlands 23 Road Developer Extensions. Forced Table TM4-5 onto a second page.
- TM4-14, Table TM4-6. New page number.

- TM4-15. New page number and added Lime Kiln Gulch.
- TM4-16. New page number and added Redlands 23 Road.
- TM4-17 – TM4-20. New page numbers.
- TM6-3 and TM6-4, Table TM6-1. Added Lime Kiln Gulch and Redlands 23 Road.
- TM6-12. Added Lime Kiln Gulch and Redlands 23 Road.

B. Figure Changes

The following figures had changes:

- Figure TM2-2. Changes to the boundary between Lime Kiln and Tiara Rado basins.
- Figure TM3-4. Changes to the boundary between Lime Kiln and Tiara Rado basins.
- Figure TM4-5. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road developer extensions.
- Figure TM4-6. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road results.
- Figure TM4-7. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road developer extensions.
- Figure TM6-1. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road developer extensions.

C. Appendix Changes (for copies that include appendices)

The following appendix changes were made:

- Appendix 4B. Updated to include changes to hydraulic modeling.
- Appendix 4B Node Map. Updated with developer extensions.
- Appendix 4B Node Map C. Updated with developer extensions.
- Appendix 4B Node Map E. Updated with developer extensions.

D. Report CD

A new copy of the Report Files (.pdf) CD is included with the updated files.

KCB
Attachment

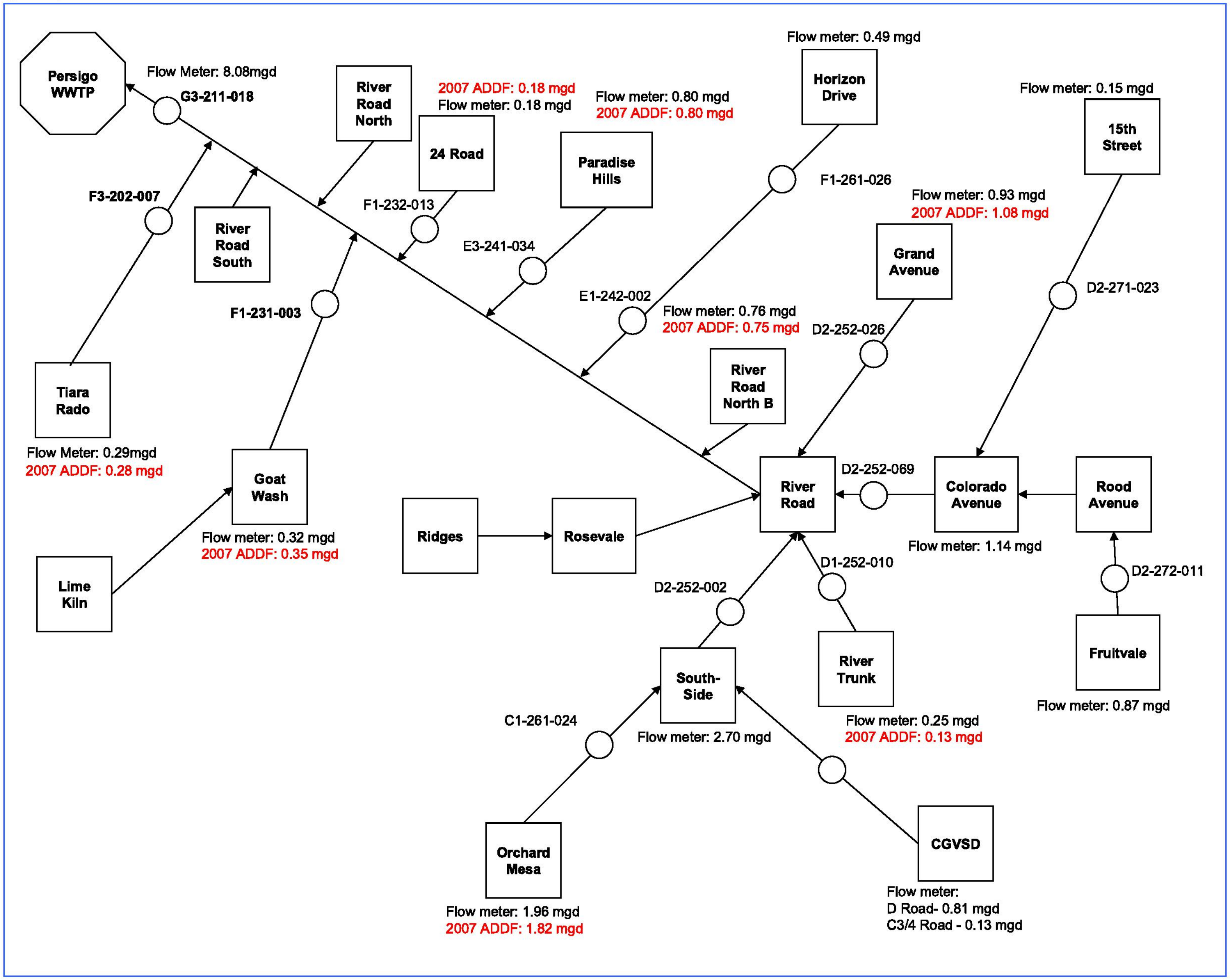

Figure TM 3-3
Basin Connectivity and 2007 ADDF

2008 Comprehensive Wastewater Basin Study

Legend

Basin

WWTP

Flow Meter

Flow meter ADDF in black

Model results in Red

Grand Junction COLORADO

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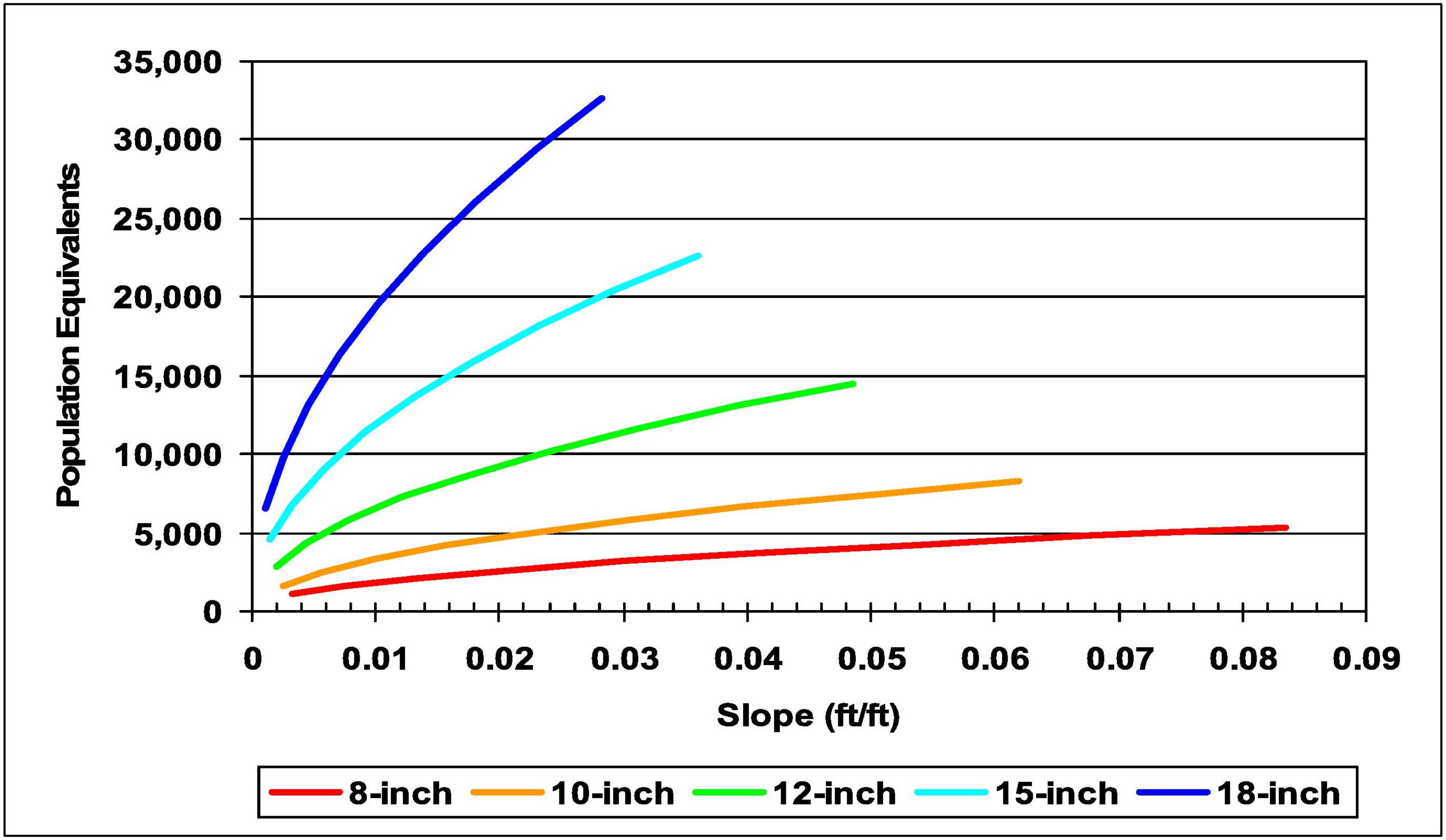

BLACK & VEATCH
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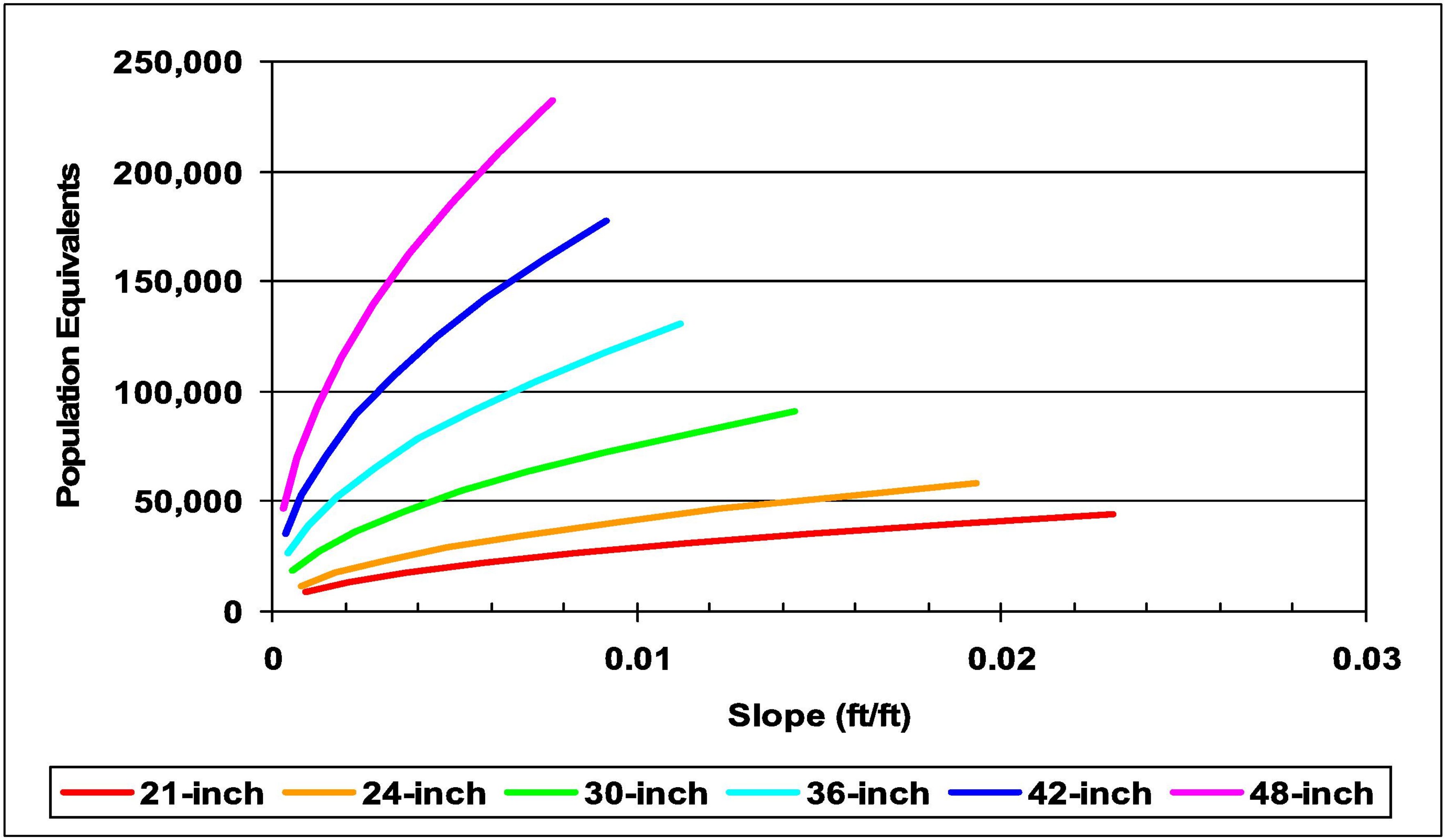
City of Grand Junction
COLORADO

Figure TM 6-3
Population and Sewer Capacity
8 – 18 inch Gravity Lines
2008 Comprehensive Wastewater
Basin Study



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City of Grand Junction Colorado

Figure TM 6-4

Population and Sewer Capacity

21 - 48 inch Gravity Lines

2008 Comprehensive Wastewater Basin Study

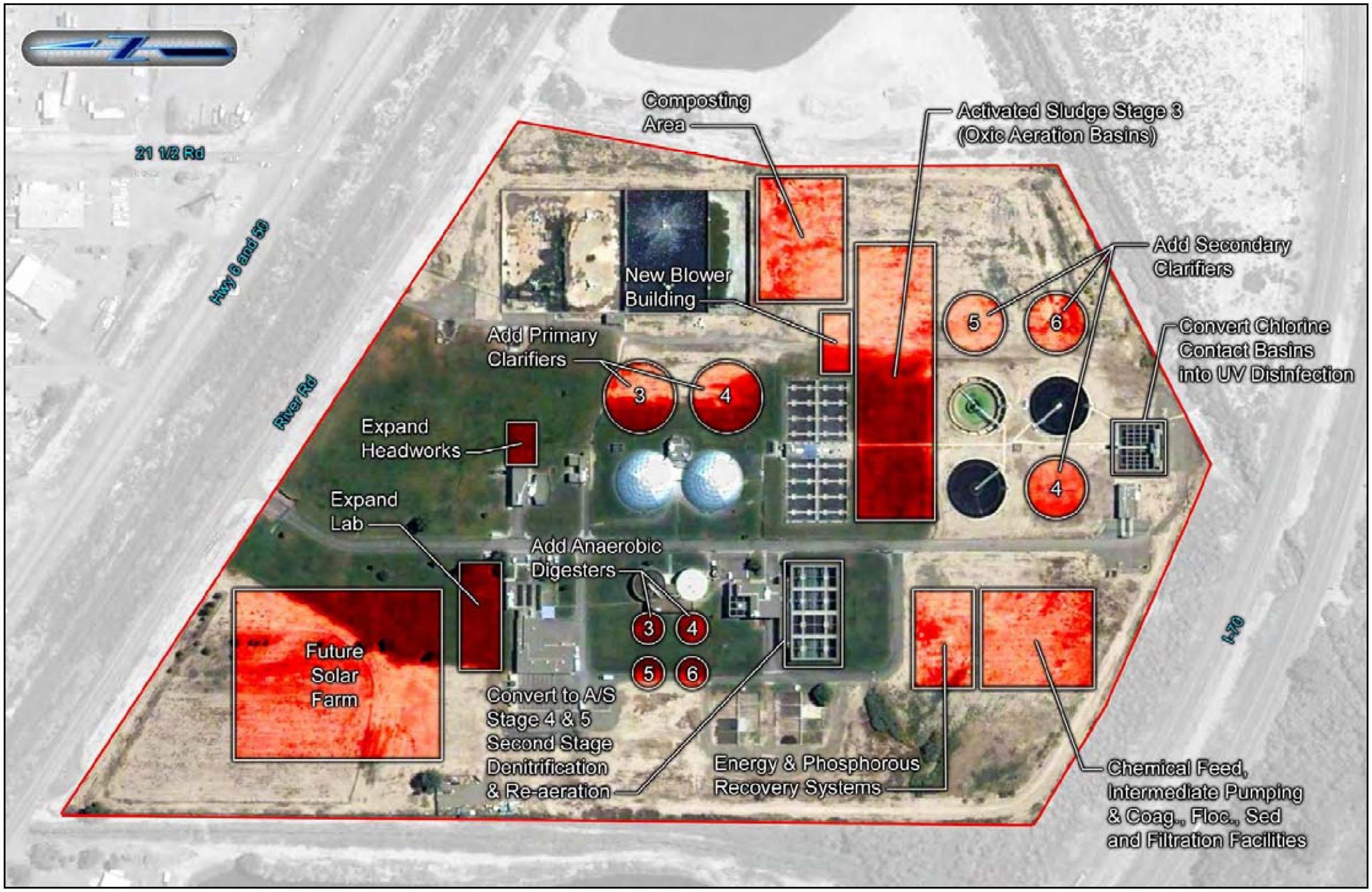

Figure TM 5-1
Persigo WWTP
Future Layout
2008 Comprehensive
Wastewater
Basin Study

Grand Junction COLORADO

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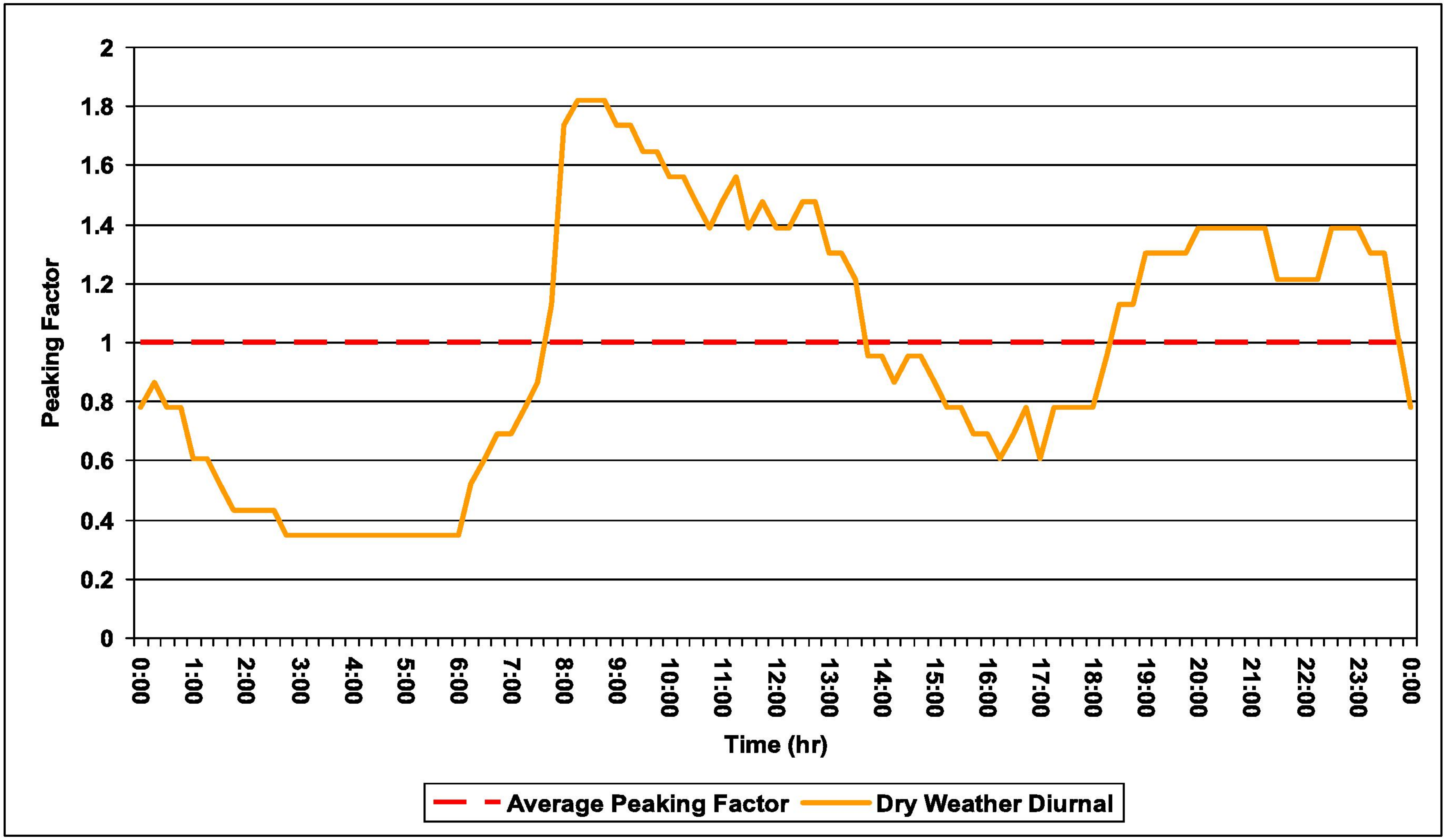

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Figure TM 4-1

Dry Weather Diurnal Input Pattern

2008 Comprehensive Wastewater Basin Study

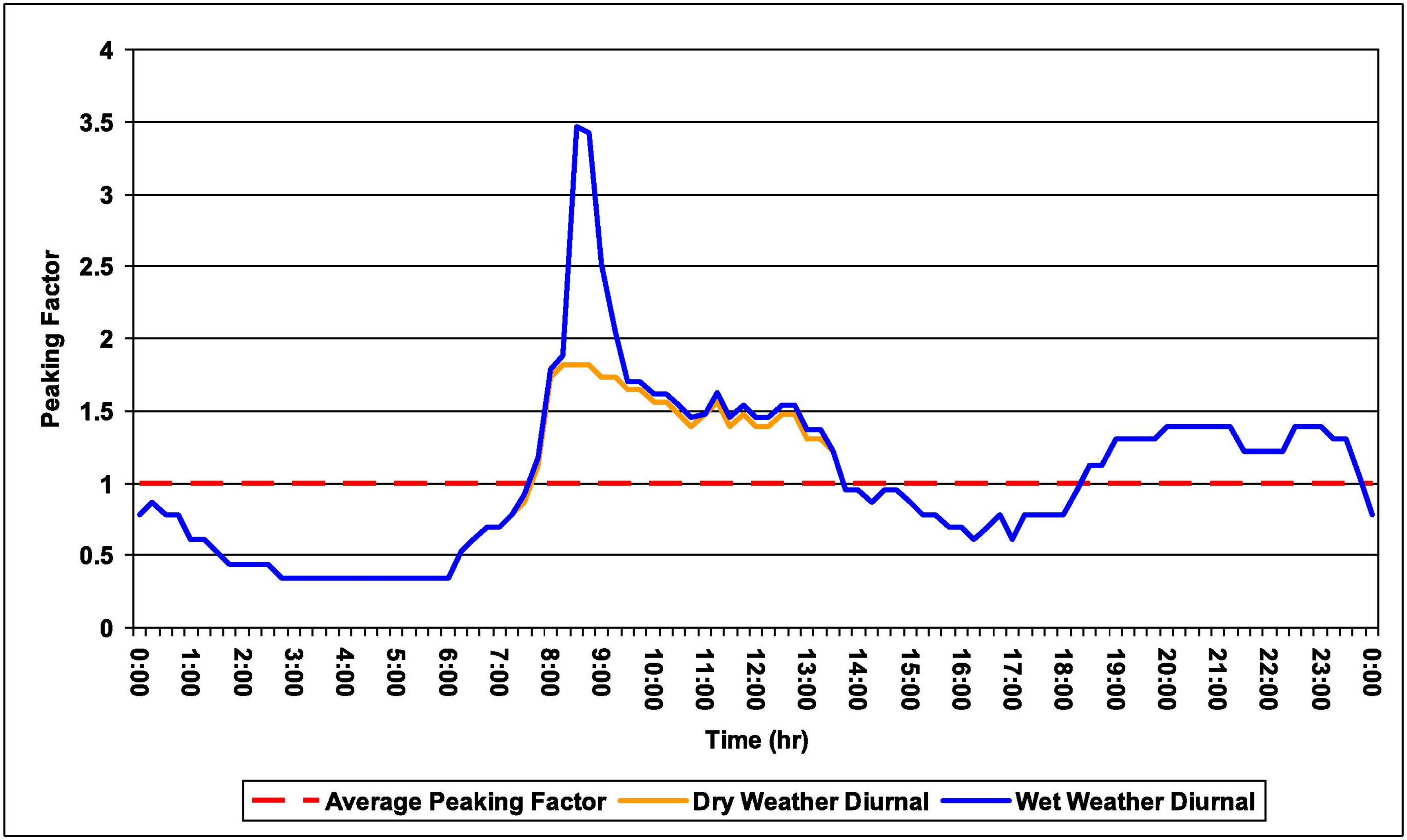

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Figure TM 4-2

Wet Weather Diurnal Input Pattern

2008 Comprehensive Wastewater Basin Study

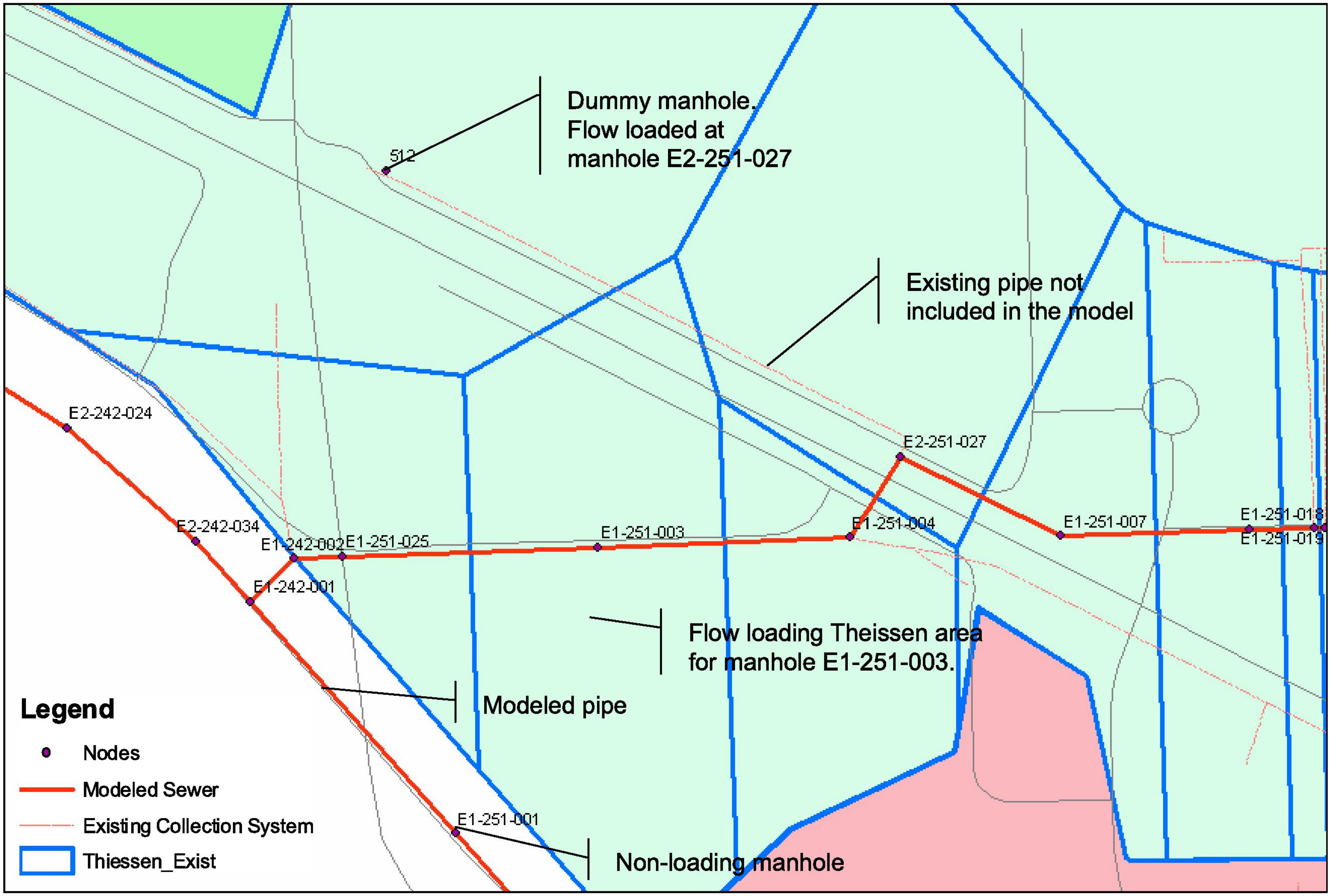

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Figure TM 4-3

Flow Allocation Methodology

2008 Comprehensive Wastewater Basin Study

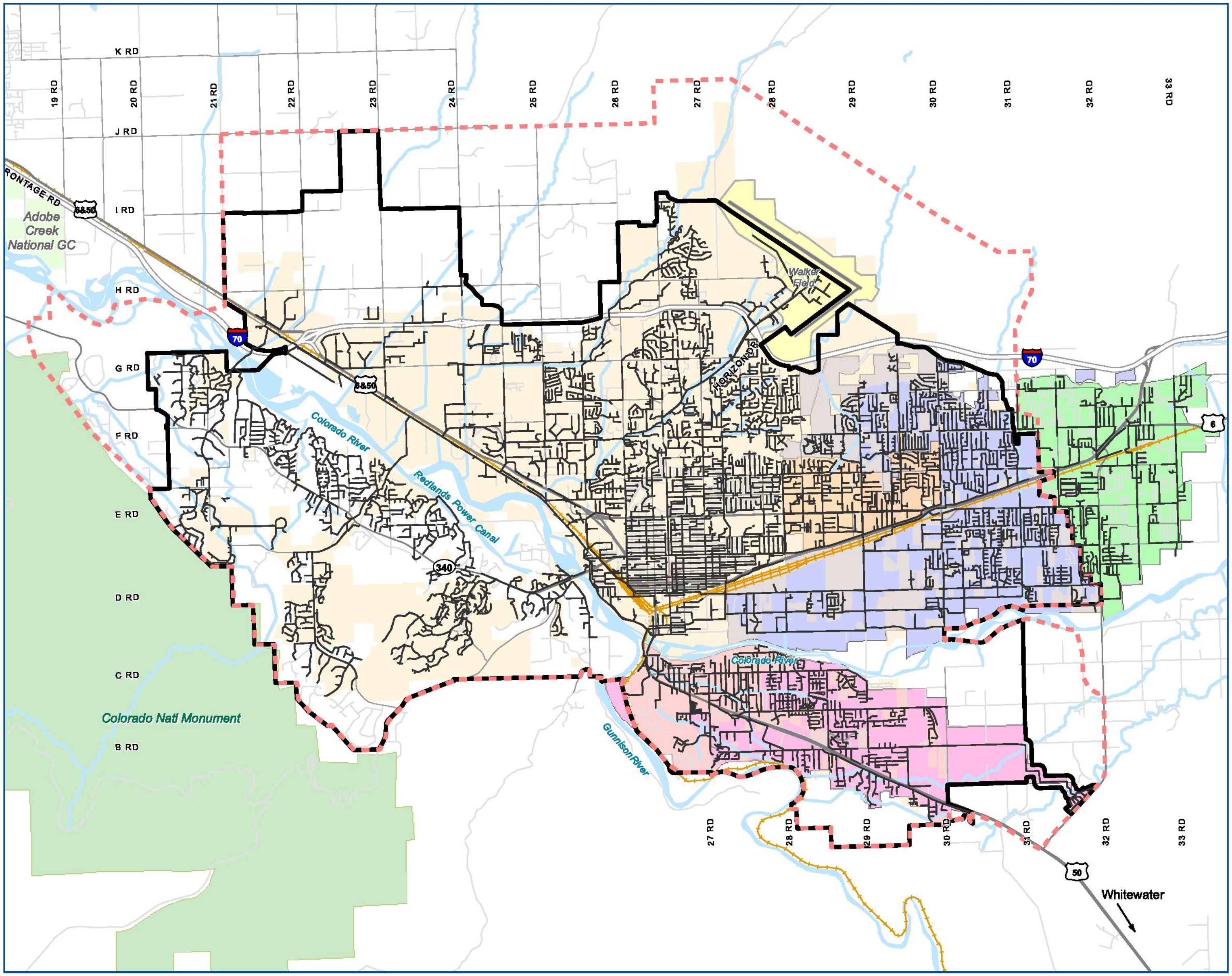

Figure TM1-1
Existing 201 and Future Service Area Boundaries

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Existing Collection System
- Future Service Area
- Existing 201 Boundary
- City Limits
- CGVSD
- Clifton
- Fruitvale
- Orchard Mesa

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

Grand Junction

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM1-1 201PlanningArea.mxd Date Printed: May 13, 2009 Map By: len34412

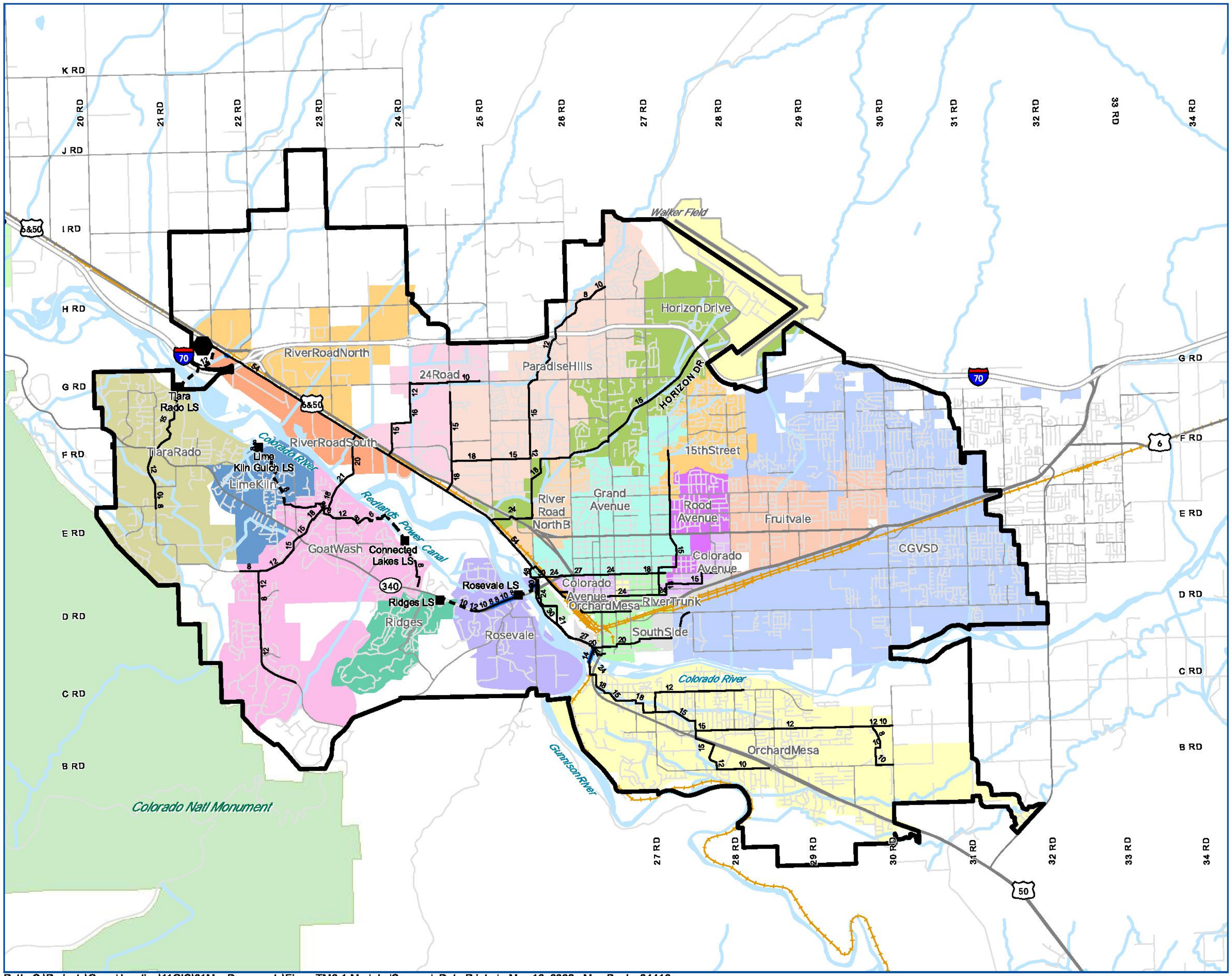


Figure TM2-1
Existing Modeled Collection System

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Lift Station
- Persigo WWTP

Modeled Collection System
- Force Main
- Gravity Interceptors (with pipe sizes)
- Siphon
- Existing 201 Boundary

Existing Basin Boundaries
- 15th Street
- 24 Road
- CGVSD
- Colorado Avenue
- Fruitvale
- Goat Wash
- Grand Avenue
- Horizon Drive
- Lime Kiln
- Orchard Mesa
- Paradise Hills
- Ridges
- River Road North
- River Road North B
- River Road South
- River Trunk
- Rood Avenue
- Rosevale
- South Side
- Tiara Rado

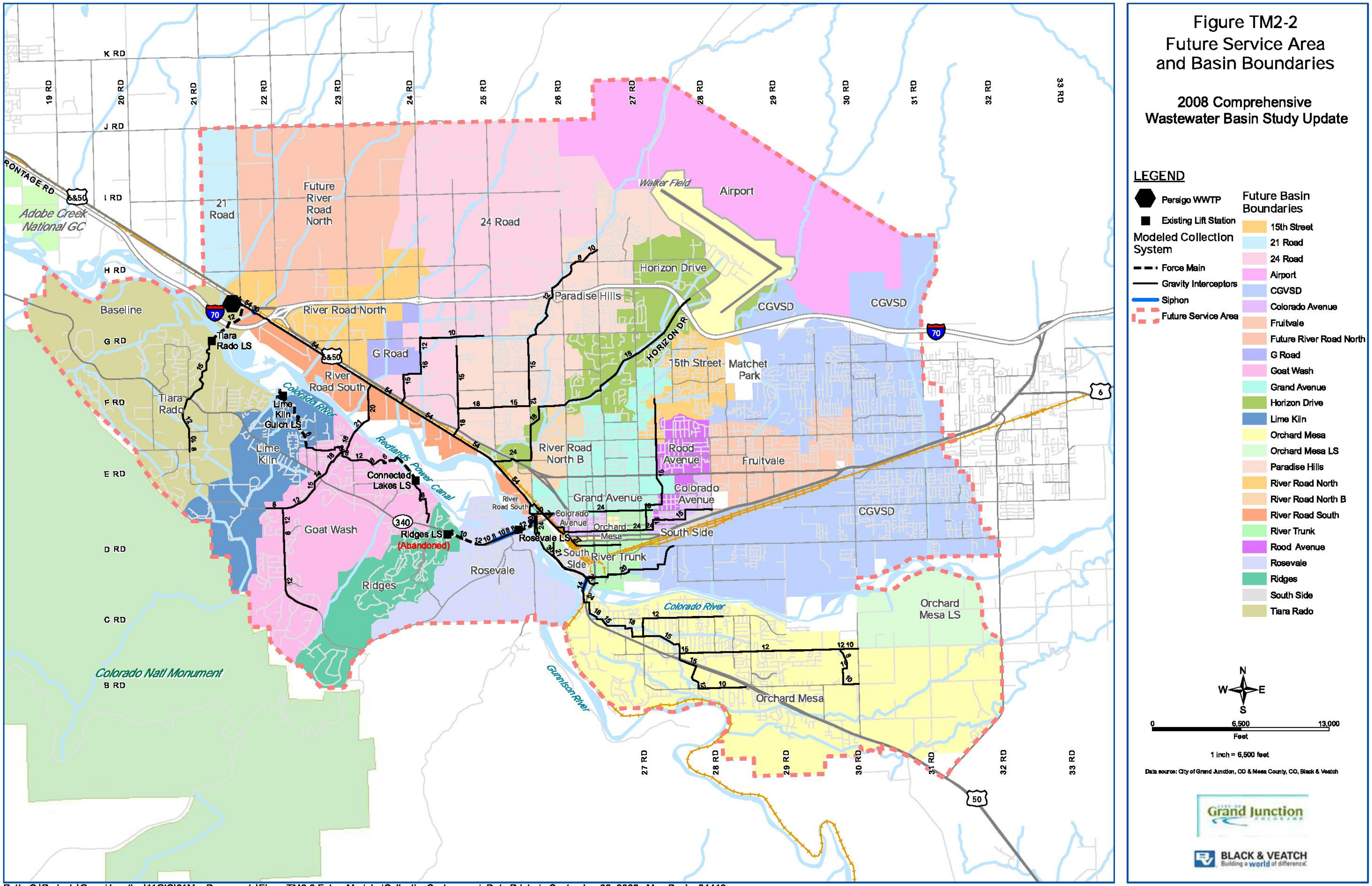
N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM2-1 ModeledSys.mxd Date Printed: May 18, 2009 Map By: len34412



Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM2-2 FutureModeledCollectionSystem.mxd Date Printed: September 23, 2009 Map By: len34412

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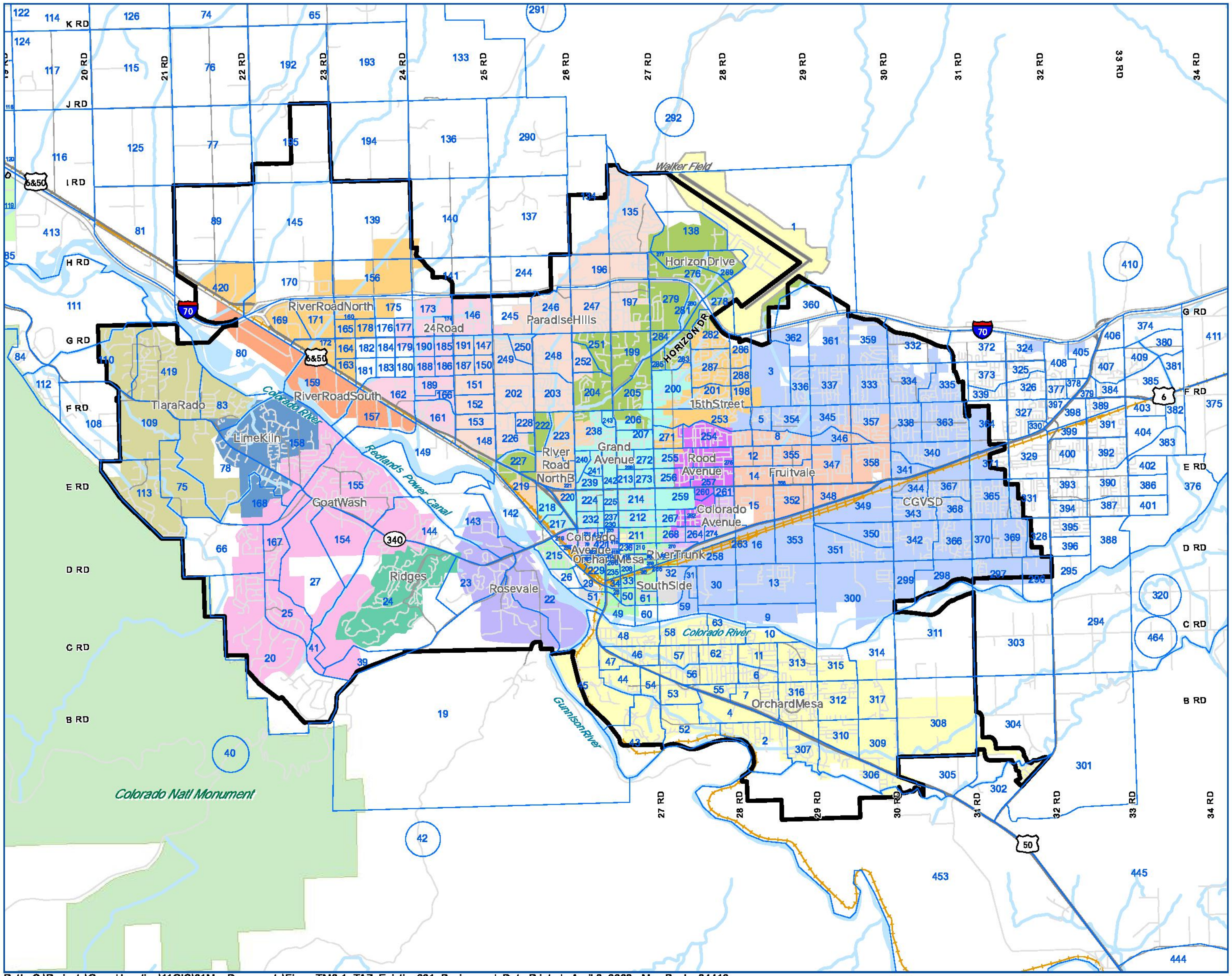

Figure TM3-1
TAZ and Existing Basin Boundaries

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- TAZ Areas
- Existing 201 Boundary
- 15th Street
- 24 Road
- CGVSD
- Colorado Avenue
- Fruitvale
- Goat Wash
- Grand Avenue
- Horizon Drive
- Lime Kiln
- Orchard Mesa
- Paradise Hills
- Ridges
- River Road North
- River Road North B
- River Road South
- River Trunk
- Rood Avenue
- Rosevale
- South Side
- Tiara Rado

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM3-1_TAZ_Existing201_Basins.mxd Date Printed: April 3, 2009 Map By: len34412

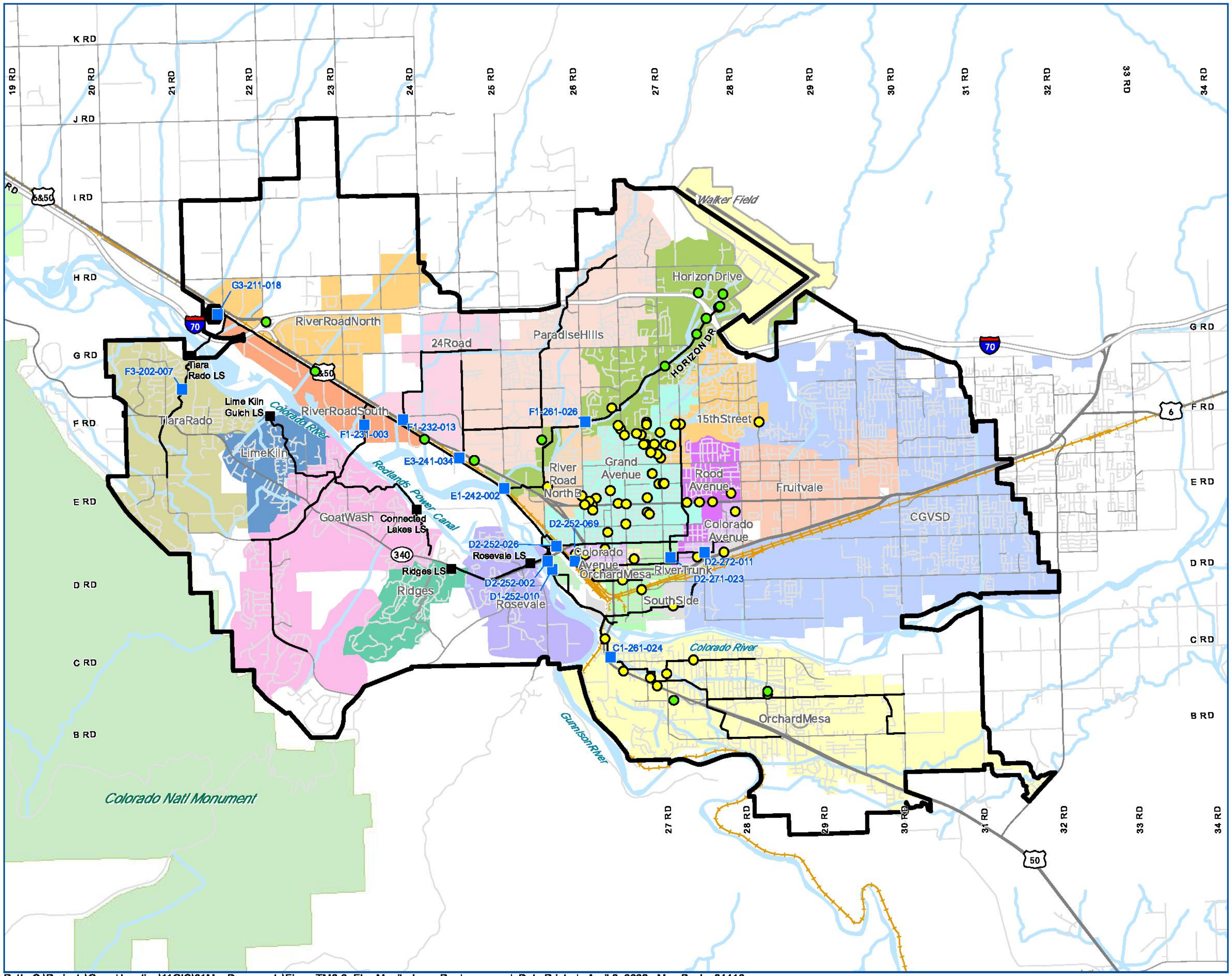

Figure TM3-2
Flow Meter and Large Production Locations

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Flow Meter Locations
- Ute Large Producers
- City Large Producers
- Lift Station
- Persigo WWTP
- Modeled Collection System
- Existing 201 Boundary

Existing Basin Boundaries

- 15th Street
- 24 Road
- CGVSD
- Colorado Avenue
- Fruitvale
- Goat Wash
- Grand Avenue
- Horizon Drive
- Lime Kiln
- Orchard Mesa
- Paradise Hills
- Ridges
- River Road North
- River Road North B
- River Road South
- River Trunk
- Rood Avenue
- Rosevale
- South Side
- Tiara Rado

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

Grand Junction COLORADO

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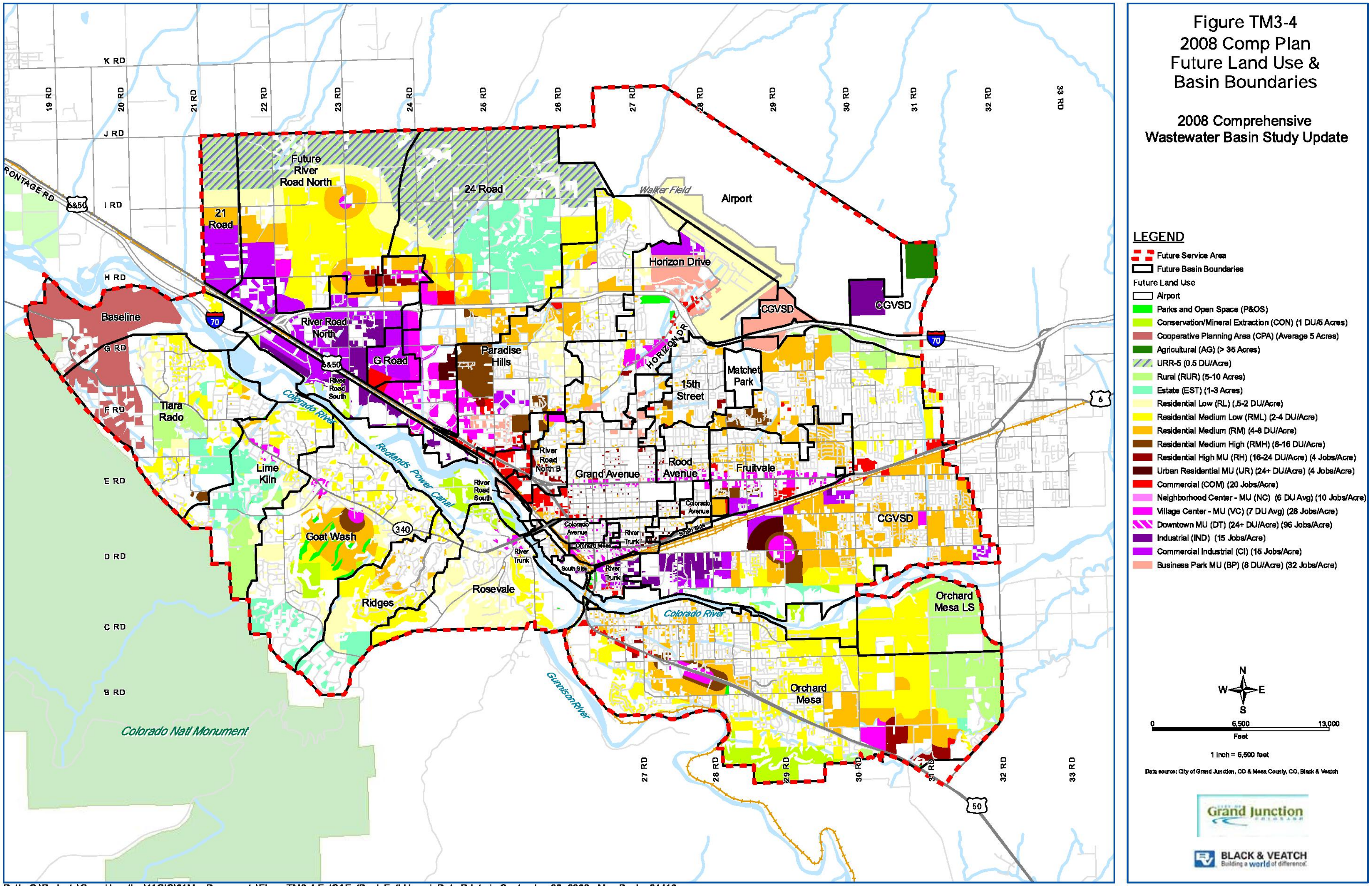
Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM3-2_FlowMonitorLargeProducers.mxd Date Printed: April 3, 2009 Map By: len34412



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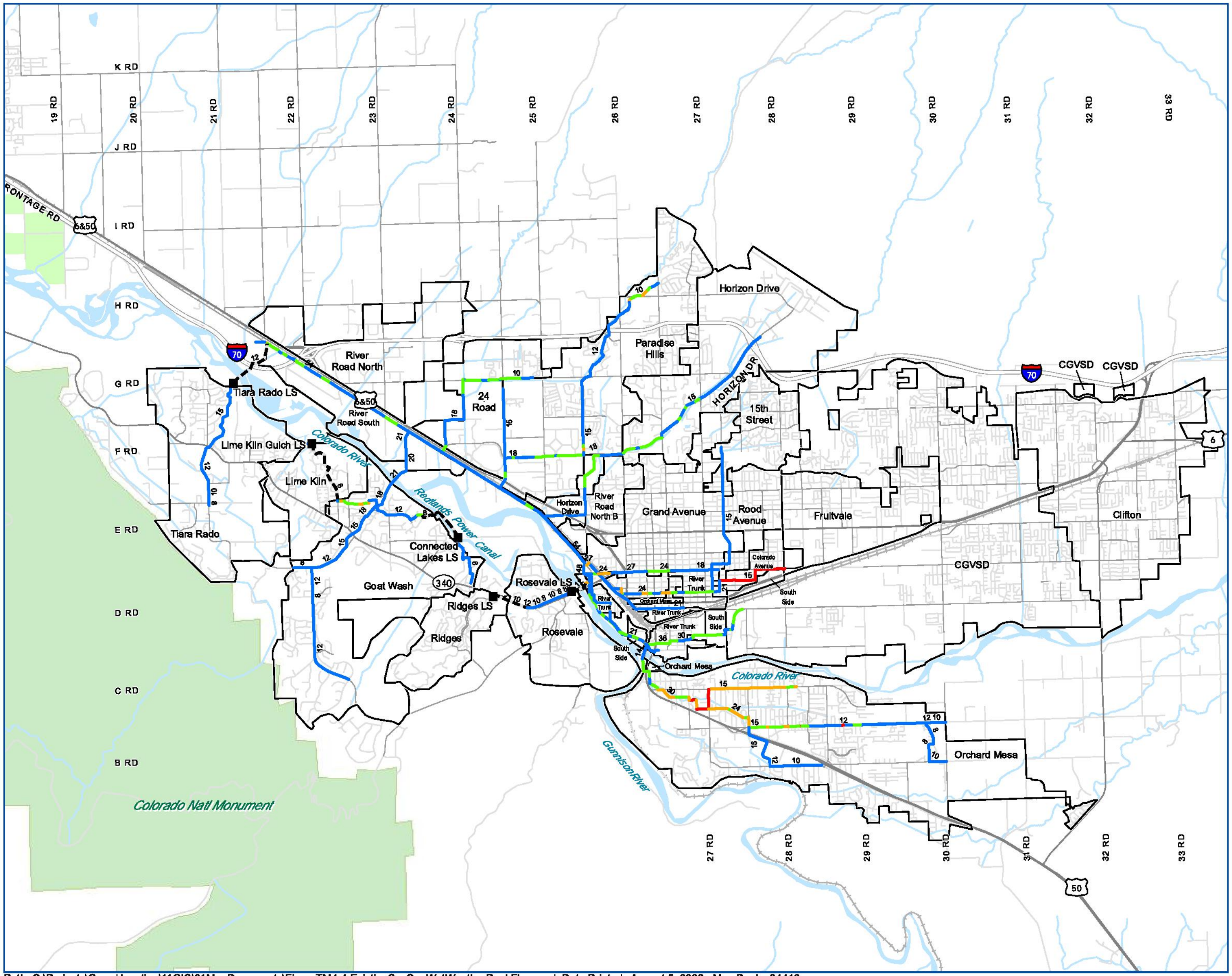

Figure TM4-4

Existing System Capacity Wet Weather Peak Flow

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Lift Station
- Force Main

Modeled Gravity Interceptors

Maximum q/Q

- <= 0.5
- 0.5 - 0.8
- 0.8 - 1.2
- > 1.2
- Existing Basin Boundaries

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

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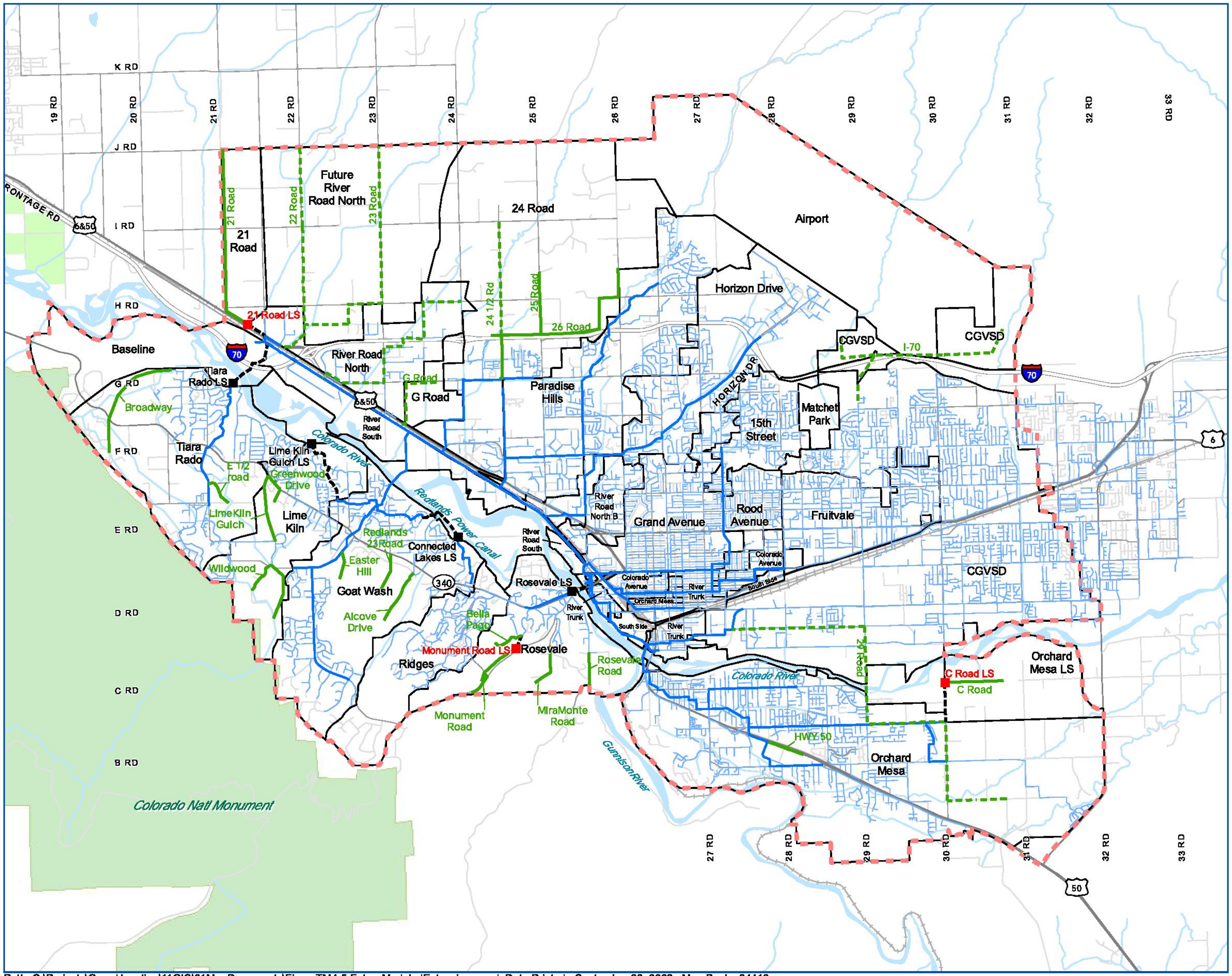
Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-4 ExistingSysCapWetWeatherPeakFlow.mxd Date Printed: August 5, 2009 Map By: len34412



Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-5 FutureModeledExtensions.mxd Date Printed: September 23, 2009 Map By: len34412

Figure TM4-5

Future Model Extensions

2008 Comprehensive Wastewater Basin Study Update

LEGEND

Lift Station
- Existing
- Future
- Exting Interceptor
- Force Main
- Developer Extension
- Trunk Extension
- Sewer Lines
- Future Service Area
- Future Basin Boundaries

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

Grand Junction Colorado

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DocuSign Envelope ID: 1EB44314-02AE-4BB7-A38D-35328FFA8AF6

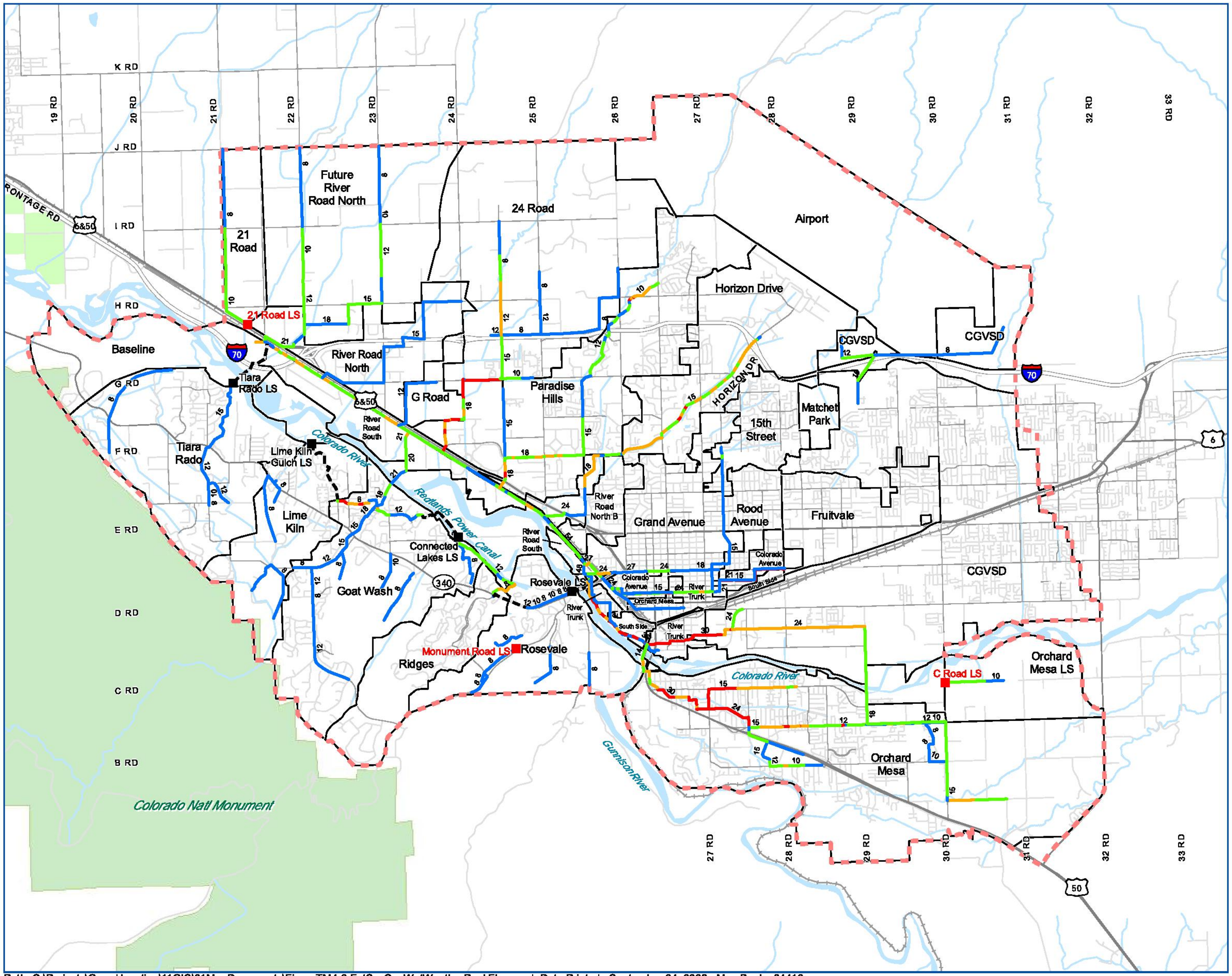

Figure TM4-6
Future System Capacity Wet Weather Peak Flow No Capacity Improvements

2008 Comprehensive Wastewater Basin Study Update

LEGEND

Lift Station
- Existing
- Future
- Force Main

Modeled Gravity Interceptors
FuturePWWFOutput.MAX_q_Q
- <= 0.5
- 0.5 - 0.8
- 0.8 - 1.2
- > 1.2
- Future Service Area
- Future Basin Boundaries

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-6 FutSysCapWetWeatherPeakFlow.mxd Date Printed: September 24, 2009 Map By: len34412

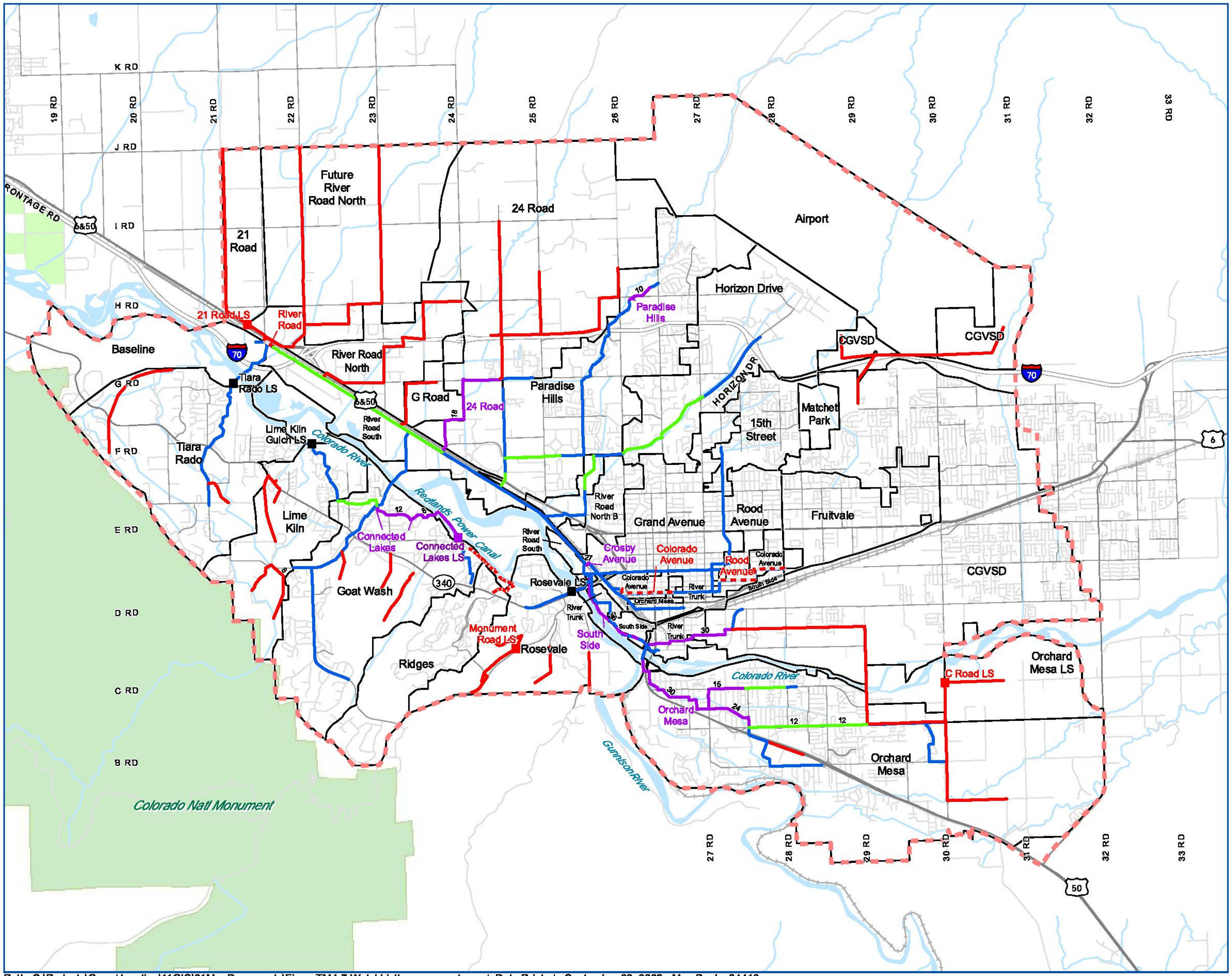

Figure TM4-7

Watch List and Recommended Improvements

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Existing Lift Station
- Future Lift Station
- Replacement Lift Station
- Watch List
- Existing Pipe
- Existing Parallel Pipe
- Future Pipe
- Future Parallel Pipe
- Replacement Pipe
- Future Service Area
- Future Basin Boundaries

N
W E
S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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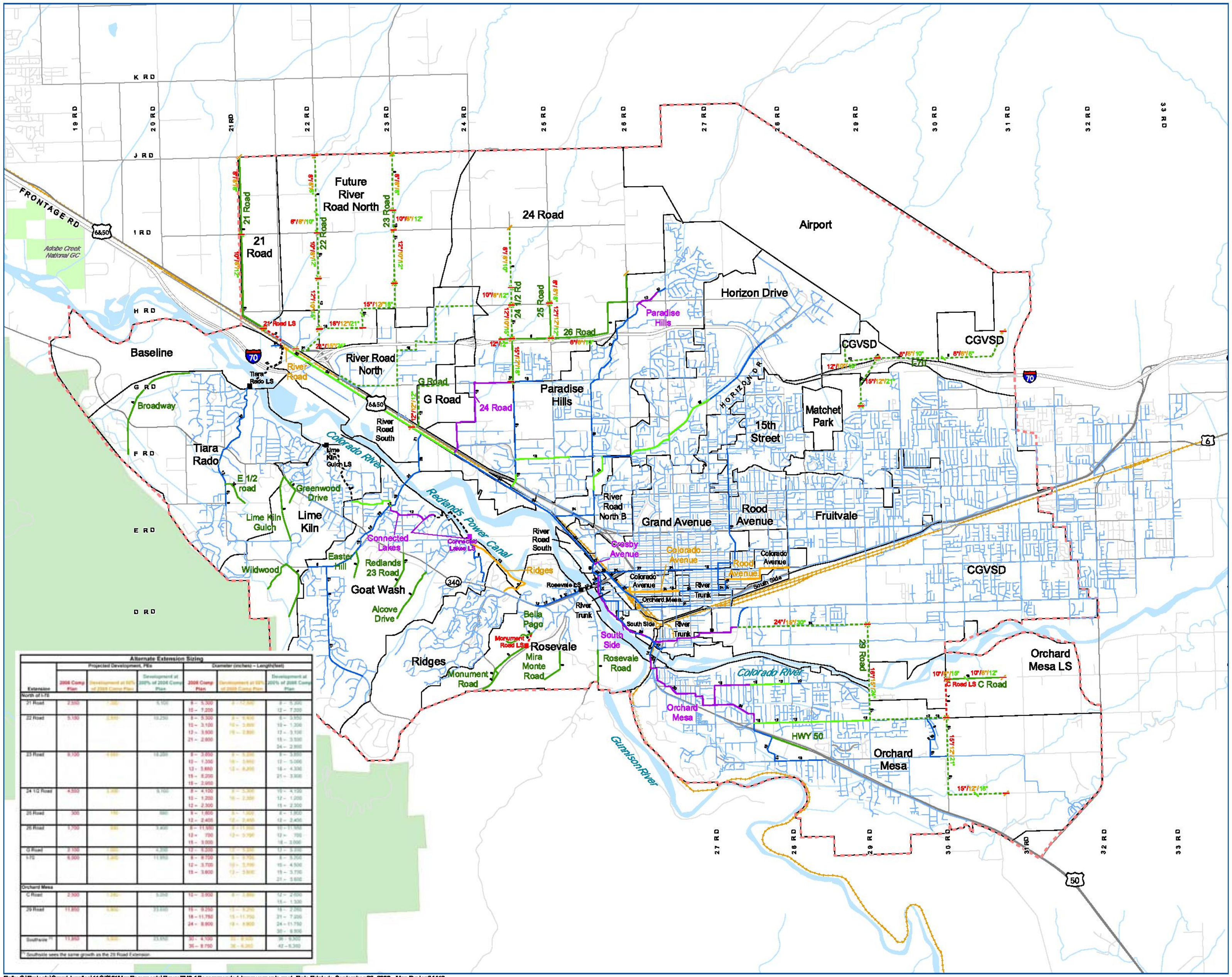
Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-7 WatchListImprovements.mxd Date Printed: September 23, 2009 Map By: len34412



Alternate Extension Sizing

Extension	Projected Development, PEs: 2008 Comp Plan	Projected Development, PEs: Development at 50% of 2008 Comp Plan	Projected Development, PEs: Development at 200% of 2008 Comp Plan	Diameter (inches) – Length (feet): 2008 Comp Plan	Diameter (inches) – Length (feet): Development at 50% of 2008 Comp Plan	Diameter (inches) – Length (feet): Development at 200% of 2008 Comp Plan
North of I-70						
21 Road	2,550	[illegible]	5,100	8 – 5,300 10 – 7,200	[illegible]	8 – 5,300 12 – 7,200
22 Road	5,150	[illegible]	10,250	8 – 5,300 10 – 3,100 12 – 3,600 21 – 2,800	[illegible]	8 – 3,850 10 – 1,300 12 – 3,100 15 – 3,500 24 – 2,800
23 Road	9,100	[illegible]	18,200	8 – 3,850 10 – 1,300 12 – 3,880 15 – 8,200 18 – 2,950	[illegible]	8 – 3,850 12 – 5,000 18 – 4,300 21 – 3,900
24 1/2 Road	4,550	[illegible]	9,100	8 – 4,100 10 – 1,200 12 – 2,300	[illegible]	10 – 4,100 12 – 1,200 15 – 2,300
25 Road	300	[illegible]	600	8 – 1,800 12 – 2,400	[illegible]	8 – 1,800 12 – 2,400
26 Road	1,700	[illegible]	3,400	8 – 11,550 12 – 700 15 – 3,000	[illegible]	10 – 11,550 12 – 700 18 – 3,000
G Road	2,100	[illegible]	4,200	12 – 5,200	[illegible]	12 – 5,200
I-70	6,000	[illegible]	11,950	8 – 8,700 12 – 3,700 15 – 3,600	[illegible]	8 – 5,200 15 – 4,500 15 – 3,700 21 – 3,600
Orchard Mesa						
C Road	2,500	[illegible]	5,050	10 – 3,900	[illegible]	12 – 2,600 15 – 1,300
29 Road	11,850	[illegible]	23,600	15 – 9,250 18 – 11,750 24 – 8,900	[illegible]	18 – 2,050 21 – 7,200 24 – 11,750 30 – 8,900
Southside [1]	11,850	[illegible]	23,650	30 – 4,100 36 – 8,750	[illegible]	36 – 6,300 42 – 6,300

[1] Southside sees the same growth as the 29 Road Extension.

Path: C:\Projects\Grand Junction\11GIS\01MapDocuments\FigureTM6-1Recommended Improvements.mxd Date Printed: September 23, 2008 Map By: ien34412

Figure TM6-1

Recommended Improvements

2008 Comprehensive Wastewater Basin Study Update

LEGEND

Lift Station

- Existing Lift Station
- Future Lift Station
- Replacement Lift Station
- Watch List Pipe
- Existing Force Main
- Future Force Main
- Replacement Force Main
- Developer Extension
- Trunk Extension
- Modeled Collection System
- Parallel Pipe
- Replacement Pipe
- Sewer Lines
- Future Service Area
- Future Basin Boundaries

N W E S

0 3,000 6,000 Feet

1 inch = 3,000 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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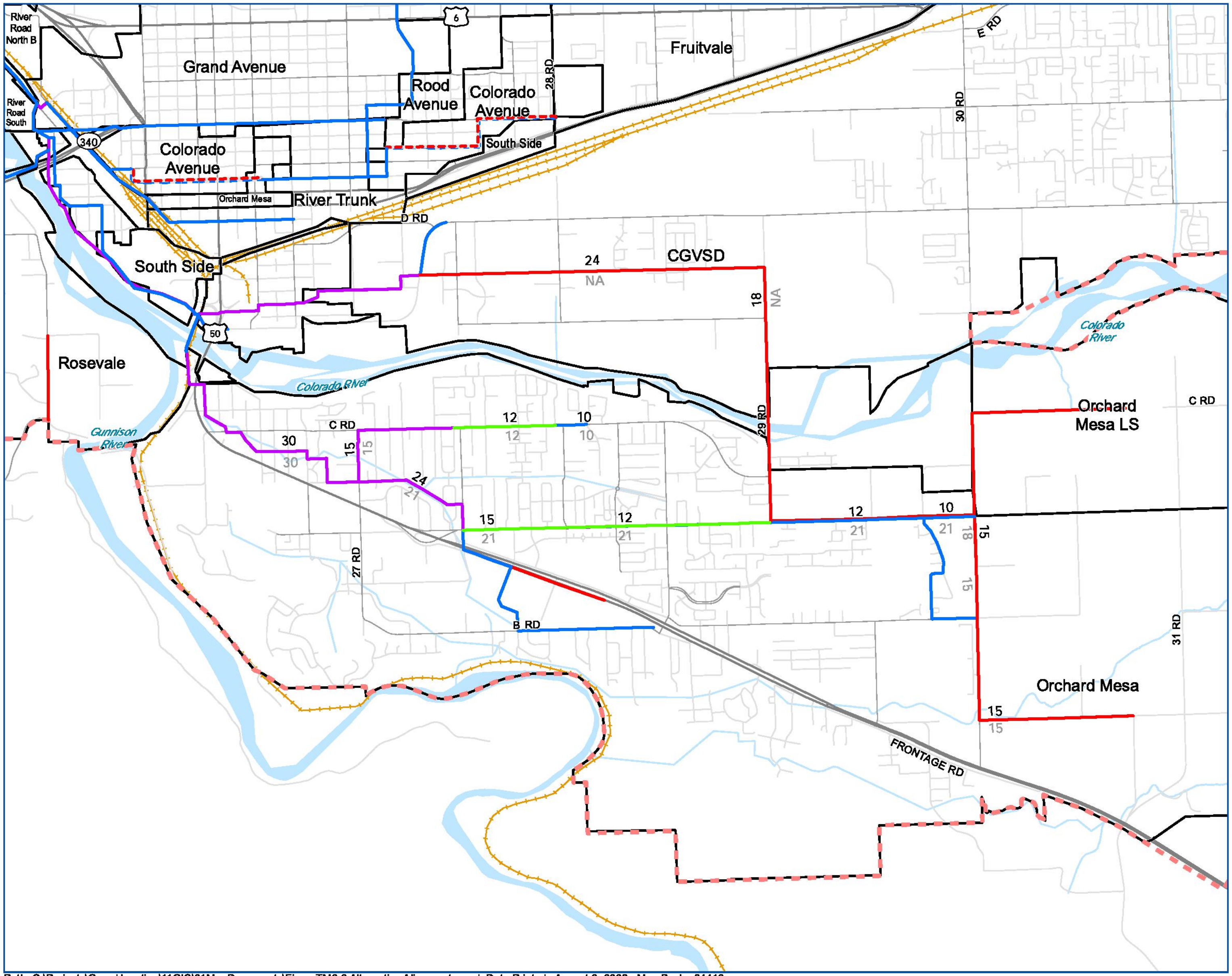
Figure TM6-2

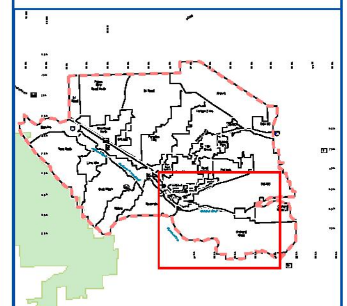
29 Road Alternatives

2008 Comprehensive Wastewater Basin Study Update



LEGEND

12	Alt 1 Diameter
21	Alt 2 Diameter
	Watch List
	Existing Pipe
	Existing Parallel Pipe
	Future Pipe
	Future Parallel Pipe
	Replacement Pipe
	Future Service Area
	Future Basin Boundaries



N W E S

0 2,500 5,000
Feet

1 inch = 2,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

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Appendix 2A

As-Built Drawing List

Appendix TM2A
As-Built Drawing List

Plan and Profile List

24 Road Basin
24 Road Sewer Line Replacement – November 1999
Appleton Sanitary Sewer Local Improvement District No. LID – 1984
G Road Sewer Interceptor – March 1991

Goat Wash Basin
The Bluffs West Estates Filing No. 2 – July 1978
Redlands Village South Sewer Improvement District – September 2002
Rim Drive – March 1994
Scenic School Interceptor – 1994
Skyway Area S.I.D. – November 2003
South Camp Road Sewer Line – January 1995
South Rim Filing No. 3 – January 1996
South Rim on the Redlands (Subdivision) – October 1994
Tiara Rado and Goat Wash Interceptor Sewers – January 1984

Lime Kiln Basin
Redlands Village Northwest S.I.D. Limekiln Gulch & Canyon Creek Addition – June 2003
Loma Rio Subdivision – August 1978

Tiara Rado Basin
Panorama Sewer District Extension – July 2001
Tiara Rado and Goat Wash Interceptor Sewers – January 1984
South Camp Road Sewer Line – January 1995
Renaissance in the Redlands Filing Two – July 2002

Rosevale Basin
Sanitary Sewer Outfall Line for the Ridges – May 1997
Sanitary Sewer Replacement Highway 340 Across the Colorado River Bridge – October 1985

15th Street Basin
1996 Interceptor Rehabilitations – May 1998
Sanitary Sewer Improvement District No. 28-71 – 1971
Street Improvement District & Lincoln Park Bike Path – 1984
Patterson Road Reconstruction 12th Street to 27 ½ Road – March 1983

Paradise Hills Basin
24 ½ Road Sewer Trunk Extension – January 2007
Paradise Hills Subdivision – 1968
Paradise Hills Interceptor Sewer – November 1976
River Road Interceptor Sewer and Paradise Hills Interceptor Sewer – Phase II – March 1980

Colorado Avenue Basin
Colorado Avenue Water & Sewer Project 1St.to 14th Streets – November 1981
Colorado Interceptor Sewer Rehabilitation
2003 Sewer Interceptor Rehabilitations – April 2003

Orchard Mesa Basin
Duck Pond Park Lift Station Elimination and Gravity Sewer Construction – May 2005
Orchard Mesa Sanitary Sewer River Crossing – March 1981
Sanitary Sewer District 30-74 – April 1974
Orchard Mesa S.I.D 33-76 – Phase III – June 1976
Orchard Mesa Sanitation District Sewage Collection System and Appurtenances – February 1976
West Orchard Mesa Sanitary Sewer Trunk Line Extension – June 1973
Fairway Sewer District on Orchard Mesa – August 1973
Sanitary Sewer District 31-74
Orchard Mesa Sanitary Sewer River Crossing – March 1981
Orchard Mesa Sanitation District Master Map - undated

Rood Avenue Basin
Fruitvale Sanitation District Outfall Line – October 1957

South Side Basin
South Side Interceptor Sewer – June 1969
1996 Interceptor Rehabilitations
Riverside Parkway Phase 1 – August 2005

River Trunk Basin
Sewer Districts No. 5 & 6

Combined Sewer Elimination Project

Appendix 3A

Flow Metering Data and Analysis

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area															
	Colorado Ave - 24 in Crosby Ave & W Main St				**Goat Wash - 21 in** 23 1/4 Rd & River Rd				**Grand Ave - 27 in** City Fleet Shops				**Scenic School - 10 in** River Rd & Broadway St			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	2.01	0.27	1.15	30%	-	-	-	-	-	-	-	-	-	-	-	-
Feb	2.01	0.27	1.13	30%	-	-	-	-	-	-	-	-	-	-	-	-
Mar	1.92	0.26	1.12	29%	-	-	-	-	-	-	-	-	-	-	-	-
Apr	2.47	0.25	1.15	37%	-	-	-	-	-	-	-	-	-	-	-	-
May	2.03	0.28	1.17	30%	-	-	-	-	1.52	0.35	0.90	11%	-	-	-	-
Jun	-	-	-	-	0.76	0.06	0.29	13%	5.39	0.33	0.87	41%	-	-	-	-
Jul	-	-	-	-	0.84	0.07	0.31	15%	4.73	0.31	0.86	36%	-	-	-	-
Aug	-	-	-	-	1.04	0.07	0.32	18%	5.51	0.38	0.97	41%	-	-	-	-
Sep	-	-	-	-	1.11	0.06	0.35	19%	6.81	0.43	1.03	51%	-	-	-	-
Oct	-	-	-	-	1.02	0.07	0.33	18%	2.55	0.37	0.98	19%	-	-	-	-
Nov	-	-	-	-	1.19	0.05	0.24	21%	1.52	0.30	0.88	11%	-	-	-	-
Dec	-	-	-	-	1.02	0.05	0.21	18%	3.51	0.32	0.86	26%	-	-	-	-
Max				37%				21%				51%				0%
Capacity				6.70				5.75				13.30				1.20
			1.14				0.29				0.92					

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area															
	Horizon Dr. Upper- 15 in Willowbrook Rd & Northridge Dr				**Horizon Dr. Lower- 24 in** 25 Rd & Independent Ave				**Paradise Hills - 18 in** 24 1/2 Rd & Hwy 6&50				**Southside - 30 in** West Ave & W Main St			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	0.93	0.17	0.49	31%	1.23	0.20	0.68	23%	2.18	0.23	0.80	52%	-	-	-	-
Feb	0.89	0.18	0.48	30%	1.19	0.22	0.65	22%	1.83	0.21	0.78	44%	-	-	-	-
Mar	1.20	0.18	0.49	40%	1.35	0.19	0.69	25%	1.88	0.22	0.79	45%	-	-	-	-
Apr	1.00	0.18	0.48	33%	1.36	0.19	0.70	26%	1.77	0.22	0.80	42%	-	-	-	-
May	1.56	0.21	0.52	52%	1.61	0.28	0.78	30%	1.84	0.23	0.81	44%	-	-	-	-
Jun	-	-	-	-	1.79	0.31	0.82	34%	-	-	-	-	4.22	0.92	2.60	38%
Jul	-	-	-	-	1.43	0.39	0.85	27%	-	-	-	-	4.31	1.00	2.65	38%
Aug	-	-	-	-	1.53	0.37	0.85	29%	-	-	-	-	4.53	1.03	2.70	40%
Sep	-	-	-	-	1.98	0.34	0.83	37%	-	-	-	-	5.68	0.98	2.83	51%
Oct	-	-	-	-	1.54	0.34	0.77	29%	-	-	-	-	4.55	0.89	2.64	40%
Nov	-	-	-	-	1.26	0.19	0.67	24%	-	-	-	-	4.85	0.79	2.42	43%
Dec	-	-	-	-	1.39	0.20	0.66	26%	-	-	-	-	4.60	0.82	2.45	41%
Max				52%				37%				52%				51%
Capacity				3.00				5.30				4.17				11.24
			0.49				0.74				0.80				2.61	

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area															
	Tiara Rado - 12 in				River Road - 54 in				15th St - 15in				24 Road - 10in			
	2155 River Rd				2145 River Rd				13th & Main St				Patterson & Hwy 6&50			
Month	Inst Max	Inst Min	Daily Avg	Peak Capacity	Inst Max	Inst Min	Daily Avg	Peak Capacity	Inst Max	Inst Min	Daily Avg	Peak Capacity	Inst Max	Inst Min	Daily Avg	Peak Capacity
Jan	-	-	-	-	11.80	2.10	7.40	30%	0.34	0.04	0.15	13%	0.29	0.00	0.14	21%
Feb	-	-	-	-	12.00	2.10	7.38	31%	0.31	0.05	0.14	12%	0.26	0.00	0.11	18%
Mar	-	-	-	-	11.40	2.00	7.37	29%	0.32	0.04	0.14	12%	0.25	0.03	0.10	18%
Apr	-	-	-	-	17.20	2.20	7.76	44%	0.35	0.04	0.15	13%	0.26	0.03	0.12	18%
May	-	-	-	-	14.80	2.40	8.16	38%	0.37	0.04	0.15	14%	1.18	0.03	0.45	84%
Jun	0.58	0.03	0.28	11%	17.20	3.50	8.20	44%	-	-	-	-	-	-	-	-
Jul	0.67	0.03	0.27	12%	17.00	3.20	8.77	44%	-	-	-	-	-	-	-	-
Aug	0.63	0.03	0.29	12%	18.60	4.80	8.79	48%	-	-	-	-	-	-	-	-
Sep	0.86	0.03	0.30	16%	16.70	4.00	8.91	43%	-	-	-	-	-	-	-	-
Oct	0.76	0.03	0.27	14%	18.00	2.00	8.28	46%	-	-	-	-	-	-	-	-
Nov	0.71	0.03	0.26	13%	11.60	2.40	7.62	30%	-	-	-	-	-	-	-	-
Dec	0.73	0.03	0.26	13%	13.60	1.90	7.78	35%	-	-	-	-	-	-	-	-
Max				16%				48%				14%				84%
Capacity				5.45				39.07				2.68				1.41
			0.28				8.03				0.15				0.18	

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area							
	River Trunk - 21 in Riverside Park				**Orchard Mesa - 24 in** 1654 Canon Ave			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	-	-	-	-	-	-	-	-
Feb	-	-	-	-	-	-	-	-
Mar	-	-	-	-	-	-	-	-
Apr	-	-	-	-	-	-	-	-
May	-	-	-	-	3.29	0.65	1.86	43%
Jun	0.77	0.07	0.25	27%	3.16	0.71	1.88	42%
Jul	0.54	0.10	0.24	19%	3.51	0.77	2.02	46%
Aug	0.77	0.10	0.25	27%	3.36	0.74	2.03	44%
Sep	0.56	0.09	0.25	19%	3.71	0.72	2.02	49%
Oct	0.54	0.11	0.26	19%	3.57	0.57	1.86	47%
Nov	0.56	0.12	0.25	19%	3.45	0.63	1.69	45%
Dec	0.68	0.13	0.29	23%	3.16	0.49	1.67	42%
Max				27%				49%
Capacity				2.90				7.60
			0.26				1.88	

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	FSD				CGVSD							
	Fruitvale - 15 in				**27 1/2 Road - 18 in**				**D Road - 15 in**			
	N 19th St & Rood Ave				27 1/2 Rd & Winters Ave				S 15th St & D Rd			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	1.45	0.28	0.88	91%	-	-	-	-	-	-	-	-
Feb	1.43	0.35	0.90	89%	-	-	-	-	-	-	-	-
Mar	1.35	0.37	0.89	84%	-	-	-	-	-	-	-	-
Apr	1.31	0.31	0.85	82%	-	-	-	-	-	-	-	-
May	1.27	0.19	0.85	79%	-	-	-	-	-	-	-	-
Jun	1.30	0.37	0.85	81%	-	-	-	-	-	-	-	-
Jul	1.53	0.20	0.87	96%	-	-	-	-	-	-	-	-
Aug	1.49	0.14	0.87	93%	-	-	-	-	-	-	-	-
Sep	1.52	0.19	0.93	95%	-	-	-	-	-	-	-	-
Oct	1.57	0.09	0.92	98%	-	-	-	-	-	-	-	-
Nov	1.57	0.11	0.89	98%	-	-	-	-	-	-	-	-
Dec	1.54	0.11	0.92	96%	-	-	-	-	-	-	-	-
Max				98%				0%				0%
Capacity				1.60				2.60				1.60
			0.88									

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007
Meter Name: F1_232_013_07

Units of Flow: MGD

Date: 09/10/08
Time: 3:49 PM
By: LEC

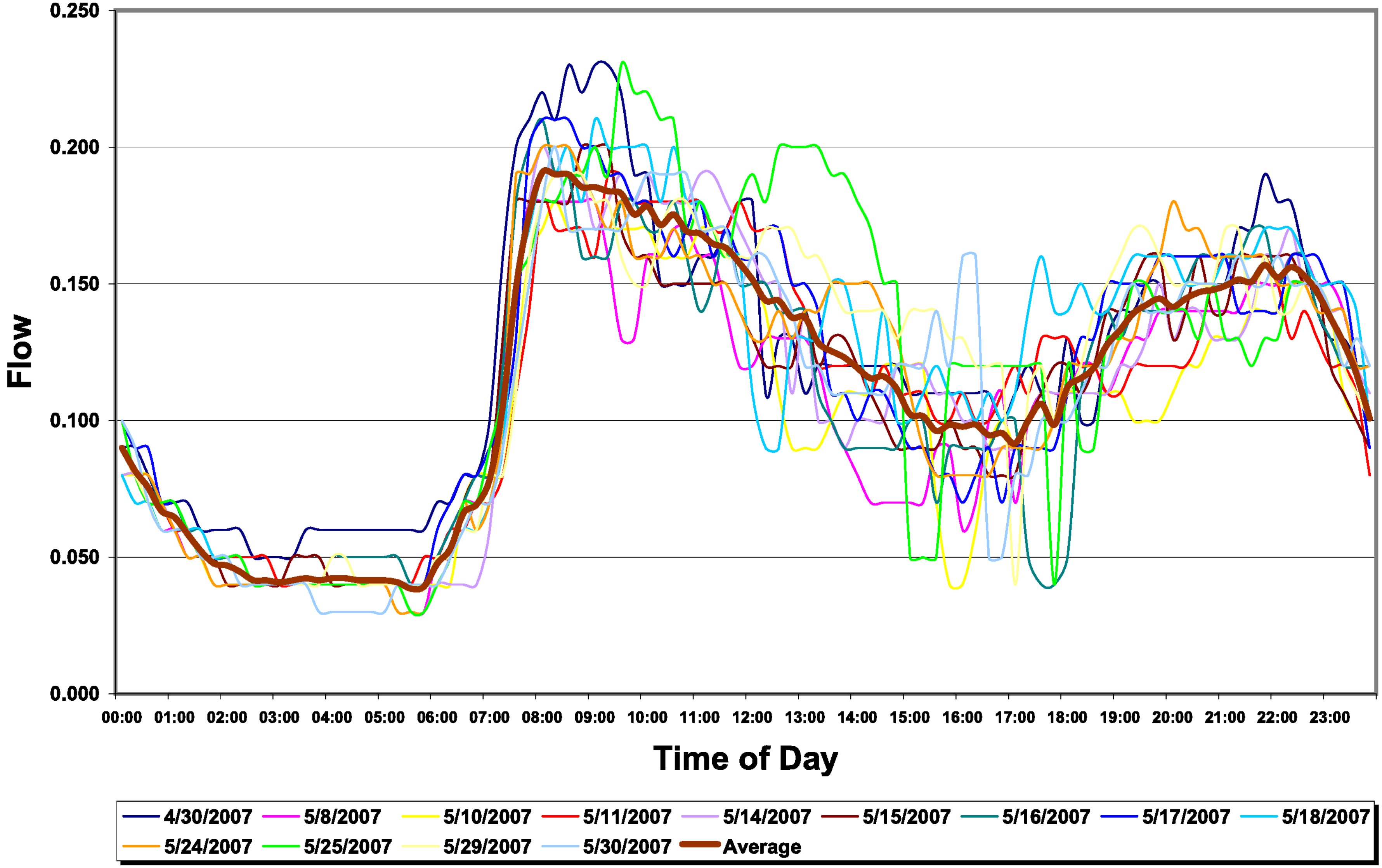
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
30-Apr-07	Mon	0.123	0.228	1.852	0.057	17-Apr-07	0.040
08-May-07	Tue	0.104	0.180	1.731	0.038	24-Apr-07	0.060
10-May-07	Thu	0.102	0.173	1.693	0.040	25-Apr-07	0.054
11-May-07	Fri	0.112	0.185	1.654	0.041	21-May-07	0.043
14-May-07	Mon	0.110	0.193	1.745	0.038		
15-May-07	Tue	0.110	0.195	1.769	0.043		
16-May-07	Wed	0.110	0.198	1.801	0.045		
17-May-07	Thu	0.115	0.208	1.801	0.040		
18-May-07	Fri	0.118	0.203	1.710	0.040		
24-May-07	Thu	0.113	0.198	1.747	0.038		
25-May-07	Fri	0.120	0.220	1.840	0.038		
29-May-07	Tue	0.118	0.188	1.592	0.042		
30-May-07	Wed	0.112	0.190	1.697	0.035		
13 Count		**0.113 Avg.**	**0.197 Avg.**	**1.741 Avg.**	**0.041 Avg.**	**4 Count**	**0.049 Avg.**

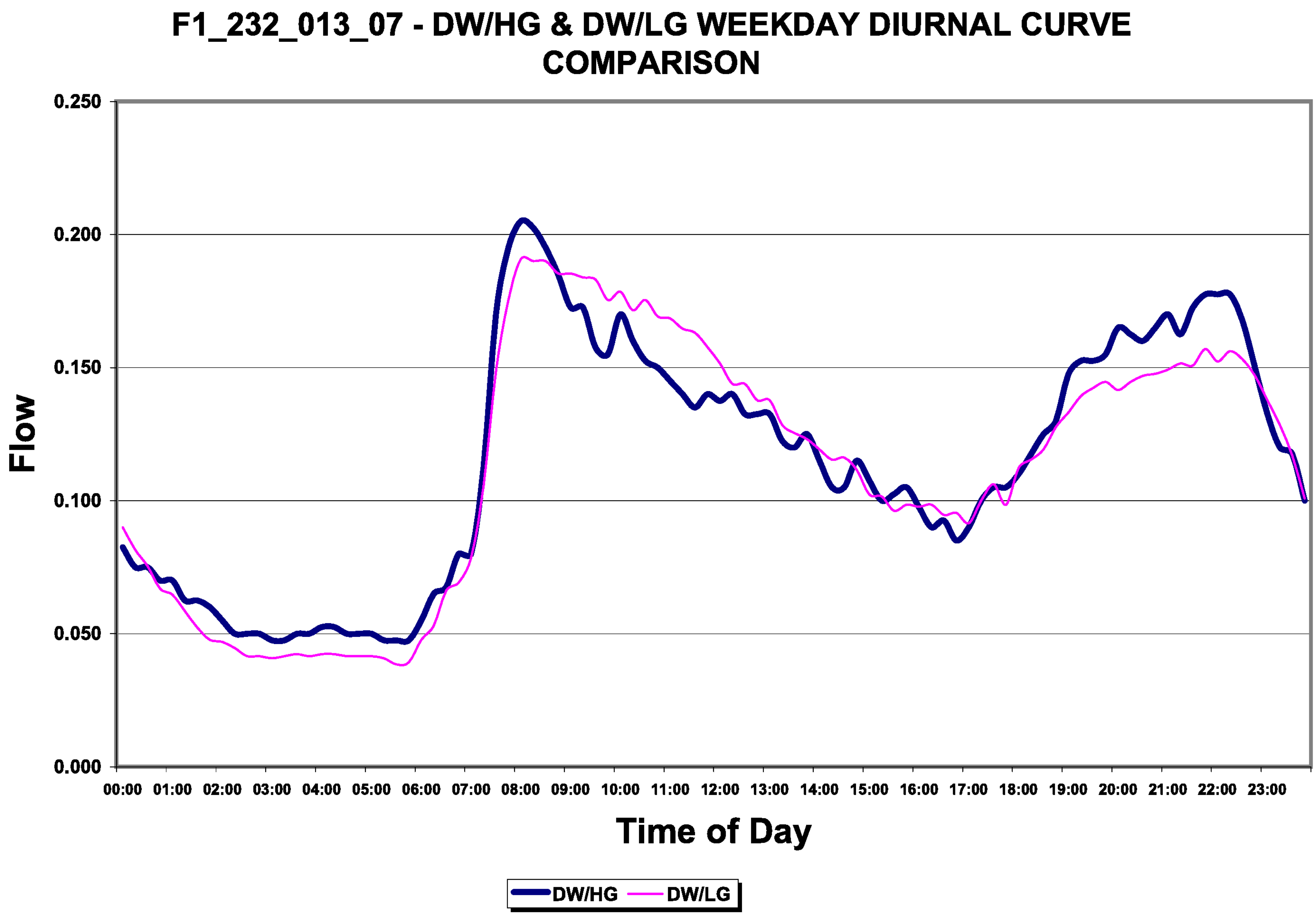
Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	**0.113**	
Avg. Dry Weather Flow (ADDF):	**0.113**	
Diurnal Peaking Factor (DPF):	**1.741**	
Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
Wet Weather Infiltration Increase (WWI):	**0.008**	**(DW/HG - DW/LG)**
Total Infiltration (TI):	**0.008**	**(WWI + DWI, DWI > 0)**

F1_232_013_07 - ADDF WEEKDAY DIURNAL CURVES




F1_232_013_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON
Flow
0.250
0.200
0.150
0.100
0.050
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007 **Units of Flow:** MGD
Meter Name: F1_232_013_07

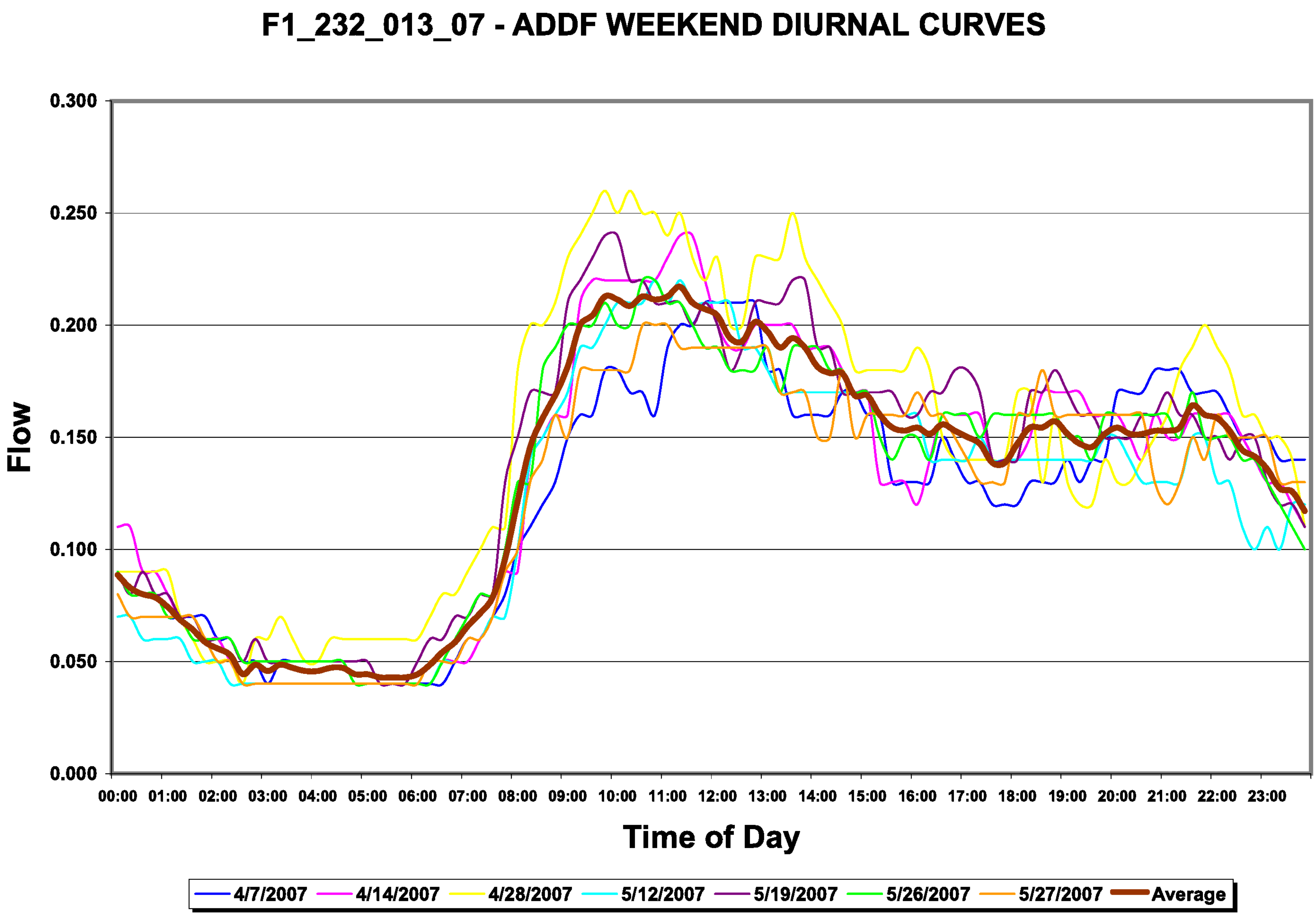
Date: 09/11/08
Time: 10:12 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
07-Apr-07	Sat	0.124	0.210	1.700	0.043	08-Apr-07	0.046
14-Apr-07	Sat	0.131	0.233	1.769	0.040	15-Apr-07	0.037
28-Apr-07	Sat	0.148	0.255	1.728	0.055	21-Apr-07	0.050
12-May-07	Sat	0.122	0.215	1.761	0.040	22-Apr-07	0.047
19-May-07	Sat	0.138	0.233	1.682	0.048	06-May-07	0.043
26-May-07	Sat	0.131	0.215	1.643	0.044		
27-May-07	Sun	0.124	0.198	1.588	0.040		
7 Count		**0.131 Avg.**	**0.223 Avg.**	**1.696 Avg.**	**0.044 Avg.**	**5 Count**	**0.045 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	0.131	
Avg. Dry Weather Flow (ADDF):	0.131	
Diurnal Peaking Factor (DPF):	1.696	
Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
Wet Weather Infiltration Increase (WWI):	0.000	(DW/HG - DW/LG)
Total Infiltration (TI):	0.000	(WWI + DWI, DWI > 0)


F1_232_013_07 - ADDF WEEKEND DIURNAL CURVES
Flow
0.300
0.250
0.200
0.150
0.100
0.050
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
4/7/2007
4/14/2007
4/28/2007
5/12/2007
5/19/2007
5/26/2007
5/27/2007
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

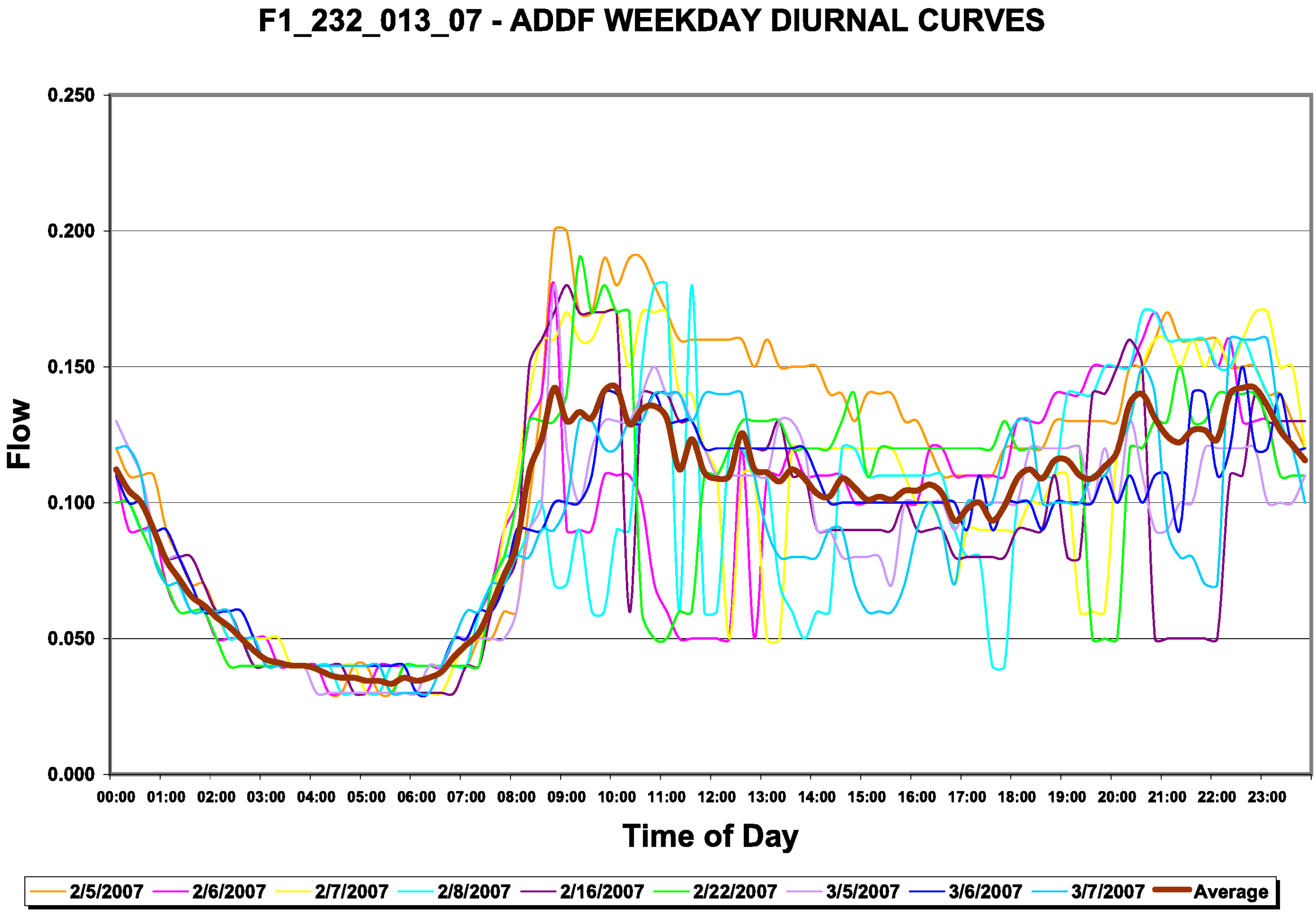
Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007
Meter Name: F1_232_013_07
Units of Flow: MGD

Date: 09/10/08
Time: 3:28 PM
By: LEC

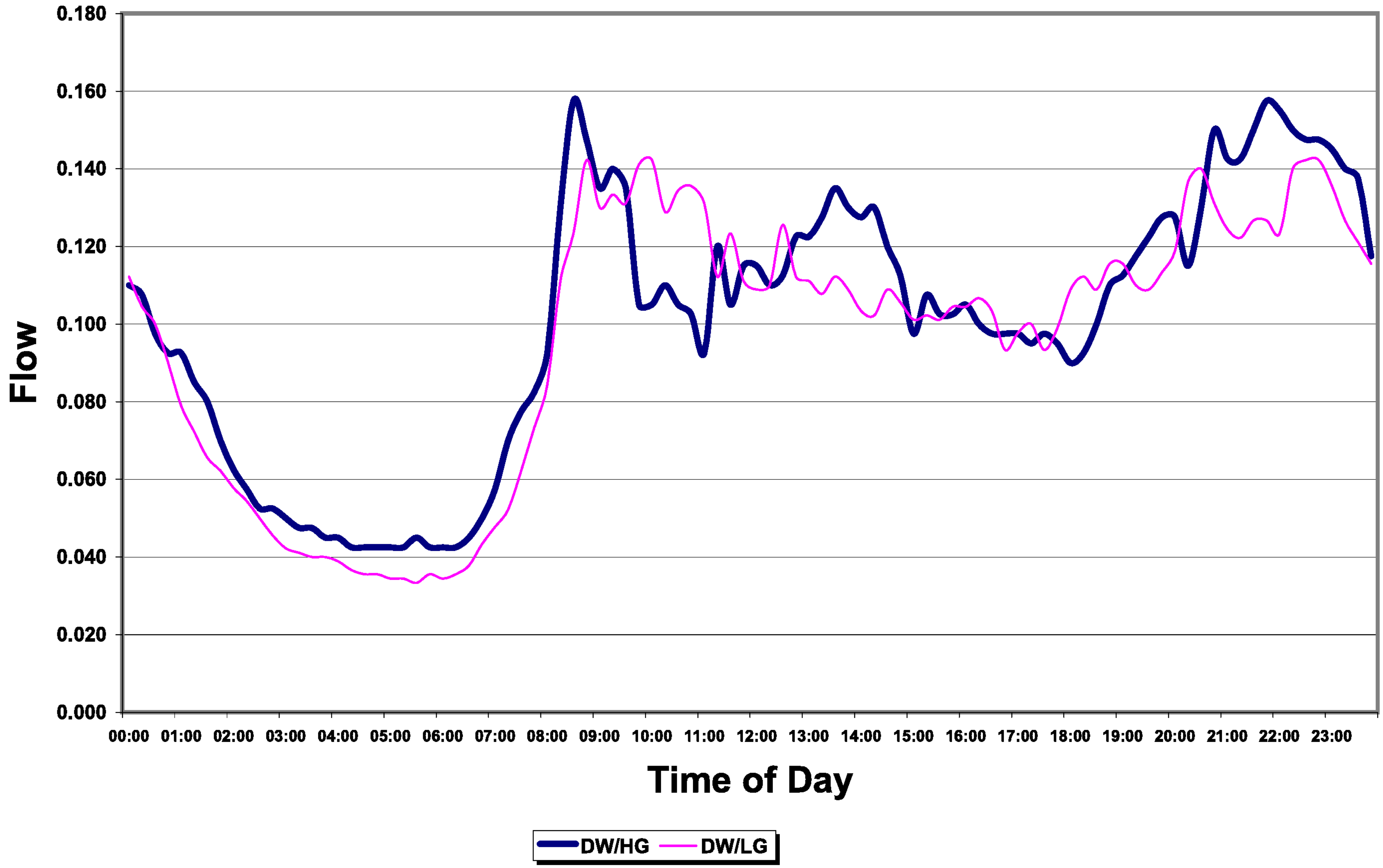
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
05-Feb-07	Mon	0.115	0.188	1.630	0.037	14-Feb-07	0.036
06-Feb-07	Tue	0.095	0.163	1.712	0.037	15-Feb-07	0.041
07-Feb-07	Wed	0.101	0.165	1.636	0.034	20-Feb-07	0.040
08-Feb-07	Thu	0.092	0.165	1.788	0.037	01-Mar-07	0.057
16-Feb-07	Fri	0.091	0.173	1.888	0.033		
22-Feb-07	Thu	0.097	0.178	1.834	0.039		
05-Mar-07	Mon	0.091	0.143	1.565	0.033		
06-Mar-07	Tue	0.093	0.135	1.451	0.038		
07-Mar-07	Wed	0.090	0.160	1.770	0.037		
9		**0.096**	**0.163**	**1.697**	**0.036**	**4**	**0.043**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.096	
	Avg. Dry Weather Flow (ADDF):	0.096	
	Diurnal Peaking Factor (DPF):	1.697	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.007	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.007	(WWI + DWI, DWI > 0)


F1_232_013_07 - ADDF WEEKDAY DIURNAL CURVES
Flow
0.250
0.200
0.150
0.100
0.050
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
2/5/2007 2/6/2007 2/7/2007 2/8/2007 2/16/2007 2/22/2007 3/5/2007 3/6/2007 3/7/2007 Average

F1_232_013_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007
Meter Name: F1_232_013_07

Units of Flow: MGD

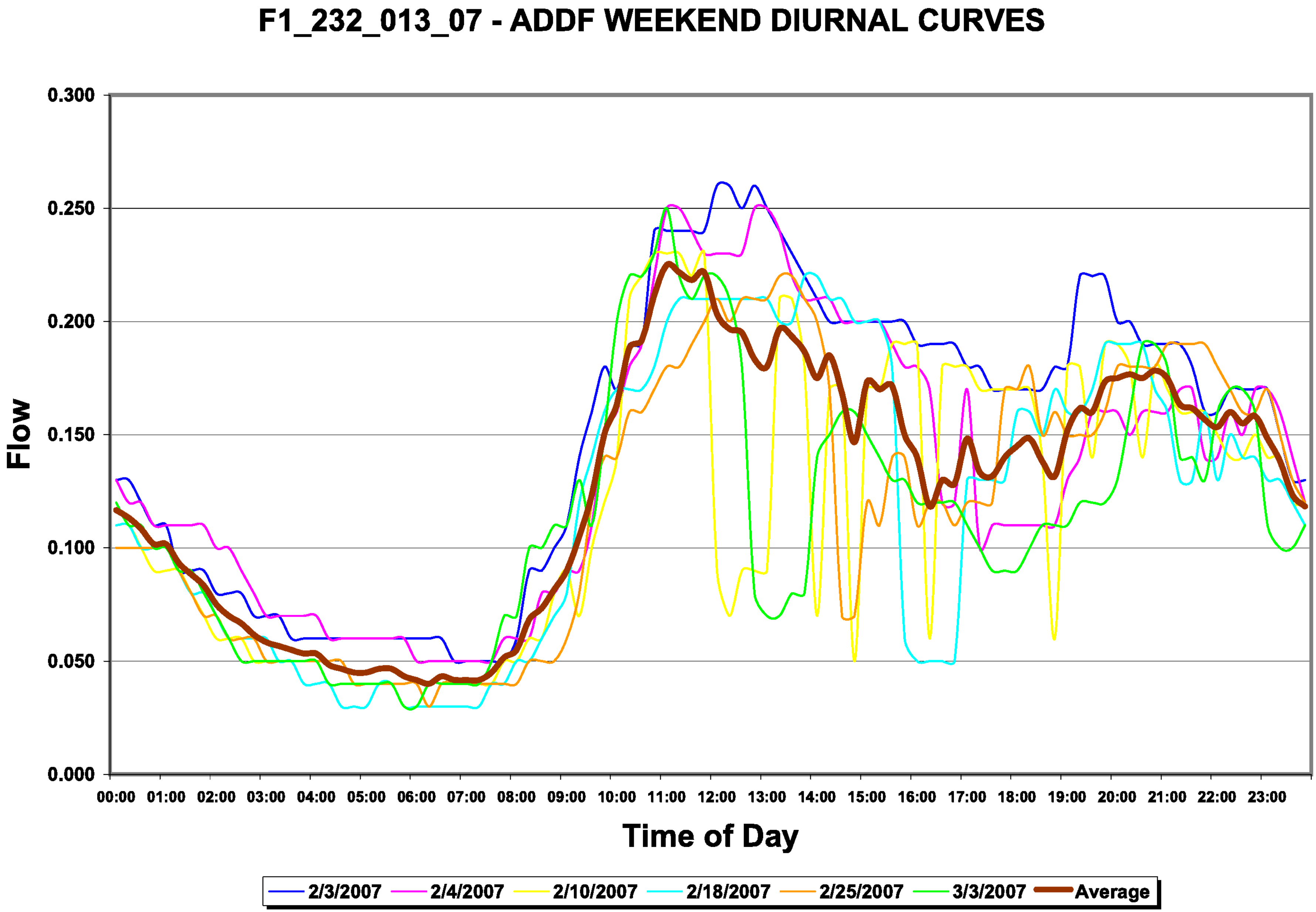
Date: 09/10/08
Time: 3:38 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
03-Feb-07	Sat	0.149	0.258	1.723	0.056
04-Feb-07	Sun	0.135	0.243	1.798	0.054
10-Feb-07	Sat	0.118	0.228	1.926	0.039
18-Feb-07	Sun	0.121	0.215	1.784	0.032
25-Feb-07	Sun	0.120	0.215	1.793	0.039
03-Mar-07	Sat	0.112	0.230	2.046	0.038
6		**0.126**	**0.231**	**1.845**	**0.043**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:

Wastewater Production (WWP):	**0.126**
Avg. Dry Weather Flow (ADDF):	**0.126**
Diurnal Peaking Factor (DPF):	**1.845**


F1_232_013_07 - ADDF WEEKEND DIURNAL CURVES
Flow
0.300
0.250
0.200
0.150
0.100
0.050
0.000
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time of Day
2/3/2007
2/4/2007
2/10/2007
2/18/2007
2/25/2007
3/3/2007
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_07

Source File: Meter_C1_261_024_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2007
Meter Name: C1_261_024_07
Units of Flow: MGD

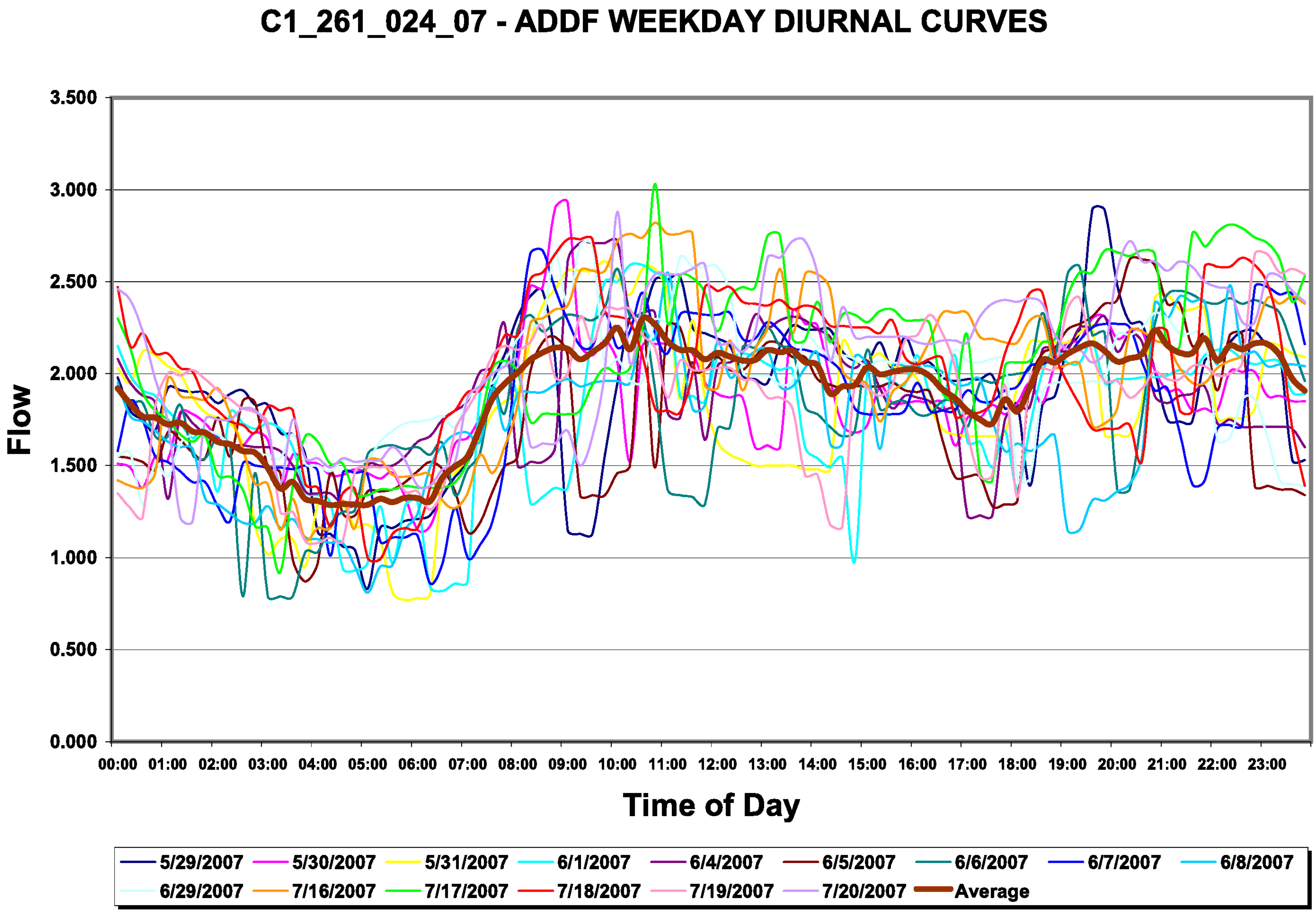
Date: 09/10/08
Time: 1:43 PM
By: LEC

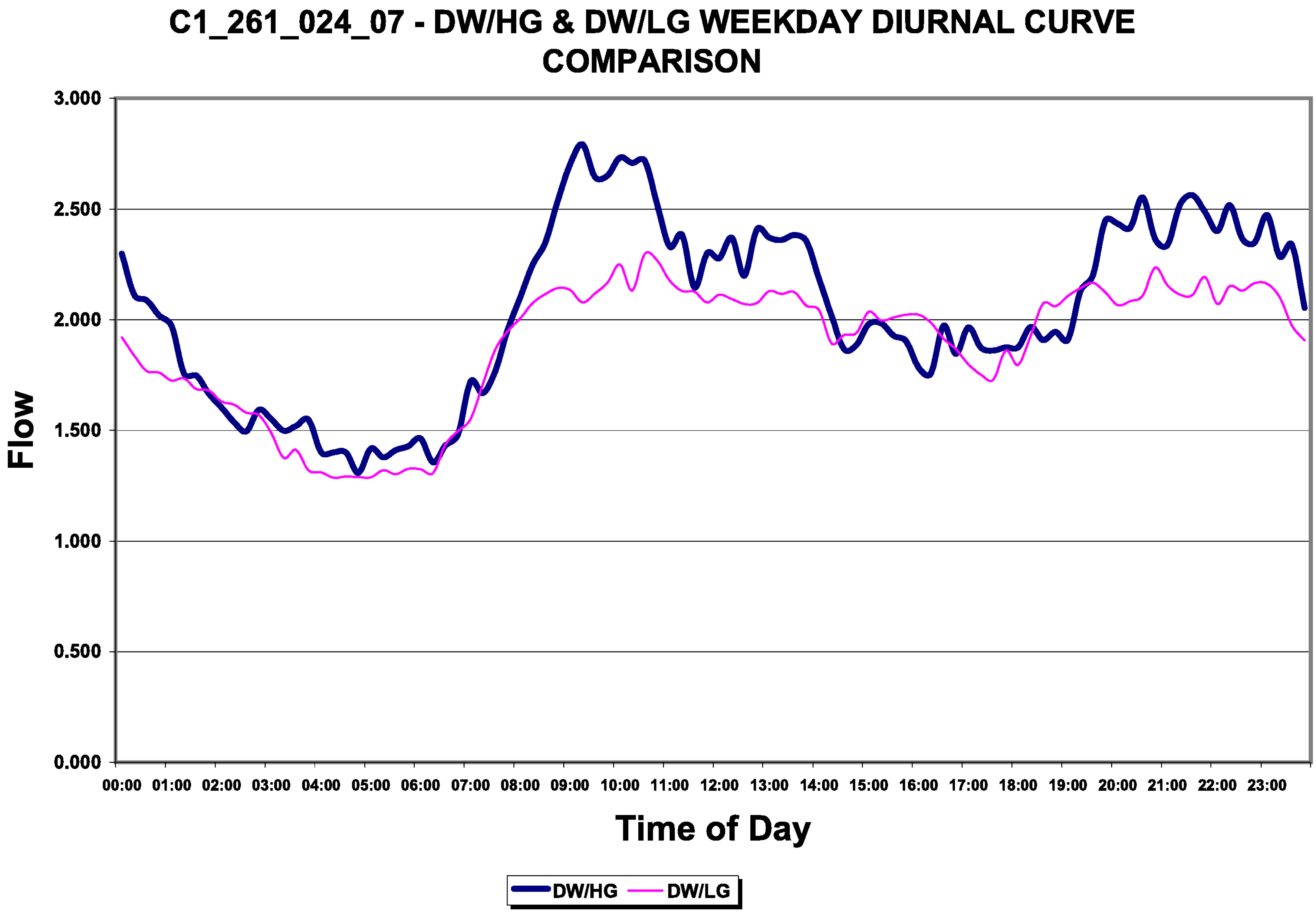
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
29-May-07	Tue	1.900	2.635	1.387	1.162	24-Jul-07	1.372
30-May-07	Wed	1.847	2.693	1.457	1.398	25-Jul-07	1.310
31-May-07	Thu	1.824	2.573	1.410	1.044	07-Aug-07	1.494
01-Jun-07	Fri	1.782	2.558	1.435	1.030	28-Aug-07	1.396
04-Jun-07	Mon	1.874	2.713	1.447	1.448		
05-Jun-07	Tue	1.759	2.558	1.454	1.266		
06-Jun-07	Wed	1.852	2.425	1.310	1.128		
07-Jun-07	Thu	1.842	2.518	1.367	1.143		
08-Jun-07	Fri	1.744	2.375	1.362	1.067		
29-Jun-07	Fri	1.933	2.608	1.349	1.550		
16-Jul-07	Mon	1.980	2.775	1.402	1.305		
17-Jul-07	Tue	2.058	2.778	1.350	1.365		
18-Jul-07	Wed	2.024	2.710	1.339	1.268		
19-Jul-07	Thu	1.874	2.605	1.390	1.293		
20-Jul-07	Fri	2.099	2.675	1.274	1.505		
15 Count		**1.893 Avg.**	**2.613 Avg.**	**1.382 Avg.**	**1.265 Avg.**	**4 Count**	**1.393 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	**1.893**	
Avg. Dry Weather Flow (ADDF):	**1.893**	
Diurnal Peaking Factor (DPF):	**1.382**	
Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
Wet Weather Infiltration Increase (WWI):	**0.128**	**(DW/HG - DW/LG)**
Total Infiltration (TI):	**0.128**	**(WWI + DWI, DWI > 0)**


C1_261_024_07 - ADDF WEEKDAY DIURNAL CURVES
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Flow
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
5/29/2007 5/30/2007 5/31/2007 6/1/2007 6/4/2007 6/5/2007 6/6/2007 6/7/2007 6/8/2007
6/29/2007 7/16/2007 7/17/2007 7/18/2007 7/19/2007 7/20/2007 Average


C1_261_024_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON
Flow
3.000
2.500
2.000
1.500
1.000
0.500
0.000
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_07

Source File: Meter_C1_261_024_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2007
Units of Flow: MGD
Meter Name: C1_261_024_07

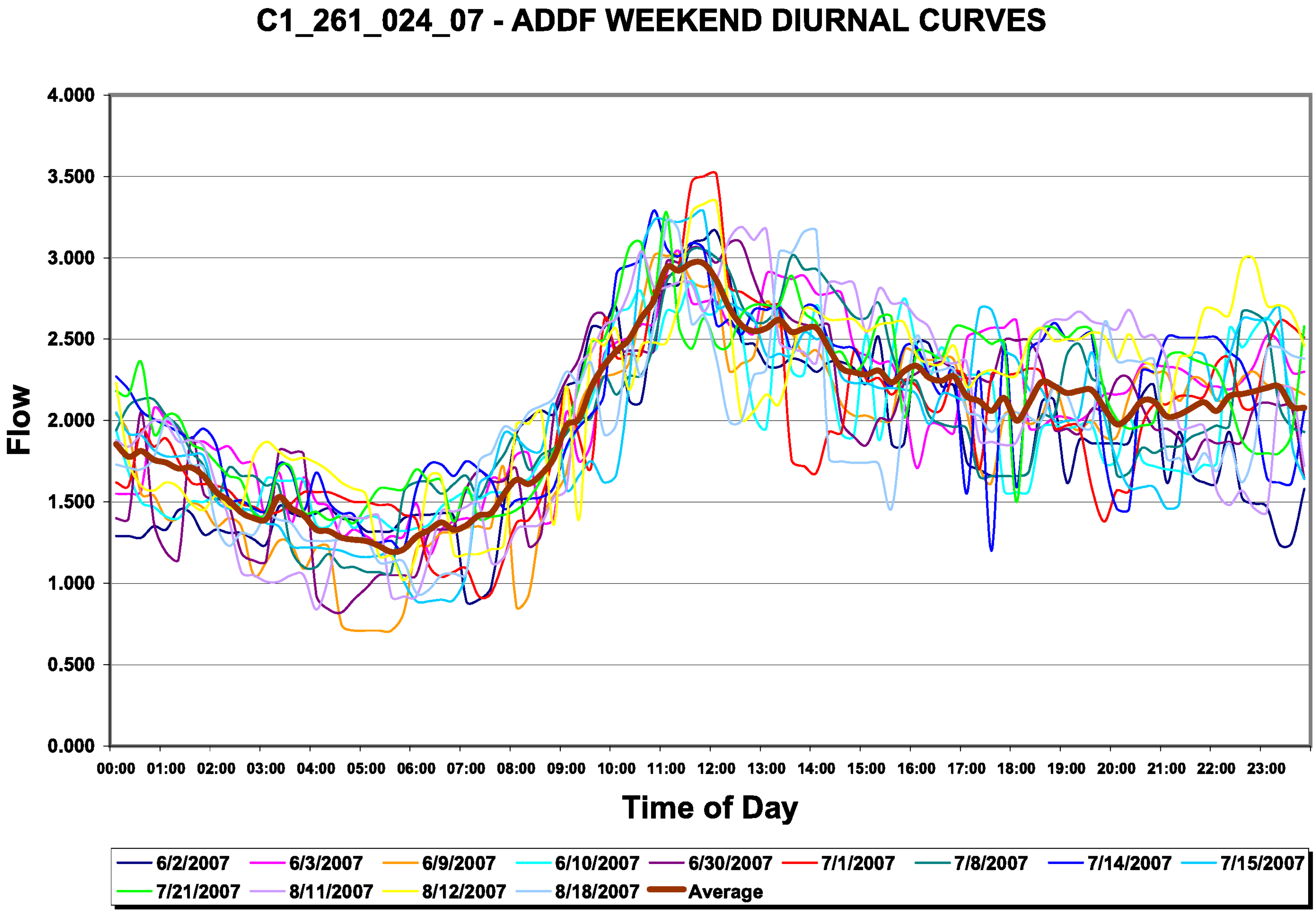
Date: 09/10/08
Time: 1:58 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
02-Jun-07	Sat	1.851	3.060	1.653	1.267
03-Jun-07	Sun	2.074	2.888	1.392	1.328
09-Jun-07	Sat	1.886	2.973	1.576	0.964
10-Jun-07	Sun	1.952	2.755	1.412	1.387
30-Jun-07	Sat	1.961	3.050	1.555	1.054
01-Jul-07	Sun	1.972	3.355	1.701	1.198
08-Jul-07	Sun	2.027	3.010	1.485	1.230
14-Jul-07	Sat	2.093	3.113	1.487	1.444
15-Jul-07	Sun	1.975	3.245	1.643	1.062
21-Jul-07	Sat	2.129	3.050	1.433	1.497
11-Aug-07	Sat	2.032	3.145	1.548	1.113
12-Aug-07	Sun	2.145	3.170	1.478	1.281
18-Aug-07	Sat	1.942	3.095	1.594	1.128
13 Count		**2.003 Avg.**	**3.070 Avg.**	**1.535 Avg.**	**1.227 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:

Wastewater Production (WWP):	**2.003**
Avg. Dry Weather Flow (ADDF):	**2.003**
Diurnal Peaking Factor (DPF):	**1.535**


C1_261_024_07 - ADDF WEEKEND DIURNAL CURVES
Flow
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
6/2/2007
6/3/2007
6/9/2007
6/10/2007
6/30/2007
7/1/2007
7/8/2007
7/14/2007
7/15/2007
7/21/2007
8/11/2007
8/12/2007
8/18/2007
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_08

Source File: Meter_C1_261_024_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2008 **Units of Flow:** MGD
Meter Name: C1_261_024_08

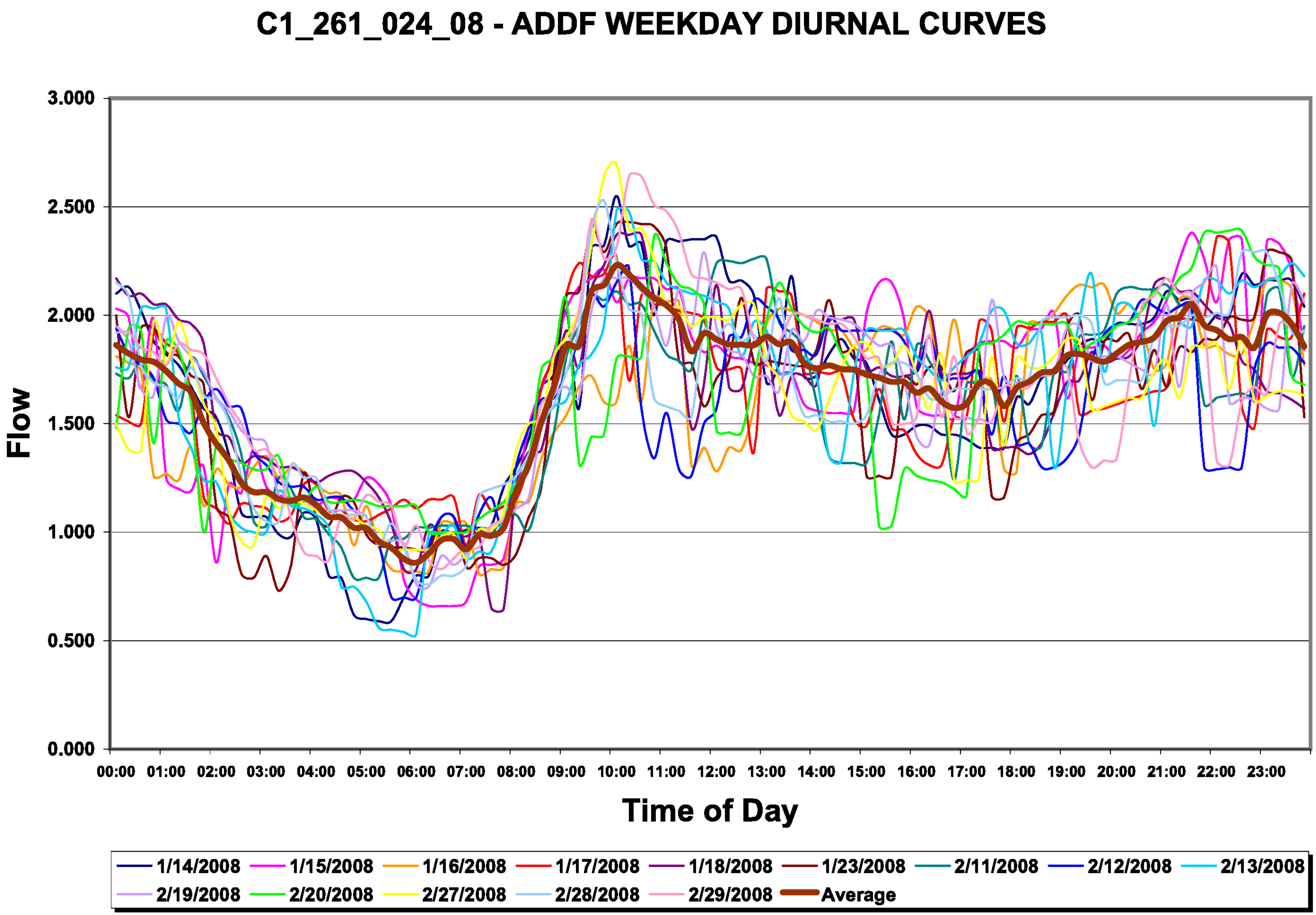
Date: 09/10/08
Time: 2:32 PM
By: LEC

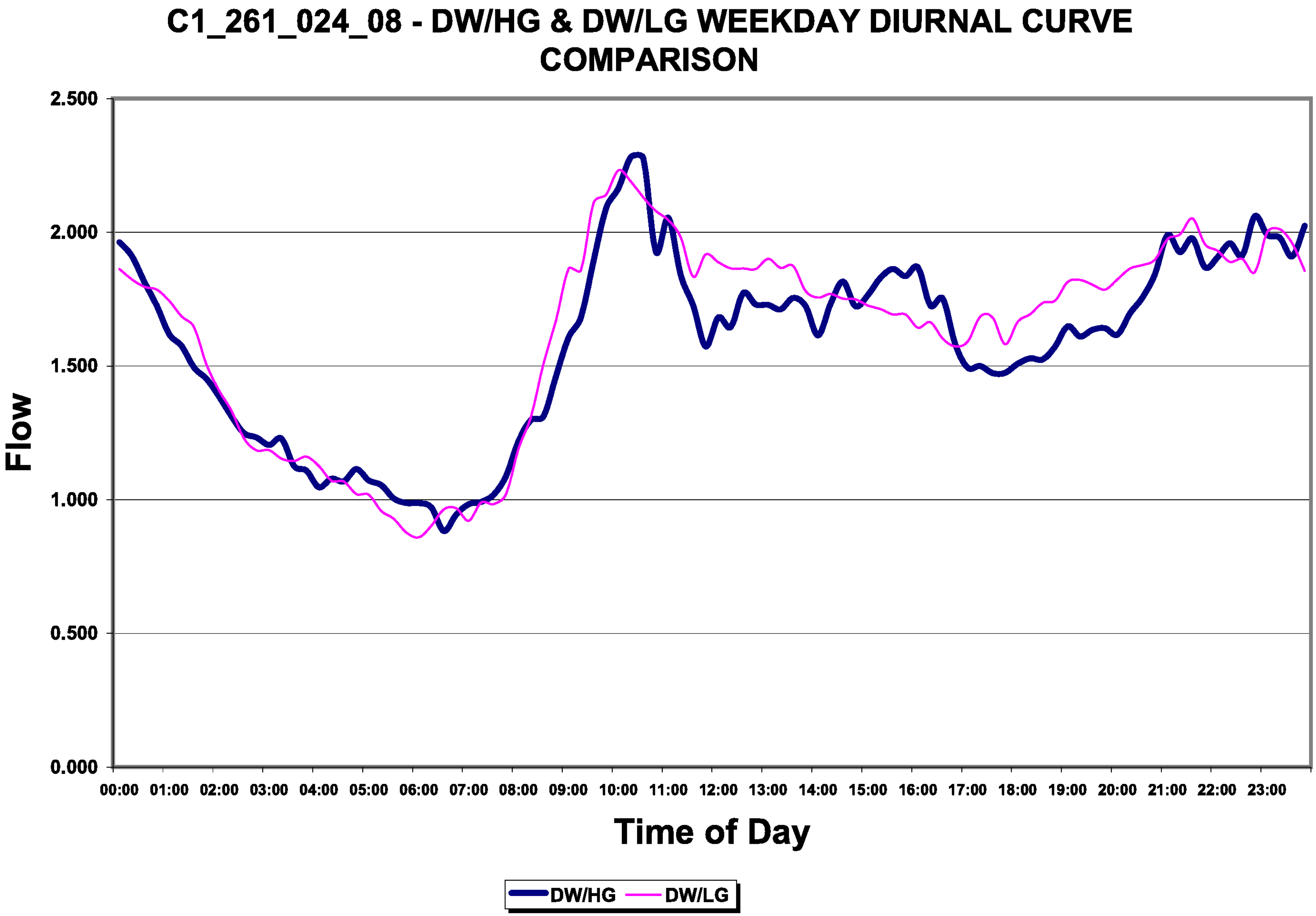
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
14-Jan-08	Mon	1.654	2.380	1.439	0.774	08-Jan-08	1.017
15-Jan-08	Tue	1.653	2.263	1.369	0.851	10-Jan-08	0.835
16-Jan-08	Wed	1.592	2.125	1.335	0.912	29-Jan-08	0.918
17-Jan-08	Thu	1.610	2.220	1.379	1.097	31-Jan-08	1.031
18-Jan-08	Fri	1.651	2.335	1.414	0.945	05-Feb-08	1.009
23-Jan-08	Wed	1.594	2.420	1.518	0.928	25-Feb-08	1.074
11-Feb-08	Mon	1.602	2.253	1.406	0.947	26-Feb-08	0.971
12-Feb-08	Tue	1.579	2.125	1.346	0.948		
13-Feb-08	Wed	1.642	2.368	1.442	0.763		
19-Feb-08	Tue	1.636	2.155	1.317	0.931		
20-Feb-08	Wed	1.643	2.385	1.452	1.077		
27-Feb-08	Wed	1.597	2.535	1.588	0.972		
28-Feb-08	Thu	1.637	2.303	1.406	0.937		
29-Feb-08	Fri	1.666	2.568	1.541	0.989		
14 Count		**1.625 Avg.**	**2.317 Avg.**	**1.425 Avg.**	**0.934 Avg.**	**7 Count**	**0.979 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	1.625	
Avg. Dry Weather Flow (ADDF):	1.625	
Diurnal Peaking Factor (DPF):	1.425	
Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
Wet Weather Infiltration Increase (WWI):	0.046	(DW/HG - DW/LG)
Total Infiltration (TI):	0.046	(WWI + DWI, DWI > 0)


C1_261_024_08 - ADDF WEEKDAY DIURNAL CURVES
Flow
3.000
2.500
2.000
1.500
1.000
0.500
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/14/2008
1/15/2008
1/16/2008
1/17/2008
1/18/2008
1/23/2008
2/11/2008
2/12/2008
2/13/2008
2/19/2008
2/20/2008
2/27/2008
2/28/2008
2/29/2008
Average


C1_261_024_08 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON
Flow
2.500
2.000
1.500
1.000
0.500
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_08

Source File: Meter_C1_261_024_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2008
Meter Name: C1_261_024_08

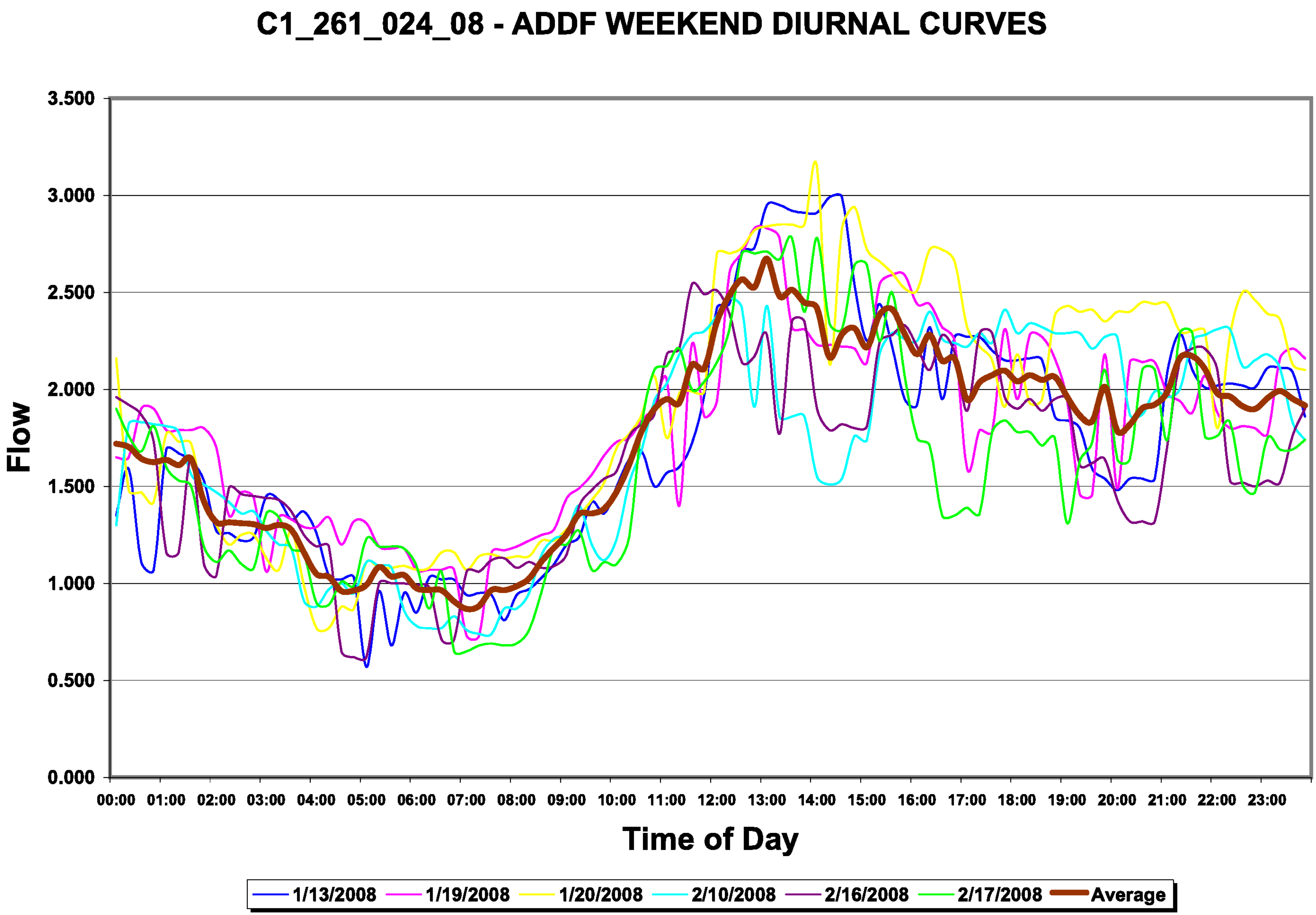
Units of Flow: MGD

Date: 09/10/08
Time: 2:37 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
13-Jan-08	Sun	1.722	2.950	1.713	0.893
19-Jan-08	Sat	1.794	2.785	1.552	1.068
20-Jan-08	Sun	1.904	2.925	1.536	0.996
10-Feb-08	Sun	1.709	2.393	1.400	0.835
16-Feb-08	Sat	1.641	2.483	1.512	0.867
17-Feb-08	Sun	1.620	2.715	1.676	0.830
6		**1.732**	**2.708**	**1.565**	**0.915**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:	**Wastewater Production (WWP):**	**1.732**
	Avg. Dry Weather Flow (ADDF):	**1.732**
	Diurnal Peaking Factor (DPF):	**1.565**


C1_261_024_08 - ADDF WEEKEND DIURNAL CURVES
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Flow
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/13/2008 1/19/2008 1/20/2008 2/10/2008 2/16/2008 2/17/2008 Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

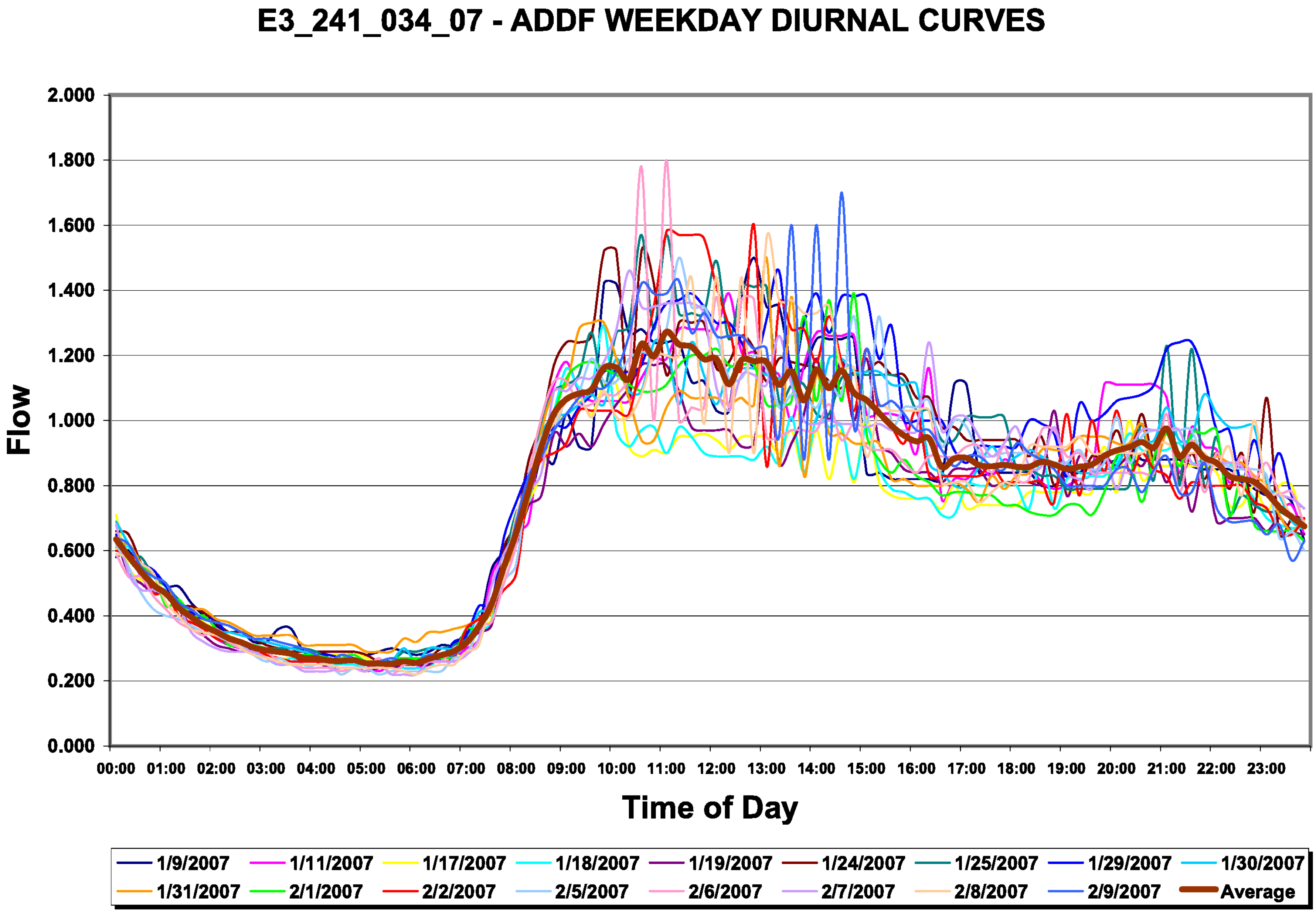
Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007 **Units of Flow:** MGD
Meter Name: E3_241_034_07

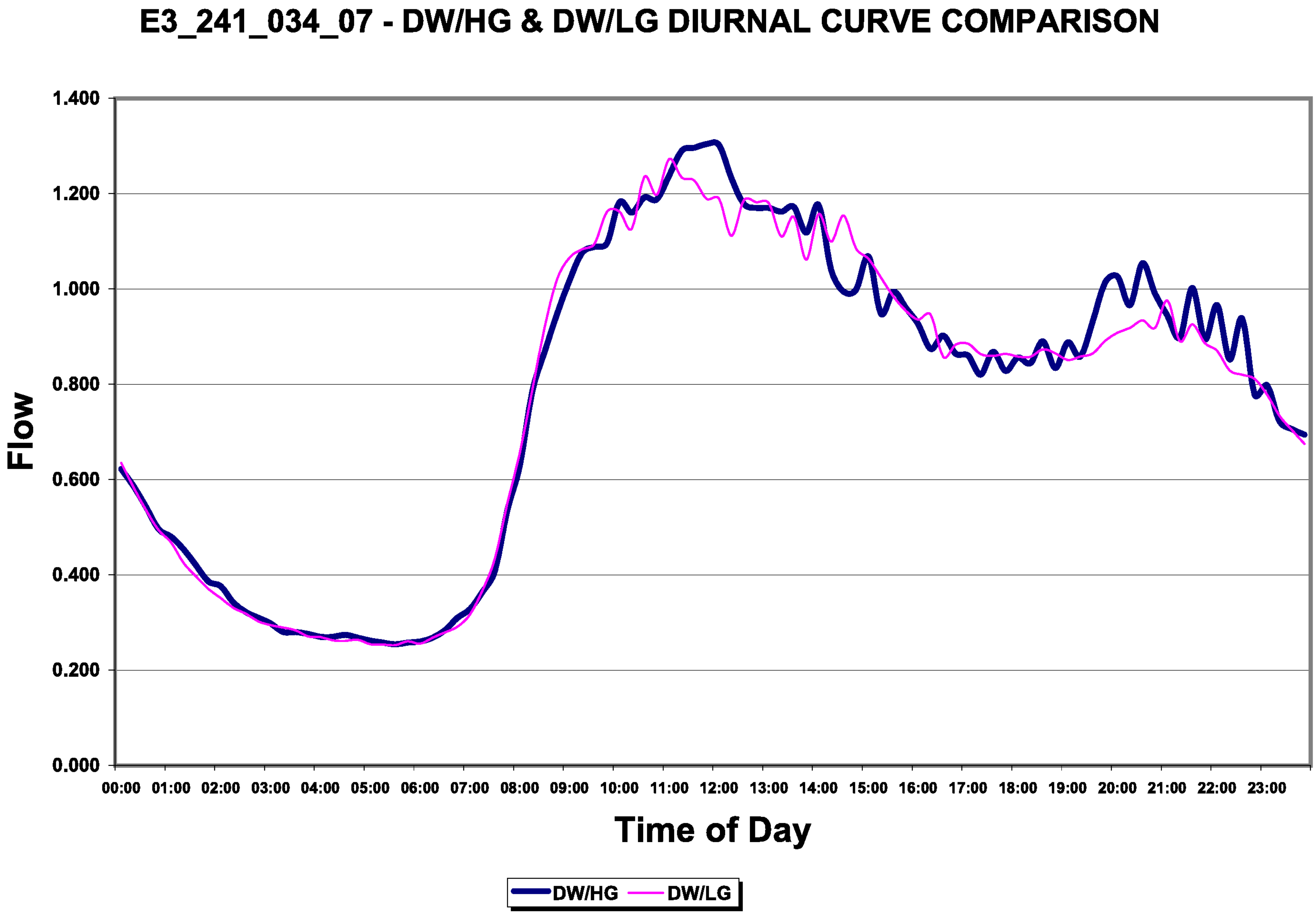
Date: 09/11/08
Time: 2:31 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
09-Jan-07	Tue	0.781	1.393	1.783	0.289	15-Jan-07	0.270
11-Jan-07	Thu	0.786	1.308	1.664	0.255	22-Jan-07	0.277
17-Jan-07	Wed	0.686	1.075	1.566	0.268	13-Feb-07	0.262
18-Jan-07	Thu	0.694	1.163	1.674	0.247	20-Feb-07	0.280
19-Jan-07	Fri	0.709	1.153	1.625	0.248	01-Mar-07	0.242
24-Jan-07	Wed	0.818	1.408	1.720	0.278		
25-Jan-07	Thu	0.810	1.438	1.775	0.279		
29-Jan-07	Mon	0.848	1.368	1.613	0.267		
30-Jan-07	Tue	0.782	1.193	1.525	0.273		
31-Jan-07	Wed	0.759	1.268	1.671	0.313		
01-Feb-07	Thu	0.742	1.220	1.644	0.271		
02-Feb-07	Fri	0.775	1.570	2.027	0.256		
05-Feb-07	Mon	0.778	1.370	1.760	0.234		
06-Feb-07	Tue	0.754	1.430	1.897	0.243		
07-Feb-07	Wed	0.778	1.380	1.773	0.234		
08-Feb-07	Thu	0.776	1.408	1.813	0.241		
09-Feb-07	Fri	0.782	1.408	1.799	0.270		
17 Count		**0.768 Avg.**	**1.326 Avg.**	**1.725 Avg.**	**0.263 Avg.**	**5 Count**	**0.266 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.768**	
	Avg. Dry Weather Flow (ADDF):	**0.768**	
	Diurnal Peaking Factor (DPF):	**1.725**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**0.003**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**0.003**	**(WWI + DWI, DWI > 0)**


E3_241_034_07 - ADDF WEEKDAY DIURNAL CURVES
Flow
2.000
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/9/2007 1/11/2007 1/17/2007 1/18/2007 1/19/2007 1/24/2007 1/25/2007 1/29/2007 1/30/2007
1/31/2007 2/1/2007 2/2/2007 2/5/2007 2/6/2007 2/7/2007 2/8/2007 2/9/2007 Average


E3_241_034_07 - DW/HG & DW/LG DIURNAL CURVE COMPARISON
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
Flow
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007
Units of Flow: MGD
Meter Name: E3_241_034_07

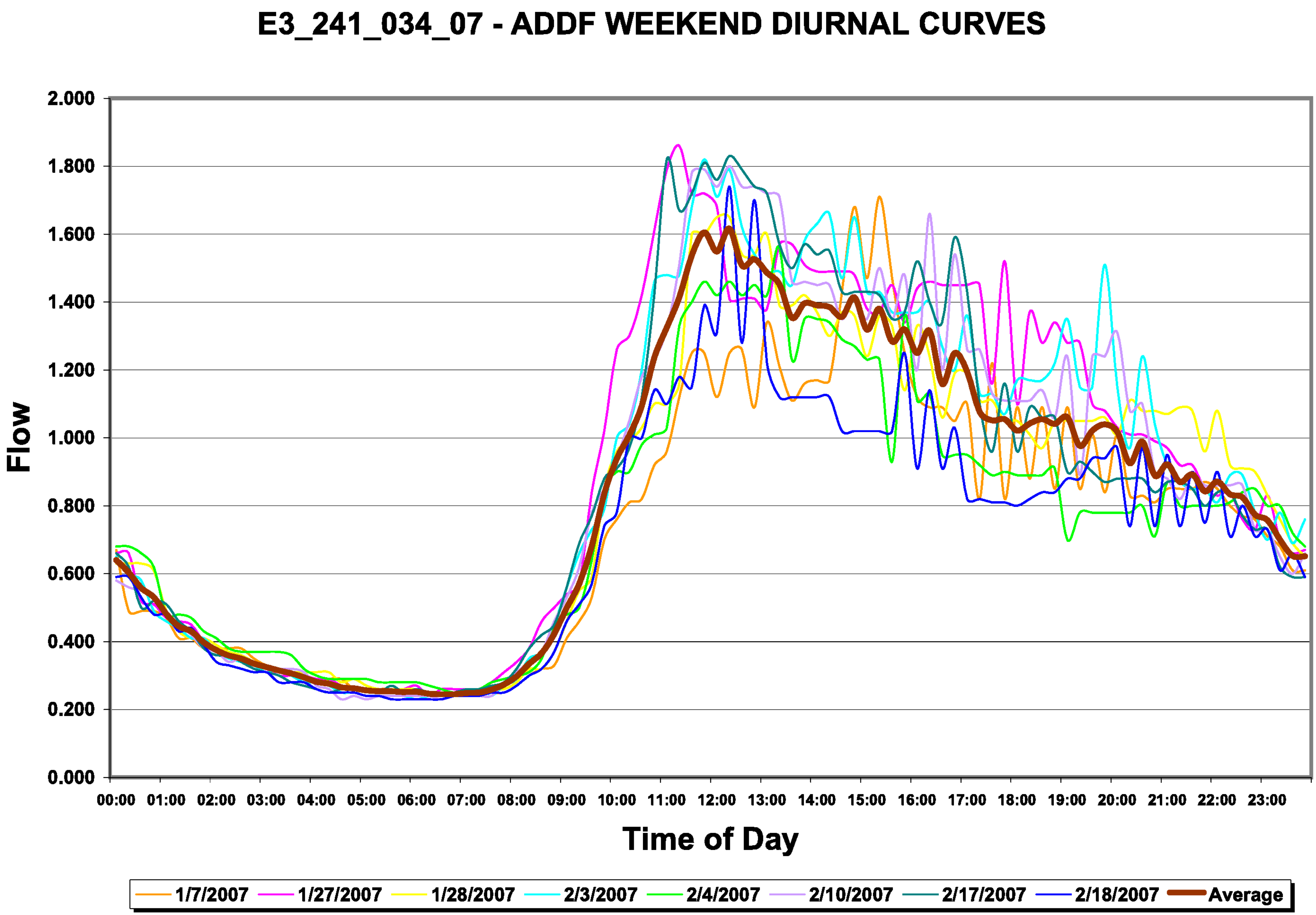
Date: 09/11/08
Time: 2:36 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
07-Jan-07	Sun	0.744	1.583	2.126	0.250	06-Jan-07	0.315
27-Jan-07	Sat	0.903	1.773	1.962	0.259	14-Jan-07	0.269
28-Jan-07	Sun	0.833	1.625	1.952	0.256	24-Feb-07	0.244
03-Feb-07	Sat	0.882	1.750	1.985	0.240		
04-Feb-07	Sun	0.762	1.463	1.919	0.273		
10-Feb-07	Sat	0.870	1.778	2.044	0.238		
17-Feb-07	Sat	0.860	1.798	2.091	0.256		
18-Feb-07	Sun	0.712	1.508	2.116	0.238		
8		**0.821**	**1.659**	**2.024**	**0.251**	**3**	**0.276**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	**0.821**	
Avg. Dry Weather Flow (ADDF):	**0.821**	
Diurnal Peaking Factor (DPF):	**2.024**	
Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
Wet Weather Infiltration Increase (WWI):	**0.025**	**(DW/HG - DW/LG)**
Total Infiltration (TI):	**0.025**	**(WWI + DWI, DWI > 0)**


E3_241_034_07 - ADDF WEEKEND DIURNAL CURVES
Flow
2.000
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/7/2007
1/27/2007
1/28/2007
2/3/2007
2/4/2007
2/10/2007
2/17/2007
2/18/2007
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007
Units of Flow: MGD
Meter Name: E3_241_034_07

Date: 09/12/08
Time: 6:47 AM
By: LEC

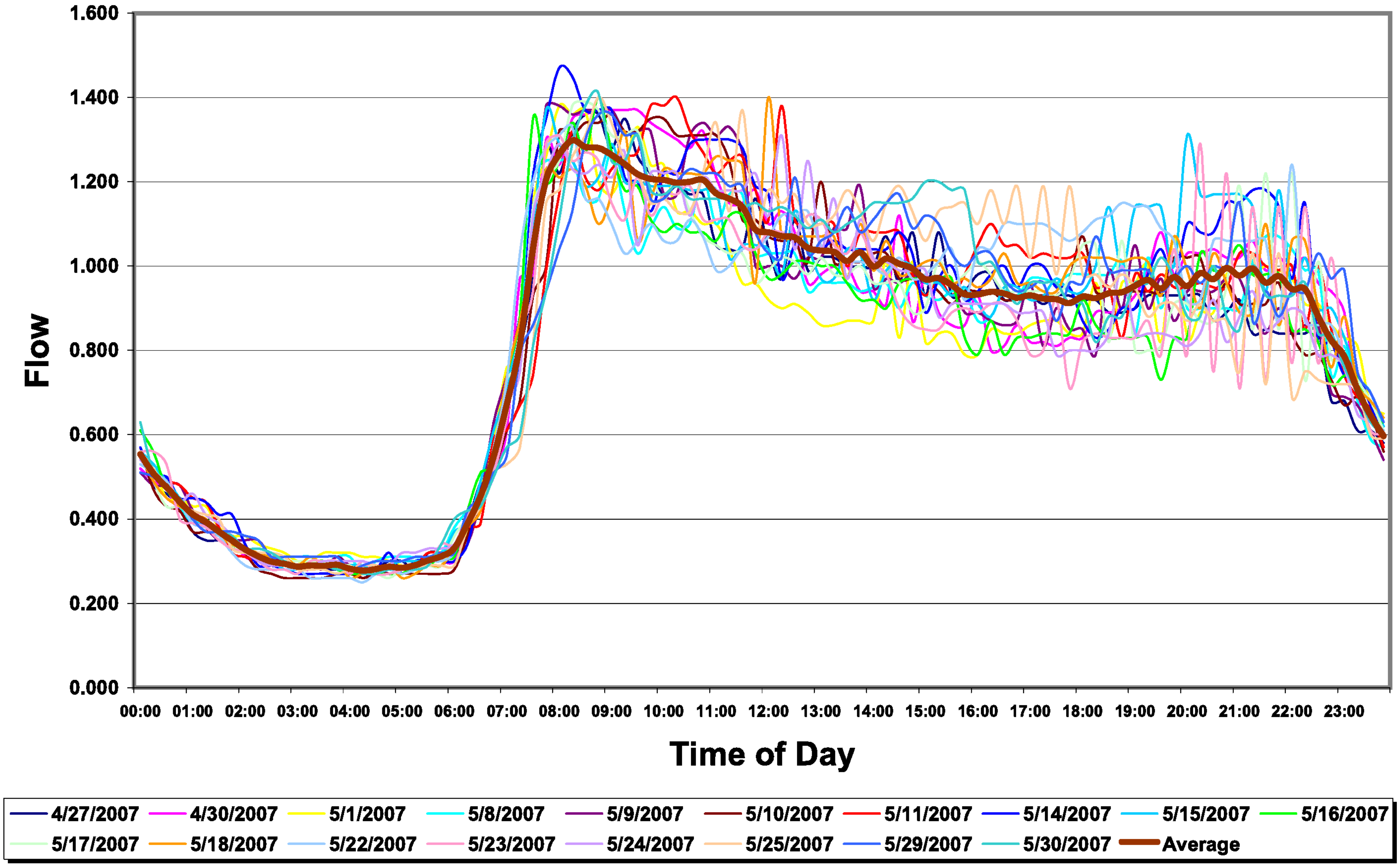
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
27-Apr-07	Fri	0.798	1.338	1.676	0.285	06-Apr-07	0.253
30-Apr-07	Mon	0.822	1.370	1.666	0.285	10-Apr-07	0.252
01-May-07	Tue	0.789	1.343	1.702	0.308	13-Apr-07	0.268
08-May-07	Tue	0.804	1.243	1.546	0.304	17-Apr-07	0.263
09-May-07	Wed	0.814	1.373	1.685	0.284	24-Apr-07	0.313
10-May-07	Thu	0.812	1.340	1.650	0.266	25-Apr-07	0.290
11-May-07	Fri	0.838	1.370	1.635	0.284		
14-May-07	Mon	0.851	1.415	1.662	0.280		
15-May-07	Tue	0.841	1.275	1.516	0.290		
16-May-07	Wed	0.785	1.320	1.682	0.284		
17-May-07	Thu	0.809	1.363	1.685	0.286		
18-May-07	Fri	0.830	1.243	1.498	0.283		
22-May-07	Tue	0.833	1.280	1.537	0.269		
23-May-07	Wed	0.790	1.280	1.619	0.284		
24-May-07	Thu	0.798	1.245	1.560	0.297		
25-May-07	Fri	0.831	1.328	1.598	0.283		
29-May-07	Tue	0.839	1.335	1.592	0.303		
30-May-07	Wed	0.827	1.333	1.611	0.283		
18 Count		**0.817 Avg.**	**1.322 Avg.**	**1.618 Avg.**	**0.287 Avg.**	**6 Count**	**0.273 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	0.817	
Avg. Dry Weather Flow (ADDF):	0.817	
Diurnal Peaking Factor (DPF):	1.618	
Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
Wet Weather Infiltration Increase (WWI):	-0.013	(DW/HG - DW/LG)
Total Infiltration (TI):	-0.013	(WWI + DWI, DWI > 0)

E3_241_034_07 - ADDF WEEKDAY DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

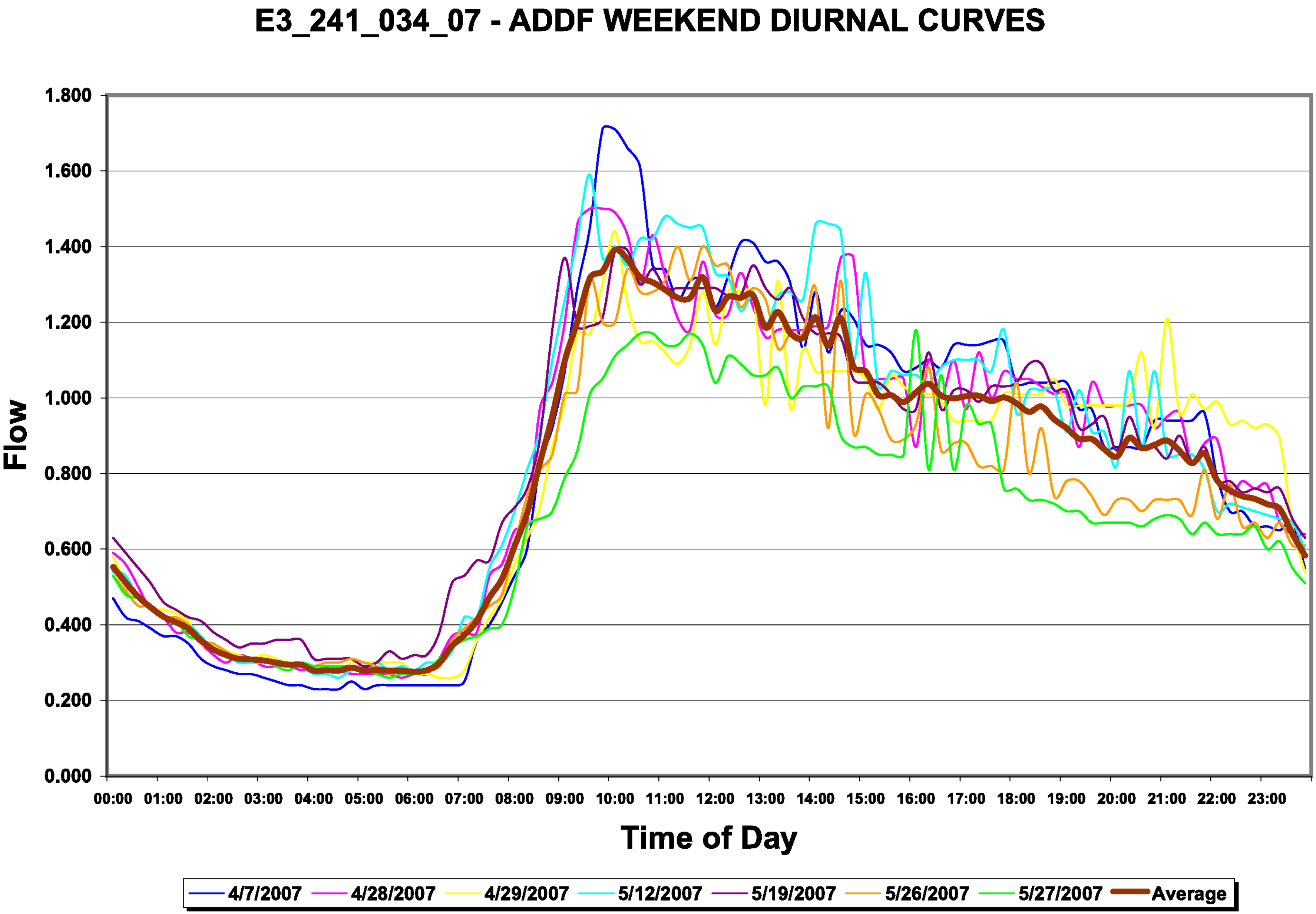
Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007
Units of Flow: MGD
Meter Name: E3_241_034_07

Date: 09/12/08
Time: 6:53 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
07-Apr-07	Sat	0.823	1.673	2.033	0.238	22-Apr-07	0.275
28-Apr-07	Sat	0.830	1.488	1.793	0.274	06-May-07	0.294
29-Apr-07	Sun	0.798	1.290	1.616	0.283		
12-May-07	Sat	0.847	1.460	1.724	0.283		
19-May-07	Sat	0.836	1.355	1.622	0.319		
26-May-07	Sat	0.753	1.365	1.814	0.290		
27-May-07	Sun	0.681	1.155	1.695	0.281		
7 Count		**0.795 Avg.**	**1.398 Avg.**	**1.757 Avg.**	**0.281 Avg.**	**2 Count**	**0.285 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.795	
	Avg. Dry Weather Flow (ADDF):	0.795	
	Diurnal Peaking Factor (DPF):	1.757	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.003	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.003	(WWI + DWI, DWI > 0)


E3_241_034_07 - ADDF WEEKEND DIURNAL CURVES
Flow
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
4/7/2007
4/28/2007
4/29/2007
5/12/2007
5/19/2007
5/26/2007
5/27/2007
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_07

Source File: Meter_D1_252_010_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2007
Meter Name: D1_252_010_07

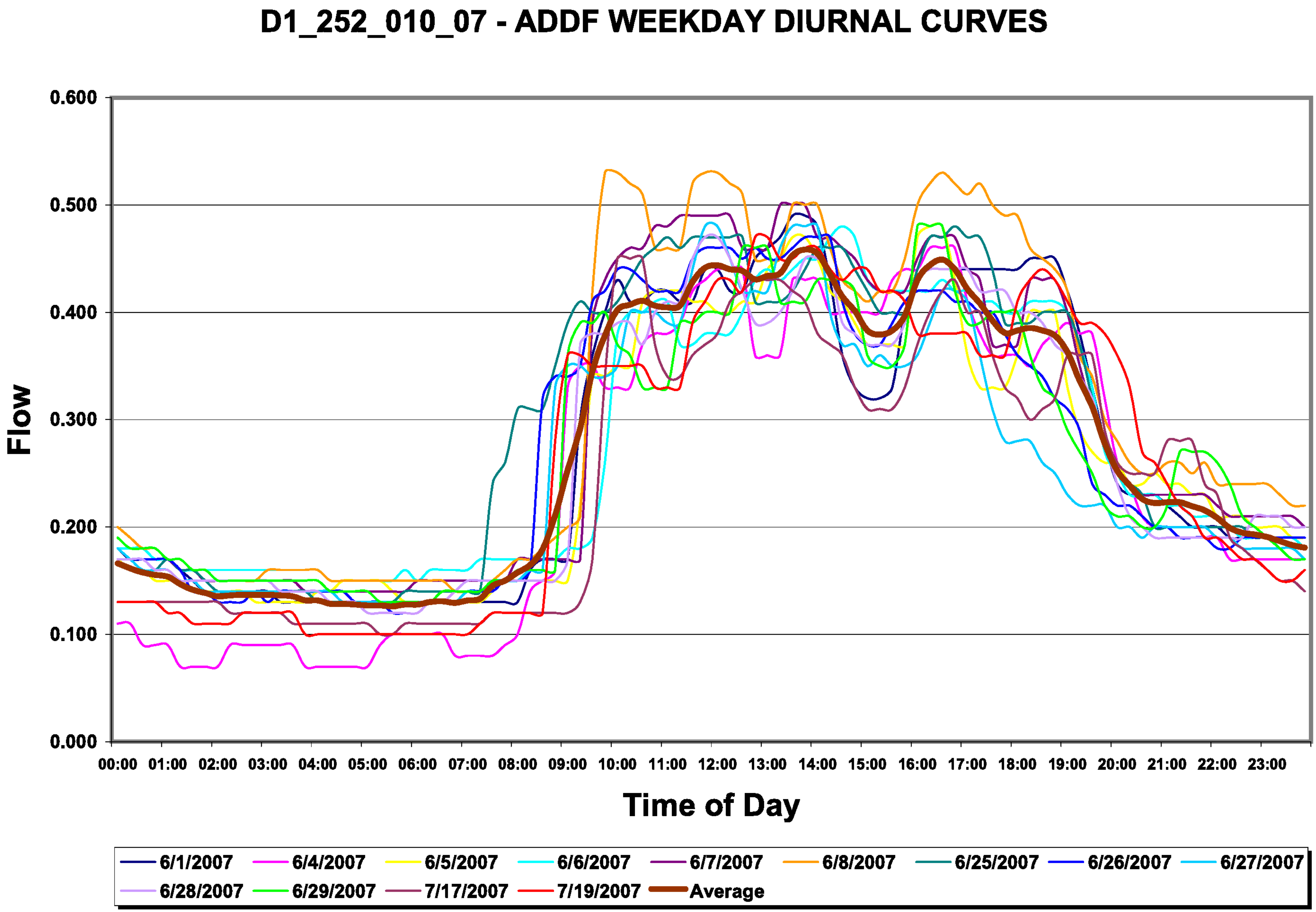
Units of Flow: MGD

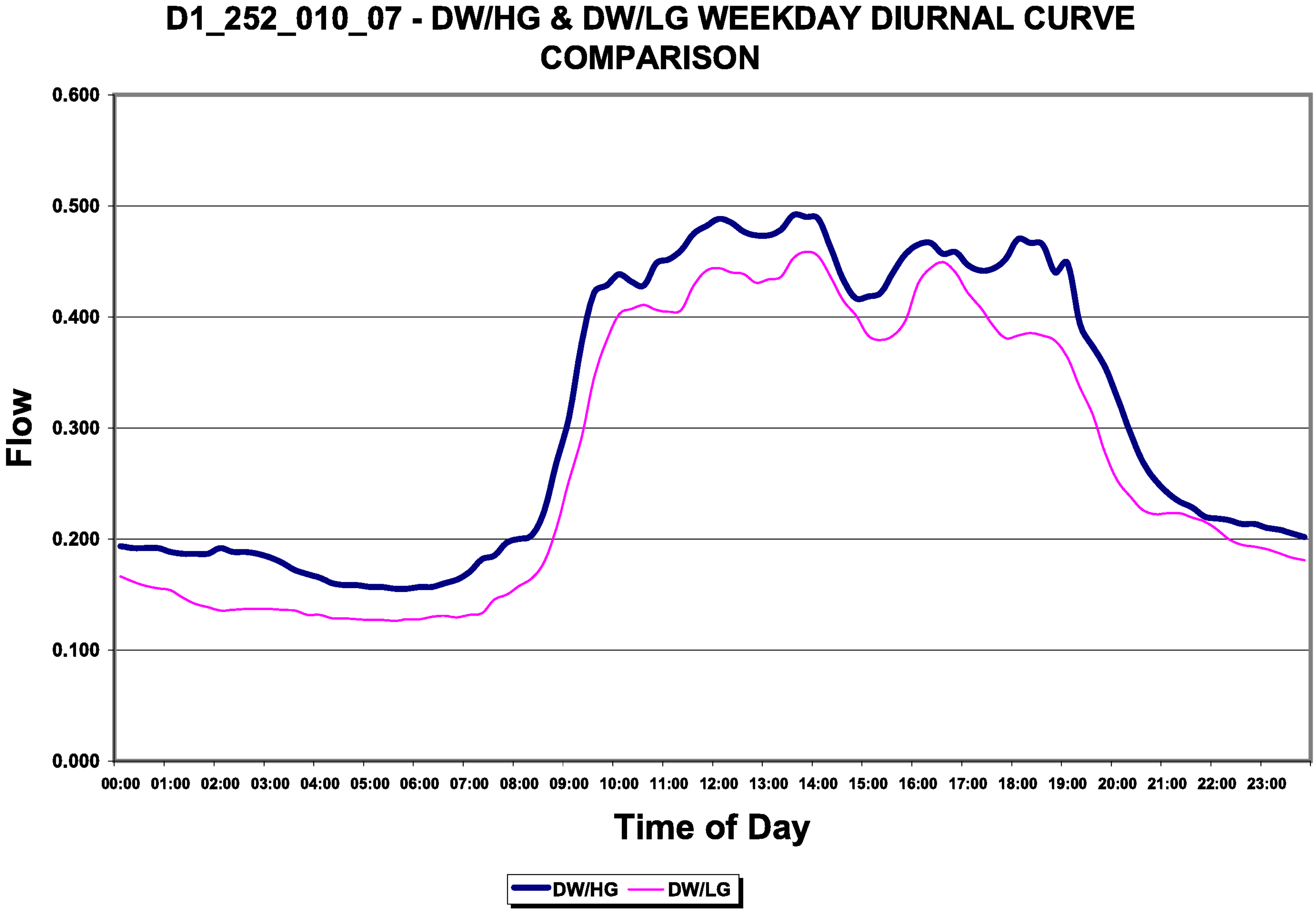
Date: 09/10/08
Time: 9:14 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
01-Jun-07	Fri	0.274	0.483	1.761	0.130	12-Jun-07	0.135
04-Jun-07	Mon	0.245	0.455	1.855	0.080	13-Jun-07	0.189
05-Jun-07	Tue	0.265	0.465	1.757	0.136	14-Jun-07	0.160
06-Jun-07	Wed	0.274	0.468	1.703	0.154	23-Jul-07	0.123
07-Jun-07	Thu	0.291	0.493	1.695	0.143	24-Jul-07	0.184
08-Jun-07	Fri	0.311	0.525	1.691	0.148	25-Jul-07	0.143
25-Jun-07	Mon	0.292	0.473	1.617	0.134		
26-Jun-07	Tue	0.273	0.468	1.712	0.130		
27-Jun-07	Wed	0.256	0.475	1.856	0.132		
28-Jun-07	Thu	0.269	0.460	1.710	0.128		
29-Jun-07	Fri	0.269	0.465	1.731	0.136		
17-Jul-07	Tue	0.243	0.430	1.769	0.108		
19-Jul-07	Thu	0.262	0.460	1.755	0.100		
13 Count		**0.271 Avg.**	**0.471 Avg.**	**1.739 Avg.**	**0.128 Avg.**	**6 Count**	**0.156 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.271	
	Avg. Dry Weather Flow (ADDF):	0.271	
	Diurnal Peaking Factor (DPF):	1.739	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.028	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.028	(WWI + DWI, DWI > 0)


D1_252_010_07 - ADDF WEEKDAY DIURNAL CURVES
Flow
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
6/1/2007 6/4/2007 6/5/2007 6/6/2007 6/7/2007 6/8/2007 6/25/2007 6/26/2007 6/27/2007
6/28/2007 6/29/2007 7/17/2007 7/19/2007 Average


D1_252_010_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON
Flow
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_07

Source File: Meter_D1_252_010_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2007
Meter Name: D1_252_010_07

Units of Flow: MGD

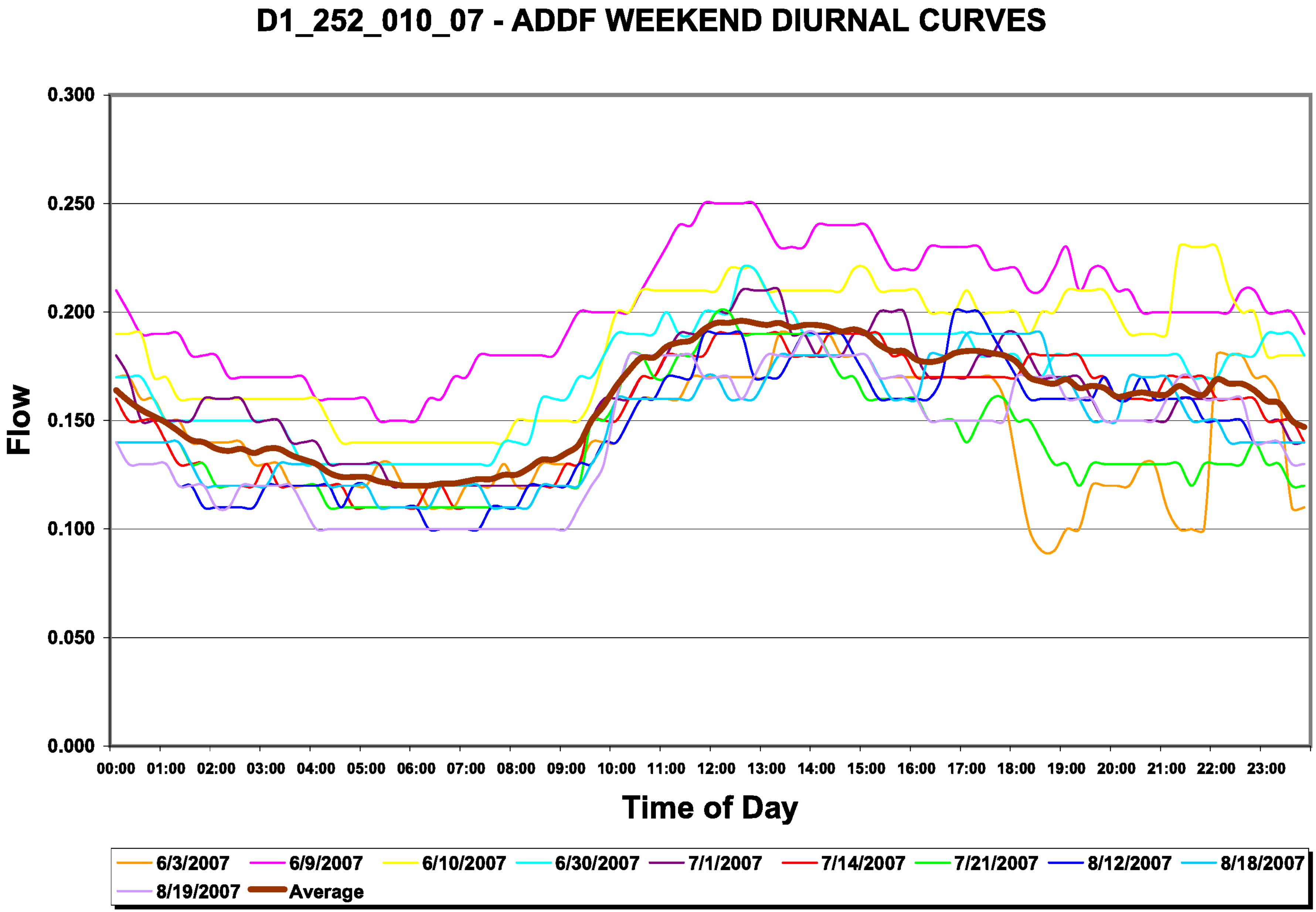
Date: 09/10/08
Time: 9:35 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
03-Jun-07	Sun	0.143	0.190	1.328	0.111
09-Jun-07	Sat	0.202	0.250	1.238	0.158
10-Jun-07	Sun	0.184	0.230	1.247	0.140
30-Jun-07	Sat	0.170	0.213	1.252	0.130
01-Jul-07	Sun	0.159	0.210	1.319	0.120
14-Jul-07	Sat	0.152	0.190	1.247	0.112
21-Jul-07	Sat	0.141	0.195	1.387	0.110
12-Aug-07	Sun	0.146	0.198	1.352	0.106
18-Aug-07	Sat	0.148	0.190	1.285	0.113
19-Aug-07	Sun	0.141	0.185	1.308	0.100
10		**0.159**	**0.205**	**1.296**	**0.120**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:

Wastewater Production (WWP):	**0.159**
Avg. Dry Weather Flow (ADDF):	**0.159**
Diurnal Peaking Factor (DPF):	**1.296**


D1_252_010_07 - ADDF WEEKEND DIURNAL CURVES
Flow
0.300
0.250
0.200
0.150
0.100
0.050
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
6/3/2007
6/9/2007
6/10/2007
6/30/2007
7/1/2007
7/14/2007
7/21/2007
8/12/2007
8/18/2007
8/19/2007
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_08

Source File: Meter_D1_252_010_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2008
Units of Flow: MGD
Meter Name: D1_252_010_08

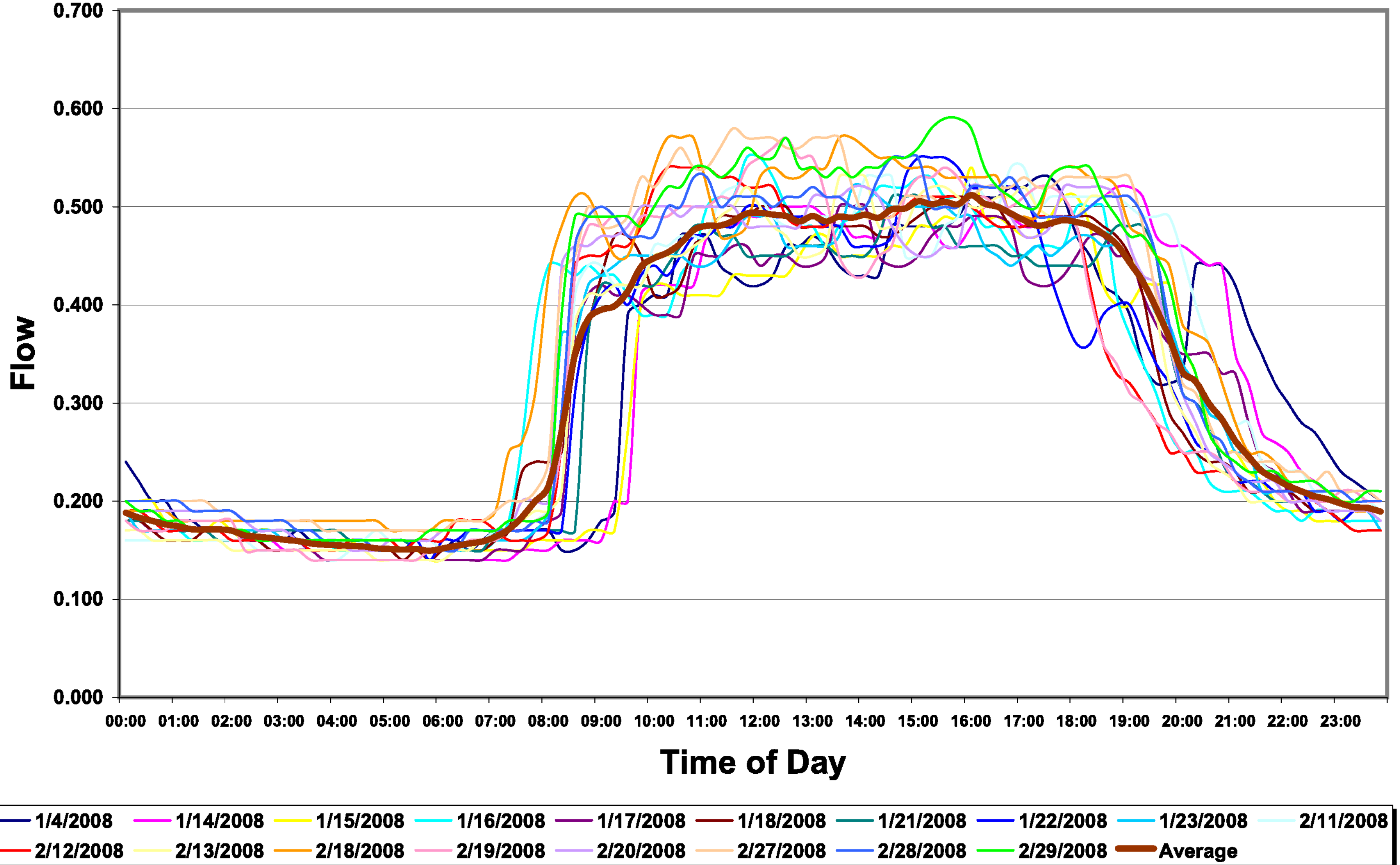
Date: 09/10/08
Time: 9:51 AM
By: LEC

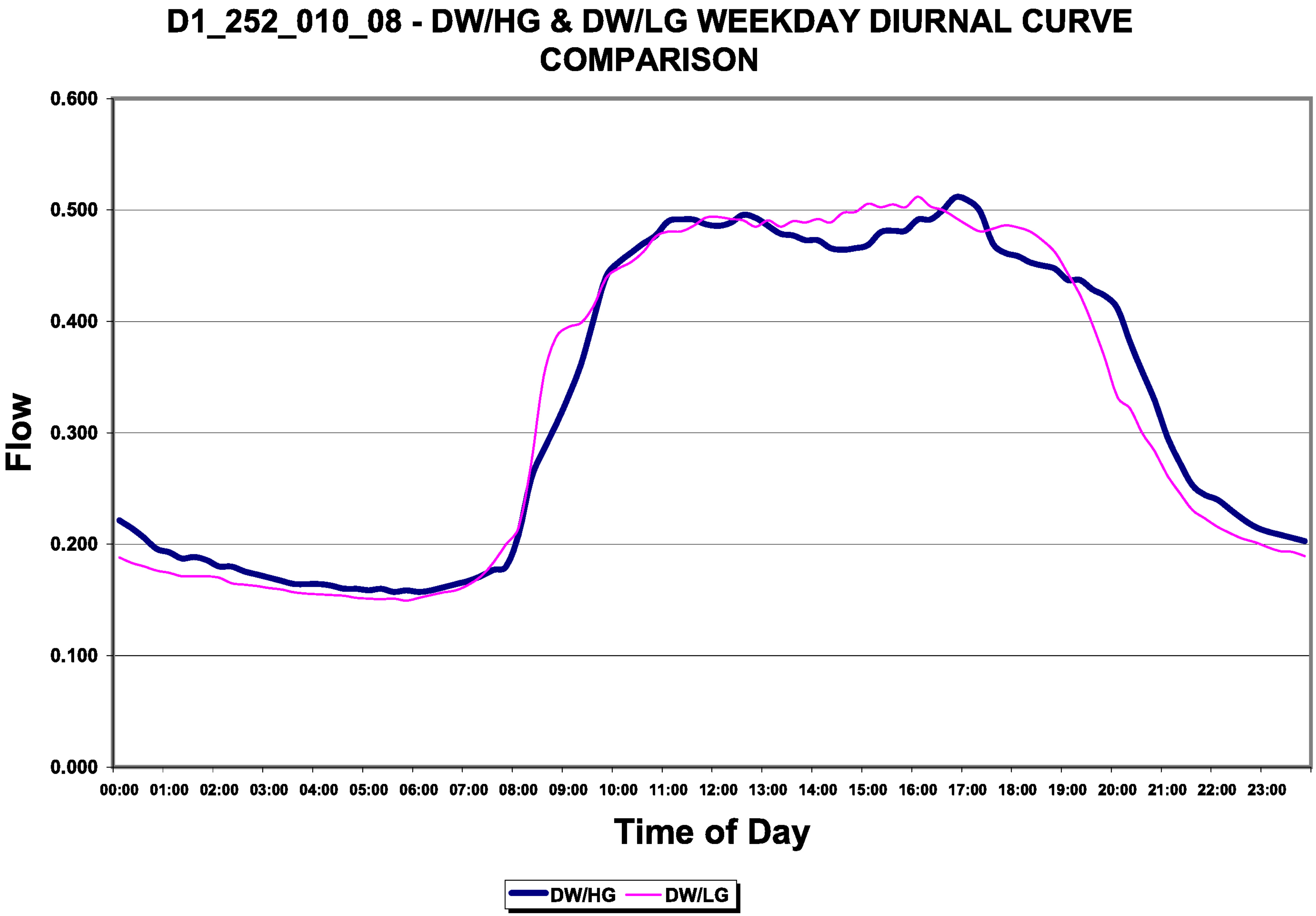
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
04-Jan-08	Fri	0.316	0.525	1.661	0.153	08-Jan-08	0.157
14-Jan-08	Mon	0.317	0.515	1.625	0.144	10-Jan-08	0.160
15-Jan-08	Tue	0.298	0.503	1.689	0.148	11-Jan-08	0.176
16-Jan-08	Wed	0.321	0.535	1.669	0.145	29-Jan-08	0.173
17-Jan-08	Thu	0.308	0.488	1.581	0.140	31-Jan-08	0.150
18-Jan-08	Fri	0.316	0.510	1.613	0.148	15-Feb-08	0.155
21-Jan-08	Mon	0.310	0.503	1.622	0.156	22-Feb-08	0.148
22-Jan-08	Tue	0.312	0.548	1.753	0.152		
23-Jan-08	Wed	0.319	0.513	1.605	0.153		
11-Feb-08	Mon	0.334	0.523	1.563	0.151		
12-Feb-08	Tue	0.319	0.540	1.694	0.157		
13-Feb-08	Wed	0.319	0.518	1.625	0.145		
18-Feb-08	Mon	0.363	0.563	1.548	0.177		
19-Feb-08	Tue	0.321	0.558	1.737	0.143		
20-Feb-08	Wed	0.333	0.520	1.560	0.158		
27-Feb-08	Wed	0.358	0.573	1.600	0.172		
28-Feb-08	Thu	0.341	0.545	1.597	0.155		
29-Feb-08	Fri	0.354	0.585	1.653	0.160		
18 Count		**0.326 Avg.**	**0.531 Avg.**	**1.633 Avg.**	**0.153 Avg.**	**7 Count**	**0.160 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.326**	
	Avg. Dry Weather Flow (ADDF):	**0.326**	
	Diurnal Peaking Factor (DPF):	**1.633**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**0.007**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**0.007**	**(WWI + DWI, DWI > 0)**

D1_252_010_08 - ADDF WEEKEDAY DIURNAL CURVES




D1_252_010_08 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON
Flow
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_08

Source File: Meter_D1_252_010_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2008
Meter Name: D1_252_010_08

Units of Flow: MGD

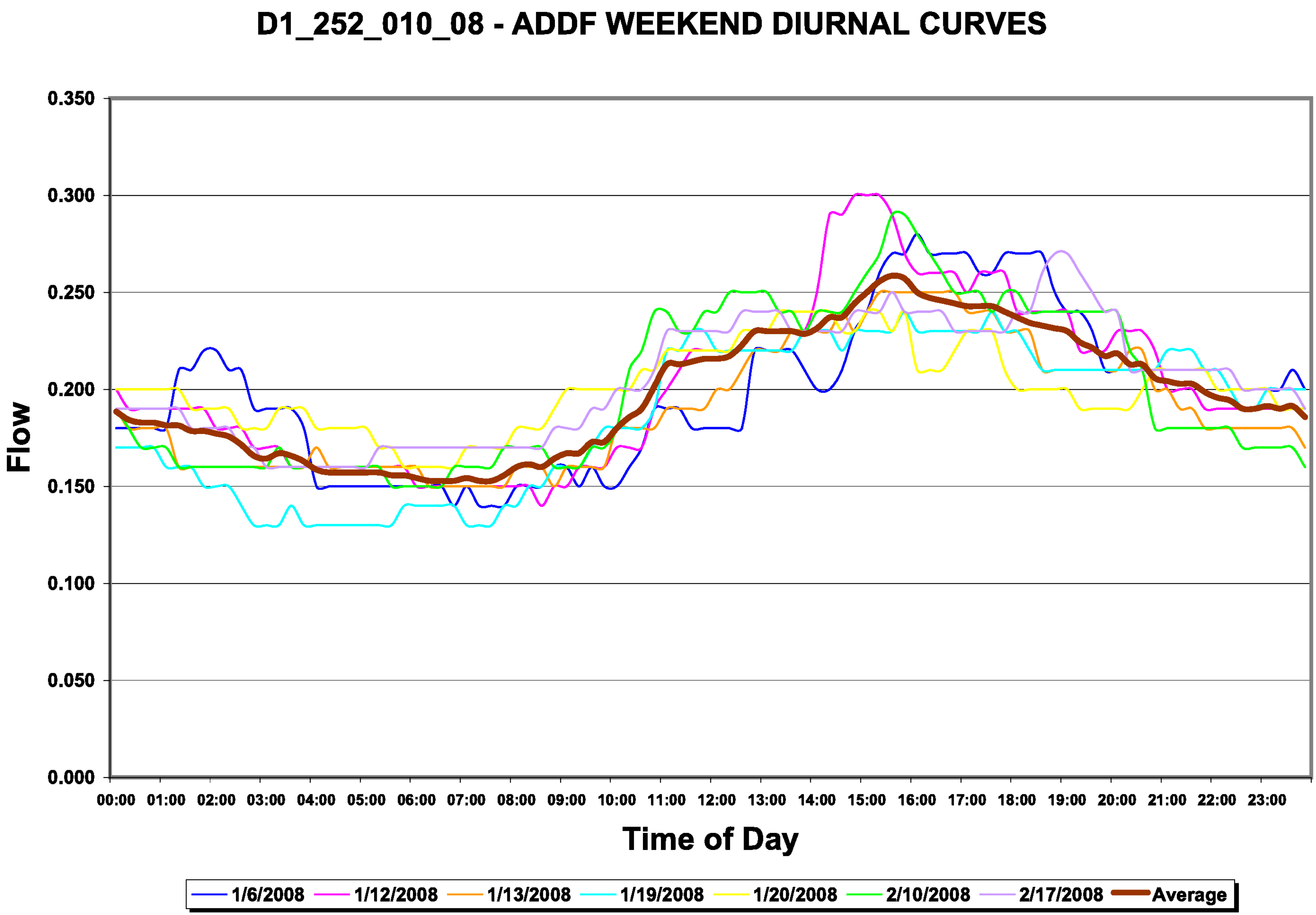
Date: 09/10/08
Time: 10:04 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
06-Jan-08	Sun	0.198	0.273	1.373	0.147
12-Jan-08	Sat	0.202	0.298	1.471	0.149
13-Jan-08	Sun	0.190	0.250	1.313	0.153
19-Jan-08	Sat	0.187	0.233	1.246	0.131
20-Jan-08	Sun	0.201	0.240	1.195	0.167
10-Feb-08	Sun	0.200	0.283	1.410	0.156
17-Feb-08	Sun	0.205	0.265	1.293	0.163
7		**0.198**	**0.263**	**1.329**	**0.152**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:

Wastewater Production (WWP):	**0.198**
Avg. Dry Weather Flow (ADDF):	**0.198**
Diurnal Peaking Factor (DPF):	**1.329**


D1_252_010_08 - ADDF WEEKEND DIURNAL CURVES
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
Flow
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/6/2008
1/12/2008
1/13/2008
1/19/2008
1/20/2008
2/10/2008
2/17/2008
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_07

Source File: Meter_F3_202_007_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2007
Units of Flow: MGD
Meter Name: F3_202_007_07

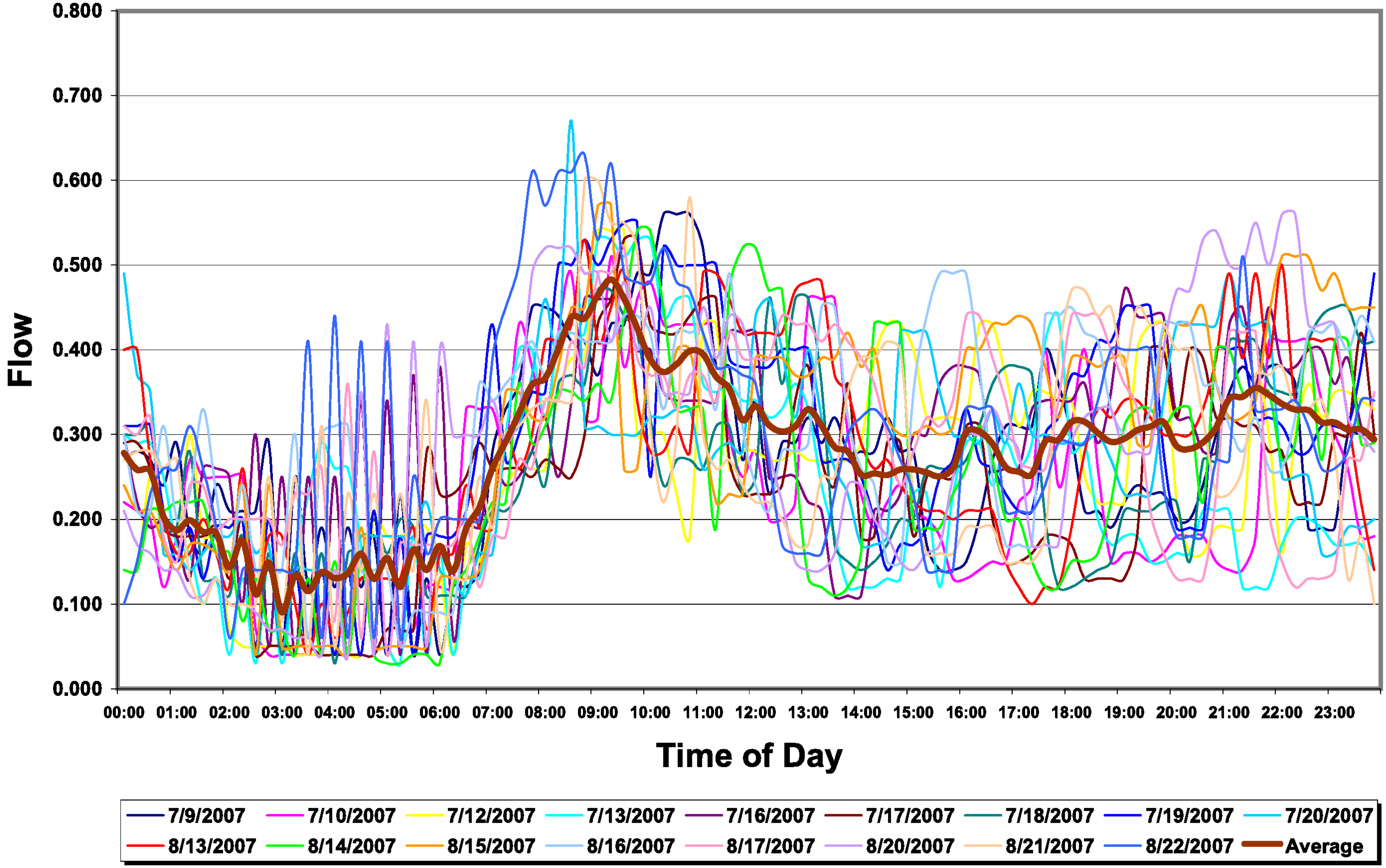
Date: 09/11/08
Time: 12:52 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
09-Jul-07	Mon	0.276	0.550	1.992	0.123	24-Jul-07	0.107
10-Jul-07	Tue	0.243	0.458	1.882	0.048	25-Jul-07	0.113
12-Jul-07	Thu	0.260	0.503	1.934	0.058	07-Aug-07	0.128
13-Jul-07	Fri	0.238	0.525	2.204	0.120	28-Aug-07	0.073
16-Jul-07	Mon	0.290	0.460	1.587	0.163	29-Aug-07	0.060
17-Jul-07	Tue	0.246	0.488	1.984	0.048		
18-Jul-07	Wed	0.256	0.450	1.759	0.112		
19-Jul-07	Thu	0.294	0.533	1.809	0.103		
20-Jul-07	Fri	0.279	0.475	1.703	0.150		
13-Aug-07	Mon	0.282	0.470	1.667	0.111		
14-Aug-07	Tue	0.249	0.495	1.986	0.063		
15-Aug-07	Wed	0.304	0.510	1.675	0.061		
16-Aug-07	Thu	0.311	0.478	1.535	0.151		
17-Aug-07	Fri	0.290	0.473	1.628	0.159		
20-Aug-07	Mon	0.293	0.543	1.851	0.084		
21-Aug-07	Tue	0.274	0.575	2.095	0.137		
22-Aug-07	Wed	0.301	0.605	2.007	0.182		
17 Count		**0.276 Avg.**	**0.505 Avg.**	**1.841 Avg.**	**0.110 Avg.**	**5 Count**	**0.096 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.276	
	Avg. Dry Weather Flow (ADDF):	0.276	
	Diurnal Peaking Factor (DPF):	1.841	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	-0.014	(DW/HG - DW/LG)
	Total Infiltration (TI):	-0.014	(WWI + DWI, DWI > 0)

F3_202_007_07 - ADDF WEEKDAY DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_07

Source File: Meter_F3_202_007_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2007
Meter Name: F3_202_007_07

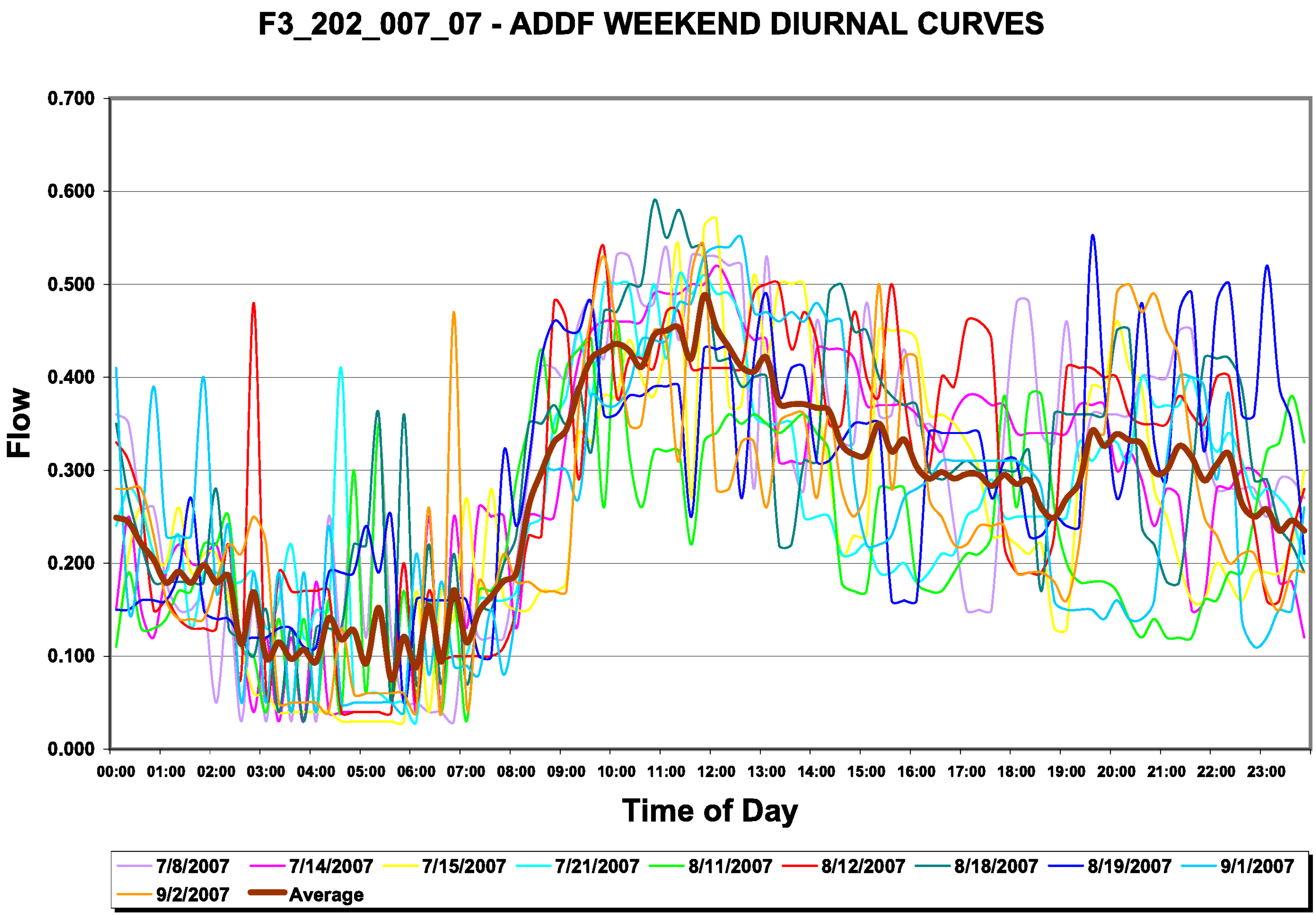
Units of Flow: MGD

Date: 09/11/08
Time: 12:58 PM
By: LEC

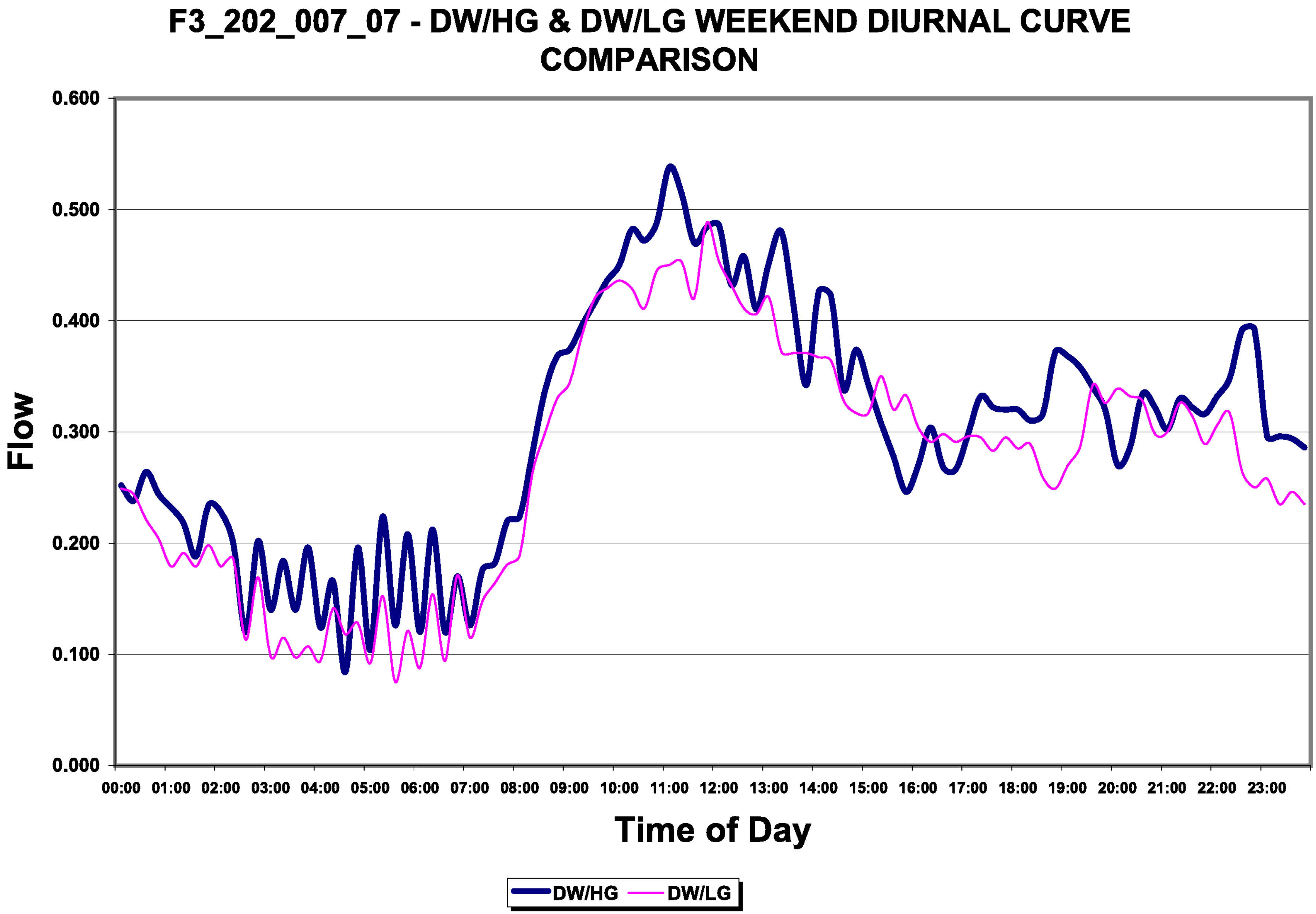
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
08-Jul-07	Sun	0.300	0.528	1.760	0.108	07-Jul-07	0.155
14-Jul-07	Sat	0.280	0.505	1.802	0.063	29-Jul-07	0.110
15-Jul-07	Sun	0.253	0.485	1.918	0.037	04-Aug-07	0.118
21-Jul-07	Sat	0.267	0.500	1.871	0.091	25-Aug-07	0.154
11-Aug-07	Sat	0.227	0.405	1.783	0.118	26-Aug-07	0.129
12-Aug-07	Sun	0.295	0.480	1.629	0.085		
18-Aug-07	Sat	0.298	0.565	1.894	0.128		
19-Aug-07	Sun	0.290	0.460	1.585	0.138		
01-Sep-07	Sat	0.262	0.540	2.059	0.085		
02-Sep-07	Sun	0.255	0.488	1.911	0.059		
10 Count		**0.273 Avg.**	**0.496 Avg.**	**1.821 Avg.**	**0.091 Avg.**	**5 Count**	**0.133 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.273**	
	Avg. Dry Weather Flow (ADDF):	**0.273**	
	Diurnal Peaking Factor (DPF):	**1.821**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**0.042**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**0.042**	**(WWI + DWI, DWI > 0)**



F3_202_007_07 - ADDF WEEKEND DIURNAL CURVES
Flow
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
7/8/2007
7/14/2007
7/15/2007
7/21/2007
8/11/2007
8/12/2007
8/18/2007
8/19/2007
9/1/2007
9/2/2007
Average


F3_202_007_07 - DW/HG & DW/LG WEEKEND DIURNAL CURVE COMPARISON
Flow
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_08

Source File: Meter_F3_202_007_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2008
Meter Name: F3_202_007_08
Units of Flow: MGD

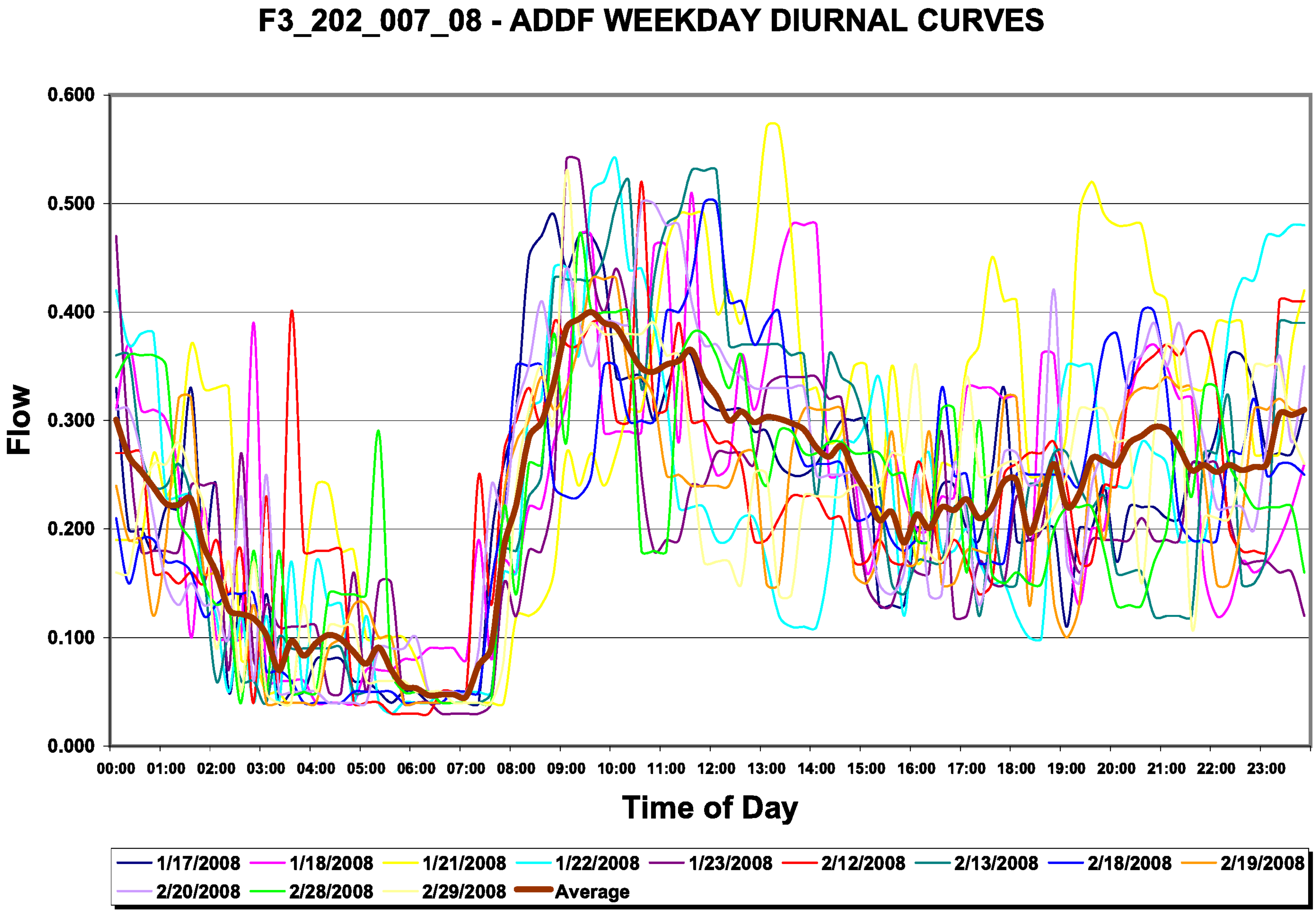
Date: 09/11/08
Time: 1:05 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
17-Jan-08	Thu	0.227	0.468	2.063	0.049	08-Jan-08	0.113
18-Jan-08	Fri	0.237	0.470	1.982	0.058	10-Jan-08	0.046
21-Jan-08	Mon	0.281	0.518	1.840	0.066	11-Jan-08	0.097
22-Jan-08	Tue	0.229	0.503	2.192	0.050	29-Jan-08	0.157
23-Jan-08	Wed	0.200	0.480	2.395	0.065	31-Jan-08	0.113
12-Feb-08	Tue	0.230	0.383	1.663	0.063		
13-Feb-08	Wed	0.232	0.520	2.242	0.044		
18-Feb-08	Mon	0.226	0.460	2.036	0.043		
19-Feb-08	Tue	0.211	0.415	1.963	0.065		
20-Feb-08	Wed	0.242	0.490	2.025	0.061		
28-Feb-08	Thu	0.219	0.418	1.908	0.083		
29-Feb-08	Fri	0.219	0.420	1.922	0.053		
12 Count		**0.229 Avg.**	**0.462 Avg.**	**2.019 Avg.**	**0.058 Avg.**	**5 Count**	**0.105 Avg.**

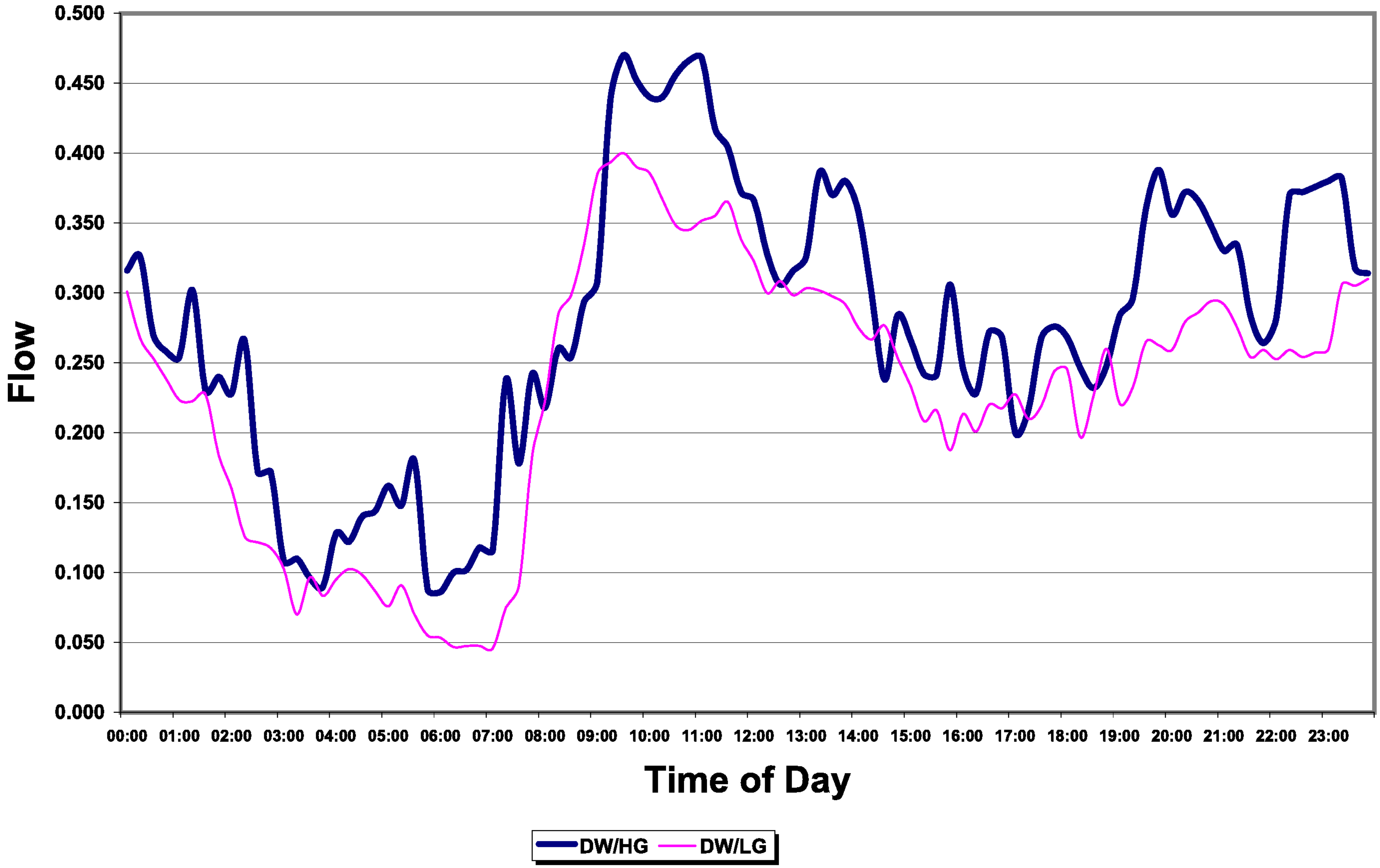
Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	0.229	
Avg. Dry Weather Flow (ADDF):	0.229	
Diurnal Peaking Factor (DPF):	2.019	
Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
Wet Weather Infiltration Increase (WWI):	0.047	(DW/HG - DW/LG)
Total Infiltration (TI):	0.047	(WWI + DWI, DWI > 0)


F3_202_007_08 - ADDF WEEKDAY DIURNAL CURVES
Flow
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/17/2008 1/18/2008 1/21/2008 1/22/2008 1/23/2008 2/12/2008 2/13/2008 2/18/2008 2/19/2008
2/20/2008 2/28/2008 2/29/2008 Average

F3_202_007_08 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_08

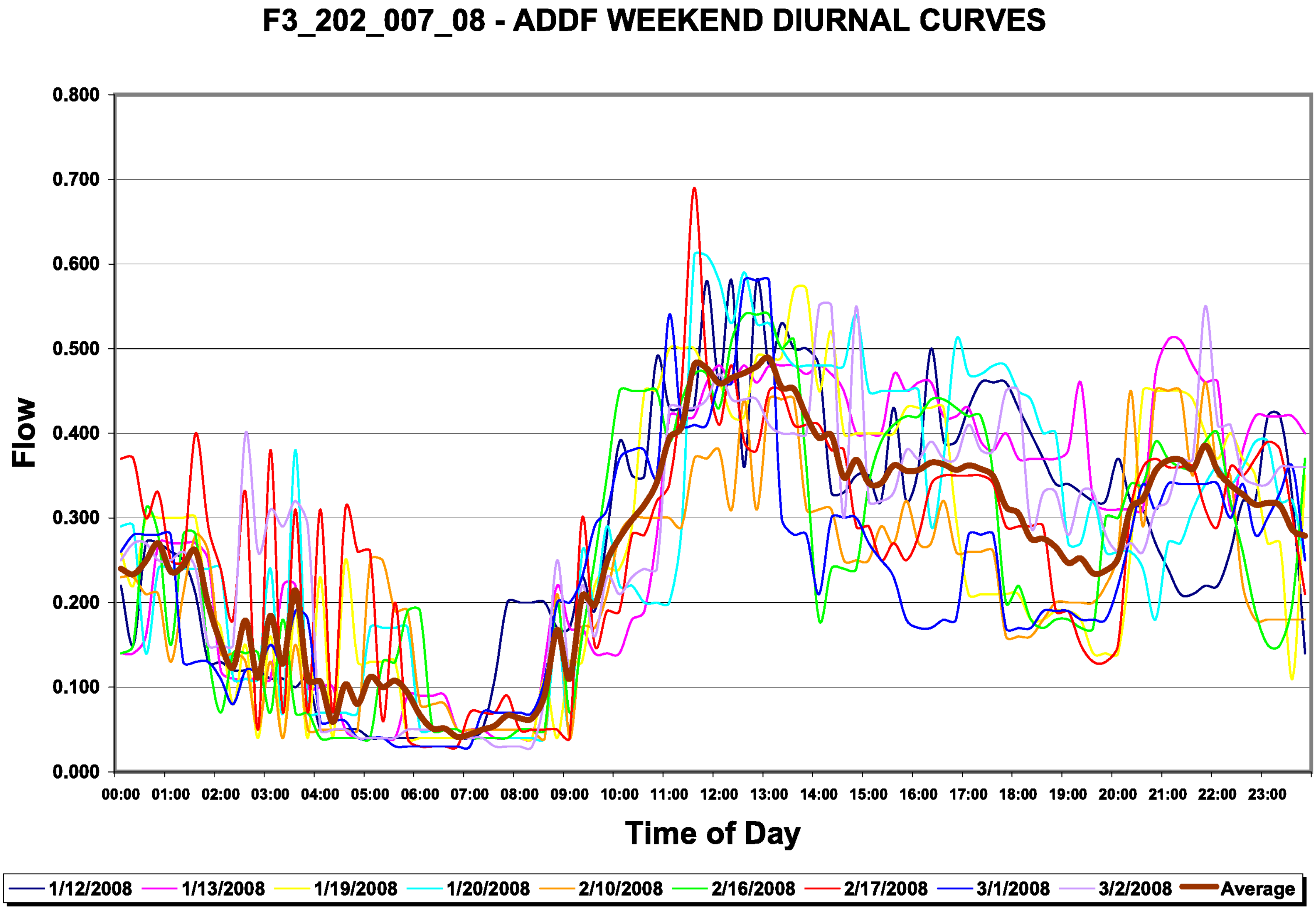
Source File: Meter_F3_202_007_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2008 **Units of Flow:** MGD
Meter Name: F3_202_007_08

Date: 09/11/08
Time: 1:12 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
12-Jan-08	Sat	0.276	0.523	1.896	0.043	06-Jan-08	0.101
13-Jan-08	Sun	0.288	0.493	1.711	0.059	09-Feb-08	0.044
19-Jan-08	Sat	0.265	0.530	1.998	0.046	24-Feb-08	0.060
20-Jan-08	Sun	0.285	0.583	2.042	0.053		
10-Feb-08	Sun	0.224	0.428	1.910	0.067		
16-Feb-08	Sat	0.255	0.533	2.088	0.061		
17-Feb-08	Sun	0.265	0.515	1.940	0.051		
01-Mar-08	Sat	0.229	0.550	2.397	0.038		
02-Mar-08	Sun	0.278	0.488	1.755	0.040		
9		**0.263**	**0.516**	**1.971**	**0.051**	**3**	**0.068**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.263	
	Avg. Dry Weather Flow (ADDF):	0.263	
	Diurnal Peaking Factor (DPF):	1.971	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.018	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.018	(WWI + DWI, DWI > 0)


F3_202_007_08 - ADDF WEEKEND DIURNAL CURVES
Flow
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/12/2008
1/13/2008
1/19/2008
1/20/2008
2/10/2008
2/16/2008
2/17/2008
3/1/2008
3/2/2008
Average

Appendix 3B

Large Producers

Appendix TM3B - Large Producers
Winter Water Usage
Large Producers Loaded into Model

Name	Location	Basin	Loading Manhole	Flow (mgd)
Ute Water				
State of CO-Regional	2800 D Rd	CGVSD	C4_271_021	0.020
Grand Rivers Partners	2931 North Av	Fruitvale	C3_271_011	0.016
Mesa County School	2935 North Av	Fruitvale	C3_271_011	0.013
Safeway	681 Horizon Dr	Horizon Drive	F3_262_074	0.020
Grand Conjunction	743 Horizon Dr	Horizon Drive	G1_271_041	0.056
Lupinski-Staislove-Best Value	718 Horizon Dr	Horizon Drive	G1_272_045	0.026
Orange Coast	2790 Crossroads Bl	Horizon Drive	G2_272_055	0.017
La Quinta	2761 Crossroads Bl	Horizon Drive	G2_272_055	0.014
Holiday Inn	749 Horizon Dr	Horizon Drive	G2_272_080	0.024
BH55 LLC	750 Horizon Dr	Horizon Drive	G2_272_080	0.021
Commons #1	2825 Quincy Ln	Orchard Mesa	B2_272_027	0.014
Coventry Club	256 Coventry Pl	Orchard Mesa	B2_272_027	0.013
Western Hill Mobile	2713 B 1/2 Rd	Orchard Mesa	B3_262_031	0.049
Grand Mesa Center	2464 US Hwy 6 and 50	Paradise Hills	E3_241_034	0.017
Westgate Inn	2210 US Hwy 6 and 50	River Road North	G1_221_010	0.015
Wal-mart Stores	2545 Rimrock Av	River Road North B	D4_251_005	0.031
B J Services	2403 River Rd	River Road South	E4_241_005	0.047
United Co Mesa County	2273 River Rd	River Road South	F4_222_013	0.021
			Subtotal	**0.436**
City of Grand Junction Water				
	2825 PATTERSON RD	15th Street	F1_271_101	0.011
	1501 PATTERSON RD	15th Street	F1_271_103	0.008
	1441 PATTERSON RD	15th Street	F1_271_103	0.008
	2260 13TH ST	15th Street	E3_271_068	0.005
	1800 MAIN ST	Colorado Avenue	D2_271_075	0.010
	200 ROOD AV	Colorado Avenue	D1_261_001	0.013
	805 MAIN ST	Colorado Avenue	D1_262_040	0.008
	2601 BELFORD AV	Colorado Avenue	D1_271_054	0.012
	215 RICE ST	Colorado Avenue	D2_252_057	0.052
	400 WHITE AV	Colorado Avenue	D3_261_075	0.015
	2635 7TH ST	Grand Avenue	D3_261_010	0.065
	1251 3RD ST	Grand Avenue	D3_261_010	0.013
	241 NORTH AV	Grand Avenue	D3_261_010	0.010
	1154 2ND ST	Grand Avenue	D3_261_010	0.007
	120 NORTH AV	Grand Avenue	D3_261_010	0.004
	246 BELFORD AV	Grand Avenue	D3_261_010	0.004
	1400 5TH ST	Grand Avenue	D3_261_075	0.004
	445 CHIPETA AV	Grand Avenue	D3_261_075	0.005
	1110 6TH ST	Grand Avenue	D3_261_075	0.004
	2021 12TH ST	Grand Avenue	D3_262_017	0.014
	1151 ELM AV	Grand Avenue	D3_262_017	0.013
	999 BOOKCLIFF AV	Grand Avenue	D3_262_017	0.011
	1140 WALNUT AV	Grand Avenue	D3_262_017	0.007
	1120 MESA AV	Grand Avenue	D3_262_017	0.009

Name	Location	Basin	Loading Manhole	Flow (mgd)
	1130 MESA AV	Grand Avenue	D3_262_017	0.004
	2150 COLLEGE PL	Grand Avenue	D3_262_017	0.006
	2531 12TH ST	Grand Avenue	D3_262_017	0.005
	960 BOOKCLIFF AV	Grand Avenue	D3_262_017	0.005
	1251 BOOKCLIFF AV	Grand Avenue	D3_262_017	0.004
	709 NORTH AV	Grand Avenue	D3_262_017	0.004
	730 7TH ST	Grand Avenue	D3_262_018	0.005
	1200 HOUSTON AV	Grand Avenue	D3_262_042	0.009
	940 10TH ST	Grand Avenue	D3_271_013	0.015
	1030 TELLER AV	Grand Avenue	D3_271_013	0.008
	1222 ELM AV	Grand Avenue	D3_271_013	0.005
	1241 ELM AV	Grand Avenue	D3_271_013	0.005
	666 PATTERSON RD	Horizon Drive	F1_261_064	0.005
	601 HORIZON PL	Horizon Drive	F1_261_089	0.011
	2501 LITTLE BOOKCLIFF DR	Horizon Drive	F1_261_106	0.013
	710 WELLINGTON AV	Horizon Drive	F1_261_106	0.011
	1104 BOOKCLIFF AV	Horizon Drive	F1_261_106	0.005
	2525 8TH ST	Horizon Drive	F1_261_106	0.004
	935 NORTHERN WY	Horizon Drive	F1_261_106	0.005
	1100 PATTERSON RD	Horizon Drive	F1_261_106	0.005
	2692 US HWY 50	Orchard Mesa	B3_262_027	0.004
	1975 BARCELONA WY	Orchard Mesa	B4_262_024	0.008
	287 27 RD	Orchard Mesa	B4_262_037	0.005
	2736 UNAWEEP AV	Orchard Mesa	B4_271_147	0.007
	669 US HWY 50	Orchard Mesa	C1_261_060	0.005
	1550 US HWY 50	Orchard Mesa	C2_261_013	0.011
	305 UTE AV	Orchard Mesa	D1_261_003	0.012
	830 INDEPENDENT AV	River Road North B	D4_251_005	0.023
	125 FRANKLIN AV	River Road North B	D4_251_005	0.009
	702 9TH ST	River Trunk	C3_261_021	0.060
	636 SOUTH AV	River Trunk	D1_262_001	0.004
	2121 NORTH AV	Roode Avenue	D2_271_039	0.030
	1600 NORTH AV	Roode Avenue	D2_271_039	0.010
	1306 25TH ST	Roode Avenue	D2_271_039	0.005
	1810 NORTH AV	Roode Avenue	D2_271_039	0.004
	1328 WINTERS AV	South Side	C3_271_003	0.004
	2320 I70 BUSINESS LP	South Side	C4_271_021	0.007
			Subtotal	**0.649**
			Total	**1.09**

Appendix 4A

Wet Weather Diurnal Patterns

Appendix TM4A
Wet Weather Diurnal Patterns

Determination of Wet Weather Diurnal Pattern (K=0.002)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year storm in H2OMap Sewer GIS. A peaking factor will be established for each 15-minutes invterval. These will be superimposed over the dry weather diurnal pattern to coincide with the peak dry weather flow

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour storm	0.63 in	K =	0.002		
5-year, 6-hour storm	0.73 in	ADF =	8.08 mgd		
		A =	11750 acres	(assume 1/2 of land contributes)	
		Q = K x I x A			

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to 360 minutes per the Urban Storm Drainage manual.

Time (min.)	6-hour %	5-year Storm Depth (in.)			
0.63 inches for 5-year storm					
5	0.004	0.00252			
10	0.003	0.00189	Intensity (1st 15 min)	0.02772	in/hr
15	0.004	0.00252	Inflow Contribution	0.420166	mgd
20	0.004	0.00252			
25	0.003	0.00189	Intensity (2nd 15 min)	0.02772	in/hr
30	0.004	0.00252	Inflow Contribution	0.420166	mgd
35	0.004	0.00252			
40	0.003	0.00189	Intensity (3rd 15 min)	0.02772	in/hr
45	0.004	0.00252	Inflow Contribution	0.420166	mgd
50	0.003	0.00189			
55	0.004	0.00252	Intensity (4th 15 min)	0.02772	in/hr
60	0.004	0.00252	Inflow Contribution	0.420166	mgd
65	0.045	0.02835			
70	0.110	0.0693	Intensity (5th 15 min)	0.87444	in/hr
75	0.192	0.12096	Inflow Contribution	13.25432	mgd
80	0.155	0.09765			
85	0.096	0.06048	Intensity (6th 15 min)	0.84924	in/hr
90	0.086	0.05418	Inflow Contribution	12.87236	mgd
95	0.064	0.04032			
100	0.055	0.03465	Intensity (7th 15 min)	0.41328	in/hr
105	0.045	0.02835	Inflow Contribution	6.264292	mgd
110	0.037	0.02331			
115	0.018	0.01134	Intensity (8th 15 min)	0.16128	in/hr
120	0.009	0.00567	Inflow Contribution	2.444602	mgd
125	0.004	0.00252			
130	0.004	0.00252	Intensity (9th 15 min)	0.02772	in/hr
135	0.003	0.00189	Inflow Contribution	0.420166	mgd
140	0.004	0.00252			
145	0.003	0.00189	Intensity (10th 15 min)	0.02772	in/hr
150	0.004	0.00252	Inflow Contribution	0.420166	mgd
155	0.004	0.00252			
160	0.003	0.00189	Intensity (11th 15 min)	0.02772	in/hr
165	0.004	0.00252	Inflow Contribution	0.420166	mgd
170	0.004	0.00252			

175	0.003	0.00189	Intensity (12th 15 min)	0.02772	in/hr
180	0.004	0.00252	Inflow Contribution	0.420166	mgd
Remaining 0.1 inches for 6 hour storm.					
185		0.0029			
190		0.0029	Intensity (13th 15 min)	0.0348	in/hr
195		0.0029	Inflow Contribution	0.527481	mgd
200		0.0029			
205		0.0029	Intensity (14th 15 min)	0.0348	in/hr
210		0.0029	Inflow Contribution	0.527481	mgd
215		0.0029			
220		0.0029	Intensity (15th 15 min)	0.0348	in/hr
225		0.0029	Inflow Contribution	0.527481	mgd
230		0.0029			
235		0.0029	Intensity (16th 15 min)	0.0348	in/hr
240		0.0029	Inflow Contribution	0.527481	mgd
245		0.0029			
250		0.0029	Intensity (17th 15 min)	0.0348	in/hr
255		0.0029	Inflow Contribution	0.527481	mgd
260		0.0029			
265		0.0029	Intensity (18th 15 min)	0.0348	in/hr
270		0.0029	Inflow Contribution	0.527481	mgd
275		0.0029			
280		0.0029	Intensity (19th 15 min)	0.0348	in/hr
285		0.0029	Inflow Contribution	0.527481	mgd
290		0.0029			
295		0.0029	Intensity (20th 15 min)	0.0348	in/hr
300		0.0029	Inflow Contribution	0.527481	mgd
305		0.0029			
310		0.0029	Intensity (21st 15 min)	0.0348	in/hr
315		0.0029	Inflow Contribution	0.527481	mgd
320		0.0029			
325		0.0029	Intensity (22nd 15 min)	0.0348	in/hr
330		0.0029	Inflow Contribution	0.527481	mgd
335		0.0029			
340		0.0029	Intensity (23rd 15 min)	0.0348	in/hr
345		0.0029	Inflow Contribution	0.527481	mgd
350		0.0029			
355		0.0029	Intensity (24th 15 min)	0.0348	in/hr
360		0.0029	Inflow Contribution	0.527481	mgd
Total:		**0.73**			

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event

Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

Storm Interval	Time	Target Flow (mgd)	Adjusted PF
1st 15 min	7:30	7.43	0.92
2nd 15 min	7:45	9.53	1.18
3rd 15 min	8:00	14.45	1.79
4th 15 min	8:15	15.15	1.88
5th 15 min	8:30	27.98	3.46
6th 15 min	8:45	27.60	3.42
7th 15 min	9:00	20.29	2.51
8th 15 min	9:15	16.47	2.04
9th 15 min	9:30	13.74	1.70
10th 15 min	9:45	13.74	1.70
11th 15 min	10:00	13.04	1.61
12th 15 min	10:15	13.04	1.61
13th 15 min	10:30	12.45	1.54
14th 15 min	10:45	11.75	1.45

15th 15 min	11:00	11.93	1.48
16th 15 min	11:15	13.15	1.63
17th 15 min	11:30	11.75	1.45
18th 15 min	11:45	12.45	1.54
19th 15 min	12:00	11.75	1.45
20th 15 min	12:15	11.75	1.45
21st 15 min	12:30	12.45	1.54
22nd 15 min	12:45	12.45	1.54
23rd 15 min	13:00	11.05	1.37
24th 15 min	13:15	11.05	1.37

Determination of Wet Weather Diurnal Pattern (K=0.004)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year storm in H2OMap Sewer GIS. A peaking factor will be established for each 15-minutes invterval. These will be superimposed over the dry weather diurnal pattern to coincide with the peak dry weather flow

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour storm	0.63	in	K =	0.004	
5-year, 6-hour storm	0.73	in	ADF =	8.08 mgd	
			A =	11750 acres	(assume 1/2 of land contributes)
			Q = K x I x A		

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to 360 minutes per the Urban Storm Drainage manual.

Time (min.)	6-hour %	5-year Storm Depth (in.)			
0.63 inches for 5-year storm					
5	0.004	0.00252			
10	0.003	0.00189	Intensity (1st 15 min)	0.02772	in/hr
15	0.004	0.00252	Inflow Contribution	0.840332	mgd
20	0.004	0.00252			
25	0.003	0.00189	Intensity (2nd 15 min)	0.02772	in/hr
30	0.004	0.00252	Inflow Contribution	0.840332	mgd
35	0.004	0.00252			
40	0.003	0.00189	Intensity (3rd 15 min)	0.02772	in/hr
45	0.004	0.00252	Inflow Contribution	0.840332	mgd
50	0.003	0.00189			
55	0.004	0.00252	Intensity (4th 15 min)	0.02772	in/hr
60	0.004	0.00252	Inflow Contribution	0.840332	mgd
65	0.045	0.02835			
70	0.110	0.0693	Intensity (5th 15 min)	0.87444	in/hr
75	0.192	0.12096	Inflow Contribution	26.50865	mgd
80	0.155	0.09765			
85	0.096	0.06048	Intensity (6th 15 min)	0.84924	in/hr
90	0.086	0.05418	Inflow Contribution	25.74471	mgd
95	0.064	0.04032			
100	0.055	0.03465	Intensity (7th 15 min)	0.41328	in/hr
105	0.045	0.02835	Inflow Contribution	12.52858	mgd
110	0.037	0.02331			
115	0.018	0.01134	Intensity (8th 15 min)	0.16128	in/hr
120	0.009	0.00567	Inflow Contribution	4.889203	mgd
125	0.004	0.00252			
130	0.004	0.00252	Intensity (9th 15 min)	0.02772	in/hr
135	0.003	0.00189	Inflow Contribution	0.840332	mgd
140	0.004	0.00252			
145	0.003	0.00189	Intensity (10th 15 min)	0.02772	in/hr
150	0.004	0.00252	Inflow Contribution	0.840332	mgd
155	0.004	0.00252			
160	0.003	0.00189	Intensity (11th 15 min)	0.02772	in/hr
165	0.004	0.00252	Inflow Contribution	0.840332	mgd
170	0.004	0.00252			
175	0.003	0.00189	Intensity (12th 15 min)	0.02772	in/hr

180	0.004	0.00252	Inflow Contribution	0.840332	mgd
Remaining 0.1 inches for 6 hour storm.					
185		0.0029			
190		0.0029	Intensity (13th 15 min)	0.0348	in/hr
195		0.0029	Inflow Contribution	1.054962	mgd
200		0.0029			
205		0.0029	Intensity (14th 15 min)	0.0348	in/hr
210		0.0029	Inflow Contribution	1.054962	mgd
215		0.0029			
220		0.0029	Intensity (15th 15 min)	0.0348	in/hr
225		0.0029	Inflow Contribution	1.054962	mgd
230		0.0029			
235		0.0029	Intensity (16th 15 min)	0.0348	in/hr
240		0.0029	Inflow Contribution	1.054962	mgd
245		0.0029			
250		0.0029	Intensity (17th 15 min)	0.0348	in/hr
255		0.0029	Inflow Contribution	1.054962	mgd
260		0.0029			
265		0.0029	Intensity (18th 15 min)	0.0348	in/hr
270		0.0029	Inflow Contribution	1.054962	mgd
275		0.0029			
280		0.0029	Intensity (19th 15 min)	0.0348	in/hr
285		0.0029	Inflow Contribution	1.054962	mgd
290		0.0029			
295		0.0029	Intensity (20th 15 min)	0.0348	in/hr
300		0.0029	Inflow Contribution	1.054962	mgd
305		0.0029			
310		0.0029	Intensity (21st 15 min)	0.0348	in/hr
315		0.0029	Inflow Contribution	1.054962	mgd
320		0.0029			
325		0.0029	Intensity (22nd 15 min	0.0348	in/hr
330		0.0029	Inflow Contribution	1.054962	mgd
335		0.0029			
340		0.0029	Intensity (23rd 15 min)	0.0348	in/hr
345		0.0029	Inflow Contribution	1.054962	mgd
350		0.0029			
355		0.0029	Intensity (24th 15 min)	0.0348	in/hr
360		0.0029	Inflow Contribution	1.054962	mgd
Total:		**0.73**			

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event.

Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

Storm Interval	Time	Target Flow (mgd)	Adjusted PF
1st 15 min	7:30	7.85	0.97
2nd 15 min	7:45	9.95	1.23
3rd 15 min	8:00	14.87	1.84
4th 15 min	8:15	15.57	1.93
5th 15 min	8:30	41.24	5.10
6th 15 min	8:45	40.47	5.01
7th 15 min	9:00	26.56	3.29
8th 15 min	9:15	18.92	2.34
9th 15 min	9:30	14.16	1.75
10th 15 min	9:45	14.16	1.75
11th 15 min	10:00	13.46	1.67
12th 15 min	10:15	13.46	1.67
13th 15 min	10:30	12.98	1.61
14th 15 min	10:45	12.28	1.52
15th 15 min	11:00	11.93	1.48
16th 15 min	11:15	13.68	1.69
17th 15 min	11:30	12.28	1.52
18th 15 min	11:45	12.98	1.61
19th 15 min	12:00	12.28	1.52
20th 15 min	12:15	12.28	1.52
21st 15 min	12:30	12.98	1.61
22nd 15 min	12:45	12.98	1.61
23rd 15 min	13:00	11.58	1.43
24th 15 min	13:15	11.58	1.43

Determination of Wet Weather Diurnal Pattern (K=0.010)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year storm in H2OMap Sewer GIS. A peaking factor will be established for each 15-minutes invterval. These will be superimposed over the dry weather diurnal pattern to coincide with the peak dry weather flow

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour storm	0.63 in	K =	0.01		
5-year, 6-hour storm	0.73 in	ADF =	8.08 mgd		
		A =	11750 acres	(assume 1/2 of land contributes)	
		Q = K x I x A			

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to 360 minutes per the Urban Storm Drainage manual.

Time (min.)	6-hour %	5-year Storm Depth (in.)		
0.63 inches for 5-year storm				
5	0.004	0.00252		
10	0.003	0.00189	Intensity (1st 15 min)	0.02772 in/hr
15	0.004	0.00252	Inflow Contribution	2.10083 mgd
20	0.004	0.00252		
25	0.003	0.00189	Intensity (2nd 15 min)	0.02772 in/hr
30	0.004	0.00252	Inflow Contribution	2.10083 mgd
35	0.004	0.00252		
40	0.003	0.00189	Intensity (3rd 15 min)	0.02772 in/hr
45	0.004	0.00252	Inflow Contribution	2.10083 mgd
50	0.003	0.00189		
55	0.004	0.00252	Intensity (4th 15 min)	0.02772 in/hr
60	0.004	0.00252	Inflow Contribution	2.10083 mgd
65	0.045	0.02835		
70	0.110	0.0693	Intensity (5th 15 min)	0.87444 in/hr
75	0.192	0.12096	Inflow Contribution	66.27162 mgd
80	0.155	0.09765		
85	0.096	0.06048	Intensity (6th 15 min)	0.84924 in/hr
90	0.086	0.05418	Inflow Contribution	64.36178 mgd
95	0.064	0.04032		
100	0.055	0.03465	Intensity (7th 15 min)	0.41328 in/hr
105	0.045	0.02835	Inflow Contribution	31.32146 mgd
110	0.037	0.02331		
115	0.018	0.01134	Intensity (8th 15 min)	0.16128 in/hr
120	0.009	0.00567	Inflow Contribution	12.22301 mgd
125	0.004	0.00252		
130	0.004	0.00252	Intensity (9th 15 min)	0.02772 in/hr
135	0.003	0.00189	Inflow Contribution	2.10083 mgd
140	0.004	0.00252		
145	0.003	0.00189	Intensity (10th 15 min)	0.02772 in/hr
150	0.004	0.00252	Inflow Contribution	2.10083 mgd
155	0.004	0.00252		
160	0.003	0.00189	Intensity (11th 15 min)	0.02772 in/hr
165	0.004	0.00252	Inflow Contribution	2.10083 mgd
170	0.004	0.00252		
175	0.003	0.00189	Intensity (12th 15 min)	0.02772 in/hr

180	0.004	0.00252	Inflow Contribution	2.10083	mgd

Remaining 0.1 inches for 6 hour storm.				
185	0.0029			
190	0.0029	Intensity (13th 15 min)	0.0348	in/hr
195	0.0029	Inflow Contribution	2.637405	mgd
200	0.0029			
205	0.0029	Intensity (14th 15 min)	0.0348	in/hr
210	0.0029	Inflow Contribution	2.637405	mgd
215	0.0029			
220	0.0029	Intensity (15th 15 min)	0.0348	in/hr
225	0.0029	Inflow Contribution	2.637405	mgd
230	0.0029			
235	0.0029	Intensity (16th 15 min)	0.0348	in/hr
240	0.0029	Inflow Contribution	2.637405	mgd
245	0.0029			
250	0.0029	Intensity (17th 15 min)	0.0348	in/hr
255	0.0029	Inflow Contribution	2.637405	mgd
260	0.0029			
265	0.0029	Intensity (18th 15 min)	0.0348	in/hr
270	0.0029	Inflow Contribution	2.637405	mgd
275	0.0029			
280	0.0029	Intensity (19th 15 min)	0.0348	in/hr
285	0.0029	Inflow Contribution	2.637405	mgd
290	0.0029			
295	0.0029	Intensity (20th 15 min)	0.0348	in/hr
300	0.0029	Inflow Contribution	2.637405	mgd
305	0.0029			
310	0.0029	Intensity (21st 15 min)	0.0348	in/hr
315	0.0029	Inflow Contribution	2.637405	mgd
320	0.0029			
325	0.0029	Intensity (22nd 15 min	0.0348	in/hr
330	0.0029	Inflow Contribution	2.637405	mgd
335	0.0029			
340	0.0029	Intensity (23rd 15 min)	0.0348	in/hr
345	0.0029	Inflow Contribution	2.637405	mgd
350	0.0029			
355	0.0029	Intensity (24th 15 min)	0.0348	in/hr
360	0.0029	Inflow Contribution	2.637405	mgd
Total:	**0.73**			

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event.

Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

Storm Interval	Time	Target Flow (mgd)	Adjusted PF
1st 15 min	7:30	9.11	1.13
2nd 15 min	7:45	11.22	1.39
3rd 15 min	8:00	16.13	2.00
4th 15 min	8:15	16.83	2.08
5th 15 min	8:30	81.00	10.02
6th 15 min	8:45	79.09	9.79
7th 15 min	9:00	45.35	5.61
8th 15 min	9:15	26.25	3.25
9th 15 min	9:30	15.42	1.91
10th 15 min	9:45	15.42	1.91
11th 15 min	10:00	14.72	1.82
12th 15 min	10:15	14.72	1.82
13th 15 min	10:30	14.56	1.80
14th 15 min	10:45	13.86	1.72
15th 15 min	11:00	11.93	1.48
16th 15 min	11:15	15.26	1.89
17th 15 min	11:30	13.86	1.72
18th 15 min	11:45	14.56	1.80
19th 15 min	12:00	13.86	1.72
20th 15 min	12:15	13.86	1.72
21st 15 min	12:30	14.56	1.80
22nd 15 min	12:45	14.56	1.80
23rd 15 min	13:00	13.16	1.63
24th 15 min	13:15	13.16	1.63

Determination of Wet Weather Diurnal Pattern (K=0.012)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour s	0.63 in	K =	0.012		
5-year, 6-hour s	0.73 in	ADF =	8.08	mgd	
		A =	11750	acres	(assume 1/2 of land contributes)
		Q = K x I x A			

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to 360 minutes per the Urban Storm Drainage manual.

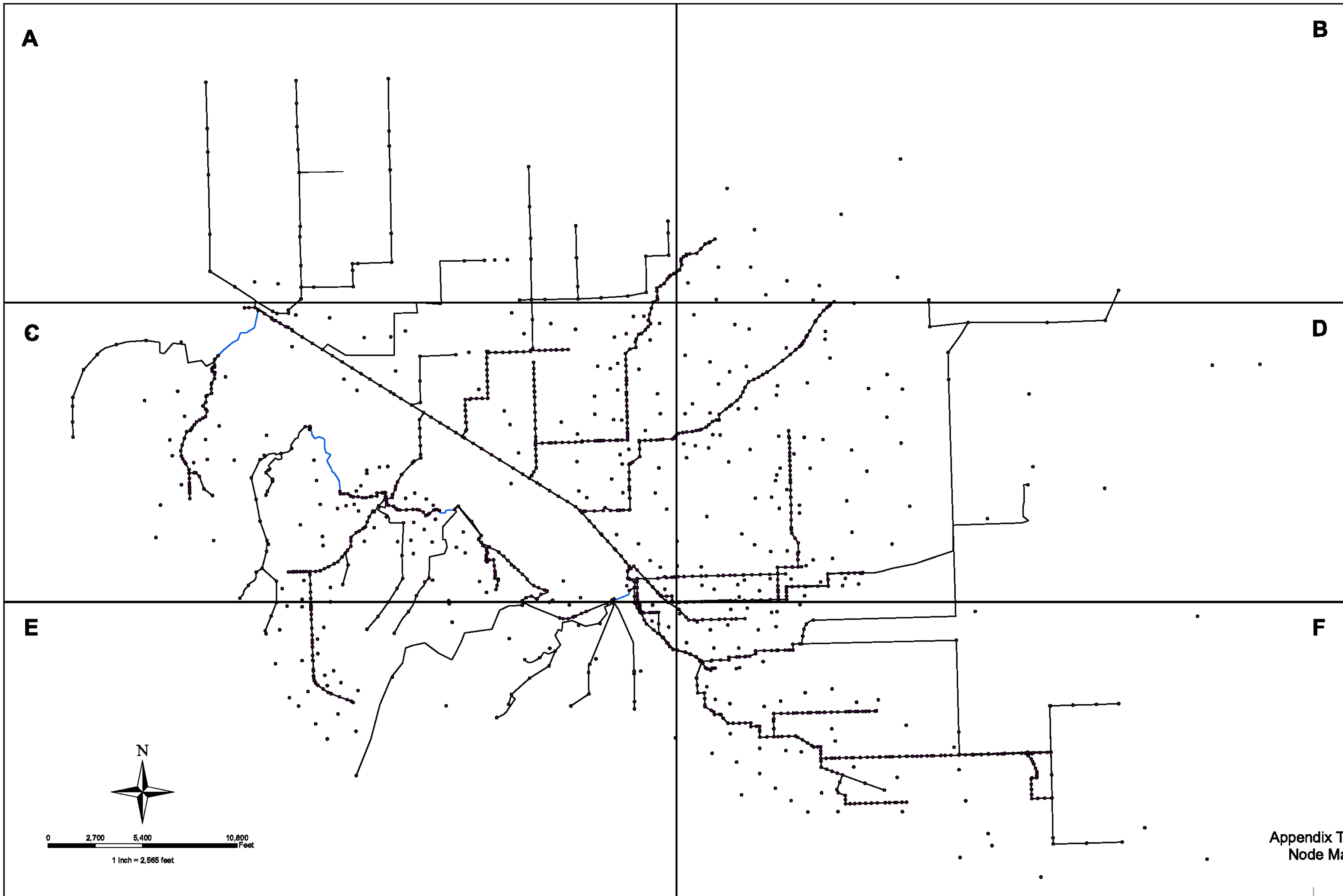
Time (min.)	5-year Storm Depth (in.)			
0.63 inches for 5-year storm				
5	0.00252			
10	0.00189	Intensity (1st 15 min)	0.02772	in/hr
15	0.00252	Inflow Contribution	2.520995	mgd
20	0.00252			
25	0.00189	Intensity (2nd 15 min)	0.02772	in/hr
30	0.00252	Inflow Contribution	2.520995	mgd
35	0.00252			
40	0.00189	Intensity (3rd 15 min)	0.02772	in/hr
45	0.00252	Inflow Contribution	2.520995	mgd
50	0.00189			
55	0.00252	Intensity (4th 15 min)	0.02772	in/hr
60	0.00252	Inflow Contribution	2.520995	mgd
65	0.02835			
70	0.0693	Intensity (5th 15 min)	0.87444	in/hr
75	0.12096	Inflow Contribution	79.52595	mgd
80	0.09765			
85	0.06048	Intensity (6th 15 min)	0.84924	in/hr
90	0.05418	Inflow Contribution	77.23413	mgd
95	0.04032			
100	0.03465	Intensity (7th 15 min)	0.41328	in/hr
105	0.02835	Inflow Contribution	37.58575	mgd
110	0.02331			
115	0.01134	Intensity (8th 15 min)	0.16128	in/hr
120	0.00567	Inflow Contribution	14.66761	mgd
125	0.00252			
130	0.00252	Intensity (9th 15 min)	0.02772	in/hr
135	0.00189	Inflow Contribution	2.520995	mgd
140	0.00252			
145	0.00189	Intensity (10th 15 min)	0.02772	in/hr
150	0.00252	Inflow Contribution	2.520995	mgd
155	0.00252			
160	0.00189	Intensity (11th 15 min)	0.02772	in/hr
165	0.00252	Inflow Contribution	2.520995	mgd
170	0.00252			
175	0.00189	Intensity (12th 15 min)	0.02772	in/hr
180	0.00252	Inflow Contribution	2.520995	mgd

Remaining 0.1 inches for 6 hour storm.				
185	0.0029			
190	0.0029	Intensity (13th 15 min)	0.0348	in/hr
195	0.0029	Inflow Contribution	3.164886	mgd
200	0.0029			
205	0.0029	Intensity (14th 15 min)	0.0348	in/hr
210	0.0029	Inflow Contribution	3.164886	mgd
215	0.0029			
220	0.0029	Intensity (15th 15 min)	0.0348	in/hr
225	0.0029	Inflow Contribution	3.164886	mgd
230	0.0029			
235	0.0029	Intensity (16th 15 min)	0.0348	in/hr
240	0.0029	Inflow Contribution	3.164886	mgd
245	0.0029			
250	0.0029	Intensity (17th 15 min)	0.0348	in/hr
255	0.0029	Inflow Contribution	3.164886	mgd
260	0.0029			
265	0.0029	Intensity (18th 15 min)	0.0348	in/hr
270	0.0029	Inflow Contribution	3.164886	mgd
275	0.0029			
280	0.0029	Intensity (19th 15 min)	0.0348	in/hr
285	0.0029	Inflow Contribution	3.164886	mgd
290	0.0029			
295	0.0029	Intensity (20th 15 min)	0.0348	in/hr
300	0.0029	Inflow Contribution	3.164886	mgd
305	0.0029			
310	0.0029	Intensity (21st 15 min)	0.0348	in/hr
315	0.0029	Inflow Contribution	3.164886	mgd
320	0.0029			
325	0.0029	Intensity (22nd 15 min)	0.0348	in/hr
330	0.0029	Inflow Contribution	3.164886	mgd
335	0.0029			
340	0.0029	Intensity (23rd 15 min)	0.0348	in/hr
345	0.0029	Inflow Contribution	3.164886	mgd
350	0.0029			
355	0.0029	Intensity (24th 15 min)	0.0348	in/hr
360	0.0029	Inflow Contribution	3.164886	mgd
Total:	**0.73**			

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event.

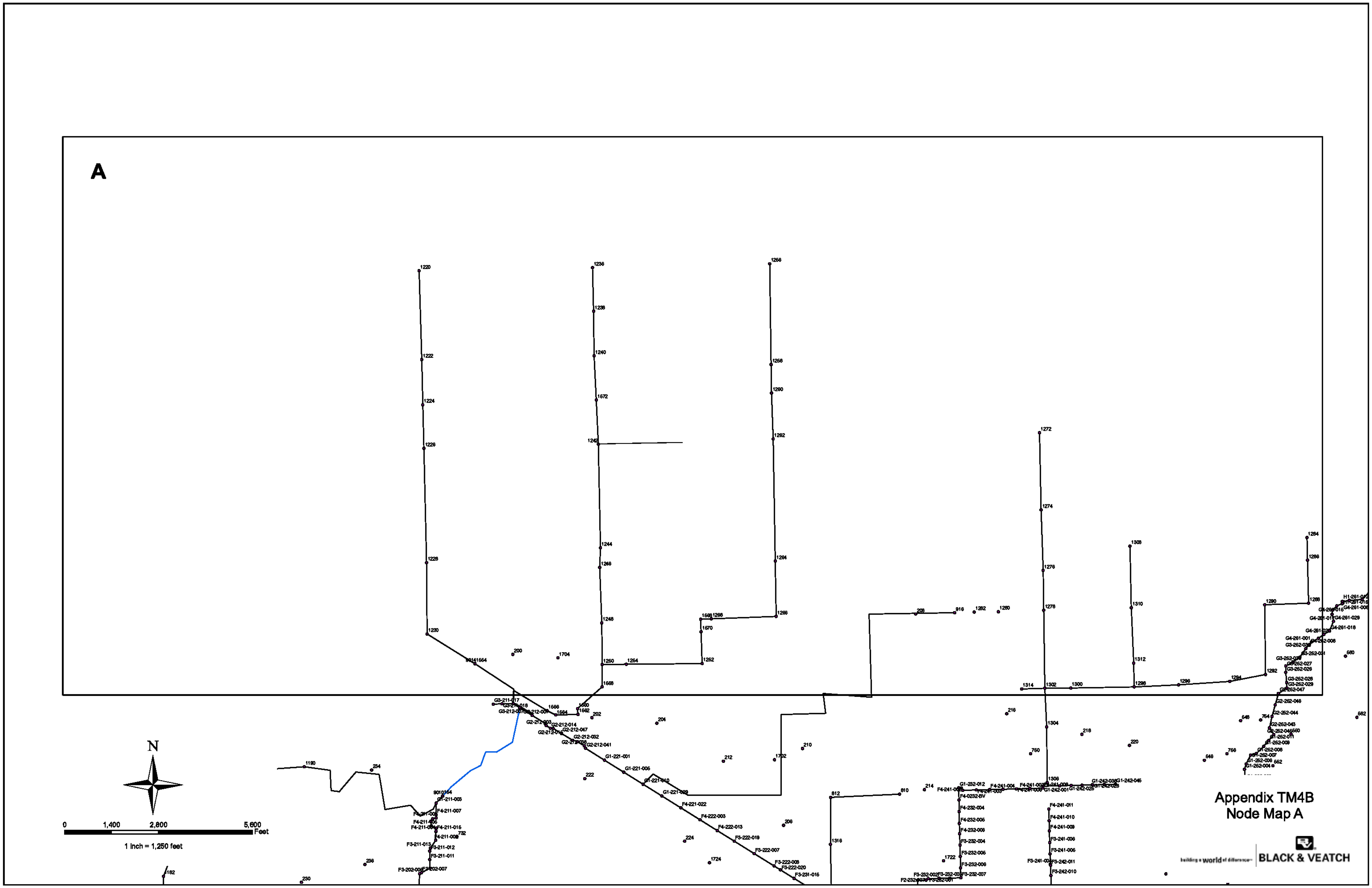
Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

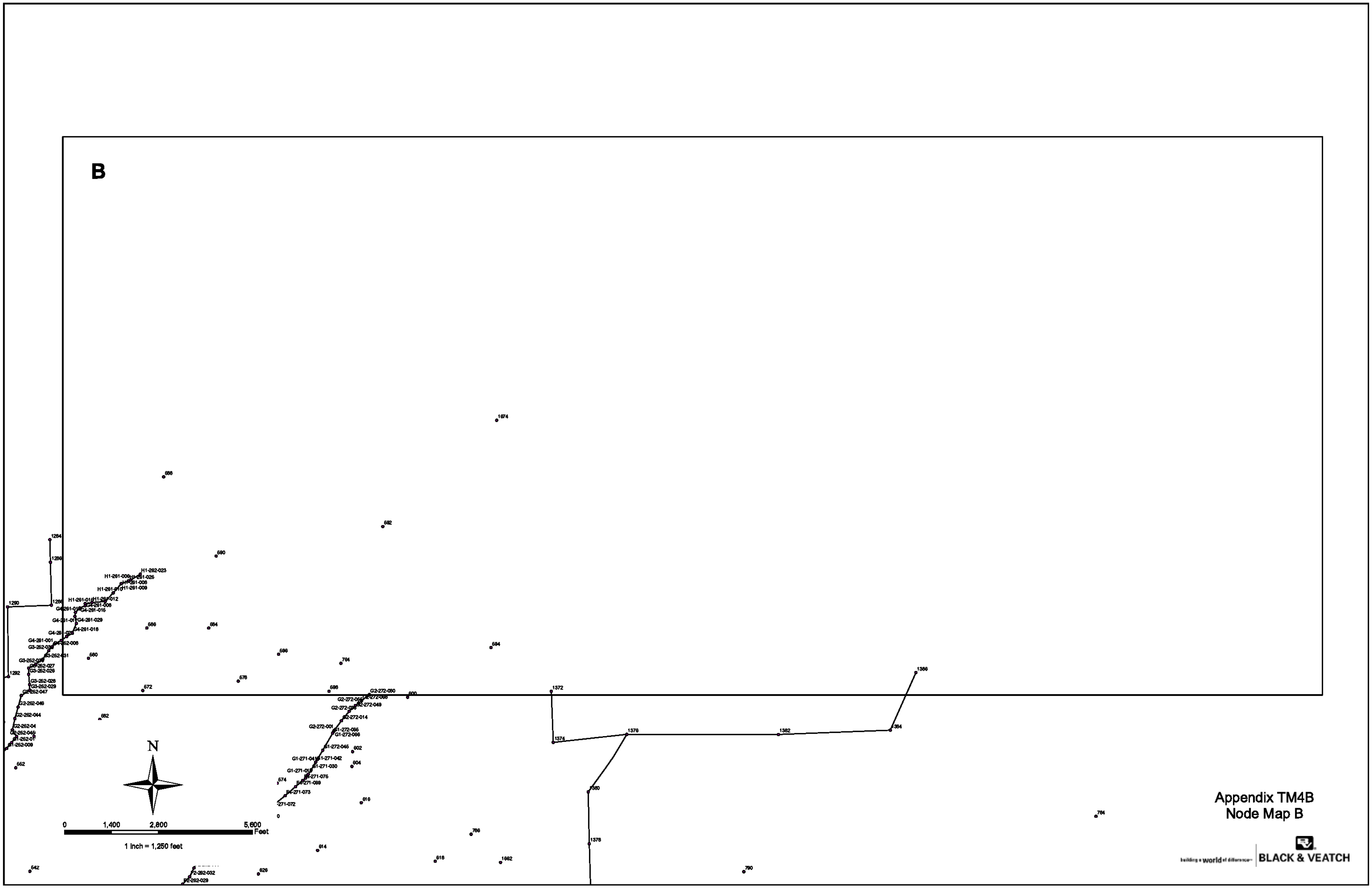
Storm Interval	Target Flow (mgd)	Adjusted PF
1st 15 min	9.53	1.18
2nd 15 min	11.64	1.44
3rd 15 min	16.55	2.05
4th 15 min	17.25	2.14
5th 15 min	94.26	11.67
6th 15 min	91.96	11.38
7th 15 min	51.61	6.39
8th 15 min	28.69	3.55
9th 15 min	15.84	1.96
10th 15 min	15.84	1.96
11th 15 min	15.14	1.87
12th 15 min	15.14	1.87
13th 15 min	15.09	1.87
14th 15 min	14.39	1.78
15th 15 min	11.93	1.48
16th 15 min	15.79	1.95
17th 15 min	14.39	1.78
18th 15 min	15.09	1.87
19th 15 min	14.39	1.78
20th 15 min	14.39	1.78
21st 15 min	15.09	1.87
22nd 15 min	15.09	1.87
23rd 15 min	13.69	1.69
24th 15 min	13.69	1.69

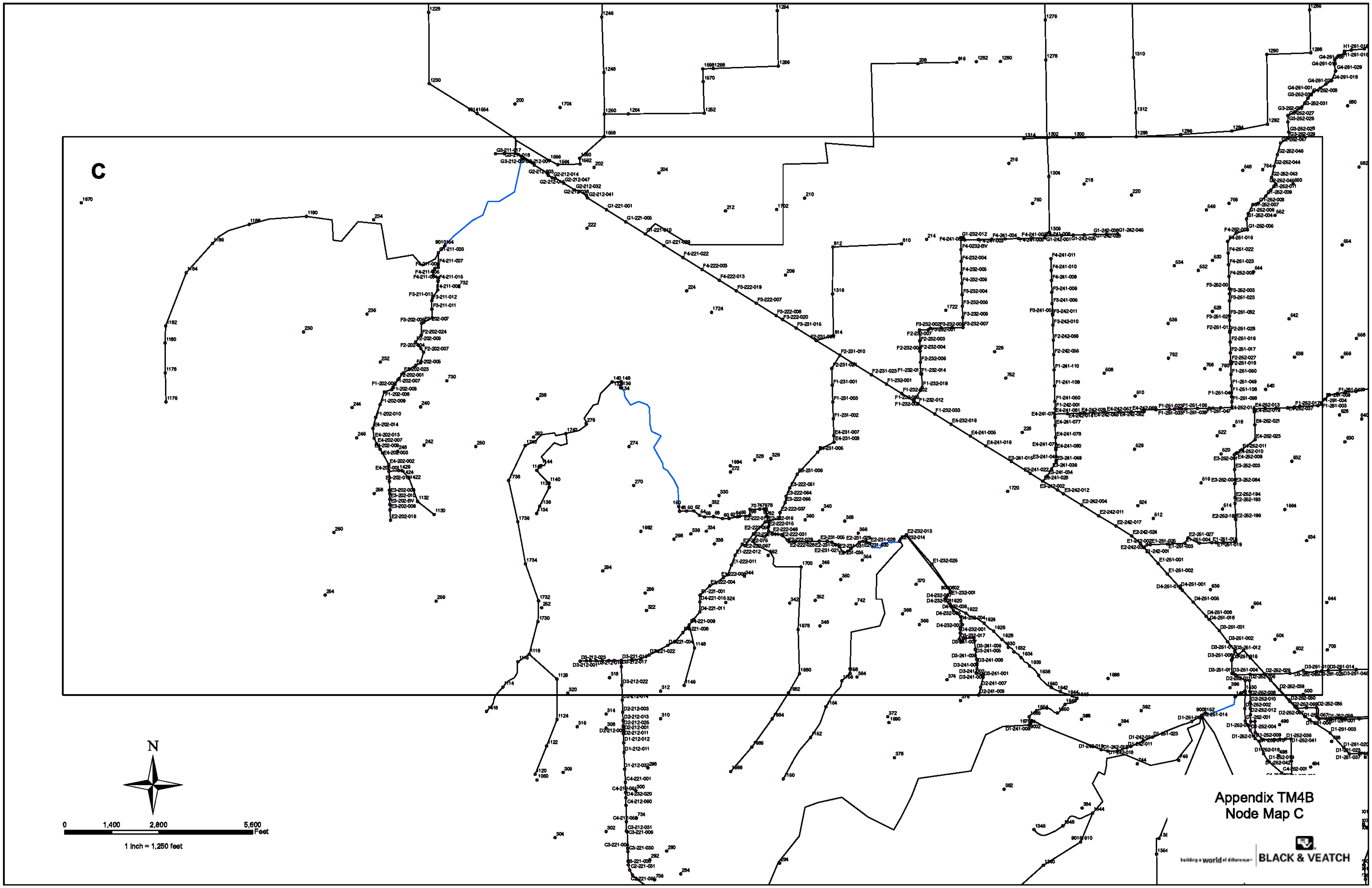


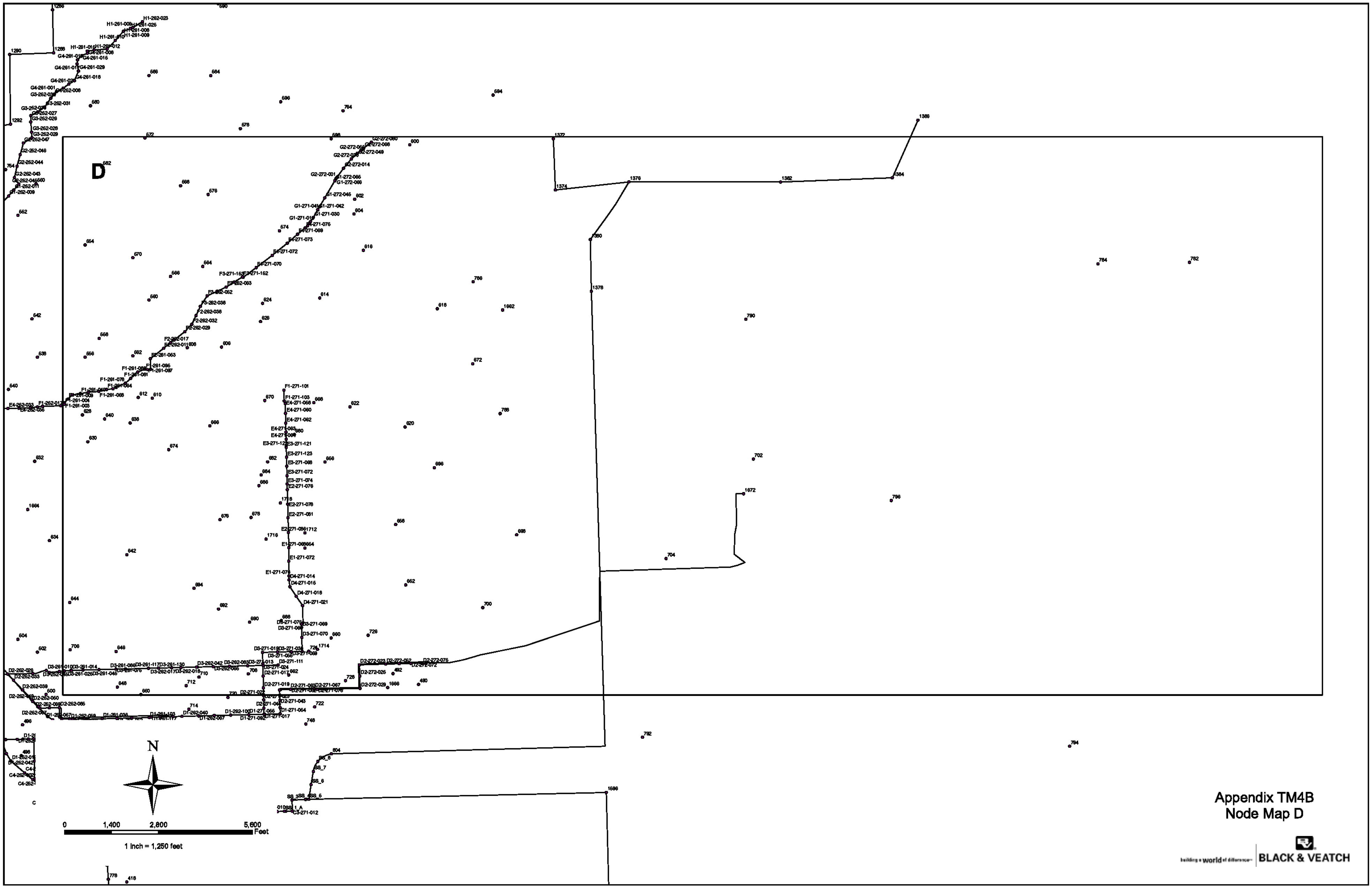
Appendix TM4B
Node Map

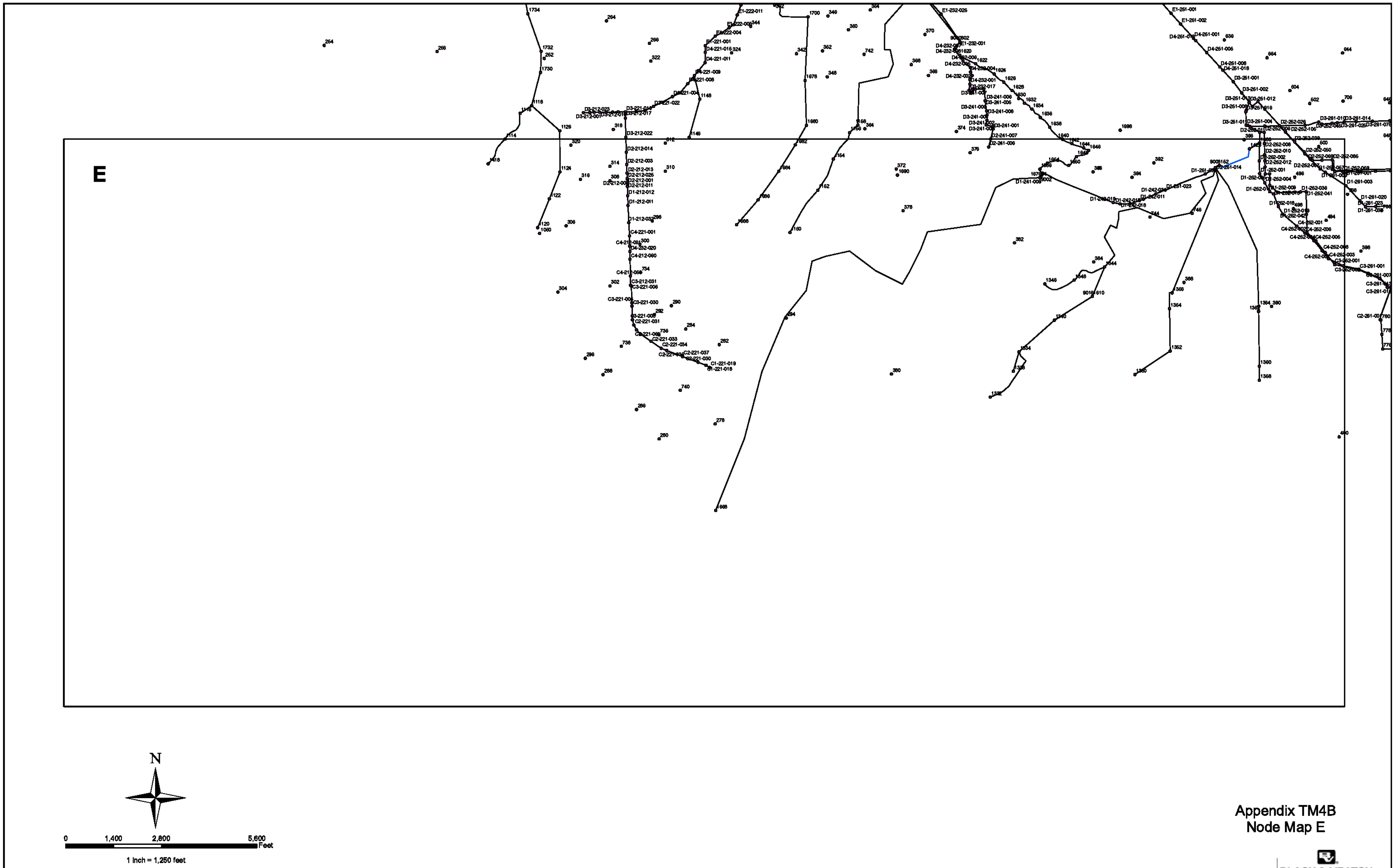
BLACK & VEATCH


A
N
0 1,400 2,800 5,600
Feet
1 inch = 1,250 feet
Appendix TM4B
Node Map A
building a world of difference
BLACK & VEATCH


B
N
0
1,400
2,800
5,600
Feet
1 inch = 1,250 feet
Appendix TM4B
Node Map B
BLACK & VEATCH

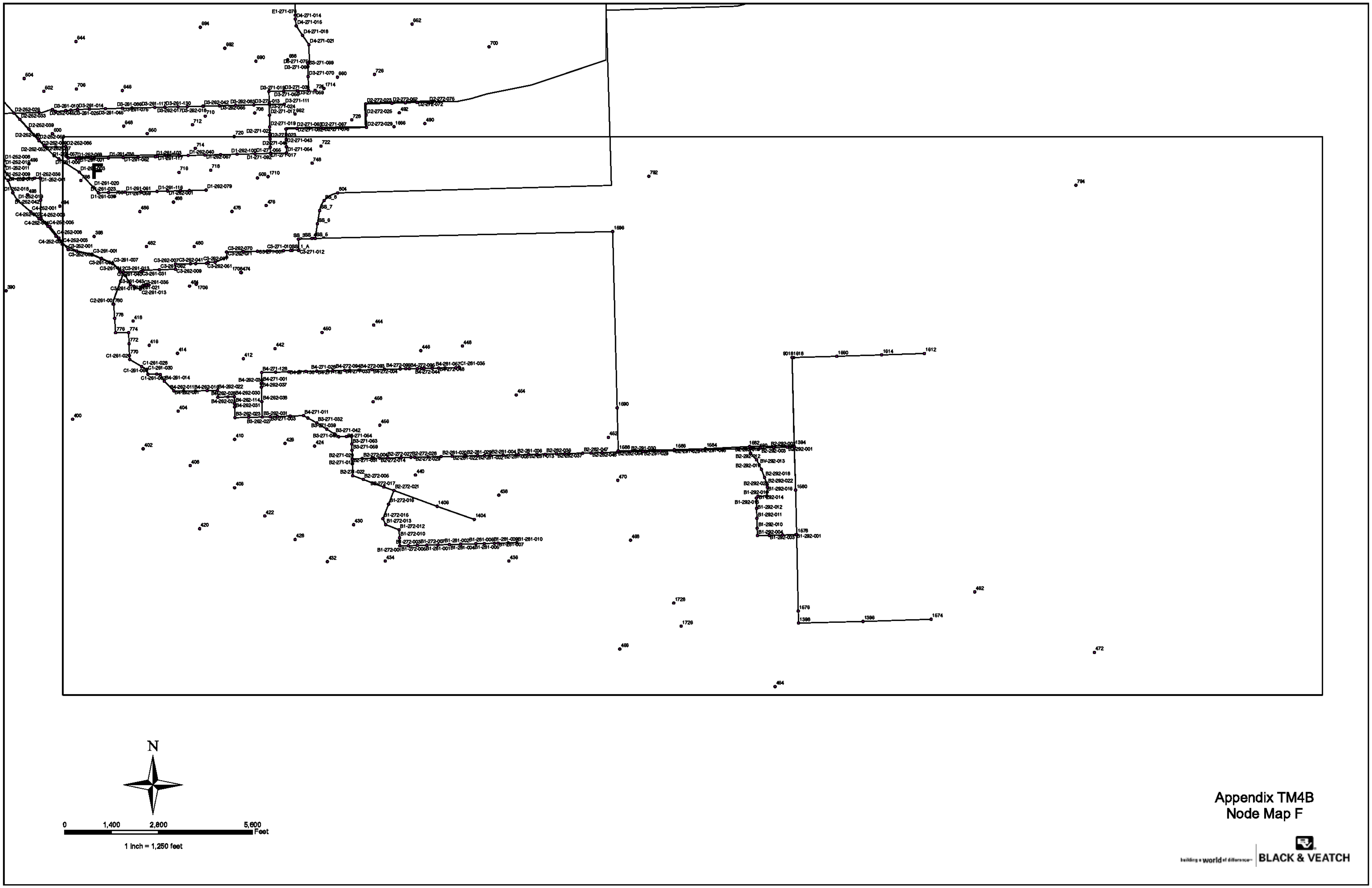

C
N
0
1,400
2,800
5,600
Feet
1 inch = 1,250 feet
Appendix TM4B
Node Map C
BLACK & VEATCH


D
N
0
1,400
2,800
5,600
Feet
1 inch = 1,250 feet
Appendix TM4B
Node Map D
BLACK & VEATCH



Appendix TM4B
Node Map E

building a world of difference
BLACK & VEATCH



Appendix TM4B
Node Map F

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
132	4,559.77	0.005	0.047				
134	4,555.68	0					
136	4,536.74	0.006					
14	4,640.70	0.008	0.086				
140	4,531.97	0.001	0.026				
1428	4,554.00						
1430	4,555.49						
148	4,532.39						
150	4,661.19	0.008					
152	4,545.00						
154	4,511.00						
48	4,663.66	0.001	0.008				
50	4,662.47	0					
52	4,661.49	0					
54	4,660.60	0					
56	4,661.79	0					
58	4,659.69	0					
60	4,659.26	0.001					
62	4,658.85	0.001					
64	4,659.13	0.001	0.001				
66	4,658.47	0					
68	4,655.95	0					
70	4,655.24	0.001	0.002				
74	4,631.62	0.001					
76	4,624.82	0	0.004				
770	4,621.89	0.003					
772	4,627.37	0.003					
774	4,629.57	0.002	0.006				
776	4,629.63						
778	4,628.22	0					
78	4,622.00	0.001					
780	4,603.69						
80	4,622.00	0					
802	4,537.13		0.037				
804	4,593.40	0.001	0.021	0.81		0.007	
82	4,603.00	0					
B1-272-001	4,656.60		0.03				
B1-272-002	4,657.28						
B1-272-003	4,658.04						
B1-272-005	4,659.62						
B1-272-007	4,660.98						
B1-272-010	4,654.15						
B1-272-012	4,653.42						
B1-272-013	4,650.96						
B1-272-015	4,650.38						
B1-272-016	4,649.85						
B1-281-001	4,662.51						
B1-281-002	4,664.91						
B1-281-004	4,667.12		0.07				
B1-281-005	4,668.75						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B1-281-006	4,670.69						
B1-281-007	4,671.37						
B1-281-009	4,674.29						
B1-281-010	4,675.02		0.048				
B1-292-001	4,714.95		0.009				
B1-292-002	4,714.30						
B1-292-003	4,716.66						
B1-292-004	4,715.14						
B1-292-010	4,714.07						
B1-292-011	4,709.88						
B1-292-012	4,682.02						
B1-292-013	4,699.01						
B1-292-014	4,698.59						
B1-292-015	4,696.92						
B1-292-016	4,697.59						
B2-271-019	4,645.97	0.01	0.068				
B2-271-020	4,646.10						
B2-271-022	4,646.25						
B2-271-031	4,644.88						
B2-272-004	4,648.22	0.003					
B2-272-005	4,646.98						
B2-272-007	4,648.91	0.003					
B2-272-008	4,648.60						
B2-272-009	4,648.92	0.002					
B2-272-014	4,649.54	0.003	0.031				
B2-272-017	4,650.24						
B2-272-021	4,651.87						
B2-272-027	4,650.16	0.032	0.059			0.027	
B2-272-028	4,650.77		0.053				
B2-272-029	4,650.76						
B2-272-030	4,651.79						
B2-272-033	4,650.69	0.005					
B2-281-001	4,656.19						
B2-281-002	4,657.43						
B2-281-003	4,657.95		0.119				
B2-281-004	4,658.60						
B2-281-005	4,660.30						
B2-281-006	4,661.91						
B2-281-013	4,662.47						
B2-281-020	4,654.14						
B2-281-022	4,655.62						
B2-281-027	4,661.75						
B2-281-029	4,656.57						
B2-282-003	4,662.68						
B2-282-036	4,664.58						
B2-282-037	4,666.54						
B2-282-041	4,667.41						
B2-282-046	4,667.67						
B2-282-047	4,669.70						
B2-282-048	4,669.70						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B2-282-051	4,671.31						
B2-282-054	4,673.27		0.217				
B2-291-024	4,679.08						
B2-291-025	4,677.62						
B2-291-026	4,678.53						
B2-291-027	4,677.35						
B2-291-028	4,674.57						
B2-291-029	4,674.37						
B2-291-030	4,673.31						
B2-291-045	4,677.89						
B2-292-001	4,689.27						
B2-292-002	4,687.50						
B2-292-003	4,684.73						
B2-292-004	4,682.86						
B2-292-008	4,682.37						
B2-292-009	4,681.25						
B2-292-010	4,697.86						
B2-292-011	4,682.14						
B2-292-012	4,685.28						
B2-292-017	4,687.54						
B2-292-018	4,689.26						
B2-292-022	4,690.90						
B2-292-023	4,692.04						
B2-292-026	4,681.96						
B2-301-001	4,691.63		0.008				
B3-262-023	4,637.90	0.007					
B3-262-027	4,639.09	0.007					0.004
B3-262-031	4,640.22	0.006	0.045			0.049	
B3-271-003	4,639.60	0.004					
B3-271-006	4,639.29	0.006					
B3-271-018	4,640.18	0.01					
B3-271-026	4,642.09	0.007	0.023				
B3-271-032	4,643.90	0.009					
B3-271-039	4,644.66	0.009					
B3-271-042	4,641.88	0.005					
B3-271-045	4,644.45	0.004					
B3-271-054	4,643.99	0.004					
B3-271-058	4,645.44	0.008					
B3-271-059	4,645.04	0.003					
B3-271-063	4,644.83	0.003					
B4-261-014	4,615.35	0.006					
B4-262-001	4,626.61	0.005	0.019				
B4-262-011	4,624.94	0.007	0.028				
B4-262-016	4,633.29	0.007					
B4-262-022	4,633.48	0.007	0.021				
B4-262-024	4,632.42	0.006					0.008
B4-262-028	4,634.70	0.002					
B4-262-030	4,635.77	0.006					
B4-262-031	4,635.58	0.002					
B4-262-036	4,639.18	0.002					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B4-262-037	4,639.15	0.005					0.005
B4-262-038	4,638.96	0.007					
B4-262-044	4,628.65	0.005					
B4-262-114	4,636.36	0.002					
B4-271-001	4,639.11	0.002					
B4-271-011	4,641.78	0.009					
B4-271-028	4,646.15	0.007					
B4-271-033	4,646.99	0.008					
B4-271-128	4,639.74	0.005					
B4-271-135	4,639.73	0.006	0.016				
B4-271-138	4,639.45	0.008					
B4-271-143	4,640.50	0.006					
B4-271-145	4,641.45	0.006					
B4-271-146	4,643.18	0.008					
B4-271-147	4,644.70	0.006	0.022				0.007
B4-271-148	4,647.63	0.007					
B4-272-004	4,650.15	0.009	0.071				
B4-272-039	4,651.93	0.005	0.016				
B4-272-040	4,652.26	0.007					
B4-272-044	4,653.41	0.011					
B4-272-048	4,653.82	0.011					
B4-272-086	4,650.62	0.012					
B4-272-091	4,651.17	0.005					
B4-272-092	4,651.27	0.008					
B4-272-093	4,647.86	0.004					
B4-272-094	4,647.89	0.005					
B4-272-095	4,649.15	0.007					
B4-272-096	4,650.63	0.011					
B4-281-054	4,655.65	0.015					
B4-281-057	4,656.77	0.021					
BV-105	4,555.49						
BV-292-013	4,686.36						
C1-221-018	4,855.42	0					
C1-221-019	4,856.62	0.002	0.029				
C1-261-020	4,611.50	0.004	0.012				
C1-261-028	4,607.00	0.004					
C1-261-030	4,607.41	0.002	0.009				
C1-261-058	4,620.88	0.003					
C1-261-060	4,612.10	0.008	0.027				0.005
C1-261-062	4,616.02	0.002					
C1-281-035	4,656.27	0.028	0.195				
C2-221-030	4,856.52	0.001					
C2-221-031	4,840.90	0					
C2-221-032	4,852.13	0					
C2-221-033	4,855.02	0					
C2-221-034	4,856.96	0.001					
C2-221-035	4,854.80	0.004					
C2-221-037	4,853.25	0.001					
C2-221-065	4,852.08	0					
C2-261-001	4,603.22						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C2-261-013	4,572.06	0					0.011
C2-261-024	4,575.01	0					
C3-212-031	4,810.25	0					
C3-221-003	4,835.19	0	0.01				
C3-221-004	4,830.28	0					
C3-221-005	4,821.15	0					
C3-221-006	4,811.19	0					
C3-221-030	4,822.68	0	0.003				
C3-252-001	4,559.32						
C3-252-002	4,561.74						
C3-261-001	4,562.22	0					
C3-261-002	4,563.15	0					
C3-261-004	4,564.51	0					
C3-261-005	4,564.51	0					
C3-261-007	4,563.27	0					
C3-261-008	4,565.25	0					
C3-261-009	4,563.05						
C3-261-010	4,564.47						
C3-261-011	4,563.00						
C3-261-012	4,566.30						
C3-261-013	4,565.68						
C3-261-015	4,565.28	0					
C3-261-019	4,563.78	0					
C3-261-021	4,565.00	0	0.022				0.06
C3-261-031	4,565.76	0					
C3-261-035	4,573.34	0					
C3-261-040	4,566.68	0.001					
C3-261-043	4,571.45	0					
C3-261-050	4,567.28	0					
C3-261-056	4,567.40	0.001	0.017				
C3-261-062	4,567.35	0.001					
C3-261-075	5,000.00	0					
C3-261-076	5,000.00	0					
C3-262-007	4,567.22	0.001					
C3-262-009	4,567.77	0.001					
C3-262-033	4,569.31	0.001					
C3-262-041	4,569.51	0.001					
C3-262-046	4,570.66	0.001					
C3-262-051	4,568.30	0					
C3-262-061	4,572.79	0.002					
C3-262-070	4,577.51	0					
C3-262-071	4,577.15	0.001					
C3-262-074	4,578.59	0.001					
C3-271-001	4,576.86	0.002					
C3-271-003	4,578.37	0.001	0.004				0.004
C3-271-004	4,579.69	0.002					
C3-271-007	4,581.04	0.002					
C3-271-010	4,581.04	0.001					
C3-271-012	4,581.04	0.001					
C4-212-059	4,802.26	0					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C4-212-060	4,790.25	0.001	0.004				
C4-212-061	4,781.59	0					
C4-221-001	4,776.51	0.001					
C4-252-001	4,557.32						
C4-252-002	4,559.28						
C4-252-003	4,560.79						
C4-252-004	4,559.57						
C4-252-005	4,559.66						
C4-252-006	4,557.44						
C4-252-007	4,560.16						
C4-252-008	4,559.21						
D1-212-011	4,757.04	0.001					
D1-212-012	4,751.59	0.001					
D1-212-032	4,767.46	0.001	0.002				
D1-241-009	4,638.64						
D1-242-011	4,631.80	0.001					
D1-242-017	4,645.13	0.001					
D1-242-018	4,656.69	0.002					
D1-242-019	4,661.02	0.005					
D1-242-030	4,631.80	0.001					
D1-242-031	5,000.00	0.001					
D1-251-005	4,663.66	0.002					
D1-251-023	5,000.00	0.002	0.003				
D1-252-001	4,554.94	0					
D1-252-004	4,555.66						
D1-252-005	4,555.31	0					
D1-252-008	4,555.58	0.001					
D1-252-009	4,556.21						
D1-252-010	4,555.57	0.001	0.004				
D1-252-011	4,555.56						
D1-252-015	4,556.52						
D1-252-016	4,557.04	0.001					
D1-252-018	4,556.32						
D1-252-019	4,556.43						
D1-252-023	4,557.57	0.001					
D1-252-031	4,557.39	0.001					
D1-252-036	4,557.63	0.001	0.002				
D1-252-041	4,558.20	0.003					
D1-252-042	4,558.62	0.002	0.007				
D1-252-050	4,585.00						
D1-252-053	4,581.46	0					
D1-252-056	4,581.81	0					
D1-252-057	4,582.88	0.009					
D1-252-059	4,582.91	0.001					
D1-261-001	4,583.74	0	0.053				0.013
D1-261-003	4,588.00		0.056				0.012
D1-261-006	4,583.32	0.004					
D1-261-008	4,584.98	0.005					
D1-261-020	4,588.00	0					
D1-261-021	4,584.67	0.004					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-261-023	4,587.00	0					
D1-261-036	4,586.86	0.006					
D1-261-037	4,589.00	0.001					
D1-261-052	4,588.29	0.006					
D1-261-059	4,588.00	0.001					
D1-261-061	4,588.00	0					
D1-261-075	4,589.51	0.01					
D1-261-084	4,590.00	0.003					
D1-261-103	4,591.22	0.007					
D1-261-116	4,588.00						
D1-261-117	4,591.75	0.01					
D1-261-128	4,590.09	0.015					
D1-262-001	4,589.00						0.004
D1-262-025	4,589.16	0.018					
D1-262-030	4,590.00						
D1-262-040	4,589.76	0.006	0.005				0.008
D1-262-049	4,590.00						
D1-262-067	4,591.72	0.006					
D1-262-079	4,592.00		0.048				
D1-262-088	4,593.50	0.006					
D1-262-100	4,594.93	0.006					
D1-271-017	4,596.81	0.003					
D1-271-051	4,598.99	0.002					
D1-271-054	4,596.12	0.002					0.012
D1-271-055	4,596.12	0.006			0.008		
D1-271-092	4,596.12	0.001					
D2-212-001	4,743.95	0					
D2-212-002	4,742.51	0	0				
D2-212-003	4,733.57	0.001	0				
D2-212-011	4,746.35	0	0.002				
D2-212-012	4,744.03	0					
D2-212-013	4,738.35	0	0.003				
D2-212-014	4,726.24	0.001					
D2-212-025	4,742.51	0					
D2-241-006	4,658.54	0.001	0.002				
D2-241-007	4,655.59	0					
D2-251-004	4,555.68						
D2-251-005	4,555.19						
D2-251-008	4,660.22	0.001	0.039				
D2-251-014	4,657.55	0					
D2-252-002	4,556.35	0.001					
D2-252-004	4,555.49		0				
D2-252-005	4,556.03						
D2-252-006	4,555.69						
D2-252-008	4,557.06						
D2-252-010	4,564.13						
D2-252-011	4,556.07						
D2-252-012	4,555.82	0.002					
D2-252-014	4,556.19	0.001					
D2-252-015	4,556.19						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D2-252-026	4,559.34		0.009				
D2-252-033	4,559.07						
D2-252-039	4,559.94						
D2-252-049	4,570.51						
D2-252-050	4,577.00						
D2-252-052	4,578.00						
D2-252-056	4,579.00						
D2-252-057	4,573.79		0.015				0.052
D2-252-062	4,574.15						
D2-252-067	4,587.00						
D2-252-069	4,577.81	0.003					
D2-252-071	4,575.19						
D2-252-085	4,580.75	0.002					
D2-252-105	4,572.19						
D2-271-017	4,603.11						
D2-271-019	4,601.30						
D2-271-022	4,600.17	0.001					
D2-271-023	4,598.81	0.001					
D2-271-039	4,601.59	0.001	0.297		0.012		0.049
D2-271-042	4,601.00	0.002					
D2-271-043	4,599.90	0.002					
D2-271-045	4,598.99	0.002	0.07				
D2-271-048	4,601.69	0.001					
D2-271-052	4,603.54	0.001					
D2-271-063	4,604.76	0.009					
D2-271-067	4,605.65	0.005					
D2-271-075	4,605.91	0.007					0.01
D2-271-109	4,597.40	0.003					
D2-272-011	4,606.03	0.008					
D2-272-023	4,607.35	0.01					
D2-272-025	4,604.90	0.003					
D2-272-029	4,604.13	0.003					
D2-272-052	4,605.25	0.009					
D2-272-070	4,605.84	0.007					
D2-272-072	4,607.18	0.009					
D2-272-074	4,608.78	0.007					
D2-272-075	4,608.78	0					
D2-281-002	4,608.78	0					
D3-212-001	4,713.00	0	0.001				
D3-212-002	4,710.90	0					
D3-212-003	4,708.13	0					
D3-212-004	4,705.24	0					
D3-212-012	4,702.84	0	0				
D3-212-013	4,698.75	0					
D3-212-017	4,697.20	0					
D3-212-018	4,701.55	0					
D3-212-022	4,716.93	0.001	0.002				
D3-212-023	4,715.72	0	0.001				
D3-221-016	4,695.09	0					
D3-221-021	4,683.00	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D3-221-022	4,683.00	0.001					
D3-221-023	4,683.00	0.001					
D3-221-024	4,683.00	0					
D3-232-001	4,628.13	0	0.012				
D3-232-009	4,644.58	0					
D3-232-015	4,634.34	0					
D3-232-017	4,613.76	0.001					
D3-232-018	4,626.19	0					
D3-241-001	4,650.99	0					
D3-241-002	4,651.19	0					
D3-241-003	4,654.39	0.001					
D3-241-004	4,649.91	0					
D3-241-005	4,650.33	0					
D3-241-006	4,650.09	0.001					
D3-241-007	4,649.00	0					
D3-241-008	4,651.31	0					
D3-241-009	4,652.37	0.001					
D3-251-001	4,555.45						
D3-251-002	4,555.84						
D3-251-004	4,554.87						
D3-251-008	4,553.38						
D3-251-011	4,555.31		0.008				
D3-251-012	4,555.45						
D3-251-013	4,556.46						
D3-251-014	4,559.45	0					
D3-251-015	4,554.87						
D3-251-016	4,548.92						
D3-252-008	4,556.68	0.002					
D3-252-012	4,555.65	0.002					
D3-252-045	4,572.19	0.003					
D3-252-054	4,576.99	0.002					
D3-252-057	5,000.00	0.002					
D3-261-010	4,591.00	0	0.034				0.101
D3-261-014	4,591.00	0.001	0.132				
D3-261-025	4,594.00	0.002					
D3-261-045	4,597.00	0.003					
D3-261-075	4,600.00	0.004	0.036				0.029
D3-261-086	4,602.00	0.007					
D3-261-117	4,607.00	0.002					
D3-261-130	4,608.00	0.004					
D3-262-017	4,609.00	0.007	0.118				0.08
D3-262-018	4,610.00	0.007	0.208				0.005
D3-262-042	4,608.00	0.004					0.009
D3-262-065	4,606.00	0.006					
D3-262-083	4,610.00	0.007					
D3-262-122	4,608.00	0.004					
D3-271-013	4,612.50	0.003	0.015		0.085		0.033
D3-271-019	4,607.81						
D3-271-024	4,605.19						
D3-271-029	4,613.00	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D3-271-038	4,608.37						
D3-271-055	4,610.45	0.002					
D3-271-059	4,611.12						
D3-271-068	4,617.13	0					
D3-271-069	4,616.85						
D3-271-070	4,615.82						
D3-271-072	4,613.27						
D3-271-075	4,617.94						
D3-271-111	4,614.00	0.001					
D3-281-006	4,608.96	0		0.8			
D4-221-004	4,683.00	0.001					
D4-221-005	4,662.00	0.001					
D4-221-008	4,654.90	0.001					
D4-221-009	4,651.00	0.001					
D4-221-010	4,646.00	0.001					
D4-221-011	4,643.00	0.001	0.002				
D4-221-015	4,637.85	0.001					
D4-232-001	4,595.25	0					
D4-232-002	4,575.21	0					
D4-232-003	4,563.00	0					
D4-232-004	4,562.51	0.001					
D4-232-005	4,555.62						
D4-232-006	4,546.99						
D4-232-007	4,539.68		0.005				
D4-232-008	4,539.41						
D4-232-020	4,788.00	0	0.005				
D4-251-001	4,551.09						
D4-251-005	4,552.08		0.187			0.031	0.031
D4-251-008	4,552.54						
D4-251-018	5,000.00						
D4-251-019	5,000.00						
D4-271-014	4,624.56						
D4-271-015	4,622.79						
D4-271-018	4,621.51						
D4-271-021	4,620.89						
E1-221-001	4,639.87	0.001	0.001				
E1-222-004	4,638.00	0.001					
E1-222-005	4,627.00	0.001					
E1-222-006	4,620.00	0.001					
E1-222-007	4,623.00	0					
E1-222-011	4,618.00	0.001					
E1-222-012	4,612.00	0.001					
E1-231-012	4,639.85	0.001	0.002				
E1-232-001	4,537.50						
E1-232-025	4,538.19						
E1-242-001	4,548.46						
E1-242-002	4,548.17						
E1-251-001	4,548.07						
E1-251-002	4,549.16						
E1-251-003	4,549.50	0.005					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E1-251-004	4,548.81	0.003					
E1-251-007	4,550.14	0.003					
E1-251-018	4,552.73	0.003					
E1-251-019	4,553.70	0.001	0.005				
E1-251-020	4,553.70	0.001					
E1-251-021	4,554.64	0.003					
E1-251-023	4,555.81	0.002					
E1-251-025	4,548.17	0.002					
E1-271-068	4,630.77						
E1-271-072	4,627.97						
E1-271-076	4,624.85						
E2-202-016	4,725.54	0.009	0.076				
E2-222-007	4,637.79	0.001	0.002				
E2-222-015	4,603.00	0					
E2-222-016	4,603.00	0					
E2-222-017	4,602.00	0					
E2-222-028	4,637.79	0					
E2-222-029	4,637.79	0					
E2-222-030	4,637.79	0					
E2-222-031	4,637.79	0					
E2-222-036	4,591.00	0.001					
E2-222-037	4,591.00	0					
E2-222-040	4,637.79	0					
E2-222-044	4,598.00	0.001					
E2-222-048	4,637.79	0					
E2-222-050	4,637.79	0	0.015				
E2-222-067	4,603.00	0.001					
E2-222-075	4,610.00	0.001	0.002				
E2-231-002	4,643.10	0.001					
E2-231-005	4,641.90	0.001					
E2-231-006	4,637.10	0.001					
E2-231-013	4,635.95	0.001	0.002				
E2-231-021	4,636.94	0.001					
E2-231-028	4,647.50	0.002					
E2-231-029	4,646.62	0					
E2-231-030	4,645.21	0					
E2-231-031	4,644.31	0					
E2-231-035	4,640.93	0					
E2-231-037	4,640.55	0					
E2-232-013	4,538.60						
E2-232-014	4,555.40						
E2-242-004	4,550.05						
E2-242-011	4,552.87						
E2-242-017	4,552.84						
E2-242-024	4,549.64						
E2-242-034	4,548.66						
E2-251-027	4,550.68	0.005	0.012				
E2-251-058	4,555.97	0.001					
E2-252-192	4,559.30	0					
E2-252-193	4,565.83	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E2-252-194	4,576.19	0.001					
E2-252-196	4,559.47	0.001					
E2-271-076	4,645.81	0.006					
E2-271-078	4,642.38						
E2-271-081	4,639.14						
E2-271-086	4,635.95						
E3-202-008	4,711.83	0	0.002				
E3-202-009	4,718.61	0.001					
E3-202-010	4,713.19	0					
E3-202-011	4,710.71	0					
E3-202-012	4,709.38	0					
E3-202-BV	4,718.07	0					
E3-222-051	4,561.00	0.002					
E3-222-064	4,559.72	0.001	0.003				
E3-222-065	4,558.00	0.001					
E3-231-006	4,552.00	0.002	0.003				
E3-241-015	4,547.53						
E3-241-022	4,547.99						
E3-241-028	4,548.74						
E3-241-034	4,550.68	0.003				0.017	
E3-241-036	4,553.65	0.004					
E3-241-048	4,554.31	0.002	0.017				
E3-241-049	4,555.23	0.007					
E3-242-002	4,549.96						
E3-242-012	4,549.55						
E3-252-001	4,579.49	0	0.001				
E3-252-003	4,578.01	0.001					
E3-252-004	4,581.01	0					
E3-252-084	4,581.28	0.001					
E3-252-085	4,580.53	0					
E3-271-068	4,650.07	0.004					0.005
E3-271-072	4,647.15	0.006					
E3-271-074	4,645.76	0.005	0.016				
E3-271-121	4,664.18	0.002					
E3-271-122	4,664.18	0.002					
E3-271-123	4,654.21	0.004					
E4-202-001	4,701.01	0					
E4-202-002	4,691.43	0					
E4-202-003	4,682.45	0					
E4-202-007	4,681.68	0	0.002				
E4-202-009	4,683.62	0	0.001				
E4-202-013	4,675.41	0					
E4-202-014	4,668.71	0					
E4-231-005	4,549.56						
E4-231-006	4,548.23						
E4-231-007	4,537.67	0.002					
E4-231-008	4,538.95						
E4-232-016	4,544.02						
E4-241-005	4,545.86					0.047	
E4-241-016	4,545.76						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E4-241-075	4,559.77	0					
E4-241-077	4,557.41	0.001					
E4-241-078	4,554.86	0.002					
E4-241-079	4,553.36	0.002	0.075				
E4-241-080	4,553.60	0.002					
E4-241-081	4,560.82	0					
E4-242-014	4,561.53	0.002					
E4-242-029	4,562.46	0.003					
E4-242-034	4,562.86	0.001					
E4-242-036	4,562.95	0.002					
E4-242-045	4,563.48	0.005					
E4-242-057	4,564.49	0.005					
E4-242-062	4,565.50	0.004					
E4-242-069	4,565.79	0.003	0.006				
E4-242-078	4,567.20	0.001					
E4-251-001	4,567.38	0.001					
E4-252-009	4,581.22	0					
E4-252-010	4,581.19	0					
E4-252-011	4,581.87	0.001					
E4-252-013	4,586.51	0					
E4-252-014	4,586.55	0					
E4-252-019	4,586.54	0					
E4-252-021	4,586.49	0.001					
E4-252-023	4,585.78	0.002					
E4-252-033	4,588.12	0.001					
E4-252-035	4,593.09	0.001					
E4-252-037	4,596.23	0					
E4-271-058	4,679.36	0.001					
E4-271-060	4,677.07	0.001					
E4-271-062	4,672.66	0.001					
E4-271-063	4,670.03	0					
E4-271-064	4,668.97	0.001	0.004				
F1-202-005	4,635.52	0					
F1-202-006	4,633.60	0					
F1-202-007	4,631.66	0.001	0.005				
F1-202-008	4,636.08	0.001					
F1-202-009	4,646.60	0	0.007				
F1-202-010	4,657.51	0					
F1-231-001	4,535.76	0.002					
F1-231-002	4,534.29	0.002					
F1-231-003	4,533.00	0.002					
F1-232-001	4,541.76						
F1-232-002	4,542.61						
F1-232-008	4,542.87						
F1-232-012	4,542.90						
F1-232-013	4,543.00	0					
F1-232-014	4,544.35	0.001					
F1-232-017	4,545.30	0.001					
F1-232-019	4,543.99	0.003	0.083				
F1-232-033	4,542.97						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-232-066	4,542.90						
F1-241-050	4,562.29	0.001					
F1-241-109	4,564.40	0.002					
F1-241-110	4,567.50	0.001					
F1-242-001	4,561.36	0	0.005				
F1-251-003	4,567.58	0.001	0.075				
F1-251-015	4,568.22	0.004					
F1-251-023	4,569.76	0.004	0.023				
F1-251-031	4,570.51	0.002					
F1-251-033	4,571.32	0.001					
F1-251-034	4,571.74	0.005					
F1-251-039	4,574.01	0.008					
F1-251-040	4,576.83	0.004					
F1-251-041	4,576.74	0.003	0.002				
F1-251-044	4,579.14	0.004					
F1-251-047	4,581.16	0.002					
F1-251-048	4,581.18	0.001					
F1-251-049	4,586.77	0.003					
F1-251-050	4,586.77	0.003					
F1-251-068	4,580.49	0.001					
F1-251-106	4,571.32	0.002					
F1-251-108	4,581.83	0.002	0.016				
F1-252-017	4,597.89	0					
F1-252-033	4,599.93	0					
F1-252-039	4,609.51	0.001	0.008				
F1-261-003	4,609.31	0					
F1-261-004	4,609.98	0.001					
F1-261-009	4,607.52	0.001					
F1-261-026	4,607.64	0.002					
F1-261-040	4,608.58	0.001	0.008				
F1-261-048	4,611.41	0.002					
F1-261-058	4,615.25	0.002					
F1-261-064	4,617.47	0.002	0.003				0.005
F1-261-070	4,619.40	0.001					
F1-261-075	4,621.68	0.002	0.027				
F1-261-078	4,625.58	0.001					
F1-261-081	4,626.87	0.001					
F1-261-089	4,630.42	0.001					0.011
F1-261-095	4,635.78	0					
F1-261-097	4,635.78	0					
F1-261-106	4,635.78	0.007	0.066				0.042
F1-271-101	4,680.72	0.007	0.206				0.011
F1-271-103	4,678.53	0.002	0.022				0.017
F2-202-001	4,625.07	0.001					
F2-202-002	4,613.34	0.001					
F2-202-003	4,618.05	0.001					
F2-202-004	4,606.95	0.001					
F2-202-005	4,616.09	0.001					
F2-202-006	4,600.68	0.003					
F2-202-007	4,610.35	0.002					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F2-202-023	4,618.05	0.001					
F2-202-024	4,600.68	0.001					
F2-231-004	4,537.75						
F2-231-010	4,538.23						
F2-231-016	4,539.66						
F2-231-023	4,540.25						
F2-231-024	4,536.76	0.004					
F2-232-002	4,548.42	0					
F2-232-003	4,546.58	0.001					
F2-232-004	4,546.87	0.001	0.002				
F2-232-005	4,546.09	0.001					
F2-232-006	4,544.74	0.001					
F2-232-007	4,548.35	0					
F2-242-055	4,568.60	0					
F2-242-056	4,569.90	0					
F2-251-012	4,594.81	0.002					
F2-251-016	4,590.51	0.005					
F2-251-017	4,588.87	0.004					
F2-251-018	4,586.77	0.002					
F2-251-028	4,593.38	0.003					
F2-252-027	4,587.15	0.002	0.023				
F2-261-053	4,646.02	0.002	0.006				
F2-262-011	4,647.99	0.004	0.017				
F2-262-017	4,647.02	0.001					
F2-262-020	4,651.23	0.001					
F2-262-029	4,651.02	0.002					
F2-262-032	4,658.08	0.003	0.022				
F2-262-038	4,659.40	0.003	0.005				
F3-202-006	4,584.95	0.003					
F3-202-007	4,585.30	0.001	0.009				
F3-211-010	4,579.68	0.005					
F3-211-011	4,579.68	0.001					
F3-211-012	4,573.98	0.002	0.018				
F3-211-013	4,573.89	0.001					
F3-222-007	4,536.73						
F3-222-008	4,537.93						
F3-222-019	4,534.77						
F3-222-020	4,534.77		0.007				
F3-231-015	4,537.75						
F3-232-001	4,549.86						
F3-232-002	4,550.38						
F3-232-003	4,552.62						
F3-232-004	4,558.46	0.001					
F3-232-005	4,557.00	0.001					
F3-232-006	4,555.72	0.001					
F3-232-007	4,555.62	0.001					
F3-241-004	4,571.60	0					
F3-241-005	4,572.40	0.001					
F3-241-006	4,573.10	0.001					
F3-242-010	4,571.00	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F3-242-011	4,571.50	0.001					
F3-251-023	4,603.93	0.003					
F3-251-024	4,597.37	0.002	0.113				
F3-251-082	4,594.99	0.002	0.015				
F3-252-001	4,608.13	0.002					
F3-252-003	4,605.73	0.002	0.021				
F3-262-038	4,659.25	0.004					
F3-262-052	4,662.53	0.002	0.007				
F3-262-057	4,667.06	0.005	0.039				
F3-262-063	4,675.61	0.004					
F3-262-074	4,679.91	0.002				0.02	
F3-271-152	4,680.45	0.002					
F3-271-153	4,679.84	0.001					
F4-0232-BV	4,566.57	0					
F4-211-002	4,569.32	0.001					
F4-211-003	4,560.88	0					
F4-211-004	4,557.38	0					
F4-211-005	4,545.39	0.002					
F4-211-006	4,534.99	0.001					
F4-211-007	4,531.09	0.002					
F4-211-013	4,540.04	0.004					
F4-211-014	4,538.11	0.001					
F4-211-015	4,560.77	0					
F4-221-022	4,534.01						
F4-222-003	4,533.85						
F4-222-013	4,534.75					0.021	
F4-232-004	4,562.39	0					
F4-232-005	4,561.05	0					
F4-232-006	4,559.91	0					
F4-241-002	4,566.47	0					
F4-241-003	4,566.62	0					
F4-241-004	4,567.97	0					
F4-241-005	4,570.14	0.002	0.02				
F4-241-006	4,571.84	0.004					
F4-241-007	4,573.09	0.003					
F4-241-008	4,575.11	0					
F4-241-009	4,573.70	0.001					
F4-241-010	4,573.80	0					
F4-241-011	4,575.00	0					
F4-251-016	4,622.17	0.003					
F4-251-022	4,619.81	0.002					
F4-251-023	4,616.20	0.002	0.006				
F4-252-003	4,613.52	0.002					
F4-252-005	4,617.73	0.002	0.009				
F4-271-034	4,703.96	0.001					
F4-271-069	4,699.58	0.004					
F4-271-070	4,684.67	0.005	0.008				
F4-271-072	4,689.09	0.008					
F4-271-073	4,694.83	0.007					
F4-271-075	4,702.43	0.002					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G1-211-003	4,525.00		0.105				
G1-221-001	4,528.35						
G1-221-005	4,528.52						
G1-221-010	4,529.55					0.015	
G1-221-029	4,527.64						
G1-232-012	4,566.84	0					
G1-241-001	4,566.56	0					
G1-241-002	4,573.55	0.004					
G1-242-001	4,578.93	0.002					
G1-242-006	4,580.63	0.002					
G1-242-014	4,582.77	0.002					
G1-242-025	4,584.18	0.001	0.022				
G1-242-028	4,584.54	0.001					
G1-242-038	4,586.47	0.002					
G1-242-045	4,587.72	0.004	0.011				
G1-252-004	4,629.56	0.001					
G1-252-005	4,623.68	0.003	0.012				
G1-252-006	4,630.58	0.001					
G1-252-007	4,632.94	0.001					
G1-252-008	4,634.84	0.001					
G1-252-009	4,637.04	0.001					
G1-252-011	4,638.26	0.001	0.011				
G1-271-007	4,705.24	0.001	0.004				
G1-271-013	4,705.17	0.001					
G1-271-030	4,706.39	0.004					
G1-271-041	4,709.41	0.003	0.01			0.056	
G1-271-042	4,709.44	0.001					
G1-271-047	4,710.78	0.004					
G1-272-045	4,715.12	0.01				0.026	
G1-272-065	4,718.95	0.006	0.007				
G1-272-066	4,719.38	0.001					
G2-212-001	4,523.96						
G2-212-002	4,524.99						
G2-212-003	4,526.68	0.001					
G2-212-014	4,529.91	0.001					
G2-212-015	4,525.62						
G2-212-032	4,527.22						
G2-212-035	4,526.27						
G2-212-038	4,526.47						
G2-212-041	4,528.13		0.051				
G2-212-047	4,522.78						
G2-252-043	4,631.26	0.001					
G2-252-044	4,633.64	0.001					
G2-252-045	4,639.87	0.001					
G2-252-046	4,637.78	0.002					
G2-252-047	4,649.25	0.001					
G2-272-001	4,719.61	0.003					
G2-272-014	4,721.87	0.007					
G2-272-036	4,724.33	0.005					
G2-272-049	4,727.32	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G2-272-055	4,730.67	0.001	0.049			0.031	
G2-272-068	4,732.77	0.002					
G2-272-080	4,738.67	0.008	0.027			0.045	
G3-211-015	4,522.45		0.013				
G3-211-017	5,000.00						
G3-211-018	5,000.00						
G3-212-006	4,521.80	0.001					
G3-212-007	4,522.94						
G3-252-026	4,654.93	0					
G3-252-027	4,659.06	0					
G3-252-028	4,656.53	0.001					
G3-252-029	4,656.26	0.004					
G3-252-030	4,670.54	0					
G3-252-031	4,675.63	0.002					
G3-252-032	4,676.72	0.001					
G4-252-008	4,676.64		0.038				
G4-261-001	4,672.72	0.001					
G4-261-008	4,685.23	0.001					
G4-261-015	4,682.77	0					
G4-261-016	4,680.50	0.001					
G4-261-017	4,680.57	0.002					
G4-261-018	4,683.13	0.002					
G4-261-020	4,681.65	0.002					
G4-261-021	4,680.57	0.002					
G4-261-029	4,680.57	0.003					
H1-261-006	4,708.26	0.001					
H1-261-008	4,704.71	0					
H1-261-009	4,704.78	0					
H1-261-010	4,699.17	0.001					
H1-261-011	4,695.36	0.004					
H1-261-012	4,689.20	0.001					
H1-261-015	4,689.98	0					
H1-261-025	4,708.22	0					
H1-262-023	4,717.08	0.016	0.11				
SS_1_A	4,580.72						
SS_3	4,582.40						
SS_4	4,583.40						
SS_5	4,583.90	0.001		0.13			
SS_6	4,585.50	0.001					
SS_7	4,588.00	0.001					
SS_8	4,591.00	0.001					

Notes:

1) **For the Dry Weather Scenario, all demands had the "DIURNAL" Pattern.**
2) **For the Wet Weather Scenario, all demands had the "PWWF" Pattern.**

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
0C2-261-013	4,556.99	4,556.74	204.399	21	RCP	River Trunk	Existing
0G1-271-041	4,703.98	4,703.94	8.167	15	RCP	Horizon Drive	Existing
101	4,643.41	4,643.05	144.8	8		Redlands	Existing
103	4,642.86	4,641.41	303.78	8		Redlands	Existing
105	4,641.21	4,639.76	346.62	8		Redlands	Existing
107	4,639.49	4,623.63	270	8		Redlands	Existing
111	4,623.36	4,616.80	123	8		Redlands	Existing
113	4,616.40	4,610.10	74.11	8		Redlands	Existing
115	4,609.90	4,589.98	213.82	8		Redlands	Existing
117	4,589.88	4,586.26	38.47	8		Redlands	Existing
119	4,586.16	4,573.55	134.02	8		Redlands	Existing
121	4,554.58	4,550.81	38.8	8	PVC	Ridges	Existing
123	4,550.52	4,529.41	87.67	8	PVC	Ridges	Existing
125	4,529.21	4,526.59	59.29	8	PVC	Ridges	Existing
127	4,523.59	4,521.66	215.16	8	PVC	Ridges	Existing
135	4,563.21	4,654.16	4,837.11	8	PVC		Existing
137	4,653.88	4,652.58	142.739	8	PVC	Redlands	Existing
139	4,600.86	4,600.67	69.73	24		Orchard Mesa	Existing
141	4,600.67	4,599.47	378.78	24		Orchard Mesa	Existing
143	4,599.47	4,598.75	362.65	24		Orchard Mesa	Existing
145	4,598.75	4,598.15	392.08	24		Orchard Mesa	Existing
147	4,598.15	4,597.06	426.27	24		Orchard Mesa	Existing
153	4,597.06	4,596.34	397.67	24		Orchard Mesa	Existing
155	4,596.34	4,596.31	21.25	24		Orchard Mesa	Existing
157	4,596.31	4,562.75	1,004.50	12		Orchard Mesa	Existing
161	4,523.46	4,521.29	511.1	10		Scenic School	Existing
163	4,577.14	4,576.70	340	30		South Side	Existing
165	4,574.96	4,573.97	303.73	20	RCP	South Side	Existing
167	4,577.61	4,577.24	289	30	PVC	South Side	Existing
169	4,577.71	4,577.61	75	24	PVC	South Side	Existing
171	4,578.21	4,577.81	308	24	PVC	South Side	Existing
173	4,579.82	4,579.23	457	24	PVC	South Side	Existing
175	4,579.23	4,578.73	387	24	PVC	South Side	Existing
177	4,578.73	4,578.21	402	24	PVC	South Side	Existing
45	4,626.78	4,623.67	3.654	8		Scenic	EXST ONLY
57	4,705.13	4,702.55	262.09	10	PVC		Existing
757	4,547.55	4,546.92	334.196	10		Ridges	Existing
759	4,547.55	4,546.92	335.43	8		Ridges	Existing
761	4,546.92	4,546.82	9.951	8		Ridges	Existing
763	4,516.05	4,513.14	145.763	30	RCP	River Road	Existing
773	4,658.97	4,656.78	408	12	VCP	B 1/2 Road	Existing
775	4,656.75	4,655.22	123.2	12	VCP	B 1/2 Road	Existing
777	4,655.22	4,655.09	248.4	12	VCP	B 1/2 Road	Existing
779	4,655.09	4,653.77	333.6	12	VCP	B 1/2 Road	Existing
781	4,653.67	4,652.71	248.5	12	VCP	B 1/2 Road	Existing
785	4,652.64	4,651.67	251	12	VCP	B 1/2 Road	Existing
787	4,651.66	4,650.11	291.592	12	VCP	B 1/2 Road	Existing
789	4,650.44	4,650.15	65.206	12	VCP	B 1/2 Road	Existing
791	4,650.14	4,648.83	396.421	12	VCP	B 1/2 Road	Existing
793	4,648.80	4,647.45	379.463	12		B 1/2 Road	Existing
795	4,647.39	4,646.80	179.547	12		B 1/2 Road	Existing
797	4,646.80	4,646.21	201.687	12	VCP	B 1/2 Road	Existing
799	4,646.11	4,645.05	348	12	VCP	B 1/2 Road	Existing
801	4,644.97	4,644.95	37.1	12	VCP	B 1/2 Road	Existing
803	4,644.57	4,643.61	378.906	12	VCP	B 1/2 Road	Existing
805	4,643.57	4,642.10	324	12	VCP	B 1/2 Road	Existing
807	4,642.00	4,641.40	392	12	VCP	B 1/2 Road	Existing
809	4,641.30	4,639.77	399.077	12	VCP	B 1/2 Road	Existing
811	4,639.71	4,639.39	108.076	12	VCP	B 1/2 Road	Existing
813	4,639.39	4,638.24	293.59	12	VCP	B 1/2 Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
85	4,652.36	4,651.54	204.94	8	PVC	Redlands	Existing
87	4,651.52	4,650.96	218.91	8		Redlands	Existing
889	4,637.21	4,636.52	325	15		Frontage Rd	Existing
89	4,650.53	4,649.68	208.2	8		Redlands	Existing
891	4,636.45	4,635.40	338	15		Frontage Rd	Existing
893	4,635.26	4,634.52	345	15		Frontage Rd	Existing
895	4,634.45	4,633.58	145	15		Frontage Rd	Existing
897	4,633.58	4,633.24	12.52	15		Frontage Rd	Existing
91	4,649.48	4,648.80	161.6	8		Redlands	Existing
93	4,648.55	4,647.31	268.34	8		Redlands	Existing
95	4,647.13	4,645.76	272.44	8		Redlands	Existing
97	4,645.57	4,644.67	196.21	8		Redlands	Existing
99	4,644.46	4,643.51	254.49	8	PVC	Redlands	Existing
B1-272-001	4,646.75	4,646.04	245	12		B Road	Existing
B1-272-002	4,647.88	4,646.82	254	10		B Road	Existing
B1-272-003	4,648.97	4,647.96	271	10		B Road	Existing
B1-272-005	4,650.32	4,649.13	277	10		B Road	Existing
B1-272-007	4,651.33	4,650.34	336	10		B Road	Existing
B1-272-010	4,645.97	4,645.09	235	12		B Road	Existing
B1-281-001	4,652.64	4,651.37	337	10		B Road	Existing
B1-281-002	4,654.03	4,652.72	338	10		B Road	Existing
B1-281-004	4,656.80	4,654.09	450	10		B Road	Existing
B1-281-005	4,658.25	4,656.82	253	10		B Road	Existing
B1-281-006	4,659.90	4,658.31	300	10		B Road	Existing
B1-281-007	4,661.06	4,659.92	105	10		B Road	Existing
B1-281-009	4,664.19	4,661.02	301	10		B Road	Existing
B1-281-010	4,667.56	4,664.70	280	10		B Road	Existing
B1-292-001	4,710.24	4,709.43	401	10		Chipeta	Existing
B1-292-002	4,709.41	4,708.82	396	10		Chipeta	Existing
B1-292-003	4,708.82	4,707.80	401	10		Chipeta	Existing
B1-292-004	4,707.70	4,705.49	218	10		Chipeta	Existing
B1-292-010	4,705.49	4,702.44	293	10		Chipeta	Existing
B1-292-011	4,702.28	4,693.49	291	10		Chipeta	Existing
B1-292-012	4,674.06	4,673.62	302	10		Chipeta	Existing
B1-292-013	4,691.01	4,690.47	87	8		Chipeta	Existing
B1-292-014	4,690.47	4,689.38	266	10		Chipeta	Existing
B1-292-015	4,689.36	4,688.51	106	10		Chipeta	Existing
B1-292-016	4,688.51	4,685.74	145	8		Chipeta	Existing
B2-271-019	4,633.24	4,632.55	252.002	15	VCP	Orchard Mesa	Existing
B2-272-004	4,634.19	4,633.34	302.842	15	VCP	B 1/2 Road	Existing
B2-272-007	4,634.99	4,634.19	289.23	15	VCP	B 1/2 Road	Existing
B2-272-009	4,635.13	4,634.99	49.889	15	VCP	B 1/2 Road	Existing
B2-272-012	4,645.09	4,643.48	430	15		B Road	Existing
B2-272-013	4,643.33	4,642.53	186	15		B Road	Existing
B2-272-014	4,635.43	4,635.13	177.973	15	VCP	B 1/2 Road	Existing
B2-272-015	4,642.50	4,641.11	463	15		B Road	Existing
B2-272-016	4,639.99	4,638.97	440	15		B Road	Existing
B2-272-017	4,638.03	4,637.27	325	15		Frontage Rd	Existing
B2-272-021	4,638.84	4,638.08	316	15		Frontage Rd	Existing
B2-272-027	4,638.22	4,636.76	430	12	VCP	B 1/2 Road	Existing
B2-272-033	4,636.69	4,635.49	208	12	VCP	B 1/2 Road	Existing
B2-282-048	4,660.36	4,658.98	353	12		B 1/2 Road	Existing
B2-282-051	4,661.76	4,660.36	329	12	VCP	B 1/2 Road	Existing
B2-282-054	4,663.80	4,661.80	450	12	VCP	B 1/2 Road	Existing
B2-291-024	4,671.85	4,670.65	135	12	VCP	B 1/2 Road	Existing
B2-291-025	4,670.56	4,667.90	528	12	VCP	B 1/2 Road	Existing
B2-291-026	4,667.87	4,667.72	413	12	VCP	B 1/2 Road	Existing
B2-291-027	4,667.71	4,666.81	443.2	12	VCP	B 1/2 Road	Existing
B2-291-028	4,666.77	4,666.62	78.1	12	VCP	B 1/2 Road	Existing
B2-291-029	4,666.60	4,665.18	299	12	VCP	B 1/2 Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B2-291-030	4,665.03	4,663.80	465	12	VCP	B 1/2 Road	Existing
B2-291-045	4,670.65	4,670.57	248	12	VCP	B 1/2 Road	Existing
B2-292-001	4,681.06	4,679.10	400.9	10		B 1/2 Road	Existing
B2-292-002	4,679.00	4,676.86	400.4	10		B 1/2 Road	Existing
B2-292-003	4,676.86	4,676.36	200.7	10		B 1/2 Road	Existing
B2-292-004	4,676.23	4,675.08	95.7	12		B 1/2 Road	Existing
B2-292-008	4,674.06	4,673.62	501	12		B 1/2 Road	Existing
B2-292-009	4,673.56	4,671.86	503.5	12		B 1/2 Road	Existing
B2-292-010	4,675.08	4,674.72	150.5	12		B 1/2 Road	Existing
B2-292-011	4,676.30	4,675.48	145	8		Chipeta	Existing
B2-292-012	4,677.97	4,676.80	285	8		Chipeta	Existing
B2-292-017	4,680.45	4,679.15	163	8		Chipeta	Existing
B2-292-018	4,682.29	4,680.21	255	8		Chipeta	Existing
B2-292-022	4,684.69	4,682.13	220	8		Chipeta	Existing
B2-292-023	4,685.95	4,684.47	85	8		Chipeta	Existing
B2-292-026	4,674.71	4,674.07	222.8	12		B 1/2 Road	Existing
B2-301-001	4,682.29	4,681.46	213	10		B 1/2 Road	Existing
B3-262-023	4,622.01	4,620.76	319.833	18	VCP	Orchard Mesa	Existing
B3-262-027	4,622.49	4,622.01	404.358	18	VCP	Orchard Mesa	Existing
B3-262-031	4,622.98	4,622.49	407.081	18	VCP	Orchard Mesa	Existing
B3-271-003	4,623.79	4,623.13	234.126	15	VCP	Orchard Mesa	Existing
B3-271-006	4,624.41	4,623.79	220.318	15	VCP	Orchard Mesa	Existing
B3-271-018	4,625.47	4,624.41	378.578	15	VCP	Orchard Mesa	Existing
B3-271-026	4,627.09	4,626.58	149.6	15	VCP	Orchard Mesa	Existing
B3-271-032	4,627.95	4,627.09	304.646	15	VCP	Orchard Mesa	Existing
B3-271-039	4,628.92	4,627.95	346.729	15	VCP	Orchard Mesa	Existing
B3-271-042	4,629.70	4,628.92	278.734	15	VCP	Orchard Mesa	Existing
B3-271-045	4,630.11	4,629.70	143.795	15	VCP	Orchard Mesa	Existing
B3-271-054	4,630.84	4,630.11	225.041	15	VCP	Orchard Mesa	Existing
B3-271-058	4,631.39	4,630.84	158.555	15	VCP	Orchard Mesa	Existing
B3-271-058A	4,632.02	4,631.39	225.434	15	VCP	Orchard Mesa	Existing
B3-271-063	4,632.55	4,632.02	188.895	15	VCP	Orchard Mesa	Existing
B4-261-014	4,608.87	4,607.44	237.8	15		Orchard Mesa	Existing
B4-262-001	4,611.26	4,608.87	398.782	15		Orchard Mesa	Existing
B4-262-011	4,615.11	4,612.98	355.552	18		Orchard Mesa	Existing
B4-262-016	4,617.18	4,615.11	344.761	18	RCP	Orchard Mesa	Existing
B4-262-022	4,619.06	4,617.18	313.273	18	RCP	Orchard Mesa	Existing
B4-262-024	4,619.50	4,619.06	208.903	18	RCP	Orchard Mesa	Existing
B4-262-028	4,619.83	4,619.50	301.71	18	RCP	Orchard Mesa	Existing
B4-262-030	4,620.04	4,619.83	192.158	18	VCP	Orchard Mesa	Existing
B4-262-031	4,620.76	4,620.58	94.76	18	VCP	Orchard Mesa	Existing
B4-262-036	4,625.37	4,625.13	110.831	12	VCP	Unaweep Road	Existing
B4-262-037	4,625.13	4,624.18	428.532	12	VCP	Unaweep Road	Existing
B4-262-038	4,624.18	4,623.16	460.25	12	VCP	Unaweep Road	Existing
B4-262-043	4,612.98	4,611.26	288.279	15		Orchard Mesa	Existing
B4-262-114	4,620.58	4,620.04	209.8	18	VCP	Orchard Mesa	Existing
B4-271-001	4,625.44	4,625.37	28.798	12	VCP	Unaweep Road	Existing
B4-271-011	4,626.58	4,625.47	396.1	15	VCP	Orchard Mesa	Existing
B4-271-028	4,632.08	4,631.64	157.309	12	PVC	Unaweep Road	Existing
B4-271-033	4,633.06	4,632.08	348.762	12	PVC	Unaweep Road	Existing
B4-271-128	4,626.11	4,625.44	304.942	12	VCP	Unaweep Road	Existing
B4-271-135	4,627.28	4,626.11	415.674	12	PVC	Unaweep Road	Existing
B4-271-138	4,628.38	4,627.28	392.386	12	PVC	Unaweep Road	Existing
B4-271-143	4,629.27	4,628.38	315.864	12	PVC	Unaweep Road	Existing
B4-271-145	4,629.82	4,629.27	195.586	12	PVC	Unaweep Road	Existing
B4-271-146	4,630.72	4,629.82	318.521	12	PVC	Unaweep Road	Existing
B4-271-147	4,631.64	4,630.72	325.212	12	PVC	Unaweep Road	Existing
B4-271-148	4,633.50	4,633.06	154.783	12	PVC	Unaweep Road	Existing
B4-272-004	4,635.36	4,634.33	366	12	PVC	Unaweep Road	Existing
B4-272-039	4,639.40	4,639.08	125.854	12	PVC	Unaweep Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B4-272-040	4,639.58	4,639.40	72.652	12	PVC	Unaweep Road	Existing
B4-272-044	4,640.18	4,639.58	241.31	12	PVC	Unaweep Road	Existing
B4-272-048	4,640.59	4,640.18	193.848	12	PVC	Unaweep Road	Existing
B4-272-086	4,636.41	4,635.36	372.542	12	PVC	Unaweep Road	Existing
B4-272-091	4,638.20	4,637.73	167.7	12	PVC	Unaweep Road	Existing
B4-272-092	4,639.08	4,638.49	237.1	12	PVC	Unaweep Road	Existing
B4-272-093	4,634.28	4,633.50	276.7	12	PVC	Unaweep Road	Existing
B4-272-094	4,634.33	4,634.28	18.6	12	PVC	Unaweep Road	Existing
B4-272-095	4,638.49	4,638.20	104.5	12	PVC	Unaweep Road	Existing
B4-272-096	4,637.73	4,636.41	468.3	12	PVC	Unaweep Road	Existing
B4-281-054	4,641.06	4,640.59	189.453	12	PVC	Unaweep Road	Existing
B4-281-057	4,641.94	4,641.06	320.62	12	PVC	Unaweep Road	Existing
BV-100	4,540.00	4,549.55	1,147.16	12		Scenic	Existing
BV-105	4,546.92	4,546.82	9.951	10		Ridges	Existing
BV-292-013	4,678.94	4,678.13	158	8		Chipeta	Existing
C1-221-018	4,846.93	4,846.06	249.9	12	PVC	South Camp	Existing
C1-221-019	4,847.43	4,846.93	124.148	12	PVC	South Camp	Existing
C1-261-028	4,603.26	4,600.82	408.196	18	VCP	Orchard Mesa	Existing
C1-261-030	4,604.33	4,603.26	178.662	18	VCP	Orchard Mesa	Existing
C1-261-058	4,607.44	4,606.78	110.175	15		Orchard Mesa	Existing
C1-261-060	4,605.22	4,604.33	149.994	18	VCP	Orchard Mesa	Existing
C1-261-062	4,606.78	4,605.22	260.432	15		Orchard Mesa	Existing
C1-281-035	4,642.19	4,641.94	101.155	10	PVC	Unaweep Road	Existing
C2-221-030	4,846.06	4,844.64	479.4	12	PVC	South Camp	Existing
C2-221-031	4,836.04	4,821.72	162.9	12	PVC	South Camp	Existing
C2-221-032	4,840.59	4,839.55	170.7	12	PVC	South Camp	Existing
C2-221-033	4,841.58	4,840.59	368.7	12	PVC	South Camp	Existing
C2-221-034	4,842.57	4,841.58	361.7	12	PVC	South Camp	Existing
C2-221-035	4,843.98	4,842.57	172.1	12	PVC	South Camp	Existing
C2-221-037	4,844.64	4,843.98	502.3	12	PVC	South Camp	Existing
C2-221-065	4,839.55	4,836.04	164.7	12	PVC	South Camp	Existing
C2-261-001A	4,596.31	4,562.75	1,005.71	14	DIP	Orchard Mesa	Existing
C2-261-024	4,557.05	4,556.99	49.5	27	VCP	River Trunk	Existing
C3-212-031	4,796.10	4,792.35	273.3	12	PVC	South Camp	Existing
C3-221-003	4,821.72	4,819.43	114.997	12	PVC	South Camp	Existing
C3-221-004	4,819.43	4,813.83	280.4	12	PVC	South Camp	Existing
C3-221-005	4,811.89	4,801.75	492.3	12	PVC	South Camp	Existing
C3-221-006	4,801.75	4,796.10	342	12	PVC	South Camp	Existing
C3-221-030	4,813.83	4,811.89	97.3	12	PVC	South Camp	Existing
C3-252-002	4,556.31	4,555.59	479.142	30	RCP	South Side	Existing
C3-261-001	4,554.75	4,553.86	725.733	21	CONCRETE	River Trunk	Existing
C3-261-002	4,557.21	4,556.31	471.205	27	olyvinyl chlorid	South Side	Existing
C3-261-004	4,555.11	4,554.75	299.7	21	CONCRETE	River Trunk	Existing
C3-261-005	4,558.11	4,557.21	303.203	27	PVC	South Side	Existing
C3-261-007	4,555.56	4,555.11	363.588	21	RCP	River Trunk	Existing
C3-261-008	4,558.49	4,558.11	365.753	27	PVC	South Side	Existing
C3-261-009	4,558.78	4,558.49	280.834	27	PVC	South Side	Existing
C3-261-010	4,558.86	4,558.78	76.621	27	PVC	South Side	Existing
C3-261-011	4,555.94	4,555.56	310.78	21	RCP	River Trunk	Existing
C3-261-012	4,558.88	4,558.86	17.843	30	RCP	South Side	Existing
C3-261-012A	3	3	46.018	21	PVC		Existing
C3-261-013	4,560.28	4,558.88	92.693	20	RCP	South Side	Existing
C3-261-015	4,556.22	4,555.94	227.894	21	RCP	River Trunk	Existing
C3-261-019	4,556.59	4,556.22	309.3	21	RCP	River Trunk	Existing
C3-261-021	4,556.74	4,556.59	123.197	21	RCP	River Trunk	Existing
C3-261-031	4,561.71	4,560.78	518.568	20	RCP	South Side	Existing
C3-261-035	4,557.14	4,557.05	74.4	27	VCP	River Trunk	Existing
C3-261-040	4,561.85	4,561.71	77.933	20	RCP	South Side	Existing
C3-261-043	4,557.18	4,557.14	31.718	27	VCP	River Trunk	Existing
C3-261-050	4,557.37	4,557.34	28	10	VCP	River Trunk	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
C3-261-056	4,557.50	4,557.37	80.918	10	VCP	River Trunk	Existing
C3-261-062	4,562.74	4,561.85	490.491	20	RCP	South Side	Existing
C3-261-075	4,557.34	4,557.24	13	12	PVC	River Trunk	Existing
C3-261-076	4,557.24	4,557.18	44.4	10	VCP	River Trunk	Existing
C3-262-007	4,563.98	4,563.70	154.554	20	RCP	South Side	Existing
C3-262-009	4,563.60	4,562.74	478.88	20	RCP	South Side	Existing
C3-262-033	4,564.91	4,564.08	463.661	20	RCP	South Side	Existing
C3-262-041	4,565.58	4,564.91	154.9	20	RCP	South Side	Existing
C3-262-046	4,566.92	4,565.58	319.406	20	RCP	South Side	Existing
C3-262-051	4,567.21	4,566.92	61.434	20	RCP	South Side	Existing
C3-262-061	4,568.19	4,567.21	206.673	20	RCP	South Side	Existing
C3-262-070	4,570.48	4,570.07	158.03	20	RCP	South Side	Existing
C3-262-071	4,570.07	4,568.19	373.756	20	RCP	South Side	Existing
C3-262-074	4,571.47	4,570.48	500.889	20	RCP	South Side	Existing
C3-271-001	4,572.32	4,571.47	421.48	20	RCP	South Side	Existing
C3-271-003	4,572.91	4,572.32	295.102	20	RCP	South Side	Existing
C3-271-004	4,573.07	4,572.91	77.966	20	RCP	South Side	Existing
C3-271-007	4,573.87	4,573.07	401.374	20	RCP	South Side	Existing
C3-271-010	4,575.40	4,575.16	28	20	RCP	South Side	Existing
C3-271-012	4,576.65	4,575.60	111	20	RCP	South Side	Existing
C4-212-059	4,792.35	4,780.23	489.901	12	PVC	South Camp	Existing
C4-212-060	4,776.84	4,772.96	226	12	PVC	South Camp	Existing
C4-212-061	4,770.23	4,764.84	299.9	12	PVC	South Camp	Existing
C4-221-001	4,764.84	4,751.11	391.4	12	PVC	South Camp	Existing
C4-221-011	4,772.96	4,770.23	159.3	12	PVC	South Camp	Existing
C4-252-001	4,552.80	4,552.03	536.838	30	RCP	South Side	Existing
C4-252-002	4,552.35	4,551.70	533.459	21	RCP	River Trunk	Existing
C4-252-003	4,555.59	4,554.87	297.594	30	RCP	South Side	Existing
C4-252-004	4,552.79	4,552.35	360.57	21	RCP	River Trunk	Existing
C4-252-005	4,554.19	4,553.57	346.893	30	RCP	South Side	Existing
C4-252-006	4,553.57	4,552.80	311.862	30	RCP	South Side	Existing
C4-252-007	4,553.86	4,553.32	441.554	21	RCP	River Trunk	Existing
C4-252-007A	4,553.32	4,552.79	436.699	21	RCP	River Trunk	Existing
C4-252-008	4,554.87	4,554.19	377.462	30	RCP	South Side	Existing
D1-212-011	4,745.82	4,738.58	284	12	PVC	South Camp	Existing
D1-212-012	4,738.58	4,733.37	274.602	12	PVC	South Camp	Existing
D1-212-032	4,751.11	4,745.82	500.7	12	PVC	South Camp	Existing
D1-242-011	4,625.05	4,620.05	124.968	10	PVC	Ridges	Existing
D1-242-017	4,635.90	4,625.71	275	10	PVC	Ridges	Existing
D1-242-018	4,648.75	4,636.15	294.478	10	PVC	Ridges	Existing
D1-242-019	4,652.05	4,648.85	199.457	12	PVC	Ridges	Existing
D1-242-030	4,619.95	4,600.75	399.963	10	PVC	Ridges	Existing
D1-242-031	4,600.00	4,586.00	293.724	10	PVC	Ridges	Existing
D1-242-031A	4,598.00	4,586.00	295.397	8	PVC	Ridges	Existing
D1-251-001	4,582.38	4,581.56	267.2	21		South Avenue	Existing
D1-251-005	4,586.00	4,556.00	1,267.13	10	PVC	Ridges	Existing
D1-251-005A	4,586.00	4,556.00	1,268.05	8	PVC	Ridges	Existing
D1-251-005B	4,556.00	4,551.00	343.186	10	PVC	Ridges	Existing
D1-252-001	4,549.53	4,548.08	371.427	30	RCP	South Side	Existing
D1-252-004	4,550.10	4,549.53	309.337	30	RCP	South Side	Existing
D1-252-005	4,548.94	4,548.69	201.72	24	VCP	River Trunk	Existing
D1-252-008	4,549.09	4,548.94	126.018	24	VCP	River Trunk	Existing
D1-252-008A	4,549.28	4,549.09	158.194	24	VCP	River Trunk	Existing
D1-252-009	4,550.62	4,550.10	292.478	30	RCP	South Side	Existing
D1-252-010	4,549.50	4,549.28	173.25	21	VCP	River Trunk	Existing
D1-252-011	4,549.87	4,549.50	310.091	21	VCP	River Trunk	Existing
D1-252-015	4,550.86	4,550.62	133.43	30	RCP	South Side	Existing
D1-252-018	4,551.45	4,550.86	398.159	30	RCP	South Side	Existing
D1-252-019	4,552.03	4,551.45	260.038	30	RCP	South Side	Existing
D1-252-023	4,550.29	4,549.87	343.449	21	VCP	River Trunk	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D1-252-031	4,550.50	4,550.29	167.247	21	VCP	River Trunk	Existing
D1-252-036	4,550.70	4,550.50	164.131	21	VCP	River Trunk	Existing
D1-252-041	4,550.89	4,550.70	161.278	21	VCP	River Trunk	Existing
D1-252-042	4,551.70	4,550.89	662.626	21	VCP	River Trunk	Existing
D1-252-050	4,572.48	4,572.14	176.234	27	VCP	South Avenue	Existing
D1-252-053	4,564.58	4,564.29	272	24	RCP	Colorado Avenue	Existing
D1-252-056	4,564.84	4,564.67	83	24	RCP	Colorado Avenue	Existing
D1-252-057	4,565.78	4,564.84	223.762	24	RCP	Colorado Avenue	Existing
D1-252-059	4,565.89	4,565.78	27.158	24	RCP	Colorado Avenue	Existing
D1-261-001	4,566.50	4,566.09	77.506	24	PVC	Colorado Avenue	Existing
D1-261-003	4,573.60	4,572.48	723.306	27	VCP	South Avenue	Existing
D1-261-006	4,567.95	4,566.50	51.594	24	RCP	Colorado Avenue	Existing
D1-261-008	4,569.50	4,567.95	302.547	24	RCP	Colorado Avenue	Existing
D1-261-020	4,574.54	4,573.60	606.866	27	VCP	South Avenue	Existing
D1-261-021	4,570.00	4,569.50	99.515	24	RCP	Colorado Avenue	Existing
D1-261-023	4,577.36	4,577.02	233.241	27	VCP	South Avenue	Existing
D1-261-036	4,571.70	4,570.00	422.792	24	RCP	Colorado Avenue	Existing
D1-261-037	4,577.85	4,577.36	301.563	27	VCP	South Avenue	Existing
D1-261-052	4,572.10	4,571.70	440.734	24	RCP	Colorado Avenue	Existing
D1-261-059	4,578.49	4,577.85	481.274	27	VCP	South Avenue	Existing
D1-261-061	4,578.59	4,578.49	9.6	27	VCP	South Avenue	Existing
D1-261-075	4,573.00	4,572.10	445.227	24	RCP	Colorado Avenue	Existing
D1-261-084	4,579.30	4,578.59	471.5	27	VCP	South Avenue	Existing
D1-261-103	4,575.00	4,573.00	515.7	24	RCP	Colorado Avenue	Existing
D1-261-116	4,580.97	4,580.52	312.518	21	VCP	South Avenue	Existing
D1-261-116A	4,580.52	4,579.80	482.521	21	VCP	South Avenue	Existing
D1-261-117	4,575.50	4,575.00	54.284	24	RCP	Colorado Avenue	Existing
D1-261-128	4,575.80	4,575.50	267.746	24	RCP	Colorado Avenue	Existing
D1-262-025	4,576.00	4,575.80	380	24	RCP	Colorado Avenue	Existing
D1-262-030	4,581.56	4,580.97	380.677	21	VCP	South Avenue	Existing
D1-262-040	4,576.50	4,576.00	264.434	24	RCP	Colorado Avenue	Existing
D1-262-067	4,578.20	4,576.50	502.758	24	RCP	Colorado Avenue	Existing
D1-262-079	4,583.87	4,582.38	495.739	21	VCP	South Avenue	Existing
D1-262-088	4,579.00	4,578.20	461.496	24	RCP	Colorado Avenue	Existing
D1-262-100	4,580.00	4,579.00	489.507	24	RCP	Colorado Avenue	Existing
D1-271-018	4,581.55	4,580.67	455.198	24	RCP	Colorado Avenue	Existing
D1-271-051	4,585.43	4,585.36	8.462	21	PVC	Colorado Avenue	Existing
D1-271-054	4,585.36	4,581.71	457.7	24	RCP	Colorado Avenue	Existing
D1-271-055	4,580.63	4,580.00	537.1	24	RCP	Colorado Avenue	Existing
D1-271-092	4,581.71	4,581.55	19.4	24	RCP	Colorado Avenue	Existing
D2-212-001	4,731.19	4,729.46	91.02	12	PVC	South Camp	Existing
D2-212-002	4,729.46	4,729.13	21.7	12	PVC	South Camp	Existing
D2-212-003	4,722.94	4,714.33	363.5	12	PVC	South Camp	Existing
D2-212-011	4,733.37	4,731.40	104.468	12	PVC	South Camp	Existing
D2-212-012	4,731.40	4,731.19	11.086	12	PVC	South Camp	Existing
D2-212-013	4,726.69	4,722.94	249.903	12	PVC	South Camp	Existing
D2-212-014	4,714.33	4,706.40	496.1	12	PVC	South Camp	Existing
D2-212-025	4,729.13	4,726.69	163	8	PVC	South Camp	Existing
D2-241-006	4,648.54	4,645.54	239.276	8	PVC	Scenic School	Existing
D2-241-007	4,645.54	4,641.85	302.842	8	PVC	Scenic School	Existing
D2-241-012	4,623.78	4,652.25	2,398.70	10	PVC	Scenic	EXST ONLY
D2-251-004	4,544.90	4,544.75	72.455	48	RCP	River Road	Existing
D2-251-005	4,545.26	4,544.90	17.81	48	RCP	River Road	Existing
D2-251-008	4,550.50	4,545.06	380	12		Ridges	Existing
D2-251-014	4,556.00	4,551.00	344.531	8	PVC	Ridges	Existing
D2-251-014A	4,551.00	4,550.50	3.246	12		Ridges	Existing
D2-252-002	4,548.08	4,547.05	523.849	30	RCP	South Side	Existing
D2-252-004	4,547.05	4,545.56	310.878	30	RCP	South Side	Existing
D2-252-005	4,545.56	4,545.26	318.46	48	RCP	River Road	Existing
D2-252-006	4,546.44	4,545.56	128.248	24	VCP	River Trunk	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D2-252-008	4,546.82	4,546.44	330.165	24	VCP	River Trunk	Existing
D2-252-010	4,548.43	4,546.82	327.541	24	VCP	River Trunk	Existing
D2-252-011	4,549.30	4,547.05	433.714	27	PVC	Grand Avenue	Existing
D2-252-012	4,548.67	4,548.43	179.711	24	VCP	River Trunk	Existing
D2-252-014	4,548.69	4,548.67	180.728	24	VCP	River Trunk	Existing
D2-252-015	4,550.85	4,550.25	11.283	27	PVC	Grand Avenue	Existing
D2-252-026	4,551.69	4,550.85	423.546	30	VCP	Grand Avenue	Existing
D2-252-033	4,551.00	4,547.10	912.627	24	PVC	Colorado Avenue	Existing
D2-252-039	4,552.50	4,551.00	395.765	24	PVC	Colorado Avenue	Existing
D2-252-049	4,556.50	4,552.50	402.686	24	PVC	Colorado Avenue	Existing
D2-252-050	4,569.00	4,563.00	1,108.44	24	VCP	South Avenue	Existing
D2-252-052	4,569.41	4,569.00	206.443	27	VCP	South Avenue	Existing
D2-252-056	4,571.64	4,569.41	22.862	27	VCP	South Avenue	Existing
D2-252-057	4,559.50	4,556.50	278.866	24	PVC	Colorado Avenue	Existing
D2-252-062	4,559.77	4,559.50	68.9	24	PVC	Colorado Avenue	Existing
D2-252-067	4,572.14	4,571.64	400.1	27	VCP	South Avenue	Existing
D2-252-069	4,562.72	4,559.87	278.964	24	RCP	Colorado Avenue	Existing
D2-252-071	4,572.57	4,562.82	298.414	27	VCP	Grand Avenue	Existing
D2-252-085	4,564.19	4,562.81	299.202	24	RCP	Colorado Avenue	Existing
D2-252-105	4,553.17	4,551.69	749.5	24	VCP	Grand Avenue	Existing
D2-271-017	4,590.64	4,588.08	351.518	15	PVC	15th Street	Existing
D2-271-019	4,588.08	4,586.34	238.423	15	PVC	15th Street	Existing
D2-271-022	4,586.34	4,585.45	122.114	15	PVC	15th Street	Existing
D2-271-023	4,585.45	4,583.64	247.8	15	PVC	15th Street	Existing
D2-271-039	4,591.68	4,589.83	154.586	18	PVC	Colorado Avenue	Existing
D2-271-042	4,589.83	4,588.61	153.504	21	RCP	Colorado Avenue	Existing
D2-271-043	4,588.61	4,586.86	218.809	21	RCP	Colorado Avenue	Existing
D2-271-045	4,586.86	4,585.43	179.022	21	PVC	Colorado Avenue	Existing
D2-271-048	4,594.65	4,594.60	30.635	15	VCP	Rood Avenue	Existing
D2-271-052	4,595.09	4,594.65	298.414	15	VCP	Rood Avenue	Existing
D2-271-063	4,595.66	4,595.09	375.396	15	VCP	Rood Avenue	Existing
D2-271-067	4,596.06	4,595.66	330.821	15	VCP	Rood Avenue	Existing
D2-271-075	4,596.17	4,596.06	88.527	15	VCP	Rood Avenue	Existing
D2-271-109	4,583.64	4,582.30	183.2	15	PVC	15th Street	Existing
D2-272-011	4,597.00	4,596.17	678.337	15	VCP	Rood Avenue	Existing
D2-272-023	4,598.93	4,598.42	331.313	15	VCP	Rood Avenue	Existing
D2-272-025	4,598.42	4,597.89	368.902	15	VCP	Rood Avenue	Existing
D2-272-029	4,597.89	4,597.00	602.667	15	VCP	Rood Avenue	Existing
D2-272-052	4,600.00	4,598.93	778.278	15	VCP	Rood Avenue	Existing
D2-272-070	4,600.60	4,600.00	403.899	15	VCP	Rood Avenue	Existing
D2-272-072	4,601.12	4,600.60	346.401	15	VCP	Rood Avenue	Existing
D2-272-074	4,601.53	4,601.12	322.916	15	VCP	Rood Avenue	Existing
D2-272-075	4,601.57	4,601.53	26.502	15	VCP	Rood Avenue	Existing
D2-281-002	4,601.72	4,601.57	100.171	15	VCP	Rood Avenue	Existing
D3-212-001	4,702.89	4,702.53	126.57	8	PVC	Goat Wash	Existing
D3-212-002	4,702.47	4,698.00	354.55	8	PVC	Goat Wash	Existing
D3-212-003	4,697.82	4,691.93	351.26	8	PVC	Goat Wash	Existing
D3-212-004	4,691.93	4,689.60	184.762	8	PVC	Goat Wash	Existing
D3-212-012	4,689.60	4,687.50	166.263	8	PVC	Goat Wash	Existing
D3-212-013	4,687.50	4,684.81	212.938	8	PVC	Goat Wash	Existing
D3-212-017	4,689.93	4,684.20	66.8	12	PVC	South Camp	Existing
D3-212-018	4,690.94	4,689.93	120.6	12	PVC	South Camp	Existing
D3-212-022	4,706.40	4,690.94	499.2	12	PVC	South Camp	Existing
D3-212-023	4,703.43	4,702.89	186.9	8	PVC	Goat Wash	Existing
D3-221-016	4,684.72	4,680.30	311.272	12	PVC	Goat Wash	Existing
D3-221-021	4,663.43	4,658.80	353.85	12	PVC	Goat Wash	Existing
D3-221-022	4,672.04	4,669.22	271.125	12	PVC	Goat Wash	Existing
D3-221-023	4,677.90	4,672.08	271.37	12	PVC	Goat Wash	Existing
D3-221-024	4,680.25	4,678.00	266.008	12	PVC	Goat Wash	Existing
D3-232-001	4,621.48	4,620.08	114.767	8	PVC	Scenic School	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D3-232-001A	4,620.28	4,620.08	16.5	8	PVC	Scenic School	Existing
D3-232-009	4,622.35	4,621.48	71.045	8	PVC	Scenic School	Existing
D3-232-017	4,608.64	4,593.30	184.5	8	PVC	Scenic School	Existing
D3-232-018	4,620.08	4,610.69	88.61	8	PVC	Scenic School	Existing
D3-241-001	4,641.85	4,640.95	73.702	8	PVC	Scenic School	Existing
D3-241-002	4,640.95	4,638.42	207.066	8	PVC	Scenic School	Existing
D3-241-003	4,638.42	4,636.83	130.642	8	PVC	Scenic School	Existing
D3-241-004	4,636.83	4,634.94	154.75	8	PVC	Scenic School	Existing
D3-241-005	4,633.39	4,629.78	296.578	8	PVC	Scenic School	Existing
D3-241-005A	4,629.78	4,629.64	11.185	8	PVC	Scenic School	Existing
D3-241-006	4,629.64	4,625.45	343.711	8	PVC	Scenic School	Existing
D3-241-007	4,625.45	4,622.35	254.233	8	PVC	Scenic School	Existing
D3-241-009	4,634.94	4,633.39	126.674	8	PVC	Scenic School	Existing
D3-251-001	4,542.85	4,542.41	454.116	54	RCP	River Road	Existing
D3-251-002	4,543.23	4,542.85	414.428	54	RCP	River Road	Existing
D3-251-004	4,544.59	4,543.96	394	48	RCP	River Road	Existing
D3-251-008	4,543.80	4,543.63	234.094	48	RCP	River Road	Existing
D3-251-011	4,544.75	4,544.65	13.054	48	RCP	River Road	Existing
D3-251-012	4,543.63	4,543.62	24.764	48	RCP	River Road	Existing
D3-251-013	4,543.62	4,543.23	340.89	54	RCP	River Road	Existing
D3-251-014	4,545.76	4,545.63	145.304	24	PVC	Colorado Avenue	Existing
D3-251-015	4,544.65	4,544.59	38.1	48	RCP	River Road	Existing
D3-251-016	4,543.96	4,543.80	48.1	48	RCP	River Road	Existing
D3-252-008	4,546.00	4,545.76	218.35	24	PVC	Colorado Avenue	Existing
D3-252-012	4,547.10	4,546.00	303.63	24	PVC	Colorado Avenue	Existing
D3-252-045	4,562.82	4,560.20	113.75	24	PVC	Grand Avenue	Existing
D3-252-045A	4,560.14	4,553.17	411.8	24	PVC	Grand Avenue	Existing
D3-252-057	4,577.57	4,572.57	153.11	27	VCP	Grand Avenue	Existing
D3-261-010	4,584.00	4,577.57	196.964	27	VCP	Grand Avenue	Existing
D3-261-014	4,585.03	4,585.00	7.905	27	VCP	Grand Avenue	Existing
D3-261-025	4,586.31	4,585.03	345.646	27	VCP	Grand Avenue	Existing
D3-261-045	4,588.09	4,586.31	479.864	27	VCP	Grand Avenue	Existing
D3-261-075	4,590.00	4,588.09	504.234	27	VCP	Grand Avenue	Existing
D3-261-086	4,593.11	4,592.00	286.508	24	VCP	Grand Avenue	Existing
D3-261-117	4,595.78	4,593.11	681.486	24	VCP	Grand Avenue	Existing
D3-261-130	4,596.52	4,595.78	297.66	24	VCP	Grand Avenue	Existing
D3-262-017	4,597.50	4,596.52	391.37	24	VCP	Grand Avenue	Existing
D3-262-018	4,598.50	4,597.50	273.749	24	VCP	Grand Avenue	Existing
D3-262-042	4,599.50	4,598.50	468.023	24	VCP	Grand Avenue	Existing
D3-262-065	4,600.39	4,599.54	472	18	VCP	Grand Avenue	Existing
D3-262-083	4,601.61	4,600.39	482.816	18	VCP	Grand Avenue	Existing
D3-262-122	4,599.54	4,599.50	22.8	18	DIP	Grand Avenue	Existing
D3-271-013	4,603.00	4,601.61	542.184	18	VCP	Grand Avenue	Existing
D3-271-019	4,595.79	4,593.35	334.757	15	PVC	15th Street	Existing
D3-271-024	4,593.35	4,590.64	371.362	15	PVC	15th Street	Existing
D3-271-029	4,604.18	4,603.00	464.186	18	VCP	Grand Avenue	Existing
D3-271-038	4,599.05	4,595.79	445.686	15	PVC	15th Street	Existing
D3-271-055	4,601.95	4,599.05	397.208	15	PVC	15th Street	Existing
D3-271-059	4,602.09	4,601.95	19.942	15	PVC	15th Street	Existing
D3-271-068	4,610.32	4,609.63	95.022	15	PVC	15th Street	Existing
D3-271-069	4,609.63	4,607.45	298.119	15	PVC	15th Street	Existing
D3-271-070	4,607.45	4,604.42	415.97	15	PVC	15th Street	Existing
D3-271-072	4,604.42	4,602.09	318.094	15	PVC	15th Street	Existing
D3-271-075	4,610.76	4,610.32	59.991	15	PVC	15th Street	Existing
D3-271-111	4,605.40	4,604.18	441.6	18	VCP	Grand Avenue	Existing
D3-281-006	4,601.78	4,601.72	37.589	15	VCP	Rood Avenue	Existing
D4-221-004	4,658.76	4,654.62	251.838	12	PVC	Goat Wash	Existing
D4-221-005	4,654.52	4,650.54	350.65	12	PVC	Goat Wash	Existing
D4-221-008	4,650.44	4,645.81	300.612	12	PVC	Goat Wash	Existing
D4-221-009	4,640.75	4,637.90	198.99	15	PVC	Goat Wash	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D4-221-010	4,637.77	4,631.55	298.775	15	PVC	Goat Wash	Existing
D4-221-011	4,631.45	4,630.16	300.24	15	PVC	Goat Wash	Existing
D4-232-001	4,593.08	4,572.75	126.5	8	PVC	Scenic School	Existing
D4-232-002	4,572.53	4,554.95	141.3	8	PVC	Scenic School	Existing
D4-232-003	4,554.74	4,551.59	111.5	8	PVC	Scenic School	Existing
D4-232-004	4,551.41	4,549.55	131.2	8	PVC	Scenic School	Existing
D4-232-005	4,547.40	4,543.02	294.03	8	PVC	Scenic School	Existing
D4-232-006	4,542.82	4,533.87	422.7	8	PVC	Scenic School	Existing
D4-232-007	4,533.69	4,533.27	71.2	8	PVC	Scenic School	Existing
D4-232-008	4,526.81	4,524.29	205.6	8	PVC	Scenic School	Existing
D4-251-001	4,541.56	4,541.03	564.16	54	RCP	River Road	Existing
D4-251-005	4,541.81	4,541.60	480.618	54	RCP	River Road	Existing
D4-251-008	4,542.29	4,541.81	571.671	54	RCP	River Road	Existing
D4-251-018	4,542.41	4,542.29	125.788	54	RCP	River Road	Existing
D4-251-019	4,541.60	4,541.56	91.184	54	RCP	River Road	Existing
D4-271-014	4,620.92	4,619.45	201.031	15	PVC	15th Street	Existing
D4-271-015	4,619.45	4,616.97	339.939	15	PVC	15th Street	Existing
D4-271-018	4,616.97	4,614.52	335.413	15	PVC	15th Street	Existing
D4-271-021	4,614.52	4,610.76	515.485	15	PVC	15th Street	Existing
E1-221-001	4,630.05	4,629.03	200.12	15	PVC	Goat Wash	Existing
E1-221-001A	4,628.98	4,626.63	403.702	15	PVC	Goat Wash	Existing
E1-222-004	4,626.53	4,616.86	202.35	14	DIP	Goat Wash	Existing
E1-222-005	4,616.76	4,611.53	275.05	15	PVC	Goat Wash	Existing
E1-222-006	4,611.53	4,609.83	157.276	15	PVC	Goat Wash	Existing
E1-222-007	4,609.72	4,606.39	307.041	15	PVC	Goat Wash	Existing
E1-222-011	4,606.39	4,599.71	311.698	18	PVC	Goat Wash	Existing
E1-222-012	4,599.62	4,597.21	392.36	18	PVC	Goat Wash	Existing
E1-231-012	4,627.63	4,623.16	231.896	8	PVC	Connected Lakes	Existing
E1-232-001	4,524.29	4,527.07	982.8	6	PVC	Connected Lakes	Existing
E1-232-025	4,527.07	4,532.08	1,164.80	6	PVC	Connected Lakes	Existing
E1-242-001	4,538.07	4,537.93	164.394	54	RCP	River Road	Existing
E1-242-002	4,539.59	4,539.31	123.689	24		Horizon Drive	Existing
E1-251-001	4,540.69	4,538.07	625.102	54	RCP	River Road	Existing
E1-251-002	4,541.03	4,540.69	421.218	54	RCP	River Road	Existing
E1-251-003	4,540.76	4,539.90	516.239	24		Horizon Drive	Existing
E1-251-004	4,541.65	4,540.89	508.531	24		Horizon Drive	Existing
E1-251-007	4,543.10	4,542.09	361.751	24	CONCRETE	Horizon Drive	Existing
E1-251-018	4,544.60	4,543.17	379.857	24	CONCRETE	Horizon Drive	Existing
E1-251-019	4,545.14	4,544.64	131.2	24	CONCRETE	Horizon Drive	Existing
E1-251-020	4,545.20	4,545.14	21.386	24	CONCRETE	Horizon Drive	Existing
E1-251-021	4,545.79	4,545.20	200.146	24	CONCRETE	Horizon Drive	Existing
E1-251-023	4,546.77	4,545.79	326.95	24	CONCRETE	Horizon Drive	Existing
E1-251-025	4,539.90	4,539.74	99.122	24		Horizon Drive	Existing
E1-271-068	4,628.02	4,625.04	408.4	15	PVC	15th Street	Existing
E1-271-072	4,625.04	4,621.79	444.9	15	PVC	15th Street	Existing
E1-271-076	4,621.79	4,620.92	119.097	15	PVC	15th Street	Existing
E2-202-016	4,711.65	4,705.93	307.8	8	PVC		Existing
E2-222-015	4,567.50	4,559.61	337.25	18	PVC	Goat Wash	Existing
E2-222-016	4,570.44	4,567.89	9.98	12		Goat Wash	Existing
E2-222-017	4,579.68	4,572.72	83.02	18	PVC	Goat Wash	Existing
E2-222-028	4,593.04	4,591.61	73.964	8	PVC	Connected Lakes	Existing
E2-222-028A	4,596.12	4,593.14	154.521	8	PVC	Connected Lakes	Existing
E2-222-029	4,591.51	4,587.75	194.799	8	PVC	Connected Lakes	Existing
E2-222-030	4,587.65	4,586.97	35.03	8	PVC	Connected Lakes	Existing
E2-222-031	4,586.87	4,581.37	285.36	8	PVC	Connected Lakes	Existing
E2-222-036	4,559.30	4,555.83	176.628	18	PVC	Goat Wash	Existing
E2-222-037	4,555.76	4,548.93	333.084	18	PVC	Goat Wash	Existing
E2-222-040	4,571.36	4,567.89	163.213	8	PVC	Connected Lakes	Existing
E2-222-044	4,590.76	4,588.22	496.38	18	PVC	Goat Wash	Existing
E2-222-048	4,581.27	4,578.95	120.146	8	PVC	Connected Lakes	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E2-222-050	4,578.85	4,571.46	129.166	8	PVC	Connected Lakes	Existing
E2-222-067	4,595.73	4,590.82	434.11	18	PVC	Goat Wash	Existing
E2-222-075	4,597.10	4,596.10	86.953	18	PVC	Goat Wash	Existing
E2-231-002	4,603.37	4,596.22	370.312	12		Connected Lakes	Existing
E2-231-005	4,610.62	4,603.47	373.362	12		Connected Lakes	Existing
E2-231-006	4,615.27	4,610.72	235.57	12		Connected Lakes	Existing
E2-231-013	4,618.13	4,615.37	143.27	8	PVC	Connected Lakes	Existing
E2-231-021	4,623.06	4,618.23	249.903	8	PVC	Connected Lakes	Existing
E2-231-028	4,641.17	4,639.85	122.9	8	PVC	Connected Lakes	Existing
E2-231-029	4,639.69	4,638.76	95.054	8	PVC	Connected Lakes	Existing
E2-231-030	4,638.52	4,637.71	107.945	8	PVC	Connected Lakes	Existing
E2-231-031	4,637.60	4,632.91	315.864	8	PVC	Connected Lakes	Existing
E2-231-035	4,632.81	4,630.49	120.573	8	PVC	Connected Lakes	Existing
E2-231-037	4,630.39	4,627.73	137.563	8	PVC	Connected Lakes	Existing
E2-232-013	4,532.08	4,533.39	305.8	6	PVC	Connected Lakes	Existing
E2-232-014	4,533.39	4,643.59	1,085.30	6	PVC	Connected Lakes	Existing
E2-242-004	4,536.23	4,535.65	633.926	54	RCP	River Road	Existing
E2-242-011	4,536.71	4,536.23	604.045	54	RCP	River Road	Existing
E2-242-017	4,537.01	4,536.71	596.271	54	RCP	River Road	Existing
E2-242-024	4,537.65	4,537.01	552.418	54	RCP	River Road	Existing
E2-242-034	4,537.93	4,537.65	346.991	54	RCP	River Road	Existing
E2-251-027	4,542.09	4,541.72	192.634	24		Horizon Drive	Existing
E2-251-058	4,547.27	4,547.03	36.867	24	CONCRETE	Horizon Drive	Existing
E2-252-192	4,557.18	4,548.58	654	18	PVC	Horizon Drive	Existing
E2-252-193	4,565.18	4,557.37	475.1	18	PVC	Horizon Drive	Existing
E2-252-194	4,567.93	4,565.18	167.9	18	PVC	Horizon Drive	Existing
E2-252-196	4,557.37	4,557.18	11.8	18	PVC	Horizon Drive	Existing
E2-271-073	4,640.61	4,637.43	435.912	15	PVC	15th Street	Existing
E2-271-077	4,637.43	4,634.50	401.8	15	PVC	15th Street	Existing
E2-271-081	4,634.50	4,631.30	437.4	15	PVC	15th Street	Existing
E2-271-086	4,631.30	4,628.02	450.2	15	PVC	15th Street	Existing
E3-202-008	4,702.45	4,700.84	163.377	10	PVC		Existing
E3-202-008A	4,700.74	4,699.77	98.498	10	PVC		Existing
E3-202-009	4,705.83	4,705.23	61.23	10	PVC		Existing
E3-202-011	4,699.64	4,696.85	263.614	10	PVC		Existing
E3-202-012	4,696.79	4,687.93	301.465	10	PVC		Existing
E3-222-051	4,546.11	4,544.70	465.366	18	PVC	Goat Wash	Existing
E3-222-051A	4,547.31	4,546.11	274.16	18	PVC	Goat Wash	Existing
E3-222-065	4,548.83	4,547.41	187.682	18	PVC	Goat Wash	Existing
E3-231-006	4,544.56	4,542.00	900.02	21		Goat Wash	Existing
E3-241-015	4,533.01	4,531.11	896.457	54	RCP	River Road	Existing
E3-241-022	4,534.22	4,533.01	657.05	54	RCP	River Road	Existing
E3-241-028	4,534.67	4,534.22	444.899	54	RCP	River Road	Existing
E3-241-034	4,537.66	4,536.64	203.95	18	DI	24 1/2 Road	Existing
E3-241-036	4,539.03	4,537.66	247.017	18	PVC	24 1/2 Road	Existing
E3-241-048	4,541.05	4,540.95	36.539	18	PVC	24 1/2 Road	Existing
E3-241-049	4,540.95	4,539.03	252.56	18		24 1/2 Road	Existing
E3-242-002	4,535.29	4,534.67	508.006	54	RCP	River Road	Existing
E3-242-012	4,535.65	4,535.29	210.281	54	RCP	River Road	Existing
E3-252-001	4,576.93	4,575.97	435.978	18	CIP	Horizon Drive	Existing
E3-252-003	4,575.97	4,575.03	422.07	18	CIP	Horizon Drive	Existing
E3-252-004	4,575.03	4,574.81	13.5	18	PVC	Horizon Drive	Existing
E3-252-084	4,574.81	4,567.93	418.9	18	PVC	Horizon Drive	Existing
E3-252-085	4,577.07	4,576.93	62.9	18	PVC	Horizon Drive	Existing
E3-271-068	4,645.72	4,643.65	282.3	15	PVC	15th Street	Existing
E3-271-072	4,643.65	4,641.84	247.2	15	PVC	15th Street	Existing
E3-271-074	4,641.84	4,640.61	168.9	15	PVC	15th Street	Existing
E3-271-121	4,649.80	4,647.68	289.8	15	PVC	15th Street	Existing
E3-271-122	4,649.90	4,649.80	21	15	PVC	15th Street	Existing
E3-271-123	4,647.68	4,645.72	268.5	15	PVC	15th Street	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E4-202-001	4,687.84	4,682.01	194.078	12	PVC		Existing
E4-202-002	4,681.87	4,674.32	398.454	12	PVC		Existing
E4-202-003	4,674.21	4,671.73	131.626	12	PVC		Existing
E4-202-007	4,667.94	4,664.29	186.042	12	PVC		Existing
E4-202-009	4,671.73	4,668.17	189.387	12	PVC		Existing
E4-202-013	4,664.14	4,658.33	295.528	12	PVC		Existing
E4-202-014	4,656.10	4,646.58	340.628	12	PVC		Existing
E4-231-005	4,542.00	4,539.69	145.009	21	DIP	Goat Wash	Existing
E4-231-006	4,539.27	4,532.41	428.663	21	DIP	Goat Wash	Existing
E4-231-007	4,531.58	4,530.60	501.23	20	DIP	Goat Wash	Existing
E4-231-008	4,532.18	4,531.58	197.882	20	DIP	Goat Wash	Existing
E4-232-016	4,529.10	4,528.53	572.95	54	RCP	River Road	Existing
E4-241-005	4,529.85	4,529.10	673.974	54	RCP	River Road	Existing
E4-241-016	4,531.11	4,529.85	543.693	54	RCP	River Road	Existing
E4-241-075	4,547.08	4,544.15	241.703	18	PVC	24 1/2 Road	Existing
E4-241-077	4,544.15	4,543.11	355.847	18	PVC	24 1/2 Road	Existing
E4-241-078	4,543.11	4,541.95	306.418	18	PVC	24 1/2 Road	Existing
E4-241-079	4,541.95	4,541.82	54.874	18	PVC	24 1/2 Road	Existing
E4-241-080	4,541.82	4,541.05	326.852	18	PVC	24 1/2 Road	Existing
E4-241-081	4,547.62	4,547.08	97.941	18		24 1/2 Road	Existing
E4-242-014	4,549.43	4,547.75	383.727	18	PVC	Paradise Hills	Existing
E4-242-029	4,550.42	4,549.43	380.382	18	PVC	Paradise Hills	Existing
E4-242-034	4,550.83	4,550.42	114.866	18	PVC	Paradise Hills	Existing
E4-242-036	4,550.91	4,550.83	20.664	18	PVC	Paradise Hills	Existing
E4-242-045	4,551.79	4,550.91	246.164	18	PVC	Paradise Hills	Existing
E4-242-057	4,552.92	4,551.79	378.446	18	PVC	Paradise Hills	Existing
E4-242-062	4,554.02	4,552.92	380.218	18	PVC	Paradise Hills	Existing
E4-242-069	4,554.85	4,554.02	378.84	18	PVC	Paradise Hills	Existing
E4-242-078	4,555.69	4,554.85	339.382	18	PVC	Paradise Hills	Existing
E4-251-001	4,555.79	4,555.69	38.606	18	PVC	Paradise Hills	Existing
E4-252-009	4,577.14	4,577.07	32.4	18	PVC	Horizon Drive	Existing
E4-252-010	4,577.18	4,577.14	21.09	18	PVC	Horizon Drive	Existing
E4-252-011	4,577.52	4,577.18	153.865	18	PVC	Horizon Drive	Existing
E4-252-013	4,581.79	4,581.35	74.39	18	RCP	Horizon Drive	Existing
E4-252-014	4,581.34	4,581.22	21.484	18	PVC	Horizon Drive	Existing
E4-252-019	4,581.14	4,580.06	386.843	18	PVC	Horizon Drive	Existing
E4-252-021	4,579.99	4,578.73	440.93	18	PVC	Horizon Drive	Existing
E4-252-023	4,578.66	4,577.52	502.758	18	PVC	Horizon Drive	Existing
E4-252-033	4,583.11	4,581.79	328.689	18	RCP	Horizon Drive	Existing
E4-252-035	4,587.99	4,583.11	328.853	18	RCP	Horizon Drive	Existing
E4-252-037	4,590.20	4,587.99	339.546	18	RCP	Horizon Drive	Existing
E4-271-058	4,665.16	4,664.59	291.395	15	PVC	15th Street	Existing
E4-271-060	4,664.59	4,662.15	295.725	15	PVC	15th Street	Existing
E4-271-062	4,662.15	4,659.19	261.908	15	PVC	15th Street	Existing
E4-271-063	4,659.19	4,656.13	209.297	15	PVC	15th Street	Existing
E4-271-064	4,651.17	4,649.90	227.6	15	PVC	15th Street	Existing
F1-202-005	4,624.27	4,622.35	106.797	15	PVC		Existing
F1-202-006	4,626.01	4,624.39	79.966	14	DIP		Existing
F1-202-007	4,622.23	4,616.37	206.542	15	PVC		Existing
F1-202-008	4,628.00	4,626.13	224.057	15	PVC		Existing
F1-202-009	4,636.50	4,628.11	399.701	12	PVC		Existing
F1-202-010	4,646.50	4,636.58	400.455	12	PVC		Existing
F1-231-001	4,528.61	4,527.96	499.675	21	PVC	Goat Wash	Existing
F1-231-001A	4,529.72	4,528.61	499.05	20	DIP	Goat Wash	Existing
F1-231-002	4,530.60	4,529.72	500.42	20	DIP	Goat Wash	Existing
F1-232-001	4,526.89	4,526.32	528.047	54	RCP	River Road	Existing
F1-232-002	4,527.37	4,526.89	536.214	54	RCP	River Road	Existing
F1-232-008	4,530.29	4,530.09	24.2	15	PVC	24 Road	Existing
F1-232-012	4,527.92	4,527.77	152.5	54	RCP	River Road	Existing
F1-232-013	4,531.41	4,530.37	346.368	15	PVC	24 Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F1-232-014	4,533.42	4,533.25	29.454	15	PVC	24 Road	Existing
F1-232-017	4,533.11	4,531.82	401.242	15	PVC	24 Road	Existing
F1-232-019	4,531.76	4,531.43	108.699	15	PVC	24 Road	Existing
F1-232-033	4,528.53	4,527.92	581.216	54	RCP	River Road	Existing
F1-232-066	4,527.77	4,527.37	421.9	54	RCP	River Road	Existing
F1-241-050	4,552.55	4,549.66	223.434	15	PVC	24 1/2 Road	Existing
F1-241-109	4,553.53	4,552.55	465	15	PVC	24 1/2 Road	Existing
F1-241-110	4,554.75	4,553.71	470.8	15	PVC	24 1/2 Road	Existing
F1-242-001	4,549.66	4,547.62	158.293	15	PVC	24 1/2 Road	Existing
F1-251-003	4,555.90	4,555.79	45.953	18	PVC	Paradise Hills	Existing
F1-251-015	4,557.63	4,555.90	358.012	15	PVC	Paradise Hills	Existing
F1-251-023	4,559.69	4,557.63	391.271	15	PVC	Paradise Hills	Existing
F1-251-031	4,561.00	4,559.69	158.358	15	PVC	Paradise Hills	Existing
F1-251-033	4,561.58	4,561.00	121.7	15	VCP	Paradise Hills	Existing
F1-251-034	4,562.43	4,561.89	139.3	15	VCP	Paradise Hills	Existing
F1-251-039	4,564.24	4,562.43	344.859	15	VCP	Paradise Hills	Existing
F1-251-040	4,565.92	4,564.24	346.106	15	VCP	Paradise Hills	Existing
F1-251-041	4,566.47	4,565.92	108.666	15	VCP	Paradise Hills	Existing
F1-251-044	4,567.63	4,566.47	228.911	15	VCP	Paradise Hills	Existing
F1-251-047	4,569.24	4,567.63	339.218	15	VCP	Paradise Hills	Existing
F1-251-048	4,571.12	4,570.21	156.948	15	VCP	Paradise Hills	Existing
F1-251-049	4,572.58	4,571.60	219.6	15	VCP	Paradise Hills	Existing
F1-251-050	4,574.53	4,572.58	329.017	15	PVC	Paradise Hills	Existing
F1-251-068	4,570.21	4,569.24	168.1	15	VCP	Paradise Hills	Existing
F1-251-106	4,561.89	4,561.58	79.3	15	VCP	Paradise Hills	Existing
F1-251-108	4,571.60	4,571.12	107.6	12		Paradise Hills	Existing
F1-252-017	4,592.37	4,590.20	209.067	18	RCP	Horizon Drive	Existing
F1-252-033	4,593.99	4,592.37	156.1	18	RCP	Horizon Drive	Existing
F1-252-039	4,598.44	4,593.99	545.1	18	RCP	Horizon Drive	Existing
F1-261-003	4,601.05	4,600.19	48.5	15	RCP	Horizon Drive	Existing
F1-261-004	4,600.19	4,598.44	112.8	18	RCP	Horizon Drive	Existing
F1-261-009	4,602.40	4,601.34	152.586	15	RCP	Horizon Drive	Existing
F1-261-026	4,603.63	4,602.40	176.4	15	RCP	Horizon Drive	Existing
F1-261-040	4,605.33	4,603.63	245	15	RCP	Horizon Drive	Existing
F1-261-048	4,607.00	4,605.33	241.9	15	RCP	Horizon Drive	Existing
F1-261-058	4,610.87	4,607.30	309.206	15	RCP	Horizon Drive	Existing
F1-261-064	4,613.31	4,610.91	239.998	15	RCP	Horizon Drive	Existing
F1-261-070	4,615.23	4,613.31	191.814	15	RCP	Horizon Drive	Existing
F1-261-075	4,615.99	4,615.23	100.106	15	RCP	Horizon Drive	Existing
F1-261-078	4,618.31	4,615.99	304.515	15	RCP	Horizon Drive	Existing
F1-261-081	4,620.40	4,619.21	215.201	15	RCP	Horizon Drive	Existing
F1-261-089	4,621.95	4,620.40	281.654	15	RCP	Horizon Drive	Existing
F1-261-095	4,624.44	4,623.16	229.141	15	RCP	Horizon Drive	Existing
F1-261-097	4,624.85	4,624.44	73.767	15	RCP	Horizon Drive	Existing
F1-261-106	4,625.38	4,624.85	96.038	15	RCP	Horizon Drive	Existing
F1-271-101	4,666.06	4,665.41	331.4	15	VCP	15th Street	Existing
F1-271-103	4,665.41	4,665.16	83.7	15	PVC	15th Street	Existing
F2-202-001	4,616.31	4,613.21	209.986	15	PVC		Existing
F2-202-002	4,604.15	4,599.43	331.51	15	PVC		Existing
F2-202-003	4,610.41	4,607.10	214.118	15	PVC		Existing
F2-202-004	4,597.01	4,593.69	252.855	15	PVC		Existing
F2-202-005	4,606.99	4,604.26	165.148	15	PVC		Existing
F2-202-006	4,593.41	4,585.36	264.204	15	PVC		Existing
F2-202-007	4,599.29	4,597.14	129.593	15	PVC		Existing
F2-202-023	4,613.03	4,610.44	218.907	15	PVC		Existing
F2-202-024	4,585.27	4,578.45	354.306	15	PVC		Existing
F2-231-004	4,524.32	4,523.89	701.526	54	RCP	River Road	Existing
F2-231-010	4,525.21	4,524.32	831.316	54	RCP	River Road	Existing
F2-231-016	4,525.73	4,525.21	492.361	54	RCP	River Road	Existing
F2-231-023	4,526.32	4,525.73	610.769	54	RCP	River Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F2-231-024	4,527.82	4,527.40	464.874	21	PVC	Goat Wash	Existing
F2-232-002	4,537.77	4,536.80	323.736	15	PVC	24 Road	Existing
F2-232-003	4,536.76	4,535.92	287.951	15	PVC	24 Road	Existing
F2-232-004	4,535.89	4,535.82	24.042	15	PVC	24 Road	Existing
F2-232-005	4,535.76	4,534.87	326.196	15	PVC	24 Road	Existing
F2-232-006	4,534.71	4,533.58	344.695	15	PVC	24 Road	Existing
F2-232-007	4,538.55	4,538.01	257.185	15	PVC	24 Road	Existing
F2-242-055	4,555.85	4,554.92	455	15	PVC	24 1/2 Road	Existing
F2-242-056	4,557.08	4,556.03	434.7	15	PVC	24 1/2 Road	Existing
F2-251-012	4,583.65	4,583.39	37.851	15	PVC	Paradise Hills	Existing
F2-251-016	4,581.40	4,579.28	324.064	15	PVC	Paradise Hills	Existing
F2-251-017	4,579.28	4,577.52	248.854	15	PVC	Paradise Hills	Existing
F2-251-018	4,576.98	4,574.53	320.095	15	PVC	Paradise Hills	Existing
F2-251-028	4,583.39	4,581.40	285.885	15	PVC	Paradise Hills	Existing
F2-252-027	4,577.52	4,576.98	76.522	15	PVC	Paradise Hills	Existing
F2-261-053	4,635.22	4,630.88	317.242	15	RCP	Horizon Drive	Existing
F2-262-011	4,640.09	4,635.32	502.594	15	RCP	Horizon Drive	Existing
F2-262-017	4,644.05	4,640.09	263.515	15	RCP	Horizon Drive	Existing
F2-262-020	4,646.00	4,644.05	130.282	15	RCP	Horizon Drive	Existing
F2-262-029	4,650.32	4,646.00	408.262	15	RCP	Horizon Drive	Existing
F2-262-032	4,651.58	4,650.32	299.694	15	RCP	Horizon Drive	Existing
F2-262-038	4,655.55	4,653.48	291.494	15	RCP	Horizon Drive	Existing
F3-202-006	4,578.39	4,577.44	64.452	15	PVC		Existing
F3-202-007	4,577.44	4,573.23	286.902	15	PVC		Existing
F3-211-010	4,573.13	4,568.35	259.579	15	PVC		Existing
F3-211-011	4,567.19	4,563.42	253.38	15	PVC		Existing
F3-211-012	4,563.08	4,561.63	90.79	15	PVC		Existing
F3-211-013	4,561.45	4,557.41	280.014	15	PVC		Existing
F3-222-007	4,522.40	4,521.71	701.166	54	RCP	River Road	Existing
F3-222-008	4,523.05	4,522.40	694.179	54	RCP	River Road	Existing
F3-222-008A	4,523.59	4,523.05	478.3	54	RCP	River Road	Existing
F3-222-019	4,521.71	4,521.18	595.681	54	RCP	River Road	Existing
F3-231-015	4,523.89	4,523.59	478.3	54	RCP	River Road	Existing
F3-232-001	4,538.86	4,538.60	76.227	15	PVC	24 Road	Existing
F3-232-002	4,539.70	4,538.93	323.998	15	PVC	24 Road	Existing
F3-232-003	4,540.54	4,539.72	319.242	15	PVC	24 Road	Existing
F3-232-004	4,548.18	4,546.81	339	16	HDPE	24 Road	Existing
F3-232-005	4,546.75	4,545.78	342.7	16	HDPE	24 Road	Existing
F3-232-006	4,545.74	4,544.53	294.9	16	HDPE	24 Road	Existing
F3-232-007	4,544.53	4,540.56	330.3	15	PVC	24 Road	Existing
F3-241-004	4,559.45	4,559.19	27.9	15	PVC	24 1/2 Road	Existing
F3-241-005	4,560.25	4,559.60	309	15	PVC	24 1/2 Road	Existing
F3-241-006	4,561.28	4,560.44	339.5	15	PVC	24 1/2 Road	Existing
F3-242-010	4,558.20	4,557.28	444.8	15	PVC	24 1/2 Road	Existing
F3-242-011	4,559.03	4,558.38	304.6	15	PVC	24 1/2 Road	Existing
F3-251-023	4,590.13	4,587.17	444.571	15	PVC	Paradise Hills	Existing
F3-251-024	4,585.33	4,583.65	324.392	15	PVC	Paradise Hills	Existing
F3-251-082	4,587.17	4,585.33	130.938	15	PVC	Paradise Hills	Existing
F3-252-001	4,593.68	4,592.21	150.027	15	PVC	Paradise Hills	Existing
F3-252-003	4,592.21	4,590.13	212.839	15	PVC	Paradise Hills	Existing
F3-262-038	4,659.00	4,655.55	301.662	15	RCP	Horizon Drive	Existing
F3-262-052	4,660.53	4,659.00	369.623	15	RCP	Horizon Drive	Existing
F3-262-057	4,664.20	4,660.53	327.869	15	RCP	Horizon Drive	Existing
F3-262-063	4,672.06	4,665.70	301.202	15	RCP	Horizon Drive	Existing
F3-271-152	4,675.11	4,673.60	300.514	15	RCP	Horizon Drive	Existing
F3-271-152A	4,673.60	4,672.36	293.2	15	RCP	Horizon Drive	Existing
F3-271-153	4,675.60	4,675.26	20.2	15	PVC	Horizon Drive	Existing
F4-0232-BV	4,552.06	4,551.69	317.28	12		24 Road	Existing
F4-211-002	4,556.72	4,551.06	252.56	15	PVC		Existing
F4-211-003	4,544.08	4,543.65	21.976	15	PVC		Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F4-211-004	4,538.94	4,527.02	159.9	15	PVC		Existing
F4-211-005	4,526.75	4,523.36	133.463	15	PVC		Existing
F4-211-006	4,517.22	4,516.63	93.04	15	PVC		Existing
F4-211-007	4,516.33	4,511.16	344.892	15	PVC		Existing
F4-211-013	4,523.75	4,519.02	99.45	15	PVC		Existing
F4-211-014	4,518.73	4,517.70	106.895	15	PVC		Existing
F4-211-015	4,543.65	4,541.94	87.543	15	PVC		Existing
F4-221-022	4,519.88	4,519.04	670.202	54	RCP	River Road	Existing
F4-222-003	4,520.51	4,519.88	671.416	54	RCP	River Road	Existing
F4-222-013	4,521.18	4,520.51	603.094	54	RCP	River Road	Existing
F4-232-004	4,551.59	4,551.15	352.6	12	PVC	24 Road	Existing
F4-232-005	4,551.10	4,549.36	308	12	HDPE	24 Road	Existing
F4-232-006	4,549.28	4,548.22	336.6	16	HDPE	24 Road	Existing
F4-241-002	4,558.40	4,557.49	81.5	10	PVC	24 Road	Existing
F4-241-003	4,560.16	4,558.53	405.014	10	PVC	24 Road	Existing
F4-241-004	4,561.33	4,560.16	394.781	10	PVC	24 Road	Existing
F4-241-005	4,562.70	4,561.33	399.963	10	PVC	24 Road	Existing
F4-241-006	4,565.23	4,562.70	400.357	10	PVC	24 Road	Existing
F4-241-007	4,566.91	4,565.23	399.734	10	PVC	24 Road	Existing
F4-241-008	4,568.35	4,566.91	387.401	10	PVC	24 Road	Existing
F4-241-009	4,562.23	4,561.47	351.5	15	PVC	24 1/2 Road	Existing
F4-241-010	4,563.15	4,562.45	300	15	PVC	24 1/2 Road	Existing
F4-241-011	4,564.41	4,563.36	350	15	PVC	24 1/2 Road	Existing
F4-251-016	4,605.10	4,601.99	346.138	15	PVC	Paradise Hills	Existing
F4-251-022	4,601.99	4,599.02	349.287	15	PVC	Paradise Hills	Existing
F4-251-023	4,599.02	4,596.44	347.188	15	PVC	Paradise Hills	Existing
F4-252-003	4,596.44	4,593.68	367.786	15	PVC	Paradise Hills	Existing
F4-252-005	4,608.55	4,605.10	352.928	15	PVC	Paradise Hills	Existing
F4-271-034	4,700.50	4,699.60	93.054	15	RCP	Horizon Drive	Existing
F4-271-034A	4,699.51	4,698.60	104.1	15	RCP	Horizon Drive	Existing
F4-271-069	4,696.03	4,692.78	410	15	PVC	Horizon Drive	Existing
F4-271-070	4,680.25	4,675.60	487.7	15	PVC	Horizon Drive	Existing
F4-271-072	4,684.12	4,681.27	601.5	15	PVC	Horizon Drive	Existing
F4-271-073	4,691.57	4,685.07	573.1	15	PVC	Horizon Drive	Existing
F4-271-075	4,698.60	4,696.09	288.8	15	RCP	Horizon Drive	Existing
G1-211-001	4,507.06	4,515.66	3,785.00	12	DIP		Existing
G1-211-003	4,504.06	4,503.70	286.8	15	PVC		Existing
G1-221-001	4,516.73	4,516.37	663.61	54	RCP	River Road	Existing
G1-221-005	4,517.71	4,516.73	679.583	54	RCP	River Road	Existing
G1-221-010	4,518.56	4,517.71	678.534	54	RCP	River Road	Existing
G1-221-029	4,519.04	4,518.56	656.197	54	RCP	River Road	Existing
G1-232-012	4,552.92	4,552.15	388.96	12		24 Road	Existing
G1-241-001	4,557.49	4,554.47	74.11	12	PVC	24 Road	Existing
G1-241-002	4,568.73	4,568.45	59.204	10	PVC	24 Road	Existing
G1-242-001	4,570.26	4,568.83	502.365	10	PVC	24 Road	Existing
G1-242-006	4,571.33	4,570.26	338.988	10	PVC	24 Road	Existing
G1-242-014	4,572.57	4,571.33	324.818	10	PVC	24 Road	Existing
G1-242-025	4,573.81	4,572.57	303.367	10	PVC	24 Road	Existing
G1-242-028	4,573.88	4,573.81	17.876	10	PVC	24 Road	Existing
G1-242-038	4,574.89	4,573.88	340.89	10	PVC	24 Road	Existing
G1-242-045	4,575.95	4,574.89	334.396	10	PVC	24 Road	Existing
G1-252-004	4,614.01	4,610.79	319.997	12	PVC	Paradise Hills	Existing
G1-252-005	4,610.79	4,608.55	354.666	15	PVC	Paradise Hills	Existing
G1-252-006	4,615.08	4,614.01	165.574	12	PVC	Paradise Hills	Existing
G1-252-007	4,616.78	4,615.08	299.53	12	PVC	Paradise Hills	Existing
G1-252-008	4,617.98	4,616.78	170.134	12	PVC	Paradise Hills	Existing
G1-252-009	4,620.11	4,617.98	310.157	12	PVC	Paradise Hills	Existing
G1-252-011	4,621.45	4,620.11	231.896	12	PVC	Paradise Hills	Existing
G1-271-007	4,700.96	4,700.50	47.954	15	RCP	Horizon Drive	Existing
G1-271-013	4,702.45	4,700.96	155.242	15	RCP	Horizon Drive	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
G1-271-030	4,703.94	4,702.45	263.253	15	RCP	Horizon Drive	Existing
G1-271-042	4,704.45	4,703.98	92.726	15	RCP	Horizon Drive	Existing
G1-271-047	4,710.11	4,705.74	312.814	15	RCP	Horizon Drive	Existing
G1-272-045	4,713.46	4,710.19	588.76	15	RCP	Horizon Drive	Existing
G1-272-065	4,713.80	4,713.46	61.828	15	RCP	Horizon Drive	Existing
G1-272-066	4,713.99	4,713.80	34.243	15	RCP	Horizon Drive	Existing
G2-212-001	4,511.84	4,511.66	433.386	54	RCP	River Road	Existing
G2-212-002	4,512.35	4,512.14	80.065	54	RCP	River Road	Existing
G2-212-002A	4,512.14	4,511.84	445.326	54	RCP	River Road	Existing
G2-212-014A	4,516.55	4,513.85	145.763	18	RCP	River Road	Existing
G2-212-015	4,515.25	4,515.05	87.97	54	RCP	River Road	Existing
G2-212-032	4,515.90	4,515.45	384.9	54	RCP	River Road	Existing
G2-212-035	4,516.04	4,515.90	143.992	54	RCP	River Road	Existing
G2-212-038	4,516.31	4,516.04	241.638	54	RCP	River Road	Existing
G2-212-041	4,516.37	4,516.31	85.641	54	RCP	River Road	Existing
G2-212-047	4,515.45	4,515.25	293.6	54	RCP	River Road	Existing
G2-252-043	4,624.69	4,623.00	234.356	12	PVC	Paradise Hills	Existing
G2-252-044	4,626.85	4,624.69	348.074	12	PVC	Paradise Hills	Existing
G2-252-045	4,623.00	4,621.45	231.404	12	PVC	Paradise Hills	Existing
G2-252-046	4,629.20	4,626.85	356.962	12	PVC	Paradise Hills	Existing
G2-252-047	4,636.54	4,629.20	355.814	12	PVC	Paradise Hills	Existing
G2-272-014	4,715.85	4,713.99	357.684	15	RCP	Horizon Drive	Existing
G2-272-036	4,720.62	4,718.80	363.686	15	RCP	Horizon Drive	Existing
G2-272-049	4,721.87	4,720.62	247.902	15	RCP	Horizon Drive	Existing
G2-272-055	4,724.49	4,724.00	123.886	15	RCP	Horizon Drive	Existing
G2-272-068	4,724.93	4,724.49	111.717	15	RCP	Horizon Drive	Existing
G2-272-080	4,731.50	4,727.50	342	15	RCP	Horizon Drive	Existing
G3-211-015	4,511.57	4,511.17	336.364	54	RCP	River Road	Existing
G3-211-018	4,511.17	4,510.87	256.89	54	RCP	River Road	Existing
G3-212-006	4,515.66	4,514.91	32.997	15	PVC		Existing
G3-212-007	4,511.66	4,511.57	231.076	54	RCP	River Road	Existing
G3-252-026	4,642.80	4,639.47	305.106	12	PVC	Paradise Hills	Existing
G3-252-027	4,650.29	4,642.80	189.617	12	PVC	Paradise Hills	Existing
G3-252-028	4,639.47	4,638.48	164.295	12	PVC	Paradise Hills	Existing
G3-252-029	4,638.48	4,636.54	299.53	12	PVC	Paradise Hills	Existing
G3-252-030	4,657.84	4,650.29	240.621	12	PVC	Paradise Hills	Existing
G3-252-031	4,659.59	4,657.84	252.101	12	PVC	Paradise Hills	Existing
G3-252-032	4,661.34	4,659.59	313.765	12	PVC	Paradise Hills	Existing
G4-252-008	4,662.47	4,661.34	158.588	12	PVC	Paradise Hills	Existing
G4-252-008A	4,663.19	4,662.47	102.303	12	PVC	Paradise Hills	Existing
G4-261-008	4,679.32	4,677.37	178.662	8	PVC	Paradise Hills	Existing
G4-261-015	4,677.17	4,676.45	180.334	8	PVC	Paradise Hills	Existing
G4-261-016	4,676.25	4,675.92	121.524	8	PVC	Paradise Hills	Existing
G4-261-017	4,675.82	4,669.37	214.2	12	PVC	Paradise Hills	Existing
G4-261-018	4,667.52	4,666.30	195.652	12	PVC	Paradise Hills	Existing
G4-261-020	4,666.30	4,664.93	200.736	12	PVC	Paradise Hills	Existing
G4-261-021	4,664.93	4,663.19	228.485	12	PVC	Paradise Hills	Existing
G4-261-029	4,669.37	4,667.52	313.8	12	PVC	Paradise Hills	Existing
H1-261-006	4,701.96	4,701.33	74.3	10	PVC	Paradise Hills	Existing
H1-261-008	4,697.93	4,697.73	6	10	PVC	Paradise Hills	Existing
H1-261-009	4,697.63	4,692.71	360.308	8	PVC	Paradise Hills	Existing
H1-261-010	4,692.71	4,689.30	350.074	8	PVC	Paradise Hills	Existing
H1-261-011	4,688.00	4,682.72	388.483	8	PVC	Paradise Hills	Existing
H1-261-012	4,682.52	4,680.37	208.5	8	PVC	Paradise Hills	Existing
H1-261-015	4,680.17	4,679.52	66.3	8	PVC	Paradise Hills	Existing
H1-261-025	4,701.02	4,698.18	225.5	10	PVC	Paradise Hills	Existing
H1-262-023	4,705.38	4,701.96	335.675	10	PVC	Paradise Hills	Existing

Notes:

1) All gravity lines have an "n-value" of 0.013
2) All force mains have a "C-value" of 110

Wet Well Input Information Existing System Scenarios

ID	Description	Type	Bottom Elevation	Minimum Level	Maximum Level	Initial Level	Diameter
			(feet)	(feet)	(feet)	(feet)	(feet)
9000	Connected Lakes LS	0: Cylindrical	4,518.81	0	25	0.5	6
9002	Ridges LS	0: Cylindrical	4,613.17	2.6	18	2.7	8
9006	Lime Kiln Gulch LS	0: Cylindrical	4,516.82	0	15.5	0.5	6
9008	Rosevale LS	0: Cylindrical	4,530.00	0	15	3	6
9010	Tiara Rado LS	0: Cylindrical	4,487.25	1	24	1	8

Pump Input Information Existing System Scenarios

ID	Description	Pump Type	Pump Capacity
			(mgd)
5008	Ridges Pump #1	0: Constant Capacity	0.429
5010	Ridges Pump #2	0: Constant Capacity	0.429
5016	Redlands Village Pump #1	0: Constant Capacity	0.279
5018	Redlands Village Pump #2	0: Constant Capacity	0.279
5020	Rosevale Pump #1	0: Constant Capacity	0.684
5022	Rosevale Pump #2	0: Constant Capacity	0.684
5024	Tiara Rado Pump #1	0: Constant Capacity	3.27
5026	Tiara Rado Pump #2	0: Constant Capacity	3.27
5038	Connected Lakes Pump #1	0: Constant Capacity	0.212
5040	Connected Lakes Pump #2	0: Constant Capacity	0.212

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.052	08:00 hr	0.83	0.148	0.084	0.015
0G1-271-041	G1-271-042	G1-271-041	0.426	08:29 hr	2.656	0.32	0.256	0.144
101	64	66	0.308	44:00 hr	1.918	0.447	0.67	0.79
103	66	68	0.308	43:58 hr	2.476	0.361	0.541	0.57
105	68	70	0.308	43:59 hr	2.354	0.375	0.563	0.608
107	70	74	0.312	43:59 hr	6.21	0.183	0.274	0.164
111	74	76	0.313	43:59 hr	6.006	0.188	0.281	0.173
1127	14	9002	0.171	07:59 hr	13.336	0.071	0.106	0.024
113	76	78	0.318	43:59 hr	7.124	0.168	0.252	0.139
115	78	80	0.319	43:59 hr	7.367	0.164	0.247	0.133
117	80	82	0.319	43:59 hr	7.394	0.164	0.246	0.133
119	82	E2-222-016	0.319	43:59 hr	7.392	0.164	0.246	0.133
121	132	134	0.094	07:59 hr	5.224	0.09	0.134	0.039
123	134	136	0.094	07:58 hr	7.176	0.072	0.108	0.025
125	136	9006	0.105	07:58 hr	4.092	0.114	0.172	0.064
127	140	9006	0.048	07:56 hr	1.854	0.115	0.173	0.065
137	150	48	0.293	07:46 hr	3.111	0.29	0.435	0.392
139	C1-261-020	770	2.924	10:15 hr	3.516	0.857	0.429	0.382
141	770	772	2.927	10:17 hr	3.717	0.823	0.411	0.355
143	772	774	2.929	10:30 hr	3.129	0.939	0.469	0.448
145	774	776	2.939	10:33 hr	2.842	1.015	0.507	0.513
147	776	778	2.937	10:32 hr	3.439	0.875	0.437	0.396
153	778	780	2.934	10:33 hr	3.025	0.965	0.482	0.47
155	780	C2-261-001	2.933	10:42 hr	2.756	1.038	0.519	0.532
157	C2-261-001	C3-261-013	1.376	10:43 hr	7.434	0.393	0.393	0.326
161	802	9000	0.067	08:04 hr	1.528	0.152	0.182	0.073
163	SS_3	C3-271-012	1.758	08:33 hr	2.298	0.726	0.29	0.184
165	SS_1_A	C3-271-007	1.751	08:32 hr	3.302	0.67	0.402	0.34
167	SS_4	SS_3	1.764	08:31 hr	2.291	0.729	0.292	0.186
169	SS_5	SS_4	1.767	08:30 hr	2.365	0.791	0.395	0.33
171	SS_6	SS_5	1.532	08:31 hr	2.253	0.737	0.369	0.29
173	804	SS_8	1.529	08:12 hr	2.247	0.738	0.369	0.29
175	SS_8	SS_7	1.53	08:19 hr	2.248	0.738	0.369	0.29
177	SS_7	SS_6	1.532	08:30 hr	2.25	0.738	0.369	0.291
57	E3-202-BV	E3-202-010	0.157	08:15 hr	2.636	0.188	0.225	0.111
757	1428	BV-105	0.39	21:50 hr	1.851	0.481	0.578	0.633
759	1428	1430	0.296	21:51 hr	1.695	0.482	0.722	0.872
761	1430	D2-252-004	0.294	21:59 hr	3.23	0.283	0.424	0.375
763	G2-212-014	G2-212-003	11.45	37:58 hr	10.394	0.947	0.379	0.305
773	B2-282-047	B2-282-046	0.409	08:30 hr	2.745	0.335	0.335	0.242
775	B2-282-046	B2-282-041	0.408	08:29 hr	3.705	0.269	0.269	0.159
777	B2-282-041	B2-282-037	0.406	08:32 hr	1.148	0.658	0.658	0.769
779	B2-282-037	B2-282-036	0.406	08:45 hr	2.453	0.362	0.362	0.28
781	B2-282-036	B2-282-003	0.406	08:46 hr	2.431	0.364	0.364	0.283
785	B2-282-003	B2-281-013	0.404	08:45 hr	2.429	0.363	0.363	0.282
787	B2-281-013	B2-281-027	0.404	08:46 hr	2.725	0.333	0.333	0.24
789	B2-281-027	B2-281-006	0.403	08:49 hr	2.554	0.349	0.349	0.262
791	B2-281-006	B2-281-005	0.404	09:01 hr	2.294	0.378	0.378	0.304
793	B2-281-005	B2-281-004	0.403	09:01 hr	2.355	0.37	0.37	0.293
795	B2-281-004	B2-281-003	0.402	09:01 hr	2.287	0.378	0.378	0.304
797	B2-281-003	B2-281-002	0.607	09:00 hr	2.443	0.492	0.492	0.486
799	B2-281-002	B2-281-029	0.606	09:01 hr	2.479	0.485	0.485	0.475
801	B2-281-029	B2-281-001	0.603	08:58 hr	1.188	1	1	1.125
803	B2-281-001	B2-281-022	0.604	09:04 hr	2.311	0.512	0.512	0.52
805	B2-281-022	B2-281-020	0.601	09:10 hr	2.867	0.432	0.432	0.387
807	B2-281-020	B2-272-030	0.601	09:20 hr	1.905	0.596	0.596	0.666
809	B2-272-030	B2-272-029	0.6	09:17 hr	2.692	0.452	0.452	0.419
811	B2-272-029	B2-272-028	0.599	09:24 hr	2.445	0.486	0.486	0.477
813	B2-272-028	B2-272-027	0.686	09:26 hr	2.809	0.485	0.485	0.475
85	48	50	0.308	08:01 hr	2.314	0.381	0.571	0.622
87	50	52	0.309	08:13 hr	1.941	0.443	0.664	0.78
889	B2-272-008	B2-272-005	0.259	09:12 hr	1.694	0.309	0.248	0.134

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
89	52	54	0.309	08:16 hr	2.333	0.379	0.568	0.617
891	B2-272-005	B2-271-022	0.259	09:16 hr	1.94	0.281	0.225	0.111
893	B2-271-022	B2-271-031	0.258	09:16 hr	1.698	0.308	0.246	0.133
895	B2-271-031	B2-271-020	0.258	09:30 hr	2.446	0.239	0.191	0.08
897	B2-271-020	B2-271-019	0.258	09:29 hr	4.158	0.165	0.132	0.037
91	54	56	0.307	08:15 hr	2.358	0.374	0.561	0.605
93	56	58	0.305	08:16 hr	2.439	0.362	0.543	0.573
95	58	60	0.304	43:55 hr	2.517	0.352	0.528	0.548
97	60	62	0.305	43:53 hr	2.432	0.362	0.543	0.574
99	62	64	0.306	43:55 hr	2.249	0.387	0.581	0.639
B1-272-001	B1-272-001	B1-272-010	0.263	08:43 hr	1.943	0.312	0.312	0.212
B1-272-002	B1-272-002	B1-272-001	0.211	08:43 hr	2.114	0.272	0.326	0.23
B1-272-003	B1-272-003	B1-272-002	0.212	08:40 hr	2.03	0.28	0.336	0.244
B1-272-005	B1-272-005	B1-272-003	0.212	08:32 hr	2.139	0.271	0.325	0.228
B1-272-007	B1-272-007	B1-272-005	0.213	08:31 hr	1.869	0.3	0.36	0.277
B1-272-010	B1-272-010	B1-272-012	0.263	08:45 hr	2.129	0.292	0.292	0.186
B1-281-001	B1-281-001	B1-272-007	0.214	08:32 hr	2.046	0.281	0.338	0.246
B1-281-002	B1-281-002	B1-281-001	0.215	08:30 hr	2.067	0.28	0.336	0.243
B1-281-004	B1-281-004	B1-281-002	0.214	08:19 hr	2.421	0.249	0.299	0.195
B1-281-005	B1-281-005	B1-281-004	0.087	08:15 hr	1.823	0.161	0.193	0.081
B1-281-006	B1-281-006	B1-281-005	0.087	08:13 hr	1.783	0.163	0.196	0.084
B1-281-007	B1-281-007	B1-281-006	0.087	08:13 hr	2.297	0.137	0.165	0.059
B1-281-009	B1-281-009	B1-281-007	0.087	08:01 hr	2.271	0.138	0.166	0.06
B1-281-010	B1-281-010	B1-281-009	0.087	07:58 hr	2.243	0.139	0.167	0.06
B1-292-001	B1-292-001	B1-292-002	0.016	08:00 hr	0.769	0.091	0.109	0.025
B1-292-002	B1-292-002	B1-292-003	0.016	08:21 hr	0.695	0.099	0.119	0.03
B1-292-003	B1-292-003	B1-292-004	0.016	08:20 hr	0.836	0.087	0.104	0.023
B1-292-004	B1-292-004	B1-292-010	0.016	08:14 hr	1.338	0.061	0.074	0.011
B1-292-010	B1-292-010	B1-292-011	0.016	08:19 hr	1.356	0.061	0.074	0.011
B1-292-011	B1-292-011	B1-292-012	0.015	08:15 hr	1.946	0.047	0.056	0.006
B1-292-012	B1-292-012	B1-292-013	0.016	08:33 hr	0.686	0.099	0.118	0.03
B1-292-013	B1-292-013	B1-292-014	0.016	08:25 hr	1.16	0.073	0.109	0.025
B1-292-014	B1-292-014	B1-292-015	0.016	08:29 hr	0.975	0.076	0.091	0.017
B1-292-015	B1-292-015	B1-292-016	0.015	08:26 hr	1.223	0.064	0.077	0.012
B1-292-016	B1-292-016	B2-292-023	0.015	08:26 hr	1.708	0.055	0.083	0.014
B2-271-019	B2-271-019	B3-271-059	1.341	09:31 hr	2.9	0.707	0.565	0.612
B2-272-004	B2-272-004	B2-271-019	0.954	09:30 hr	2.691	0.573	0.458	0.43
B2-272-007	B2-272-007	B2-272-004	0.95	09:29 hr	2.676	0.573	0.459	0.431
B2-272-009	B2-272-009	B2-272-007	0.946	09:28 hr	2.685	0.57	0.456	0.427
B2-272-012	B1-272-012	B1-272-013	0.263	08:48 hr	2.08	0.27	0.216	0.103
B2-272-013	B1-272-013	B1-272-015	0.262	08:56 hr	2.183	0.261	0.209	0.095
B2-272-014	B2-272-014	B2-272-009	0.944	09:30 hr	2.212	0.662	0.53	0.551
B2-272-015	B1-272-015	B1-272-016	0.261	08:55 hr	1.921	0.285	0.228	0.114
B2-272-016	B1-272-016	B2-272-021	0.261	09:02 hr	1.752	0.304	0.243	0.13
B2-272-017	B2-272-017	B2-272-008	0.26	09:14 hr	1.756	0.303	0.242	0.128
B2-272-021	B2-272-021	B2-272-017	0.26	09:00 hr	1.773	0.3	0.24	0.127
B2-272-027	B2-272-027	B2-272-033	0.88	09:30 hr	2.826	0.59	0.59	0.654
B2-272-033	B2-272-033	B2-272-014	0.888	09:30 hr	3.466	0.504	0.504	0.506
B2-282-048	B2-282-048	B2-282-047	0.411	08:32 hr	2.45	0.365	0.365	0.285
B2-282-051	B2-282-051	B2-282-048	0.411	08:28 hr	2.527	0.357	0.357	0.273
B2-282-054	B2-282-054	B2-282-051	0.412	08:30 hr	2.568	0.353	0.353	0.267
B2-291-024	B2-291-024	B2-291-045	0.03	09:15 hr	1.514	0.082	0.082	0.014
B2-291-025	B2-291-025	B2-291-026	0.029	09:06 hr	1.229	0.092	0.092	0.018
B2-291-026	B2-291-026	B2-291-027	0.029	09:24 hr	0.491	0.174	0.174	0.066
B2-291-027	B2-291-027	B2-291-028	0.029	09:32 hr	0.898	0.115	0.115	0.028
B2-291-028	B2-291-028	B2-291-029	0.029	09:42 hr	0.883	0.117	0.117	0.029
B2-291-029	B2-291-029	B2-291-030	0.029	09:44 hr	1.211	0.094	0.094	0.018
B2-291-030	B2-291-030	B2-282-054	0.029	09:33 hr	0.979	0.107	0.107	0.024
B2-291-045	B2-291-045	B2-291-025	0.029	09:05 hr	0.471	0.179	0.179	0.07
B2-292-001	B2-292-001	B2-292-002	0.014	08:01 hr	1.01	0.07	0.084	0.014
B2-292-002	B2-292-002	B2-292-003	0.014	08:02 hr	1.037	0.068	0.081	0.014
B2-292-003	B2-292-003	B2-292-004	0.014	08:02 hr	0.788	0.08	0.096	0.019

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B2-292-004	B2-292-004	B2-292-010	0.014	08:14 hr	1.345	0.054	0.054	0.006
B2-292-008	B2-292-008	B2-292-009	0.03	08:59 hr	0.673	0.142	0.142	0.043
B2-292-009	B2-292-009	B2-291-024	0.029	08:54 hr	1.072	0.102	0.102	0.022
B2-292-010	B2-292-010	B2-292-026	0.03	08:46 hr	0.958	0.112	0.112	0.026
B2-292-011	B2-292-011	B2-292-010	0.016	08:45 hr	1.125	0.075	0.112	0.026
B2-292-012	B2-292-012	B2-292-011	0.016	08:47 hr	1.009	0.081	0.122	0.031
B2-292-017	B2-292-017	BV-292-013	0.016	08:41 hr	1.272	0.069	0.104	0.022
B2-292-018	B2-292-018	B2-292-017	0.016	08:38 hr	1.28	0.069	0.103	0.022
B2-292-022	B2-292-022	B2-292-018	0.015	08:29 hr	1.44	0.062	0.094	0.018
B2-292-023	B2-292-023	B2-292-022	0.015	08:27 hr	1.654	0.057	0.085	0.015
B2-292-026	B2-292-026	B2-292-008	0.03	09:00 hr	1.023	0.107	0.107	0.024
B2-301-001	B2-301-001	B2-292-001	0.014	07:55 hr	0.932	0.074	0.088	0.016
B3-262-023	B3-262-023	B4-262-031	2.649	10:01 hr	3.928	0.857	0.571	0.622
B3-262-027	B3-262-027	B3-262-023	2.639	09:50 hr	2.31	1.5	1	1.125
B3-262-031	B3-262-031	B3-262-027	2.625	09:47 hr	2.299	1.5	1	1.112
B3-271-003	B3-271-003	B3-262-031	1.488	09:56 hr	2.998	0.749	0.599	0.671
B3-271-006	B3-271-006	B3-271-003	1.481	09:46 hr	2.994	0.747	0.598	0.668
B3-271-018	B3-271-018	B3-271-006	1.474	09:47 hr	2.992	0.745	0.596	0.664
B3-271-026	B3-271-026	B4-271-011	1.448	09:44 hr	3.211	0.692	0.554	0.592
B3-271-032	B3-271-032	B3-271-026	1.401	09:44 hr	2.964	0.72	0.576	0.63
B3-271-039	B3-271-039	B3-271-032	1.388	09:34 hr	2.947	0.717	0.574	0.627
B3-271-042	B3-271-042	B3-271-039	1.376	09:31 hr	2.942	0.713	0.571	0.621
B3-271-045	B3-271-045	B3-271-042	1.37	09:30 hr	2.96	0.707	0.566	0.613
B3-271-054	B3-271-054	B3-271-045	1.366	09:31 hr	3.108	0.678	0.542	0.573
B3-271-058	B3-271-058	B3-271-054	1.361	09:30 hr	3.185	0.663	0.53	0.552
B3-271-058A	B3-271-063	B3-271-058	1.349	09:31 hr	2.927	0.705	0.564	0.609
B3-271-063	B3-271-059	B3-271-063	1.345	09:31 hr	2.93	0.703	0.562	0.606
B4-261-014	B4-261-014	C1-261-058	2.825	10:15 hr	4.603	0.903	0.723	0.872
B4-262-001	B4-262-001	B4-261-014	2.818	10:16 hr	4.603	0.901	0.721	0.87
B4-262-011	B4-262-011	B4-262-044	2.778	10:16 hr	4.675	0.774	0.516	0.527
B4-262-016	B4-262-016	B4-262-011	2.726	10:12 hr	4.656	0.765	0.51	0.517
B4-262-022	B4-262-022	B4-262-016	2.716	10:01 hr	4.649	0.764	0.509	0.516
B4-262-024	B4-262-024	B4-262-022	2.676	10:01 hr	3.074	1.069	0.713	0.857
B4-262-028	B4-262-028	B4-262-024	2.66	10:03 hr	2.329	1.5	1	1.182
B4-262-030	B4-262-030	B4-262-028	2.659	10:00 hr	2.328	1.5	1	1.182
B4-262-031	B4-262-031	B4-262-114	2.651	09:59 hr	2.937	1.106	0.737	0.894
B4-262-036	B4-262-036	B4-262-037	0.965	09:19 hr	2.416	0.734	0.734	0.889
B4-262-037	B4-262-037	B4-262-038	0.981	09:27 hr	2.422	0.744	0.744	0.903
B4-262-038	B4-262-038	B3-262-031	0.993	09:35 hr	2.425	0.752	0.752	0.914
B4-262-043	B4-262-044	B4-262-001	2.785	10:15 hr	4.593	0.893	0.714	0.859
B4-262-114	B4-262-114	B4-262-030	2.653	10:00 hr	3.334	0.986	0.657	0.768
B4-271-001	B4-271-001	B4-262-036	0.962	09:15 hr	2.421	0.73	0.73	0.883
B4-271-011	B4-271-011	B3-271-018	1.46	09:46 hr	2.986	0.74	0.592	0.658
B4-271-028	B4-271-028	B4-271-147	0.818	08:58 hr	2.585	0.597	0.597	0.667
B4-271-033	B4-271-033	B4-271-028	0.805	08:47 hr	2.576	0.591	0.591	0.657
B4-271-128	B4-271-128	B4-271-001	0.96	09:17 hr	2.416	0.731	0.731	0.884
B4-271-135	B4-271-135	B4-271-128	0.954	09:18 hr	2.667	0.664	0.664	0.779
B4-271-138	B4-271-138	B4-271-135	0.918	09:04 hr	2.648	0.646	0.646	0.749
B4-271-143	B4-271-143	B4-271-138	0.909	09:03 hr	2.642	0.641	0.641	0.742
B4-271-145	B4-271-145	B4-271-143	0.899	09:01 hr	2.638	0.637	0.637	0.734
B4-271-146	B4-271-146	B4-271-145	0.89	09:01 hr	2.632	0.632	0.632	0.726
B4-271-147	B4-271-147	B4-271-146	0.878	09:00 hr	2.623	0.626	0.626	0.717
B4-271-148	B4-271-148	B4-271-033	0.794	08:46 hr	2.568	0.586	0.586	0.648
B4-272-004	B4-272-004	B4-272-094	0.767	08:35 hr	2.547	0.573	0.573	0.626
B4-272-039	B4-272-039	B4-272-092	0.56	08:29 hr	2.261	0.491	0.491	0.484
B4-272-040	B4-272-040	B4-272-039	0.522	08:27 hr	2.196	0.475	0.475	0.458
B4-272-044	B4-272-044	B4-272-040	0.511	08:31 hr	2.205	0.466	0.466	0.443
B4-272-048	B4-272-048	B4-272-044	0.49	08:23 hr	2.042	0.478	0.478	0.464
B4-272-086	B4-272-086	B4-272-004	0.629	08:34 hr	2.43	0.508	0.508	0.513
B4-272-091	B4-272-091	B4-272-096	0.594	08:31 hr	2.395	0.491	0.491	0.485
B4-272-092	B4-272-092	B4-272-095	0.574	08:31 hr	2.273	0.498	0.498	0.497
B4-272-093	B4-272-093	B4-271-148	0.784	08:47 hr	2.56	0.581	0.581	0.64

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B4-272-094	B4-272-094	B4-272-093	0.776	08:44 hr	2.547	0.579	0.579	0.636
B4-272-095	B4-272-095	B4-272-091	0.585	08:29 hr	2.379	0.488	0.488	0.479
B4-272-096	B4-272-096	B4-272-086	0.613	08:34 hr	2.413	0.5	0.5	0.5
B4-281-054	B4-281-054	B4-272-048	0.47	08:15 hr	2.158	0.444	0.444	0.407
B4-281-057	B4-281-057	B4-281-054	0.444	08:17 hr	2.2	0.419	0.419	0.367
BV-105	BV-105	D2-252-004	0.389	22:00 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.016	08:41 hr	1.087	0.077	0.115	0.028
C1-221-018	C1-221-018	C2-221-030	0.056	07:59 hr	1.32	0.139	0.139	0.041
C1-221-019	C1-221-019	C1-221-018	0.056	07:55 hr	1.385	0.133	0.133	0.038
C1-261-028	C1-261-028	C1-261-020	2.905	10:16 hr	4.726	0.795	0.53	0.551
C1-261-030	C1-261-030	C1-261-028	2.9	10:15 hr	4.72	0.795	0.53	0.551
C1-261-058	C1-261-058	C1-261-062	2.828	10:15 hr	4.604	0.904	0.723	0.873
C1-261-060	C1-261-060	C1-261-030	2.886	10:15 hr	4.709	0.793	0.529	0.549
C1-261-062	C1-261-062	C1-261-060	2.83	10:16 hr	4.604	0.905	0.724	0.873
C1-281-035	C1-281-035	B4-281-057	0.406	08:00 hr	2.081	0.451	0.542	0.571
C2-221-030	C2-221-030	C2-221-037	0.058	08:16 hr	1.259	0.146	0.146	0.046
C2-221-031	C2-221-031	C3-221-003	0.069	08:42 hr	4.343	0.071	0.071	0.01
C2-221-032	C2-221-032	C2-221-065	0.069	08:45 hr	1.705	0.133	0.133	0.038
C2-221-033	C2-221-033	C2-221-032	0.068	08:30 hr	1.274	0.161	0.161	0.057
C2-221-034	C2-221-034	C2-221-033	0.068	08:32 hr	1.283	0.161	0.161	0.056
C2-221-035	C2-221-035	C2-221-034	0.066	08:24 hr	1.872	0.122	0.122	0.032
C2-221-037	C2-221-037	C2-221-035	0.059	08:19 hr	0.95	0.179	0.179	0.07
C2-221-065	C2-221-065	C2-221-031	0.068	08:36 hr	2.642	0.099	0.099	0.02
C2-261-001A	C2-261-001	C3-261-013	1.556	10:43 hr	7.607	0.393	0.337	0.245
C2-261-024	C2-261-024	C2-261-013	0.032	07:57 hr	0.689	0.11	0.049	0.005
C3-212-031	C3-212-031	C4-212-059	0.094	08:43 hr	2.488	0.127	0.127	0.035
C3-221-003	C3-221-003	C3-221-004	0.087	08:39 hr	2.771	0.112	0.112	0.027
C3-221-004	C3-221-004	C3-221-030	0.087	08:30 hr	2.776	0.113	0.113	0.027
C3-221-005	C3-221-005	C3-221-006	0.093	08:31 hr	2.861	0.115	0.115	0.028
C3-221-006	C3-221-006	C3-212-031	0.094	08:39 hr	2.655	0.122	0.122	0.032
C3-221-030	C3-221-030	C3-221-005	0.093	08:42 hr	2.826	0.116	0.116	0.028
C3-252-002	C3-252-002	C4-252-003	4.538	10:34 hr	3.145	1.161	0.465	0.44
C3-261-001	C3-261-001	C3-252-001	0.202	08:36 hr	1.245	0.282	0.161	0.056
C3-261-002	C3-261-002	C3-252-002	4.546	10:33 hr	3.444	1.149	0.511	0.518
C3-261-004	C3-261-004	C3-261-001	0.202	08:30 hr	1.246	0.282	0.161	0.056
C3-261-005	C3-261-005	C3-261-002	4.549	10:31 hr	4.059	1.012	0.45	0.416
C3-261-007	C3-261-007	C3-261-004	0.202	08:30 hr	1.249	0.282	0.161	0.056
C3-261-008	C3-261-008	C3-261-005	4.551	10:31 hr	2.727	1.392	0.619	0.703
C3-261-009	C3-261-009	C3-261-008	4.552	10:30 hr	2.728	1.392	0.618	0.703
C3-261-010	C3-261-010	C3-261-009	4.552	10:28 hr	2.732	1.39	0.618	0.702
C3-261-011	C3-261-011	C3-261-007	0.202	08:19 hr	1.245	0.282	0.161	0.056
C3-261-012	C3-261-012	C3-261-010	4.552	10:27 hr	2.711	1.307	0.523	0.539
C3-261-012A	C3-261-012	C3-261-011	0	00:00 hr	0	0	0	0
C3-261-013	C3-261-013	C3-261-012	4.553	10:30 hr	7.473	0.744	0.447	0.411
C3-261-015	C3-261-015	C3-261-011	0.202	08:16 hr	1.245	0.282	0.161	0.056
C3-261-019	C3-261-019	C3-261-015	0.202	08:14 hr	1.245	0.282	0.161	0.056
C3-261-021	C3-261-021	C3-261-019	0.202	08:09 hr	1.245	0.282	0.161	0.056
C3-261-031	C3-261-031	C3-261-013	1.753	09:35 hr	2.65	0.793	0.476	0.459
C3-261-035	C3-261-035	C2-261-024	0.032	07:58 hr	0.692	0.11	0.049	0.005
C3-261-040	C3-261-040	C3-261-031	1.753	09:30 hr	2.651	0.792	0.475	0.459
C3-261-043	C3-261-043	C3-261-035	0.032	07:54 hr	0.691	0.109	0.049	0.005
C3-261-050	C3-261-050	C3-261-075	0.032	07:56 hr	0.791	0.144	0.173	0.065
C3-261-056	C3-261-056	C3-261-050	0.032	07:51 hr	0.868	0.134	0.161	0.056
C3-261-062	C3-261-062	C3-261-040	1.752	09:22 hr	2.661	0.79	0.474	0.456
C3-261-075	C3-261-075	C3-261-076	0.032	07:58 hr	1.477	0.088	0.088	0.016
C3-261-076	C3-261-076	C3-261-043	0.032	07:58 hr	0.793	0.144	0.173	0.065
C3-262-007	C3-262-007	C3-262-009	1.758	09:15 hr	2.662	0.792	0.475	0.458
C3-262-009	C3-262-009	C3-261-062	1.758	09:19 hr	2.653	0.794	0.476	0.46
C3-262-033	C3-262-033	C3-262-007	1.758	09:17 hr	2.65	0.795	0.477	0.461
C3-262-041	C3-262-041	C3-262-033	1.756	09:13 hr	3.663	0.622	0.373	0.296
C3-262-046	C3-262-046	C3-262-041	1.757	09:02 hr	3.623	0.627	0.376	0.301
C3-262-051	C3-262-051	C3-262-046	1.756	09:00 hr	3.781	0.607	0.364	0.283

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C3-262-061	C3-262-061	C3-262-051	1.758	09:01 hr	3.788	0.607	0.364	0.283
C3-262-070	C3-262-070	C3-262-071	1.759	09:00 hr	3.033	0.717	0.43	0.385
C3-262-071	C3-262-071	C3-262-061	1.759	09:01 hr	3.87	0.597	0.358	0.275
C3-262-074	C3-262-074	C3-262-070	1.761	09:01 hr	2.751	0.773	0.464	0.439
C3-271-001	C3-271-001	C3-262-074	1.765	08:49 hr	2.773	0.77	0.462	0.436
C3-271-003	C3-271-003	C3-271-001	1.768	08:47 hr	2.77	0.771	0.463	0.437
C3-271-004	C3-271-004	C3-271-003	1.754	08:45 hr	2.767	0.767	0.46	0.433
C3-271-007	C3-271-007	C3-271-004	1.753	08:47 hr	2.756	0.769	0.462	0.436
C3-271-010	C3-271-010	SS_1_A	1.751	08:30 hr	4.684	0.518	0.311	0.21
C3-271-012	C3-271-012	C3-271-010	1.75	08:30 hr	4.852	0.505	0.303	0.2
C4-212-059	C4-212-059	C4-212-060	0.094	08:40 hr	3.059	0.111	0.111	0.026
C4-212-060	C4-212-060	D4-232-020	0.103	08:43 hr	2.766	0.126	0.126	0.034
C4-212-061	C4-212-061	C4-221-001	0.112	08:42 hr	2.883	0.13	0.13	0.036
C4-221-001	C4-221-001	D1-212-032	0.113	08:42 hr	3.654	0.111	0.111	0.026
C4-221-011	D4-232-020	C4-212-061	0.111	08:44 hr	2.834	0.131	0.131	0.037
C4-252-001	C4-252-001	D1-252-019	4.526	10:50 hr	3.089	1.175	0.47	0.45
C4-252-002	C4-252-002	D1-252-042	0.2	09:05 hr	1.241	0.28	0.16	0.056
C4-252-003	C4-252-003	C4-252-008	4.538	10:46 hr	3.748	1.016	0.407	0.347
C4-252-004	C4-252-004	C4-252-002	0.2	09:02 hr	1.242	0.281	0.161	0.056
C4-252-005	C4-252-005	C4-252-006	4.533	10:46 hr	3.352	1.105	0.442	0.403
C4-252-006	C4-252-006	C4-252-001	4.53	10:46 hr	3.774	1.01	0.404	0.343
C4-252-007	C3-252-001	C4-252-007	0.202	08:49 hr	1.245	0.282	0.161	0.056
C4-252-007A	C4-252-007	C4-252-004	0.2	08:49 hr	1.243	0.281	0.16	0.056
C4-252-008	C4-252-008	C4-252-005	4.536	10:47 hr	3.363	1.103	0.441	0.402
D1-212-011	D1-212-011	D1-212-012	0.119	08:45 hr	3.321	0.123	0.123	0.032
D1-212-012	D1-212-012	D2-212-011	0.12	08:52 hr	3.004	0.133	0.133	0.038
D1-212-032	D1-212-032	D1-212-011	0.119	08:54 hr	2.436	0.152	0.152	0.05
D1-242-011	D1-242-011	D1-242-030	0.441	33:00 hr	5.852	0.222	0.266	0.155
D1-242-017	D1-242-017	D1-242-011	0.441	09:15 hr	5.693	0.226	0.272	0.161
D1-242-018	D1-242-018	D1-242-017	0.441	33:00 hr	5.993	0.218	0.262	0.15
D1-242-019	D1-242-019	D1-242-018	0.439	09:00 hr	4.144	0.262	0.262	0.15
D1-242-030	D1-242-030	D1-242-031	0.44	09:16 hr	6.242	0.212	0.254	0.142
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.437	09:15 hr	5.982	0.24	0.36	0.277
D1-251-001	D1-262-049	D1-262-030	0.087	08:11 hr	1.337	0.151	0.086	0.015
D1-251-005	D1-251-023	D1-251-005	0.236	09:20 hr	4.054	0.185	0.222	0.108
D1-251-005A	D1-251-023	D1-251-005	0.202	09:21 hr	3.968	0.185	0.277	0.168
D1-251-005B	D1-251-005	D2-251-014	0.216	09:16 hr	3.327	0.2	0.24	0.126
D1-252-001	D1-252-001	D2-252-002	4.511	11:01 hr	4.453	0.89	0.356	0.272
D1-252-004	D1-252-004	D1-252-001	4.516	11:02 hr	3.387	1.093	0.437	0.396
D1-252-005	D1-252-005	D2-252-014	0.236	09:30 hr	1.284	0.292	0.146	0.046
D1-252-008	D1-252-008	D1-252-005	0.236	09:30 hr	1.284	0.292	0.146	0.046
D1-252-008A	D1-252-010	D1-252-008	0.234	09:29 hr	1.28	0.291	0.146	0.046
D1-252-009	D1-252-009	D1-252-004	4.518	11:01 hr	3.343	1.104	0.442	0.403
D1-252-010	D1-252-011	D1-252-010	0.227	09:31 hr	1.288	0.299	0.171	0.063
D1-252-011	D1-252-016	D1-252-011	0.227	09:30 hr	1.289	0.299	0.171	0.063
D1-252-015	D1-252-015	D1-252-009	4.52	11:00 hr	3.358	1.101	0.44	0.401
D1-252-018	D1-252-018	D1-252-015	4.523	11:02 hr	3.126	1.164	0.465	0.442
D1-252-019	D1-252-019	D1-252-018	4.524	11:01 hr	3.634	1.038	0.415	0.36
D1-252-023	D1-252-023	D1-252-016	0.225	09:31 hr	1.287	0.297	0.17	0.063
D1-252-031	D1-252-031	D1-252-023	0.224	09:20 hr	1.284	0.296	0.169	0.062
D1-252-036	D1-252-036	D1-252-031	0.222	09:15 hr	1.281	0.296	0.169	0.062
D1-252-041	D1-252-041	D1-252-036	0.218	09:16 hr	1.275	0.293	0.167	0.061
D1-252-042	D1-252-042	D1-252-041	0.214	09:12 hr	1.266	0.29	0.166	0.06
D1-252-050	D1-252-050	D2-252-067	0.219	08:45 hr	1.449	0.244	0.109	0.025
D1-252-053	D1-252-053	D2-252-085	3.129	10:17 hr	2.513	1.179	0.589	0.654
D1-252-056	D1-252-056	D1-252-053	3.13	10:15 hr	3.22	0.967	0.483	0.472
D1-252-057	D1-252-057	D1-252-056	3.133	10:16 hr	4.197	0.791	0.395	0.33
D1-252-059	D1-252-059	D1-252-057	3.12	10:15 hr	4.137	0.797	0.398	0.334
D1-261-001	D1-261-001	D1-252-059	3.12	10:15 hr	4.559	0.741	0.371	0.293
D1-261-003	D1-261-003	D1-252-050	0.219	08:36 hr	1.343	0.258	0.114	0.028
D1-261-006	D1-261-006	D1-261-001	3.022	10:14 hr	8.221	0.474	0.237	0.123

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-261-008	D1-261-008	D1-261-006	3.021	10:16 hr	4.467	0.735	0.367	0.288
D1-261-020	D1-261-020	D1-261-003	0.101	08:49 hr	1.064	0.178	0.079	0.013
D1-261-021	D1-261-021	D1-261-008	3.014	10:15 hr	4.432	0.738	0.369	0.29
D1-261-023	D1-261-023	D1-261-020	0.102	08:46 hr	1.043	0.181	0.081	0.013
D1-261-036	D1-261-036	D1-261-021	3.012	10:16 hr	4.087	0.783	0.392	0.324
D1-261-037	D1-261-037	D1-261-023	0.101	08:39 hr	1.08	0.176	0.078	0.012
D1-261-052	D1-261-052	D1-261-036	3.007	10:18 hr	2.339	1.211	0.605	0.681
D1-261-059	D1-261-059	D1-261-037	0.099	08:32 hr	1.003	0.183	0.082	0.014
D1-261-061	D1-261-061	D1-261-059	0.099	08:29 hr	2.05	0.113	0.05	0.005
D1-261-075	D1-261-075	D1-261-052	2.999	10:03 hr	3.17	0.947	0.473	0.455
D1-261-084	D1-261-084	D1-261-061	0.098	08:29 hr	1.044	0.177	0.079	0.013
D1-261-103	D1-261-103	D1-261-075	2.993	10:02 hr	4.026	0.788	0.394	0.328
D1-261-116	D1-262-001	D1-261-116	0.094	08:21 hr	1.051	0.188	0.107	0.024
D1-261-116A	D1-261-116	D1-261-084	0.095	08:33 hr	1.065	0.186	0.107	0.024
D1-261-117	D1-261-117	D1-261-103	2.983	09:59 hr	5.5	0.625	0.313	0.212
D1-261-128	D1-261-128	D1-261-117	2.972	10:01 hr	2.531	1.123	0.562	0.606
D1-262-025	D1-262-025	D1-261-128	2.952	10:01 hr	1.868	1.453	0.726	0.878
D1-262-030	D1-262-030	D1-262-001	0.087	08:14 hr	1.052	0.177	0.101	0.021
D1-262-040	D1-262-040	D1-262-025	2.926	09:57 hr	3.073	0.951	0.476	0.459
D1-262-067	D1-262-067	D1-262-040	2.904	09:48 hr	3.799	0.805	0.402	0.341
D1-262-079	D1-262-079	D1-262-049	0.087	08:01 hr	1.326	0.152	0.087	0.015
D1-262-088	D1-262-088	D1-262-067	2.901	09:48 hr	2.968	0.971	0.485	0.475
D1-262-100	D1-262-100	D1-262-088	2.895	09:48 hr	3.153	0.925	0.462	0.437
D1-271-018	D1-271-017	D1-271-055	2.883	09:33 hr	3.086	0.937	0.469	0.447
D1-271-051	D1-271-051	D1-271-054	2.284	09:29 hr	4.885	0.596	0.341	0.25
D1-271-054	D1-271-054	D1-271-092	2.307	09:31 hr	4.859	0.568	0.284	0.176
D1-271-055	D1-271-055	D1-262-100	2.895	09:36 hr	2.56	1.089	0.545	0.577
D1-271-092	D1-271-092	D1-271-017	2.305	09:29 hr	4.858	0.568	0.284	0.176
D2-212-001	D2-212-001	D2-212-002	0.124	08:54 hr	3.032	0.135	0.135	0.039
D2-212-002	D2-212-002	D2-212-025	0.124	08:58 hr	2.796	0.143	0.143	0.044
D2-212-003	D2-212-003	D2-212-014	0.132	09:00 hr	3.335	0.132	0.132	0.037
D2-212-011	D2-212-011	D2-212-012	0.124	08:59 hr	3.032	0.135	0.135	0.039
D2-212-012	D2-212-012	D2-212-001	0.124	08:54 hr	3.029	0.135	0.135	0.039
D2-212-013	D2-212-013	D2-212-003	0.13	08:58 hr	2.83	0.146	0.146	0.046
D2-212-014	D2-212-014	D3-212-022	0.132	08:54 hr	2.907	0.145	0.145	0.045
D2-212-025	D2-212-025	D2-212-013	0.125	08:59 hr	2.934	0.162	0.244	0.13
D2-241-006	D2-241-006	D2-241-007	0.005	07:53 hr	1.072	0.037	0.056	0.006
D2-241-007	D2-241-007	D3-241-001	0.006	07:44 hr	1.074	0.038	0.057	0.006
D2-251-004	D2-251-004	D3-251-011	6.739	35:15 hr	3.815	1.079	0.27	0.159
D2-251-005	D2-251-005	D2-251-004	5.129	35:14 hr	7.87	0.538	0.134	0.039
D2-251-008	D2-251-008	9008	0.449	33:01 hr	4.005	0.273	0.273	0.163
D2-251-014	D1-251-005	D2-251-014	0.185	09:16 hr	3.244	0.2	0.3	0.196
D2-251-014A	D2-251-014	D2-251-008	0.381	32:59 hr	8.832	0.14	0.14	0.042
D2-252-002	D2-252-002	D2-252-004	4.511	11:16 hr	3.467	1.073	0.429	0.383
D2-252-004	D2-252-004	D2-252-005	4.965	11:16 hr	4.925	0.887	0.355	0.27
D2-252-005	D2-252-005	D2-251-005	5.156	35:17 hr	2.668	1.151	0.288	0.18
D2-252-006	D2-252-006	D2-252-005	0.238	09:43 hr	2.353	0.194	0.097	0.02
D2-252-008	D2-252-008	D2-252-006	0.238	09:44 hr	1.26	0.298	0.149	0.048
D2-252-010	D2-252-010	D2-252-008	0.239	09:42 hr	2.097	0.21	0.105	0.023
D2-252-011	D2-252-011	D2-251-004	1.92	08:59 hr	3.906	0.554	0.246	0.133
D2-252-012	D2-252-012	D2-252-010	0.24	09:45 hr	1.33	0.288	0.144	0.045
D2-252-014	D2-252-014	D2-252-012	0.236	09:39 hr	0.549	0.529	0.264	0.153
D2-252-015	D2-252-015	D2-252-011	1.92	08:58 hr	8.878	0.313	0.139	0.041
D2-252-026	D2-252-026	D2-252-015	1.923	08:48 hr	2.743	0.682	0.273	0.163
D2-252-033	D2-252-033	D3-252-012	3.219	10:34 hr	4.254	0.799	0.399	0.336
D2-252-039	D2-252-039	D2-252-033	3.222	10:32 hr	4.073	0.826	0.413	0.357
D2-252-049	D2-252-049	D2-252-039	3.222	10:30 hr	5.776	0.638	0.319	0.221
D2-252-050	D2-252-050	D2-252-026	0.218	08:58 hr	2.109	0.197	0.098	0.02
D2-252-052	D2-252-052	D2-252-050	0.219	09:00 hr	1.464	0.243	0.108	0.024
D2-252-056	D2-252-056	D2-252-052	0.218	08:48 hr	5.677	0.097	0.043	0.003
D2-252-057	D2-252-057	D2-252-049	3.223	10:29 hr	5.943	0.625	0.313	0.212
D2-252-062	D2-252-062	D2-252-057	3.13	10:29 hr	4.091	0.805	0.403	0.341

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-252-067	D2-252-067	D2-252-056	0.218	08:47 hr	1.244	0.271	0.12	0.031
D2-252-069	D2-252-069	D2-252-062	3.131	10:30 hr	5.787	0.624	0.312	0.211
D2-252-071	D3-252-054	D2-252-071	1.697	08:30 hr	7.212	0.331	0.147	0.047
D2-252-085	D2-252-085	D2-252-069	3.127	10:29 hr	4.34	0.77	0.385	0.314
D2-252-105	D2-252-105	D2-252-026	1.694	08:37 hr	2.697	0.696	0.348	0.26
D2-271-017	D2-271-017	D2-271-019	0.566	09:22 hr	3.294	0.336	0.269	0.158
D2-271-019	D2-271-019	D2-271-022	0.567	09:30 hr	3.295	0.337	0.269	0.159
D2-271-022	D2-271-022	D2-271-023	0.568	09:28 hr	3.297	0.337	0.27	0.159
D2-271-023	D2-271-023	D2-271-109	0.569	09:29 hr	3.299	0.337	0.27	0.159
D2-271-039	D2-271-039	D2-271-042	2.16	09:30 hr	5.644	0.554	0.369	0.29
D2-271-042	D2-271-042	D2-271-043	2.163	09:30 hr	4.826	0.578	0.33	0.236
D2-271-043	D2-271-043	D2-271-045	2.165	09:30 hr	4.829	0.578	0.331	0.236
D2-271-045	D2-271-045	D1-271-051	2.282	09:30 hr	4.9	0.595	0.34	0.249
D2-271-048	D2-271-048	D2-271-039	1.569	09:30 hr	2.33	0.989	0.792	0.967
D2-271-052	D2-271-052	D2-271-048	1.569	09:32 hr	2.32	0.994	0.795	0.972
D2-271-063	D2-271-063	D2-271-052	1.57	09:20 hr	2.343	0.985	0.788	0.963
D2-271-067	D2-271-067	D2-271-063	1.562	09:19 hr	1.97	1.25	1	1.073
D2-271-075	D2-271-075	D2-271-067	1.555	09:15 hr	1.96	1.25	1	1.054
D2-271-109	D2-271-109	D1-271-017	0.574	09:29 hr	3.307	0.338	0.271	0.16
D2-272-011	D2-272-011	D2-271-075	1.529	09:10 hr	1.928	1.25	1	1.044
D2-272-023	D2-272-023	D2-272-025	1.521	08:47 hr	2.351	0.95	0.76	0.926
D2-272-025	D2-272-025	D2-272-029	1.521	08:49 hr	2.278	0.981	0.785	0.959
D2-272-029	D2-272-029	D2-272-011	1.518	09:03 hr	2.307	0.967	0.773	0.944
D2-272-052	D2-272-052	D2-272-023	1.507	08:40 hr	2.23	0.993	0.794	0.971
D2-272-070	D2-272-070	D2-272-052	1.498	08:33 hr	2.31	0.952	0.762	0.928
D2-272-072	D2-272-072	D2-272-070	1.486	08:32 hr	2.319	0.941	0.753	0.916
D2-272-074	D2-272-074	D2-272-072	1.469	08:18 hr	2.144	1.008	0.806	0.985
D2-272-075	D2-272-075	D2-272-074	1.457	08:13 hr	2.319	0.924	0.739	0.896
D2-281-002	D2-281-002	D2-272-075	1.458	08:08 hr	2.311	0.927	0.742	0.9
D3-212-001	D3-212-001	D3-212-002	0.003	07:42 hr	0.545	0.041	0.061	0.007
D3-212-002	D3-212-002	D3-212-003	0.003	07:41 hr	0.905	0.029	0.043	0.003
D3-212-003	D3-212-003	D3-212-004	0.004	08:03 hr	1.091	0.031	0.046	0.004
D3-212-004	D3-212-004	D3-212-012	0.004	07:57 hr	0.99	0.033	0.049	0.005
D3-212-012	D3-212-012	D3-212-013	0.004	07:58 hr	0.99	0.033	0.049	0.005
D3-212-013	D3-212-013	D3-221-016	0.004	08:01 hr	1.008	0.034	0.051	0.005
D3-212-017	D3-212-017	D3-221-016	0.137	08:55 hr	5.295	0.099	0.099	0.02
D3-212-018	D3-212-018	D3-212-017	0.137	08:55 hr	2.343	0.173	0.173	0.065
D3-212-022	D3-212-022	D3-212-018	0.137	08:59 hr	3.711	0.126	0.126	0.034
D3-212-023	D3-212-023	D3-212-001	0.001	07:25 hr	0.4	0.025	0.038	0.003
D3-221-016	D3-221-016	D3-221-024	0.142	08:58 hr	2.852	0.154	0.154	0.052
D3-221-021	D3-221-021	D4-221-004	0.145	09:00 hr	2.788	0.159	0.159	0.055
D3-221-022	D3-221-022	D3-221-021	0.144	08:59 hr	2.567	0.168	0.168	0.061
D3-221-023	D3-221-023	D3-221-022	0.144	09:00 hr	3.307	0.141	0.141	0.042
D3-221-024	D3-221-024	D3-221-023	0.142	08:57 hr	2.378	0.175	0.175	0.067
D3-232-001	D3-232-015	D3-232-001	0.013	08:06 hr	1.407	0.058	0.087	0.016
D3-232-001A	D3-232-001	D3-232-018	0.035	08:08 hr	1.878	0.092	0.138	0.041
D3-232-009	D3-232-009	D3-232-015	0.013	08:04 hr	1.405	0.058	0.087	0.015
D3-232-017	D3-232-017	D4-232-001	0.038	08:13 hr	3.76	0.06	0.09	0.017
D3-232-018	D3-232-018	D3-232-017	0.036	08:09 hr	4.029	0.055	0.083	0.014
D3-241-001	D3-241-001	D3-241-002	0.006	07:49 hr	1.108	0.04	0.06	0.007
D3-241-002	D3-241-002	D3-241-003	0.006	07:45 hr	1.123	0.041	0.061	0.007
D3-241-003	D3-241-003	D3-241-004	0.007	07:46 hr	1.171	0.044	0.065	0.008
D3-241-004	D3-241-004	D3-241-008	0.008	07:56 hr	1.214	0.046	0.069	0.01
D3-241-005	D3-241-009	D3-241-005	0.011	08:06 hr	1.308	0.052	0.078	0.012
D3-241-005A	D3-241-005	D3-241-006	0.011	08:08 hr	1.323	0.053	0.079	0.013
D3-241-006	D3-241-006	D3-241-007	0.013	08:07 hr	1.38	0.056	0.084	0.015
D3-241-007	D3-241-007	D3-232-009	0.014	08:15 hr	1.412	0.058	0.087	0.016
D3-241-009	D3-241-008	D3-241-009	0.009	07:59 hr	1.249	0.048	0.072	0.011
D3-251-001	D3-251-001	D4-251-018	9.856	35:17 hr	3.2	1.529	0.34	0.249
D3-251-002	D3-251-002	D3-251-001	9.869	35:17 hr	3.14	1.552	0.345	0.256
D3-251-004	D3-251-004	D3-251-016	6.746	35:17 hr	3.484	1.152	0.288	0.181
D3-251-008	D3-251-008	D3-251-012	6.722	35:16 hr	2.618	1.414	0.354	0.268

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-251-011	D3-251-011	D3-251-015	6.75	35:14 hr	6.005	0.784	0.196	0.084
D3-251-012	D3-251-012	D3-251-013	9.883	35:15 hr	2.335	2.066	0.517	0.528
D3-251-013	D3-251-013	D3-251-002	9.879	35:16 hr	3.402	1.465	0.326	0.229
D3-251-014	D3-251-014	D3-251-012	3.218	10:45 hr	2.323	1.29	0.645	0.748
D3-251-015	D3-251-015	D3-251-004	6.749	35:15 hr	3.482	1.153	0.288	0.181
D3-251-016	D3-251-016	D3-251-008	6.728	35:15 hr	4.514	0.956	0.239	0.125
D3-252-008	D3-252-008	D3-251-014	3.22	10:45 hr	2.58	1.181	0.591	0.656
D3-252-012	D3-252-012	D3-252-008	3.219	10:46 hr	4.005	0.836	0.418	0.365
D3-252-045	D2-252-071	D3-252-045	1.696	08:30 hr	6.47	0.374	0.187	0.076
D3-252-045A	D3-252-045	D2-252-105	1.699	08:30 hr	5.806	0.403	0.202	0.089
D3-252-057	D3-252-057	D3-252-054	1.694	08:30 hr	7.207	0.331	0.147	0.047
D3-261-010	D3-261-010	D3-252-057	1.693	08:30 hr	7.207	0.331	0.147	0.047
D3-261-014	D3-261-014	D3-261-010	1.446	08:29 hr	3.182	0.524	0.233	0.119
D3-261-025	D3-261-025	D3-261-014	1.215	08:43 hr	3.036	0.479	0.213	0.099
D3-261-045	D3-261-045	D3-261-025	1.216	08:32 hr	3.036	0.479	0.213	0.099
D3-261-075	D3-261-075	D3-261-045	1.216	08:32 hr	3.059	0.477	0.212	0.098
D3-261-086	D3-261-086	D3-261-075	1.094	08:31 hr	3.032	0.467	0.234	0.12
D3-261-117	D3-261-117	D3-261-086	1.087	08:33 hr	3.035	0.465	0.232	0.119
D3-261-130	D3-261-130	D3-261-117	1.085	08:31 hr	2.585	0.52	0.26	0.148
D3-262-017	D3-262-017	D3-261-130	1.079	08:32 hr	2.581	0.519	0.259	0.147
D3-262-018	D3-262-018	D3-262-017	0.706	08:30 hr	2.611	0.382	0.191	0.08
D3-262-042	D3-262-042	D3-262-018	0.306	08:30 hr	1.687	0.29	0.145	0.045
D3-262-065	D3-262-065	D3-262-122	0.276	08:21 hr	1.596	0.314	0.209	0.096
D3-262-083	D3-262-083	D3-262-065	0.265	08:16 hr	1.778	0.283	0.188	0.078
D3-262-122	D3-262-122	D3-262-042	0.283	08:29 hr	1.607	0.317	0.212	0.098
D3-271-013	D3-271-013	D3-262-083	0.252	08:03 hr	1.76	0.274	0.183	0.073
D3-271-019	D3-271-019	D3-271-024	0.569	09:16 hr	3.297	0.337	0.27	0.159
D3-271-024	D3-271-024	D2-271-017	0.568	09:17 hr	3.296	0.337	0.269	0.159
D3-271-029	D3-271-029	D3-271-013	0.004	07:48 hr	0.518	0.041	0.027	0.001
D3-271-038	D3-271-038	D3-271-019	0.569	09:15 hr	3.299	0.337	0.27	0.159
D3-271-055	D3-271-055	D3-271-038	0.571	09:16 hr	3.302	0.338	0.27	0.16
D3-271-059	D3-271-059	D3-271-055	0.567	09:12 hr	3.299	0.336	0.269	0.158
D3-271-068	D3-271-068	D3-271-069	0.569	08:59 hr	3.297	0.337	0.27	0.159
D3-271-069	D3-271-069	D3-271-070	0.569	09:00 hr	3.298	0.337	0.27	0.159
D3-271-070	D3-271-070	D3-271-072	0.568	09:02 hr	3.297	0.337	0.269	0.159
D3-271-072	D3-271-072	D3-271-059	0.568	09:12 hr	3.297	0.337	0.269	0.159
D3-271-075	D3-271-075	D3-271-068	0.569	08:59 hr	3.299	0.337	0.27	0.159
D3-271-111	D3-271-111	D3-271-029	0.002	07:58 hr	0.446	0.031	0.02	0.001
D3-281-006	D3-281-006	D2-281-002	1.458	08:01 hr	2.376	0.903	0.723	0.872
D4-221-004	D4-221-004	D4-221-005	0.146	09:14 hr	3.029	0.151	0.151	0.049
D4-221-005	D4-221-005	D4-221-008	0.146	09:01 hr	2.66	0.166	0.166	0.06
D4-221-008	D4-221-008	D4-221-009	0.148	09:09 hr	2.97	0.154	0.154	0.052
D4-221-009	D4-221-009	D4-221-010	0.149	09:08 hr	2.817	0.148	0.118	0.03
D4-221-010	D4-221-010	D4-221-011	0.15	09:12 hr	3.219	0.136	0.109	0.025
D4-221-011	D4-221-011	D4-221-015	0.155	09:11 hr	1.868	0.201	0.161	0.056
D4-232-001	D4-232-001	D4-232-002	0.038	08:03 hr	4.729	0.051	0.077	0.012
D4-232-002	D4-232-002	D4-232-003	0.039	08:11 hr	4.366	0.055	0.083	0.014
D4-232-003	D4-232-003	D4-232-004	0.039	08:17 hr	2.61	0.079	0.119	0.03
D4-232-004	D4-232-004	D4-232-005	0.04	08:06 hr	2.064	0.095	0.142	0.043
D4-232-005	D4-232-005	D4-232-006	0.041	08:25 hr	2.112	0.094	0.141	0.043
D4-232-006	D4-232-006	D4-232-007	0.041	08:22 hr	2.386	0.086	0.13	0.036
D4-232-007	D4-232-007	D4-232-008	0.05	08:14 hr	1.612	0.13	0.194	0.083
D4-232-008	D4-232-008	9000	0.049	08:13 hr	2.081	0.108	0.162	0.057
D4-251-001	D4-251-001	E1-251-002	10.172	35:33 hr	3.195	1.567	0.348	0.26
D4-251-005	D4-251-005	D4-251-019	10.179	35:32 hr	2.418	1.929	0.429	0.382
D4-251-008	D4-251-008	D4-251-005	9.837	35:19 hr	3.039	1.586	0.352	0.266
D4-251-018	D4-251-018	D4-251-008	9.842	35:15 hr	3.193	1.53	0.34	0.249
D4-251-019	D4-251-019	D4-251-001	10.174	35:30 hr	2.421	1.927	0.428	0.381
D4-271-014	D4-271-014	D4-271-015	0.573	08:58 hr	3.305	0.338	0.271	0.16
D4-271-015	D4-271-015	D4-271-018	0.572	08:58 hr	3.303	0.338	0.27	0.16
D4-271-018	D4-271-018	D4-271-021	0.572	09:01 hr	3.304	0.338	0.271	0.16
D4-271-021	D4-271-021	D3-271-075	0.571	09:02 hr	3.303	0.338	0.27	0.16

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-221-001	D4-221-015	E1-221-001	0.155	09:09 hr	1.985	0.193	0.155	0.052
E1-221-001A	E1-221-001	E1-222-004	0.158	09:12 hr	2.093	0.189	0.151	0.05
E1-222-004	E1-222-004	E1-222-005	0.16	09:15 hr	4.43	0.117	0.1	0.021
E1-222-005	E1-222-005	E1-222-006	0.161	09:15 hr	3.187	0.144	0.115	0.028
E1-222-006	E1-222-006	E1-222-007	0.162	09:16 hr	2.62	0.165	0.132	0.037
E1-222-007	E1-222-007	E1-222-011	0.163	09:17 hr	2.626	0.165	0.132	0.037
E1-222-011	E1-222-011	E1-222-012	0.164	09:17 hr	3.258	0.134	0.089	0.016
E1-222-012	E1-222-012	E2-222-075	0.166	09:24 hr	2.112	0.181	0.121	0.031
E1-231-012	E1-231-012	E2-231-021	0.217	08:16 hr	3.761	0.202	0.303	0.199
E1-242-001	E1-242-001	E2-242-034	11.315	35:31 hr	3.175	1.703	0.378	0.304
E1-242-002	E1-242-002	E1-242-001	1.261	10:15 hr	2.606	0.576	0.288	0.181
E1-251-001	E1-251-001	E1-242-001	10.154	35:32 hr	5.452	1.066	0.237	0.123
E1-251-002	E1-251-002	E1-251-001	10.163	35:33 hr	3.023	1.631	0.362	0.281
E1-251-003	E1-251-003	E1-251-025	1.259	10:18 hr	2.33	0.623	0.312	0.211
E1-251-004	E1-251-004	E1-251-003	1.252	10:04 hr	2.241	0.639	0.319	0.221
E1-251-007	E1-251-007	E2-251-027	1.225	10:02 hr	2.786	0.538	0.269	0.158
E1-251-018	E1-251-018	E1-251-007	1.223	10:02 hr	3.097	0.498	0.249	0.136
E1-251-019	E1-251-019	E1-251-018	1.218	10:00 hr	3.107	0.496	0.248	0.135
E1-251-020	E1-251-020	E1-251-019	1.209	09:59 hr	2.829	0.527	0.263	0.152
E1-251-021	E1-251-021	E1-251-020	1.208	10:00 hr	2.824	0.527	0.264	0.152
E1-251-023	E1-251-023	E1-251-021	1.204	10:01 hr	2.843	0.523	0.262	0.15
E1-251-025	E1-251-025	E1-242-002	1.261	10:15 hr	2.329	0.624	0.312	0.211
E1-271-068	E1-271-068	E1-271-072	0.575	08:46 hr	3.309	0.339	0.271	0.161
E1-271-072	E1-271-072	E1-271-076	0.574	08:47 hr	3.306	0.339	0.271	0.16
E1-271-076	E1-271-076	D4-271-014	0.573	08:57 hr	3.304	0.338	0.271	0.16
E2-202-016	E2-202-016	E3-202-009	0.154	07:59 hr	3.365	0.171	0.257	0.144
E2-222-015	E2-222-015	E2-222-036	0.605	33:45 hr	4.969	0.245	0.164	0.058
E2-222-016	E2-222-016	E2-222-015	0.449	43:59 hr	11.079	0.134	0.134	0.038
E2-222-017	E2-222-017	E2-222-016	0.173	09:27 hr	5.329	0.1	0.066	0.009
E2-222-028	E2-222-028	E2-222-029	0.208	08:15 hr	3.718	0.198	0.296	0.191
E2-222-028A	E2-222-007	E2-222-028	0.21	08:15 hr	3.725	0.198	0.297	0.193
E2-222-029	E2-222-029	E2-222-030	0.207	08:15 hr	3.714	0.197	0.296	0.19
E2-222-030	E2-222-030	E2-222-031	0.205	08:15 hr	3.702	0.196	0.294	0.188
E2-222-031	E2-222-031	E2-222-048	0.205	08:16 hr	3.702	0.196	0.294	0.188
E2-222-036	E2-222-036	E2-222-037	0.603	33:45 hr	4.668	0.256	0.17	0.063
E2-222-037	E2-222-037	E3-222-065	0.603	33:45 hr	4.739	0.253	0.169	0.062
E2-222-040	E2-222-040	E2-222-015	0.226	08:15 hr	3.938	0.201	0.301	0.198
E2-222-044	E2-222-044	E2-222-017	0.173	09:25 hr	2.005	0.193	0.129	0.035
E2-222-048	E2-222-048	E2-222-050	0.201	08:15 hr	3.681	0.194	0.291	0.185
E2-222-050	E2-222-050	E2-222-040	0.227	08:15 hr	5.611	0.157	0.235	0.121
E2-222-067	E2-222-067	E2-222-044	0.171	09:22 hr	2.641	0.159	0.106	0.024
E2-222-075	E2-222-075	E2-222-067	0.17	09:21 hr	2.651	0.158	0.105	0.023
E2-231-002	E2-231-002	E2-222-007	0.209	08:16 hr	3.564	0.173	0.173	0.065
E2-231-005	E2-231-005	E2-231-002	0.212	08:16 hr	3.569	0.175	0.175	0.066
E2-231-006	E2-231-006	E2-231-005	0.214	08:15 hr	3.587	0.175	0.175	0.067
E2-231-013	E2-231-013	E2-231-006	0.215	08:15 hr	3.755	0.201	0.302	0.198
E2-231-021	E2-231-021	E2-231-013	0.214	08:16 hr	3.748	0.201	0.301	0.197
E2-231-028	E2-231-028	E2-231-029	0.217	08:00 hr	3.045	0.235	0.353	0.267
E2-231-029	E2-231-029	E2-231-030	0.217	08:15 hr	2.944	0.241	0.362	0.28
E2-231-030	E2-231-030	E2-231-031	0.216	08:14 hr	2.671	0.258	0.388	0.318
E2-231-031	E2-231-031	E2-231-035	0.216	08:16 hr	3.419	0.216	0.324	0.226
E2-231-035	E2-231-035	E2-231-037	0.214	08:15 hr	3.748	0.201	0.301	0.197
E2-231-037	E2-231-037	E1-231-012	0.213	08:15 hr	3.743	0.2	0.3	0.196
E2-242-004	E2-242-004	E3-242-012	11.285	35:50 hr	3.256	1.668	0.371	0.293
E2-242-011	E2-242-011	E2-242-004	11.296	35:49 hr	3.094	1.733	0.385	0.314
E2-242-017	E2-242-017	E2-242-011	11.3	35:49 hr	2.618	1.966	0.437	0.395
E2-242-024	E2-242-024	E2-242-017	11.303	35:33 hr	3.548	1.567	0.348	0.261
E2-242-034	E2-242-034	E2-242-024	11.312	35:32 hr	3.113	1.727	0.384	0.312
E2-251-027	E2-251-027	E1-251-004	1.249	10:00 hr	2.451	0.598	0.299	0.194
E2-251-058	E2-251-058	E1-251-023	1.199	09:58 hr	3.74	0.43	0.215	0.101
E2-252-192	E2-252-192	E2-251-058	1.199	10:01 hr	4.95	0.397	0.265	0.154
E2-252-193	E2-252-193	E2-252-196	1.196	09:52 hr	5.353	0.375	0.25	0.137

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E2-252-194	E2-252-194	E2-252-193	1.195	09:45 hr	5.352	0.375	0.25	0.137
E2-252-196	E2-252-196	E2-252-192	1.198	09:56 hr	5.358	0.375	0.25	0.137
E2-271-073	E2-271-076	E2-271-078	0.581	08:31 hr	3.319	0.341	0.273	0.163
E2-271-077	E2-271-078	E2-271-081	0.578	08:31 hr	3.314	0.34	0.272	0.162
E2-271-081	E2-271-081	E2-271-086	0.577	08:44 hr	3.312	0.34	0.272	0.161
E2-271-086	E2-271-086	E1-271-068	0.577	08:46 hr	3.311	0.339	0.272	0.161
E3-202-008	E3-202-010	E3-202-008	0.157	08:13 hr	2.639	0.188	0.226	0.112
E3-202-008A	E3-202-008	E3-202-011	0.16	08:11 hr	2.654	0.19	0.228	0.114
E3-202-009	E3-202-009	E3-202-BV	0.155	08:01 hr	2.634	0.187	0.224	0.11
E3-202-011	E3-202-011	E3-202-012	0.162	08:16 hr	2.729	0.187	0.225	0.111
E3-202-012	E3-202-012	E4-202-001	0.162	08:19 hr	3.918	0.146	0.175	0.067
E3-222-051	E3-222-051	E3-231-006	0.605	08:33 hr	2.41	0.408	0.272	0.162
E3-222-051A	E3-222-064	E3-222-051	0.606	08:31 hr	2.748	0.372	0.248	0.134
E3-222-065	E3-222-065	E3-222-064	0.602	33:45 hr	3.331	0.323	0.215	0.102
E3-231-006	E3-231-006	E4-231-005	0.606	08:37 hr	2.32	0.393	0.225	0.111
E3-241-015	E3-241-015	E4-241-016	12.449	36:04 hr	4.532	1.407	0.313	0.212
E3-241-022	E3-241-022	E3-241-015	12.453	36:02 hr	4.309	1.46	0.324	0.228
E3-241-028	E3-241-028	E3-241-022	12.456	36:01 hr	3.469	1.712	0.38	0.307
E3-241-034	E3-241-034	E3-241-028	1.3	10:01 hr	3.579	0.533	0.355	0.27
E3-241-036	E3-241-036	E3-241-034	1.269	09:59 hr	3.69	0.511	0.341	0.25
E3-241-048	E3-241-048	E3-241-049	1.252	09:58 hr	2.845	0.614	0.409	0.352
E3-241-049	E3-241-049	E3-241-036	1.264	10:00 hr	4.13	0.47	0.313	0.213
E3-242-002	E3-242-002	E3-241-028	11.279	36:01 hr	3.614	1.544	0.343	0.253
E3-242-012	E3-242-012	E3-242-002	11.28	36:00 hr	4.082	1.413	0.314	0.214
E3-252-001	E3-252-001	E3-252-003	1.194	09:46 hr	2.593	0.636	0.424	0.374
E3-252-003	E3-252-003	E3-252-004	1.195	09:47 hr	2.605	0.634	0.422	0.372
E3-252-004	E3-252-004	E3-252-084	1.193	09:44 hr	5.334	0.375	0.25	0.137
E3-252-084	E3-252-084	E2-252-194	1.195	09:46 hr	5.351	0.375	0.25	0.137
E3-252-085	E3-252-085	E3-252-001	1.193	09:43 hr	2.59	0.636	0.424	0.374
E3-271-068	E3-271-068	E3-271-072	0.526	08:30 hr	3.231	0.324	0.259	0.147
E3-271-072	E3-271-072	E3-271-074	0.536	08:31 hr	3.242	0.327	0.262	0.15
E3-271-074	E3-271-074	E2-271-076	0.572	08:30 hr	3.304	0.338	0.27	0.16
E3-271-121	E3-271-121	E3-271-123	0.505	08:30 hr	3.19	0.317	0.254	0.141
E3-271-122	E3-271-122	E3-271-121	0.5	08:28 hr	2.729	0.352	0.282	0.173
E3-271-123	E3-271-123	E3-271-068	0.511	08:30 hr	3.198	0.319	0.255	0.143
E4-202-001	E4-202-001	E4-202-002	0.163	08:27 hr	3.865	0.138	0.138	0.041
E4-202-002	E4-202-002	E4-202-003	0.163	08:27 hr	3.289	0.154	0.154	0.051
E4-202-003	E4-202-003	E4-202-009	0.163	08:25 hr	3.282	0.154	0.154	0.052
E4-202-007	E4-202-007	E4-202-013	0.169	08:30 hr	3.365	0.155	0.155	0.052
E4-202-009	E4-202-009	E4-202-007	0.165	08:24 hr	3.291	0.155	0.155	0.052
E4-202-013	E4-202-013	E4-202-014	0.169	08:30 hr	3.368	0.155	0.155	0.052
E4-202-014	E4-202-014	F1-202-010	0.169	08:29 hr	3.811	0.143	0.143	0.044
E4-231-005	E4-231-005	E4-231-006	0.604	44:14 hr	4.255	0.257	0.147	0.047
E4-231-006	E4-231-006	E4-231-008	0.604	44:15 hr	4.262	0.257	0.147	0.047
E4-231-007	E4-231-007	F1-231-002	0.605	44:18 hr	2.04	0.439	0.263	0.152
E4-231-008	E4-231-008	E4-231-007	0.603	44:15 hr	2.383	0.392	0.235	0.122
E4-232-016	E4-232-016	F1-232-033	12.502	36:17 hr	3.452	1.723	0.383	0.311
E4-241-005	E4-241-005	E4-232-016	12.506	36:17 hr	3.596	1.672	0.372	0.294
E4-241-016	E4-241-016	E4-241-005	12.438	36:02 hr	4.678	1.374	0.305	0.203
E4-241-075	E4-241-075	E4-241-077	1.097	10:00 hr	4.686	0.388	0.258	0.146
E4-241-077	E4-241-077	E4-241-078	1.097	09:58 hr	2.812	0.561	0.374	0.298
E4-241-078	E4-241-078	E4-241-079	1.101	10:01 hr	3.091	0.525	0.35	0.263
E4-241-079	E4-241-079	E4-241-080	1.22	09:58 hr	2.673	0.631	0.421	0.37
E4-241-080	E4-241-080	E3-241-048	1.224	10:02 hr	2.678	0.632	0.421	0.37
E4-241-081	E4-241-081	E4-241-075	1.096	09:59 hr	3.535	0.474	0.316	0.217
E4-242-014	E4-242-014	E4-241-081	1.073	10:01 hr	3.234	0.498	0.332	0.238
E4-242-029	E4-242-029	E4-242-014	1.069	09:46 hr	2.676	0.571	0.381	0.308
E4-242-034	E4-242-034	E4-242-029	1.066	09:45 hr	3.004	0.523	0.349	0.261
E4-242-036	E4-242-036	E4-242-034	1.064	09:43 hr	3.001	0.523	0.349	0.261
E4-242-045	E4-242-045	E4-242-036	1.062	09:45 hr	3.002	0.522	0.348	0.26
E4-242-057	E4-242-057	E4-242-045	1.055	09:45 hr	2.804	0.547	0.364	0.284
E4-242-062	E4-242-062	E4-242-057	1.049	09:43 hr	2.767	0.549	0.366	0.286

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E4-242-069	E4-242-069	E4-242-062	1.044	09:32 hr	2.498	0.591	0.394	0.328
E4-242-078	E4-242-078	E4-242-069	1.032	09:31 hr	2.603	0.568	0.379	0.305
E4-251-001	E4-251-001	E4-242-078	1.031	09:29 hr	2.645	0.561	0.374	0.298
E4-252-009	E4-252-009	E3-252-085	1.193	09:43 hr	2.589	0.636	0.424	0.375
E4-252-010	E4-252-010	E4-252-009	1.194	09:44 hr	2.585	0.637	0.425	0.375
E4-252-011	E4-252-011	E4-252-010	1.194	09:44 hr	2.595	0.635	0.423	0.374
E4-252-013	E4-252-013	E4-252-014	1.194	09:28 hr	3.714	0.487	0.325	0.228
E4-252-014	E4-252-014	E4-252-019	1.195	09:29 hr	3.639	0.495	0.33	0.235
E4-252-019	E4-252-019	E4-252-021	1.195	09:32 hr	2.83	0.595	0.397	0.332
E4-252-021	E4-252-021	E4-252-023	1.194	09:33 hr	2.854	0.591	0.394	0.328
E4-252-023	E4-252-023	E4-252-011	1.194	09:33 hr	2.62	0.631	0.42	0.369
E4-252-033	E4-252-033	E4-252-013	1.194	09:30 hr	3.23	0.54	0.36	0.277
E4-252-035	E4-252-035	E4-252-033	1.193	09:25 hr	5.16	0.384	0.256	0.144
E4-252-037	E4-252-037	E4-252-035	1.193	09:24 hr	3.843	0.475	0.317	0.217
E4-271-058	E4-271-058	E4-271-060	0.484	08:15 hr	1.965	0.436	0.349	0.261
E4-271-060	E4-271-060	E4-271-062	0.487	08:23 hr	3.294	0.302	0.242	0.128
E4-271-062	E4-271-062	E4-271-063	0.488	08:29 hr	3.686	0.28	0.224	0.11
E4-271-063	E4-271-063	E4-271-064	0.488	08:27 hr	4.038	0.262	0.21	0.096
E4-271-064	E4-271-064	E3-271-122	0.498	08:29 hr	2.884	0.337	0.27	0.159
F1-202-005	F1-202-005	F1-202-007	0.184	08:28 hr	3.249	0.155	0.124	0.033
F1-202-006	F1-202-006	F1-202-005	0.183	08:28 hr	3.416	0.153	0.131	0.037
F1-202-007	F1-202-007	F2-202-001	0.195	08:30 hr	3.882	0.143	0.114	0.028
F1-202-008	F1-202-008	F1-202-006	0.184	08:31 hr	2.483	0.186	0.149	0.048
F1-202-009	F1-202-009	F1-202-008	0.182	08:28 hr	3.52	0.158	0.158	0.054
F1-202-010	F1-202-010	F1-202-009	0.17	08:30 hr	3.657	0.147	0.147	0.047
F1-231-001	F1-231-001	F2-231-024	0.603	44:34 hr	1.754	0.477	0.273	0.163
F1-231-001A	F1-231-003	F1-231-001	0.601	34:18 hr	2.132	0.423	0.254	0.141
F1-231-002	F1-231-002	F1-231-003	0.603	44:19 hr	1.963	0.45	0.27	0.159
F1-232-001	F1-232-001	F2-231-023	12.74	36:32 hr	3.574	1.703	0.378	0.304
F1-232-002	F1-232-002	F1-232-001	12.744	36:32 hr	3.339	1.792	0.398	0.334
F1-232-008	F1-232-008	F1-232-066	0.29	09:29 hr	2.832	0.233	0.187	0.076
F1-232-012	F1-232-012	F1-232-066	12.485	36:15 hr	3.403	1.74	0.387	0.317
F1-232-013	F1-232-013	F1-232-008	0.291	09:31 hr	1.982	0.301	0.241	0.127
F1-232-014	F1-232-014	F1-232-017	0.154	09:47 hr	2.07	0.187	0.15	0.048
F1-232-017	F1-232-017	F1-232-019	0.155	09:49 hr	1.689	0.217	0.173	0.065
F1-232-019	F1-232-019	F1-232-013	0.291	09:30 hr	1.99	0.3	0.24	0.126
F1-232-033	F1-232-033	F1-232-012	12.495	36:18 hr	3.52	1.698	0.377	0.303
F1-232-066	F1-232-066	F1-232-002	12.746	36:31 hr	3.422	1.759	0.391	0.323
F1-241-050	F1-241-050	F1-242-001	0.016	08:31 hr	1.387	0.053	0.043	0.003
F1-241-109	F1-241-109	F1-241-050	0.014	08:24 hr	0.711	0.077	0.061	0.007
F1-241-110	F1-241-110	F1-241-109	0.011	08:27 hr	0.674	0.068	0.055	0.006
F1-242-001	F1-242-001	E4-241-081	0.024	08:21 hr	1.573	0.065	0.052	0.005
F1-251-003	F1-251-003	E4-251-001	1.029	09:29 hr	2.569	0.572	0.382	0.309
F1-251-015	F1-251-015	F1-251-003	0.906	09:32 hr	3.24	0.479	0.383	0.311
F1-251-023	F1-251-023	F1-251-015	0.901	09:31 hr	3.337	0.467	0.373	0.297
F1-251-031	F1-251-031	F1-251-023	0.857	09:30 hr	3.875	0.403	0.323	0.225
F1-251-033	F1-251-033	F1-251-031	0.854	09:30 hr	3.172	0.466	0.373	0.296
F1-251-034	F1-251-034	F1-251-106	0.849	09:29 hr	2.942	0.49	0.392	0.325
F1-251-039	F1-251-039	F1-251-034	0.843	09:31 hr	3.273	0.451	0.361	0.278
F1-251-040	F1-251-040	F1-251-039	0.831	09:32 hr	3.17	0.457	0.365	0.285
F1-251-041	F1-251-041	F1-251-040	0.824	09:28 hr	3.21	0.449	0.36	0.277
F1-251-044	F1-251-044	F1-251-041	0.817	09:31 hr	3.204	0.447	0.358	0.274
F1-251-047	F1-251-047	F1-251-044	0.81	09:30 hr	3.122	0.453	0.363	0.281
F1-251-048	F1-251-048	F1-251-068	0.805	09:30 hr	3.348	0.429	0.343	0.253
F1-251-049	F1-251-049	F1-251-108	0.774	09:29 hr	3.015	0.45	0.36	0.277
F1-251-050	F1-251-050	F1-251-049	0.771	09:29 hr	3.336	0.416	0.333	0.239
F1-251-068	F1-251-068	F1-251-047	0.807	09:30 hr	3.349	0.429	0.343	0.254
F1-251-106	F1-251-106	F1-251-033	0.852	09:29 hr	2.942	0.491	0.393	0.326
F1-251-108	F1-251-108	F1-251-048	0.803	09:28 hr	3.069	0.512	0.512	0.521
F1-252-017	F1-252-017	E4-252-037	1.193	09:15 hr	4.542	0.421	0.281	0.172
F1-252-033	F1-252-033	F1-252-017	1.193	09:15 hr	4.542	0.421	0.281	0.172
F1-252-039	F1-252-039	F1-252-033	1.195	09:17 hr	4.17	0.448	0.299	0.194

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-261-003	F1-261-003	F1-261-004	1.178	09:14 hr	5.574	0.39	0.312	0.211
F1-261-004	F1-261-004	F1-252-039	1.18	09:14 hr	5.225	0.378	0.252	0.139
F1-261-009	F1-261-009	F1-261-003	1.179	09:15 hr	3.974	0.5	0.4	0.338
F1-261-026	F1-261-026	F1-261-009	1.178	09:14 hr	3.974	0.5	0.4	0.337
F1-261-040	F1-261-040	F1-261-026	1.175	09:15 hr	3.963	0.5	0.4	0.337
F1-261-048	F1-261-048	F1-261-040	1.161	09:13 hr	3.949	0.497	0.398	0.333
F1-261-058	F1-261-058	F1-261-048	1.158	09:12 hr	4.753	0.433	0.346	0.258
F1-261-064	F1-261-064	F1-261-058	1.156	09:00 hr	4.51	0.449	0.359	0.276
F1-261-070	F1-261-070	F1-261-064	1.14	09:00 hr	4.493	0.446	0.357	0.272
F1-261-075	F1-261-075	F1-261-070	1.139	09:00 hr	4.069	0.479	0.384	0.312
F1-261-078	F1-261-078	F1-261-075	1.092	09:01 hr	4.021	0.468	0.375	0.299
F1-261-081	F1-261-081	F1-261-078	1.091	09:00 hr	3.575	0.511	0.409	0.351
F1-261-089	F1-261-089	F1-261-081	1.091	09:01 hr	3.575	0.511	0.409	0.351
F1-261-095	F1-261-095	F1-261-089	1.072	09:00 hr	3.57	0.505	0.404	0.343
F1-261-097	F1-261-097	F1-261-095	1.072	08:59 hr	3.568	0.505	0.404	0.343
F1-261-106	F1-261-106	F1-261-097	1.072	09:00 hr	3.571	0.505	0.404	0.343
F1-271-101	F1-271-101	F1-271-103	0.408	08:05 hr	1.873	0.399	0.319	0.22
F1-271-103	F1-271-103	E4-271-058	0.482	08:13 hr	2.286	0.39	0.312	0.211
F2-202-001	F2-202-001	F2-202-023	0.196	08:29 hr	3.094	0.168	0.134	0.039
F2-202-002	F2-202-002	F2-202-007	0.203	08:30 hr	3.083	0.172	0.137	0.041
F2-202-003	F2-202-003	F2-202-005	0.199	08:29 hr	3.158	0.167	0.134	0.038
F2-202-004	F2-202-004	F2-202-006	0.208	08:32 hr	3.02	0.177	0.142	0.043
F2-202-005	F2-202-005	F2-202-002	0.201	08:29 hr	3.24	0.165	0.132	0.037
F2-202-006	F2-202-006	F2-202-024	0.212	08:30 hr	4.079	0.146	0.117	0.029
F2-202-007	F2-202-007	F2-202-004	0.207	08:30 hr	3.274	0.167	0.134	0.038
F2-202-023	F2-202-023	F2-202-003	0.198	08:30 hr	2.87	0.178	0.142	0.044
F2-202-024	F2-202-024	F3-202-006	0.215	08:45 hr	3.488	0.164	0.132	0.037
F2-231-004	F2-231-004	F3-231-015	13.255	36:51 hr	2.946	2.029	0.451	0.418
F2-231-010	F2-231-010	F2-231-004	13.273	36:50 hr	3.598	1.747	0.388	0.319
F2-231-016	F2-231-016	F2-231-010	12.722	36:33 hr	3.555	1.708	0.38	0.306
F2-231-023	F2-231-023	F2-231-016	12.734	36:34 hr	3.432	1.754	0.39	0.321
F2-231-024	F2-231-024	F2-231-010	0.606	34:33 hr	1.542	0.526	0.3	0.196
F2-232-002	F2-232-002	F2-232-003	0.144	09:40 hr	1.611	0.212	0.17	0.063
F2-232-003	F2-232-003	F2-232-004	0.146	09:42 hr	1.601	0.215	0.172	0.064
F2-232-004	F2-232-004	F2-232-005	0.151	09:44 hr	1.616	0.219	0.175	0.067
F2-232-005	F2-232-005	F2-232-006	0.151	09:42 hr	1.582	0.223	0.178	0.069
F2-232-006	F2-232-006	F1-232-014	0.153	09:45 hr	1.694	0.214	0.171	0.064
F2-232-007	F2-232-007	F2-232-002	0.143	09:32 hr	1.419	0.231	0.185	0.075
F2-242-055	F2-242-055	F1-241-110	0.01	08:18 hr	0.621	0.064	0.051	0.005
F2-242-056	F2-242-056	F2-242-055	0.01	08:12 hr	0.659	0.061	0.049	0.005
F2-251-012	F2-251-012	F2-251-028	0.705	09:28 hr	3.445	0.381	0.305	0.202
F2-251-016	F2-251-016	F2-251-017	0.717	09:31 hr	3.388	0.391	0.313	0.212
F2-251-017	F2-251-017	F2-252-027	0.723	09:27 hr	3.491	0.384	0.307	0.205
F2-251-018	F2-251-018	F1-251-050	0.767	09:29 hr	3.652	0.388	0.311	0.209
F2-251-028	F2-251-028	F2-251-016	0.709	09:30 hr	3.451	0.382	0.306	0.203
F2-252-027	F2-252-027	F2-251-018	0.764	09:28 hr	3.544	0.396	0.317	0.217
F2-261-053	F2-261-053	F1-261-106	0.874	09:01 hr	4.667	0.358	0.286	0.179
F2-262-011	F2-262-011	F2-261-053	0.862	09:01 hr	4.078	0.39	0.312	0.211
F2-262-017	F2-262-017	F2-262-011	0.827	09:01 hr	4.749	0.34	0.272	0.161
F2-262-020	F2-262-020	F2-262-017	0.825	09:00 hr	4.745	0.339	0.271	0.161
F2-262-029	F2-262-029	F2-262-020	0.825	09:01 hr	4.188	0.371	0.297	0.192
F2-262-032	F2-262-032	F2-262-029	0.824	09:01 hr	3.001	0.472	0.378	0.303
F2-262-038	F2-262-038	F2-262-032	0.781	09:01 hr	3.574	0.4	0.32	0.221
F3-202-006	F3-202-006	F3-202-007	0.219	08:37 hr	3.188	0.177	0.142	0.043
F3-202-007	F3-202-007	F3-211-010	0.236	08:33 hr	3.262	0.184	0.147	0.047
F3-211-010	F3-211-010	F3-211-011	0.245	08:37 hr	3.571	0.177	0.142	0.043
F3-211-011	F3-211-011	F3-211-012	0.247	08:41 hr	3.323	0.187	0.15	0.048
F3-211-012	F3-211-012	F3-211-013	0.282	08:36 hr	3.543	0.196	0.157	0.053
F3-211-013	F3-211-013	F4-211-002	0.285	08:37 hr	3.427	0.202	0.161	0.057
F3-222-007	F3-222-007	F3-222-019	13.235	37:17 hr	3.492	1.783	0.396	0.331
F3-222-008	F3-222-008	F3-222-007	13.245	37:04 hr	3.43	1.808	0.402	0.34
F3-222-008A	F3-222-020	F3-222-008	13.255	37:02 hr	3.673	1.719	0.382	0.31

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F3-222-019	F3-222-019	F4-222-013	13.232	37:18 hr	3.365	1.832	0.407	0.348
F3-231-015	F3-231-015	F3-222-020	13.253	37:03 hr	2.946	2.029	0.451	0.418
F3-232-001	F3-232-001	F2-232-007	0.143	09:37 hr	1.683	0.205	0.164	0.058
F3-232-002	F3-232-002	F3-232-001	0.143	09:32 hr	1.482	0.224	0.179	0.07
F3-232-003	F3-232-003	F3-232-002	0.143	09:30 hr	1.524	0.22	0.176	0.068
F3-232-004	F3-232-004	F3-232-005	0.14	09:23 hr	1.762	0.191	0.144	0.044
F3-232-005	F3-232-005	F3-232-006	0.142	09:30 hr	1.559	0.21	0.157	0.054
F3-232-006	F3-232-006	F3-232-007	0.142	09:25 hr	1.777	0.192	0.144	0.045
F3-232-007	F3-232-007	F3-232-003	0.144	09:29 hr	2.622	0.152	0.121	0.031
F3-241-004	F3-241-004	F3-242-011	0.006	07:55 hr	0.916	0.036	0.029	0.001
F3-241-005	F3-241-005	F3-241-004	0.005	07:47 hr	0.529	0.049	0.039	0.003
F3-241-006	F3-241-006	F3-241-005	0.004	07:48 hr	0.492	0.039	0.031	0.002
F3-242-010	F3-242-010	F2-242-056	0.009	08:03 hr	0.623	0.064	0.051	0.005
F3-242-011	F3-242-011	F3-242-010	0.008	08:00 hr	0.609	0.06	0.048	0.004
F3-251-023	F3-251-023	F3-251-082	0.484	09:28 hr	3.047	0.318	0.254	0.142
F3-251-024	F3-251-024	F2-251-012	0.701	09:30 hr	3.095	0.41	0.328	0.233
F3-251-082	F3-251-082	F3-251-024	0.512	09:28 hr	4.037	0.271	0.217	0.103
F3-252-001	F3-252-001	F3-252-003	0.442	09:29 hr	3.403	0.276	0.221	0.107
F3-252-003	F3-252-003	F3-251-023	0.48	09:29 hr	3.485	0.287	0.23	0.116
F3-262-038	F3-262-038	F2-262-038	0.767	08:57 hr	4.217	0.35	0.28	0.171
F3-262-052	F3-262-052	F3-262-038	0.761	08:48 hr	2.92	0.454	0.364	0.282
F3-262-057	F3-262-057	F3-262-052	0.746	08:46 hr	4.152	0.347	0.278	0.168
F3-262-063	F3-262-063	F3-262-057	0.67	08:45 hr	5.044	0.28	0.224	0.11
F3-271-152	F3-271-152	F3-262-074	0.627	08:45 hr	2.967	0.39	0.312	0.211
F3-271-152A	F3-262-074	F3-262-063	0.664	08:45 hr	2.833	0.42	0.336	0.244
F3-271-153	F3-271-153	F3-271-152	0.625	08:43 hr	4.561	0.286	0.229	0.115
F4-0232-BV	F4-0232-BV	F4-232-004	0.139	09:04 hr	1.171	0.285	0.285	0.177
F4-211-002	F4-211-002	F4-211-003	0.286	08:38 hr	4.007	0.182	0.145	0.046
F4-211-003	F4-211-003	F4-211-015	0.286	08:39 hr	3.819	0.188	0.151	0.049
F4-211-004	F4-211-004	F4-211-005	0.288	08:42 hr	6.116	0.137	0.109	0.025
F4-211-005	F4-211-005	F4-211-013	0.29	08:41 hr	4.205	0.178	0.142	0.044
F4-211-006	F4-211-006	F4-211-007	0.3	08:42 hr	2.606	0.253	0.203	0.09
F4-211-007	F4-211-007	G1-211-003	0.303	08:43 hr	3.541	0.206	0.165	0.059
F4-211-013	F4-211-013	F4-211-014	0.298	08:42 hr	5.279	0.155	0.124	0.033
F4-211-014	F4-211-014	F4-211-006	0.299	08:42 hr	3.018	0.228	0.183	0.073
F4-211-015	F4-211-015	F4-211-004	0.287	08:40 hr	3.822	0.188	0.151	0.049
F4-221-022	F4-221-022	G1-221-029	13.23	37:32 hr	3.813	1.669	0.371	0.293
F4-222-003	F4-222-003	F4-221-022	13.237	37:19 hr	3.432	1.806	0.401	0.339
F4-222-013	F4-222-013	F4-222-003	13.249	37:18 hr	3.651	1.726	0.384	0.312
F4-232-004	F4-232-004	F4-232-005	0.139	09:07 hr	1.198	0.279	0.279	0.17
F4-232-005	F4-232-005	F4-232-006	0.139	09:13 hr	2.046	0.191	0.191	0.08
F4-232-006	F4-232-006	F3-232-004	0.139	09:14 hr	1.608	0.202	0.152	0.05
F4-241-002	F4-241-002	G1-241-001	0.14	08:59 hr	2.668	0.172	0.207	0.093
F4-241-003	F4-241-003	F4-241-002	0.14	08:59 hr	1.858	0.222	0.267	0.156
F4-241-004	F4-241-004	F4-241-003	0.14	08:47 hr	1.666	0.24	0.289	0.182
F4-241-005	F4-241-005	F4-241-004	0.14	08:33 hr	1.752	0.231	0.278	0.168
F4-241-006	F4-241-006	F4-241-005	0.102	08:39 hr	1.988	0.169	0.203	0.09
F4-241-007	F4-241-007	F4-241-006	0.096	08:33 hr	1.689	0.181	0.218	0.104
F4-241-008	F4-241-008	F4-241-007	0.091	08:31 hr	1.594	0.183	0.219	0.105
F4-241-009	F4-241-009	F3-241-006	0.001	07:44 hr	0.337	0.024	0.019	0.001
F4-241-010	F4-241-010	F4-241-009	0	00:00 hr	0	0	0	0
F4-241-011	F4-241-011	F4-241-010	0	00:00 hr	0	0	0	0
F4-251-016	F4-251-016	F4-251-022	0.42	09:16 hr	3.252	0.275	0.22	0.106
F4-251-022	F4-251-022	F4-251-023	0.422	09:15 hr	3.194	0.279	0.223	0.109
F4-251-023	F4-251-023	F4-252-003	0.435	09:16 hr	3.072	0.293	0.234	0.121
F4-252-003	F4-252-003	F3-252-001	0.438	09:20 hr	3.089	0.293	0.235	0.121
F4-252-005	F4-252-005	F4-251-016	0.415	09:16 hr	3.339	0.267	0.214	0.1
F4-271-034	G1-271-007	F4-271-034	0.569	08:28 hr	3.64	0.314	0.252	0.139
F4-271-034A	F4-271-034	F4-271-075	0.572	08:30 hr	3.518	0.323	0.259	0.147
F4-271-069	F4-271-069	F4-271-073	0.582	08:31 hr	3.419	0.334	0.267	0.156
F4-271-070	F4-271-070	F3-271-153	0.624	08:47 hr	3.726	0.33	0.264	0.153
F4-271-072	F4-271-072	F4-271-070	0.603	08:33 hr	2.873	0.388	0.31	0.209

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F4-271-073	F4-271-073	F4-271-072	0.592	08:32 hr	3.904	0.308	0.246	0.133
F4-271-075	F4-271-075	F4-271-069	0.575	08:30 hr	3.523	0.324	0.259	0.147
G1-211-003	G1-211-003	9010	0.49	08:33 hr	1.677	0.494	0.396	0.33
G1-221-001	G1-221-001	G2-212-041	13.217	37:49 hr	2.804	2.103	0.467	0.445
G1-221-005	G1-221-005	G1-221-001	13.219	37:42 hr	4.011	1.607	0.357	0.273
G1-221-010	G1-221-010	G1-221-005	13.231	37:34 hr	3.812	1.67	0.371	0.293
G1-221-029	G1-221-029	G1-221-010	13.227	37:34 hr	3.132	1.934	0.43	0.384
G1-232-012	G1-232-012	F4-0232-BV	0.14	09:03 hr	1.416	0.249	0.249	0.136
G1-241-001	G1-241-001	G1-232-012	0.14	08:56 hr	4.107	0.119	0.119	0.03
G1-241-002	G1-241-002	F4-241-008	0.091	08:26 hr	1.734	0.172	0.206	0.093
G1-242-001	G1-242-001	G1-241-002	0.085	08:31 hr	1.422	0.189	0.226	0.112
G1-242-006	G1-242-006	G1-242-001	0.081	08:22 hr	1.453	0.179	0.215	0.101
G1-242-014	G1-242-014	G1-242-006	0.078	08:21 hr	1.535	0.168	0.201	0.088
G1-242-025	G1-242-025	G1-242-014	0.074	08:07 hr	1.548	0.161	0.193	0.081
G1-242-028	G1-242-028	G1-242-025	0.032	08:03 hr	1.207	0.107	0.128	0.035
G1-242-038	G1-242-038	G1-242-028	0.03	08:01 hr	1.062	0.113	0.135	0.039
G1-242-045	G1-242-045	G1-242-038	0.027	07:55 hr	1.047	0.104	0.125	0.033
G1-252-004	G1-252-004	G1-252-005	0.372	09:12 hr	3.347	0.271	0.271	0.161
G1-252-005	G1-252-005	F4-252-005	0.396	09:12 hr	2.822	0.291	0.233	0.119
G1-252-006	G1-252-006	G1-252-004	0.37	09:07 hr	2.853	0.303	0.303	0.199
G1-252-007	G1-252-007	G1-252-006	0.37	09:07 hr	2.722	0.313	0.313	0.213
G1-252-008	G1-252-008	G1-252-007	0.367	08:59 hr	2.937	0.295	0.295	0.189
G1-252-009	G1-252-009	G1-252-008	0.367	09:00 hr	2.908	0.297	0.297	0.192
G1-252-011	G1-252-011	G1-252-009	0.367	09:00 hr	2.733	0.31	0.31	0.209
G1-271-007	G1-271-013	G1-271-007	0.561	08:29 hr	3.623	0.312	0.25	0.137
G1-271-013	G1-271-030	G1-271-013	0.559	08:30 hr	3.621	0.311	0.249	0.136
G1-271-030	G1-271-041	G1-271-030	0.552	08:31 hr	2.986	0.354	0.283	0.175
G1-271-042	G1-271-047	G1-271-042	0.424	08:29 hr	2.661	0.319	0.255	0.143
G1-271-047	G1-272-045	G1-271-047	0.417	08:30 hr	3.793	0.245	0.196	0.084
G1-272-045	G1-272-065	G1-272-045	0.351	08:27 hr	2.603	0.283	0.227	0.113
G1-272-065	G1-272-066	G1-272-065	0.328	08:29 hr	2.552	0.274	0.219	0.105
G1-272-066	G2-272-001	G1-272-066	0.327	08:26 hr	2.548	0.273	0.219	0.105
G2-212-001	G2-212-001	G3-212-007	13.239	38:03 hr	2.539	2.276	0.506	0.51
G2-212-002	G2-212-003	G2-212-002	13.242	37:58 hr	4.978	1.375	0.306	0.203
G2-212-002A	G2-212-002	G2-212-001	13.241	38:00 hr	3.039	1.98	0.44	0.4
G2-212-014A	G2-212-014	G2-212-003	1.791	37:50 hr	6.272	0.447	0.298	0.193
G2-212-015	G2-212-015	G2-212-014	13.24	37:57 hr	4.728	1.427	0.317	0.218
G2-212-032	G2-212-032	G2-212-047	13.253	37:47 hr	3.719	1.702	0.378	0.304
G2-212-035	G2-212-035	G2-212-032	13.255	37:45 hr	3.478	1.79	0.398	0.334
G2-212-038	G2-212-038	G2-212-035	13.259	37:45 hr	3.659	1.724	0.383	0.311
G2-212-041	G2-212-041	G2-212-038	13.26	37:45 hr	3.085	1.96	0.436	0.393
G2-212-047	G2-212-047	G2-212-015	13.244	37:46 hr	3.052	1.974	0.439	0.398
G2-252-043	G2-252-043	G2-252-045	0.346	09:00 hr	2.91	0.284	0.284	0.176
G2-252-044	G2-252-044	G2-252-043	0.345	09:01 hr	2.756	0.295	0.295	0.19
G2-252-045	G2-252-045	G1-252-011	0.347	09:01 hr	2.836	0.29	0.29	0.183
G2-252-046	G2-252-046	G2-252-044	0.343	08:55 hr	2.809	0.29	0.29	0.183
G2-252-047	G2-252-047	G2-252-046	0.34	08:52 hr	4.207	0.216	0.216	0.102
G2-272-014	G2-272-014	G2-272-001	0.32	08:18 hr	2.476	0.275	0.22	0.106
G2-272-036	G2-272-036	G2-272-014	0.308	08:16 hr	2.415	0.272	0.218	0.104
G2-272-049	G2-272-049	G2-272-036	0.299	08:14 hr	2.4	0.268	0.214	0.1
G2-272-055	G2-272-055	G2-272-049	0.296	08:10 hr	2.195	0.283	0.227	0.113
G2-272-068	G2-272-068	G2-272-055	0.148	08:00 hr	1.791	0.202	0.161	0.056
G2-272-080	G2-272-080	G2-272-068	0.145	07:59 hr	2.604	0.153	0.123	0.032
G3-211-015	G3-211-015	G3-211-018	15.918	13:46 hr	3.932	1.873	0.416	0.362
G3-211-018	G3-211-018	G3-211-017	15.573	13:46 hr	3.907	1.851	0.411	0.355
G3-212-006	G3-212-006	G3-212-007	3.27	01:30 hr	8.028	0.638	0.511	0.518
G3-212-007	G3-212-007	G3-211-015	16.291	13:47 hr	2.603	2.637	0.586	0.648
G3-252-026	G3-252-026	G3-252-028	0.33	08:45 hr	3.329	0.25	0.25	0.137
G3-252-027	G3-252-027	G3-252-026	0.33	08:42 hr	5.245	0.181	0.181	0.072
G3-252-028	G3-252-028	G3-252-029	0.331	08:44 hr	2.696	0.291	0.291	0.185
G3-252-029	G3-252-029	G2-252-047	0.338	08:46 hr	2.783	0.289	0.289	0.182
G3-252-030	G3-252-030	G3-252-027	0.33	08:43 hr	4.838	0.192	0.192	0.081

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G3-252-031	G3-252-031	G3-252-030	0.33	08:41 hr	2.832	0.28	0.28	0.171
G3-252-032	G3-252-032	G3-252-031	0.327	08:31 hr	2.612	0.295	0.295	0.189
G4-252-008	G4-252-008	G3-252-032	0.325	08:30 hr	2.843	0.277	0.277	0.167
G4-252-008A	G4-261-001	G4-252-008	0.259	08:43 hr	2.663	0.247	0.247	0.133
G4-261-008	G4-261-008	G4-261-015	0.242	08:29 hr	3.156	0.248	0.372	0.295
G4-261-015	G4-261-015	G4-261-016	0.242	08:30 hr	2.182	0.329	0.494	0.49
G4-261-016	G4-261-016	G4-261-017	0.243	08:29 hr	1.887	0.371	0.556	0.596
G4-261-017	G4-261-017	G4-261-029	0.245	08:28 hr	4.367	0.168	0.168	0.061
G4-261-018	G4-261-018	G4-261-020	0.252	08:30 hr	2.524	0.251	0.251	0.138
G4-261-020	G4-261-020	G4-261-021	0.255	08:31 hr	2.615	0.247	0.247	0.134
G4-261-021	G4-261-021	G4-261-001	0.258	08:38 hr	2.727	0.242	0.242	0.128
G4-261-029	G4-261-029	G4-261-018	0.25	08:30 hr	2.468	0.254	0.254	0.141
H1-261-006	H1-261-006	H1-261-025	0.231	08:07 hr	2.795	0.237	0.284	0.176
H1-261-008	H1-261-008	H1-261-009	0.231	08:13 hr	4.546	0.168	0.202	0.089
H1-261-009	H1-261-009	H1-261-010	0.231	08:15 hr	3.381	0.228	0.343	0.252
H1-261-010	H1-261-010	H1-261-011	0.232	08:16 hr	2.994	0.25	0.375	0.3
H1-261-011	H1-261-011	H1-261-012	0.239	08:23 hr	3.406	0.233	0.349	0.262
H1-261-012	H1-261-012	H1-261-015	0.241	08:29 hr	3.088	0.252	0.377	0.303
H1-261-015	H1-261-015	G4-261-008	0.241	08:30 hr	3.033	0.255	0.383	0.311
H1-261-025	H1-261-025	H1-261-008	0.231	08:13 hr	3.221	0.214	0.257	0.145
H1-262-023	H1-262-023	H1-261-006	0.229	08:00 hr	2.977	0.225	0.27	0.16

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.282	32:30 hr	1.374	0.332	0.19	0.079
0G1-271-041	G1-271-042	G1-271-041	1.059	32:30 hr	3.426	0.516	0.413	0.357
101	64	66	0.412	32:32 hr	1.826	0.667	1	1.055
103	66	68	0.411	32:33 hr	2.638	0.434	0.651	0.759
105	68	70	0.413	32:48 hr	2.503	0.458	0.686	0.816
107	70	74	0.428	32:44 hr	6.793	0.215	0.323	0.225
111	74	76	0.431	32:43 hr	6.575	0.222	0.332	0.238
1127	14	9002	0.325	32:14 hr	16.167	0.096	0.144	0.045
113	76	78	0.461	32:30 hr	7.923	0.203	0.305	0.202
115	78	80	0.467	32:30 hr	8.216	0.2	0.3	0.195
117	80	82	0.466	32:30 hr	8.244	0.199	0.299	0.194
119	82	E2-222-016	0.467	32:30 hr	8.249	0.199	0.299	0.195
121	132	134	0.179	32:14 hr	6.321	0.122	0.183	0.074
123	134	136	0.179	32:14 hr	8.689	0.098	0.147	0.047
125	136	9006	0.2	32:15 hr	4.94	0.157	0.236	0.122
127	140	9006	0.093	32:16 hr	2.248	0.16	0.24	0.126
137	150	48	0.305	32:15 hr	3.144	0.296	0.445	0.408
139	C1-261-020	770	3.755	34:00 hr	3.751	0.989	0.495	0.491
141	770	772	3.757	34:02 hr	3.969	0.947	0.473	0.455
143	772	774	3.75	34:07 hr	3.328	1.087	0.543	0.574
145	774	776	3.761	34:17 hr	3.013	1.181	0.591	0.656
147	776	778	3.758	34:18 hr	3.664	1.008	0.504	0.507
153	778	780	3.749	34:18 hr	3.212	1.118	0.559	0.601
155	780	C2-261-001	3.736	34:15 hr	2.915	1.208	0.604	0.678
157	C2-261-001	C3-261-013	1.745	34:17 hr	7.919	0.448	0.448	0.414
161	802	9000	0.127	32:20 hr	1.841	0.209	0.251	0.138
163	SS_3	C3-271-012	2.917	32:45 hr	2.647	0.947	0.379	0.305
165	SS_1_A	C3-271-007	2.912	32:46 hr	3.763	0.897	0.538	0.566
167	SS_4	SS_3	2.969	32:33 hr	2.649	0.959	0.384	0.312
169	SS_5	SS_4	2.985	32:30 hr	2.708	1.068	0.534	0.558
171	SS_6	SS_5	2.644	32:33 hr	2.602	1	0.5	0.5
173	804	SS_8	2.878	32:27 hr	2.652	1.054	0.527	0.546
175	SS_8	SS_7	2.843	32:33 hr	2.644	1.046	0.523	0.54
177	SS_7	SS_6	2.757	32:33 hr	2.626	1.027	0.513	0.523
57	E3-202-BV	E3-202-010	0.294	32:31 hr	3.158	0.259	0.31	0.209
757	1428	BV-105	0.39	21:50 hr	1.851	0.481	0.578	0.633
759	1428	1430	0.296	21:51 hr	1.695	0.482	0.722	0.872
761	1430	D2-252-004	0.294	21:59 hr	3.23	0.283	0.424	0.375
763	G2-212-014	G2-212-003	14.407	36:30 hr	11.056	1.074	0.43	0.384
773	B2-282-047	B2-282-046	0.72	32:33 hr	3.199	0.456	0.456	0.426
775	B2-282-046	B2-282-041	0.693	32:30 hr	4.302	0.355	0.355	0.269
777	B2-282-041	B2-282-037	0.675	32:42 hr	1.33	1	1	1.278
779	B2-282-037	B2-282-036	0.674	32:47 hr	2.808	0.479	0.479	0.464
781	B2-282-036	B2-282-003	0.666	32:46 hr	2.774	0.479	0.479	0.464
785	B2-282-003	B2-281-013	0.657	32:46 hr	2.765	0.475	0.475	0.458
787	B2-281-013	B2-281-027	0.648	32:47 hr	3.1	0.431	0.431	0.385
789	B2-281-027	B2-281-006	0.637	32:45 hr	2.889	0.448	0.448	0.413
791	B2-281-006	B2-281-005	0.635	32:49 hr	2.585	0.487	0.487	0.478
793	B2-281-005	B2-281-004	0.633	33:03 hr	2.656	0.476	0.476	0.46
795	B2-281-004	B2-281-003	0.628	33:01 hr	2.573	0.485	0.485	0.474
797	B2-281-003	B2-281-002	0.875	32:38 hr	2.662	0.617	0.617	0.701
799	B2-281-002	B2-281-029	0.875	32:47 hr	2.705	0.609	0.609	0.687
801	B2-281-029	B2-281-001	0.871	32:45 hr	1.716	1	1	1.625
803	B2-281-001	B2-281-022	0.871	32:50 hr	2.512	0.646	0.646	0.749
805	B2-281-022	B2-281-020	0.87	33:02 hr	3.15	0.535	0.535	0.559
807	B2-281-020	B2-272-030	0.866	33:04 hr	2.026	0.785	0.785	0.959
809	B2-272-030	B2-272-029	0.859	33:03 hr	2.944	0.559	0.559	0.601
811	B2-272-029	B2-272-028	0.853	33:13 hr	2.66	0.604	0.604	0.679
813	B2-272-028	B2-272-027	0.951	33:02 hr	3.039	0.592	0.592	0.658
85	48	50	0.394	32:17 hr	2.437	0.449	0.674	0.796
87	50	52	0.396	32:32 hr	1.756	0.667	1	1
889	B2-272-008	B2-272-005	0.388	33:03 hr	1.902	0.38	0.304	0.201

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
89	52	54	0.397	32:31 hr	2.46	0.448	0.672	0.793
891	B2-272-005	B2-271-022	0.388	33:16 hr	2.179	0.345	0.276	0.166
893	B2-271-022	B2-271-031	0.386	33:17 hr	1.906	0.378	0.303	0.199
895	B2-271-031	B2-271-020	0.383	33:15 hr	2.744	0.29	0.232	0.118
897	B2-271-020	B2-271-019	0.382	33:14 hr	4.671	0.2	0.16	0.055
91	54	56	0.398	32:31 hr	2.492	0.444	0.666	0.783
93	56	58	0.398	32:32 hr	2.588	0.43	0.645	0.748
95	58	60	0.397	32:32 hr	2.675	0.417	0.625	0.715
97	60	62	0.398	32:32 hr	2.58	0.431	0.647	0.751
99	62	64	0.4	32:32 hr	2.374	0.466	0.699	0.835
B1-272-001	B1-272-001	B1-272-010	0.42	32:46 hr	2.21	0.4	0.4	0.338
B1-272-002	B1-272-002	B1-272-001	0.35	32:47 hr	2.426	0.357	0.428	0.381
B1-272-003	B1-272-003	B1-272-002	0.353	32:46 hr	2.333	0.37	0.444	0.407
B1-272-005	B1-272-005	B1-272-003	0.356	32:46 hr	2.464	0.358	0.429	0.383
B1-272-007	B1-272-007	B1-272-005	0.362	32:34 hr	2.152	0.402	0.482	0.47
B1-272-010	B1-272-010	B1-272-012	0.418	32:46 hr	2.423	0.373	0.373	0.296
B1-281-001	B1-281-001	B1-272-007	0.377	32:33 hr	2.384	0.383	0.46	0.433
B1-281-002	B1-281-002	B1-281-001	0.39	32:33 hr	2.429	0.387	0.465	0.441
B1-281-004	B1-281-004	B1-281-002	0.396	32:32 hr	2.868	0.345	0.414	0.359
B1-281-005	B1-281-005	B1-281-004	0.16	32:31 hr	2.176	0.218	0.261	0.15
B1-281-006	B1-281-006	B1-281-005	0.163	32:32 hr	2.139	0.224	0.268	0.157
B1-281-007	B1-281-007	B1-281-006	0.163	32:30 hr	2.763	0.187	0.224	0.11
B1-281-009	B1-281-009	B1-281-007	0.164	32:30 hr	2.734	0.189	0.226	0.112
B1-281-010	B1-281-010	B1-281-009	0.166	32:16 hr	2.717	0.191	0.23	0.116
B1-292-001	B1-292-001	B1-292-002	0.03	32:20 hr	0.93	0.124	0.148	0.048
B1-292-002	B1-292-002	B1-292-003	0.031	32:36 hr	0.837	0.134	0.161	0.056
B1-292-003	B1-292-003	B1-292-004	0.028	32:34 hr	0.989	0.113	0.136	0.04
B1-292-004	B1-292-004	B1-292-010	0.028	32:44 hr	1.595	0.081	0.097	0.02
B1-292-010	B1-292-010	B1-292-011	0.028	32:45 hr	1.607	0.08	0.096	0.019
B1-292-011	B1-292-011	B1-292-012	0.028	32:45 hr	2.328	0.062	0.075	0.011
B1-292-012	B1-292-012	B1-292-013	0.027	32:45 hr	0.799	0.126	0.151	0.05
B1-292-013	B1-292-013	B1-292-014	0.027	32:45 hr	1.364	0.094	0.142	0.043
B1-292-014	B1-292-014	B1-292-015	0.026	32:46 hr	1.14	0.097	0.117	0.029
B1-292-015	B1-292-015	B1-292-016	0.026	32:44 hr	1.432	0.082	0.098	0.02
B1-292-016	B1-292-016	B2-292-023	0.026	32:45 hr	1.998	0.071	0.106	0.024
B2-271-019	B2-271-019	B3-271-059	1.804	33:01 hr	3.084	0.864	0.691	0.824
B2-272-004	B2-272-004	B2-271-019	1.296	32:47 hr	2.904	0.687	0.549	0.584
B2-272-007	B2-272-007	B2-272-004	1.295	32:47 hr	2.89	0.689	0.551	0.587
B2-272-009	B2-272-009	B2-272-007	1.289	32:45 hr	2.901	0.684	0.547	0.581
B2-272-012	B1-272-012	B1-272-013	0.415	32:48 hr	2.374	0.34	0.272	0.162
B2-272-013	B1-272-013	B1-272-015	0.407	32:45 hr	2.482	0.325	0.26	0.148
B2-272-014	B2-272-014	B2-272-009	1.285	32:45 hr	2.37	0.808	0.646	0.75
B2-272-015	B1-272-015	B1-272-016	0.404	32:49 hr	2.178	0.355	0.284	0.176
B2-272-016	B1-272-016	B2-272-021	0.403	33:03 hr	1.984	0.379	0.303	0.2
B2-272-017	B2-272-017	B2-272-008	0.395	33:03 hr	1.979	0.374	0.299	0.195
B2-272-021	B2-272-021	B2-272-017	0.4	33:02 hr	2.006	0.374	0.299	0.195
B2-272-027	B2-272-027	B2-272-033	1.197	32:34 hr	2.995	0.735	0.735	0.89
B2-272-033	B2-272-033	B2-272-014	1.203	32:45 hr	3.722	0.608	0.608	0.686
B2-282-048	B2-282-048	B2-282-047	0.743	32:33 hr	2.864	0.509	0.509	0.515
B2-282-051	B2-282-051	B2-282-048	0.758	32:32 hr	2.972	0.502	0.502	0.503
B2-282-054	B2-282-054	B2-282-051	0.764	32:20 hr	3.027	0.498	0.498	0.496
B2-291-024	B2-291-024	B2-291-045	0.044	32:57 hr	1.699	0.098	0.098	0.02
B2-291-025	B2-291-025	B2-291-026	0.044	33:14 hr	1.393	0.112	0.112	0.027
B2-291-026	B2-291-026	B2-291-027	0.043	33:27 hr	0.552	0.212	0.212	0.099
B2-291-027	B2-291-027	B2-291-028	0.043	33:30 hr	1.006	0.138	0.138	0.041
B2-291-028	B2-291-028	B2-291-029	0.043	33:31 hr	0.986	0.14	0.14	0.042
B2-291-029	B2-291-029	B2-291-030	0.043	33:39 hr	1.355	0.113	0.113	0.027
B2-291-030	B2-291-030	B2-282-054	0.043	33:49 hr	1.106	0.13	0.13	0.036
B2-291-045	B2-291-045	B2-291-025	0.044	33:05 hr	0.53	0.219	0.219	0.105
B2-292-001	B2-292-001	B2-292-002	0.027	32:30 hr	1.225	0.095	0.114	0.027
B2-292-002	B2-292-002	B2-292-003	0.027	32:32 hr	1.258	0.092	0.111	0.026
B2-292-003	B2-292-003	B2-292-004	0.025	32:29 hr	0.947	0.108	0.129	0.036

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B2-292-004	B2-292-004	B2-292-010	0.025	32:29 hr	1.597	0.07	0.07	0.01
B2-292-008	B2-292-008	B2-292-009	0.045	32:55 hr	0.764	0.175	0.175	0.066
B2-292-009	B2-292-009	B2-291-024	0.045	33:05 hr	1.226	0.126	0.126	0.034
B2-292-010	B2-292-010	B2-292-026	0.047	32:46 hr	1.094	0.139	0.139	0.041
B2-292-011	B2-292-011	B2-292-010	0.024	32:55 hr	1.285	0.092	0.139	0.041
B2-292-012	B2-292-012	B2-292-011	0.025	33:00 hr	1.163	0.102	0.153	0.051
B2-292-017	B2-292-017	BV-292-013	0.025	32:52 hr	1.463	0.086	0.13	0.036
B2-292-018	B2-292-018	B2-292-017	0.025	32:49 hr	1.478	0.086	0.129	0.036
B2-292-022	B2-292-022	B2-292-018	0.026	32:47 hr	1.68	0.08	0.119	0.03
B2-292-023	B2-292-023	B2-292-022	0.026	32:50 hr	1.938	0.073	0.109	0.025
B2-292-026	B2-292-026	B2-292-008	0.046	32:45 hr	1.16	0.131	0.131	0.037
B2-301-001	B2-301-001	B2-292-001	0.027	32:15 hr	1.127	0.099	0.119	0.03
B3-262-023	B3-262-023	B4-262-031	3.51	33:32 hr	4.162	1.038	0.692	0.825
B3-262-027	B3-262-027	B3-262-023	3.517	33:34 hr	3.079	1.5	1	1.499
B3-262-031	B3-262-031	B3-262-027	3.509	33:32 hr	3.072	1.5	1	1.486
B3-271-003	B3-271-003	B3-262-031	1.947	33:31 hr	3.154	0.908	0.727	0.878
B3-271-006	B3-271-006	B3-271-003	1.941	33:30 hr	3.152	0.906	0.725	0.875
B3-271-018	B3-271-018	B3-271-006	1.932	33:18 hr	3.151	0.903	0.722	0.871
B3-271-026	B3-271-026	B4-271-011	1.909	33:15 hr	3.408	0.831	0.665	0.781
B3-271-032	B3-271-032	B3-271-026	1.861	33:16 hr	3.14	0.874	0.7	0.837
B3-271-039	B3-271-039	B3-271-032	1.846	33:15 hr	3.124	0.872	0.698	0.834
B3-271-042	B3-271-042	B3-271-039	1.835	33:02 hr	3.121	0.868	0.695	0.829
B3-271-045	B3-271-045	B3-271-042	1.83	33:00 hr	3.144	0.86	0.688	0.819
B3-271-054	B3-271-054	B3-271-045	1.828	33:01 hr	3.313	0.82	0.656	0.767
B3-271-058	B3-271-058	B3-271-054	1.824	33:00 hr	3.402	0.8	0.64	0.74
B3-271-058A	B3-271-063	B3-271-058	1.812	33:01 hr	3.113	0.86	0.688	0.819
B3-271-063	B3-271-059	B3-271-063	1.808	33:01 hr	3.116	0.858	0.686	0.816
B4-261-014	B4-261-014	C1-261-058	3.661	34:00 hr	4.616	1.25	1	1.13
B4-262-001	B4-262-001	B4-261-014	3.656	34:01 hr	4.609	1.25	1	1.128
B4-262-011	B4-262-011	B4-262-044	3.612	33:46 hr	4.969	0.912	0.608	0.686
B4-262-016	B4-262-016	B4-262-011	3.567	33:46 hr	4.959	0.904	0.603	0.676
B4-262-022	B4-262-022	B4-262-016	3.564	33:46 hr	4.955	0.904	0.603	0.676
B4-262-024	B4-262-024	B4-262-022	3.526	33:46 hr	3.087	1.5	1	1.129
B4-262-028	B4-262-028	B4-262-024	3.511	33:47 hr	3.074	1.5	1	1.56
B4-262-030	B4-262-030	B4-262-028	3.512	33:45 hr	3.075	1.5	1	1.561
B4-262-031	B4-262-031	B4-262-114	3.502	33:41 hr	3.067	1.5	1	1.181
B4-262-036	B4-262-036	B4-262-037	1.394	33:15 hr	2.746	1	1	1.284
B4-262-037	B4-262-037	B4-262-038	1.407	33:18 hr	2.772	1	1	1.296
B4-262-038	B4-262-038	B3-262-031	1.41	33:20 hr	2.778	1	1	1.298
B4-262-043	B4-262-044	B4-262-001	3.619	34:00 hr	4.562	1.25	1	1.117
B4-262-114	B4-262-114	B4-262-030	3.505	33:44 hr	3.068	1.5	1	1.015
B4-271-001	B4-271-001	B4-262-036	1.391	33:14 hr	2.74	1	1	1.278
B4-271-011	B4-271-011	B3-271-018	1.922	33:17 hr	3.148	0.899	0.719	0.866
B4-271-028	B4-271-028	B4-271-147	1.266	32:46 hr	2.493	1	1	1.033
B4-271-033	B4-271-033	B4-271-028	1.268	32:48 hr	2.498	1	1	1.035
B4-271-128	B4-271-128	B4-271-001	1.388	33:12 hr	2.734	1	1	1.278
B4-271-135	B4-271-135	B4-271-128	1.398	33:04 hr	2.754	1	1	1.142
B4-271-138	B4-271-138	B4-271-135	1.37	33:03 hr	2.698	1	1	1.118
B4-271-143	B4-271-143	B4-271-138	1.362	33:02 hr	2.684	1	1	1.112
B4-271-145	B4-271-145	B4-271-143	1.353	33:00 hr	2.665	1	1	1.104
B4-271-146	B4-271-146	B4-271-145	1.341	32:56 hr	2.642	1	1	1.094
B4-271-147	B4-271-147	B4-271-146	1.341	32:49 hr	2.642	1	1	1.095
B4-271-148	B4-271-148	B4-271-033	1.257	32:46 hr	2.477	1	1	1.026
B4-272-004	B4-272-004	B4-272-094	1.23	32:46 hr	2.424	1	1	1.005
B4-272-039	B4-272-039	B4-272-092	0.993	32:30 hr	2.562	0.713	0.713	0.858
B4-272-040	B4-272-040	B4-272-039	0.927	32:30 hr	2.502	0.685	0.685	0.814
B4-272-044	B4-272-044	B4-272-040	0.925	32:32 hr	2.527	0.677	0.677	0.802
B4-272-048	B4-272-048	B4-272-044	0.901	32:31 hr	2.338	0.71	0.71	0.852
B4-272-086	B4-272-086	B4-272-004	1.04	32:48 hr	2.709	0.707	0.707	0.848
B4-272-091	B4-272-091	B4-272-096	1.009	32:31 hr	2.695	0.692	0.692	0.824
B4-272-092	B4-272-092	B4-272-095	1.005	32:32 hr	2.564	0.721	0.721	0.87
B4-272-093	B4-272-093	B4-271-148	1.25	32:47 hr	2.463	1	1	1.021

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B4-272-094	B4-272-094	B4-272-093	1.241	32:44 hr	2.445	1	1	1.017
B4-272-095	B4-272-095	B4-272-091	1.004	32:31 hr	2.685	0.691	0.691	0.823
B4-272-096	B4-272-096	B4-272-086	1.027	32:35 hr	2.703	0.701	0.701	0.839
B4-281-054	B4-281-054	B4-272-048	0.877	32:31 hr	2.503	0.652	0.652	0.759
B4-281-057	B4-281-057	B4-281-054	0.832	32:31 hr	2.568	0.609	0.609	0.688
BV-105	BV-105	D2-252-004	0.389	22:00 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.026	32:59 hr	1.26	0.097	0.145	0.046
C1-221-018	C1-221-018	C2-221-030	0.306	32:31 hr	2.165	0.322	0.322	0.225
C1-221-019	C1-221-019	C1-221-018	0.31	32:16 hr	2.29	0.312	0.312	0.212
C1-261-028	C1-261-028	C1-261-020	3.74	34:02 hr	5.006	0.933	0.622	0.71
C1-261-030	C1-261-030	C1-261-028	3.737	34:00 hr	5.001	0.934	0.622	0.71
C1-261-058	C1-261-058	C1-261-062	3.662	34:00 hr	4.617	1.25	1	1.13
C1-261-060	C1-261-060	C1-261-030	3.723	34:00 hr	4.991	0.932	0.621	0.708
C1-261-062	C1-261-062	C1-261-060	3.664	34:01 hr	4.619	1.25	1	1.131
C1-281-035	C1-281-035	B4-281-057	0.77	32:16 hr	2.184	0.833	1	1.084
C2-221-030	C2-221-030	C2-221-037	0.309	32:34 hr	2.048	0.338	0.338	0.246
C2-221-031	C2-221-031	C3-221-003	0.292	32:45 hr	6.706	0.141	0.141	0.043
C2-221-032	C2-221-032	C2-221-065	0.295	32:45 hr	2.618	0.274	0.274	0.164
C2-221-033	C2-221-033	C2-221-032	0.301	32:48 hr	1.963	0.342	0.342	0.252
C2-221-034	C2-221-034	C2-221-033	0.301	32:46 hr	1.976	0.34	0.34	0.249
C2-221-035	C2-221-035	C2-221-034	0.298	32:42 hr	2.917	0.255	0.255	0.142
C2-221-037	C2-221-037	C2-221-035	0.3	32:37 hr	1.512	0.414	0.414	0.358
C2-221-065	C2-221-065	C2-221-031	0.293	32:45 hr	4.076	0.199	0.199	0.087
C2-261-001A	C2-261-001	C3-261-013	1.99	34:17 hr	8.141	0.448	0.384	0.313
C2-261-024	C2-261-024	C2-261-013	0.175	32:29 hr	1.153	0.246	0.109	0.025
C3-212-031	C3-212-031	C4-212-059	0.366	32:45 hr	3.721	0.249	0.249	0.135
C3-221-003	C3-221-003	C3-221-004	0.347	32:44 hr	4.184	0.22	0.22	0.106
C3-221-004	C3-221-004	C3-221-030	0.349	32:45 hr	4.189	0.221	0.221	0.107
C3-221-005	C3-221-005	C3-221-006	0.367	32:45 hr	4.301	0.225	0.225	0.111
C3-221-006	C3-221-006	C3-212-031	0.368	32:45 hr	3.98	0.238	0.238	0.124
C3-221-030	C3-221-030	C3-221-005	0.365	32:44 hr	4.245	0.226	0.226	0.112
C3-252-002	C3-252-002	C4-252-003	5.832	34:03 hr	3.348	1.346	0.539	0.566
C3-261-001	C3-261-001	C3-252-001	0.887	32:52 hr	1.912	0.593	0.339	0.247
C3-261-002	C3-261-002	C3-252-002	5.848	34:03 hr	3.654	1.343	0.597	0.667
C3-261-004	C3-261-004	C3-261-001	0.893	32:45 hr	1.916	0.595	0.34	0.249
C3-261-005	C3-261-005	C3-261-002	5.855	34:01 hr	4.328	1.172	0.521	0.535
C3-261-007	C3-261-007	C3-261-004	0.962	32:34 hr	1.96	0.618	0.353	0.268
C3-261-008	C3-261-008	C3-261-005	5.855	34:00 hr	2.851	1.677	0.745	0.905
C3-261-009	C3-261-009	C3-261-008	5.876	33:48 hr	2.853	1.681	0.747	0.908
C3-261-010	C3-261-010	C3-261-009	5.882	33:45 hr	2.859	1.68	0.746	0.907
C3-261-011	C3-261-011	C3-261-007	1.019	32:33 hr	1.987	0.638	0.365	0.284
C3-261-012	C3-261-012	C3-261-010	5.883	33:45 hr	2.877	1.537	0.615	0.697
C3-261-012A	C3-261-012	C3-261-011	0	00:00 hr	0	0	0	0
C3-261-013	C3-261-013	C3-261-012	5.885	33:45 hr	7.977	0.864	0.518	0.531
C3-261-015	C3-261-015	C3-261-011	1.057	32:32 hr	2.007	0.651	0.372	0.295
C3-261-019	C3-261-019	C3-261-015	1.076	32:32 hr	2.016	0.657	0.376	0.3
C3-261-021	C3-261-021	C3-261-019	1.083	32:30 hr	2.019	0.66	0.377	0.302
C3-261-031	C3-261-031	C3-261-013	2.586	33:32 hr	2.909	1.005	0.603	0.677
C3-261-035	C3-261-035	C2-261-024	0.175	32:29 hr	1.157	0.245	0.109	0.025
C3-261-040	C3-261-040	C3-261-031	2.588	33:15 hr	2.911	1.005	0.603	0.677
C3-261-043	C3-261-043	C3-261-035	0.175	32:28 hr	1.159	0.245	0.109	0.025
C3-261-050	C3-261-050	C3-261-075	0.176	32:24 hr	1.284	0.343	0.412	0.355
C3-261-056	C3-261-056	C3-261-050	0.179	32:15 hr	1.425	0.322	0.386	0.316
C3-261-062	C3-261-062	C3-261-040	2.635	33:19 hr	2.934	1.014	0.608	0.686
C3-261-075	C3-261-075	C3-261-076	0.176	32:29 hr	2.448	0.199	0.199	0.087
C3-261-076	C3-261-076	C3-261-043	0.176	32:30 hr	1.286	0.343	0.412	0.356
C3-262-007	C3-262-007	C3-262-009	2.667	33:15 hr	2.94	1.023	0.614	0.695
C3-262-009	C3-262-009	C3-261-062	2.661	33:19 hr	2.928	1.024	0.614	0.696
C3-262-033	C3-262-033	C3-262-007	2.678	33:05 hr	2.929	1.03	0.618	0.702
C3-262-041	C3-262-041	C3-262-033	2.692	33:00 hr	4.104	0.788	0.473	0.454
C3-262-046	C3-262-046	C3-262-041	2.72	33:02 hr	4.068	0.8	0.48	0.466
C3-262-051	C3-262-051	C3-262-046	2.722	33:00 hr	4.251	0.773	0.464	0.439

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C3-262-061	C3-262-061	C3-262-051	2.736	33:01 hr	4.264	0.774	0.465	0.441
C3-262-070	C3-262-070	C3-262-071	2.765	33:00 hr	3.397	0.935	0.561	0.604
C3-262-071	C3-262-071	C3-262-061	2.756	33:01 hr	4.366	0.765	0.459	0.431
C3-262-074	C3-262-074	C3-262-070	2.778	33:03 hr	3.069	1.021	0.612	0.693
C3-271-001	C3-271-001	C3-262-074	2.815	32:49 hr	3.102	1.023	0.614	0.695
C3-271-003	C3-271-003	C3-271-001	2.86	32:47 hr	3.108	1.035	0.621	0.708
C3-271-004	C3-271-004	C3-271-003	2.849	32:45 hr	3.108	1.032	0.619	0.704
C3-271-007	C3-271-007	C3-271-004	2.89	32:48 hr	3.105	1.045	0.627	0.718
C3-271-010	C3-271-010	SS_1_A	2.917	32:44 hr	5.393	0.68	0.408	0.349
C3-271-012	C3-271-012	C3-271-010	2.917	32:45 hr	5.591	0.662	0.397	0.333
C4-212-059	C4-212-059	C4-212-060	0.366	32:46 hr	4.587	0.215	0.215	0.101
C4-212-060	C4-212-060	D4-232-020	0.39	32:45 hr	4.101	0.242	0.242	0.129
C4-212-061	C4-212-061	C4-221-001	0.419	32:44 hr	4.257	0.248	0.248	0.135
C4-221-001	C4-221-001	D1-212-032	0.423	32:46 hr	5.411	0.211	0.211	0.098
C4-221-011	D4-232-020	C4-212-061	0.417	32:43 hr	4.181	0.251	0.251	0.138
C4-252-001	C4-252-001	D1-252-019	5.783	34:19 hr	3.283	1.359	0.543	0.574
C4-252-002	C4-252-002	D1-252-042	0.774	33:06 hr	1.841	0.552	0.316	0.216
C4-252-003	C4-252-003	C4-252-008	5.807	34:13 hr	3.999	1.167	0.467	0.444
C4-252-004	C4-252-004	C4-252-002	0.804	33:03 hr	1.859	0.563	0.322	0.224
C4-252-005	C4-252-005	C4-252-006	5.801	34:16 hr	3.57	1.274	0.51	0.516
C4-252-006	C4-252-006	C4-252-001	5.793	34:16 hr	4.027	1.159	0.463	0.439
C4-252-007	C3-252-001	C4-252-007	0.846	32:50 hr	1.887	0.578	0.331	0.236
C4-252-007A	C4-252-007	C4-252-004	0.821	33:04 hr	1.871	0.569	0.325	0.229
C4-252-008	C4-252-008	C4-252-005	5.805	34:16 hr	3.582	1.271	0.509	0.515
D1-212-011	D1-212-011	D1-212-012	0.44	32:45 hr	4.888	0.233	0.233	0.119
D1-212-012	D1-212-012	D2-212-011	0.441	32:45 hr	4.405	0.252	0.252	0.139
D1-212-032	D1-212-032	D1-212-011	0.438	32:46 hr	3.568	0.291	0.291	0.185
D1-242-011	D1-242-011	D1-242-030	0.459	32:27 hr	5.92	0.227	0.272	0.162
D1-242-017	D1-242-017	D1-242-011	0.456	32:25 hr	5.749	0.23	0.276	0.167
D1-242-018	D1-242-018	D1-242-017	0.453	32:15 hr	6.039	0.221	0.265	0.154
D1-242-019	D1-242-019	D1-242-018	0.446	32:15 hr	4.164	0.264	0.264	0.153
D1-242-030	D1-242-030	D1-242-031	0.463	32:30 hr	6.332	0.217	0.261	0.149
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.466	32:30 hr	6.089	0.248	0.372	0.295
D1-251-001	D1-262-049	D1-262-030	0.164	32:31 hr	1.617	0.204	0.117	0.029
D1-251-005	D1-251-023	D1-251-005	0.26	32:34 hr	4.168	0.194	0.233	0.119
D1-251-005A	D1-251-023	D1-251-005	0.222	32:34 hr	4.072	0.194	0.291	0.184
D1-251-005B	D1-251-005	D2-251-014	0.26	32:31 hr	3.508	0.219	0.263	0.152
D1-252-001	D1-252-001	D2-252-002	5.732	34:31 hr	4.753	1.013	0.405	0.345
D1-252-004	D1-252-004	D1-252-001	5.743	34:32 hr	3.603	1.255	0.502	0.503
D1-252-005	D1-252-005	D2-252-014	0.736	33:31 hr	1.794	0.512	0.256	0.144
D1-252-008	D1-252-008	D1-252-005	0.74	33:30 hr	1.795	0.513	0.257	0.144
D1-252-008A	D1-252-010	D1-252-008	0.742	33:31 hr	1.796	0.514	0.257	0.145
D1-252-009	D1-252-009	D1-252-004	5.751	34:31 hr	3.556	1.269	0.508	0.513
D1-252-010	D1-252-011	D1-252-010	0.737	33:31 hr	1.814	0.538	0.308	0.206
D1-252-011	D1-252-016	D1-252-011	0.743	33:32 hr	1.818	0.54	0.309	0.207
D1-252-015	D1-252-015	D1-252-009	5.754	34:30 hr	3.571	1.265	0.506	0.51
D1-252-018	D1-252-018	D1-252-015	5.758	34:31 hr	3.32	1.342	0.537	0.563
D1-252-019	D1-252-019	D1-252-018	5.759	34:29 hr	3.872	1.189	0.476	0.459
D1-252-023	D1-252-023	D1-252-016	0.742	33:19 hr	1.818	0.54	0.309	0.207
D1-252-031	D1-252-031	D1-252-023	0.75	33:16 hr	1.824	0.543	0.31	0.209
D1-252-036	D1-252-036	D1-252-031	0.758	33:16 hr	1.829	0.546	0.312	0.212
D1-252-041	D1-252-041	D1-252-036	0.762	33:16 hr	1.833	0.547	0.313	0.212
D1-252-042	D1-252-042	D1-252-041	0.769	33:21 hr	1.837	0.55	0.314	0.214
D1-252-050	D1-252-050	D2-252-067	0.348	32:31 hr	1.666	0.305	0.136	0.04
D1-252-053	D1-252-053	D2-252-085	4.063	34:16 hr	2.646	1.415	0.707	0.849
D1-252-056	D1-252-056	D1-252-053	4.066	34:15 hr	3.432	1.131	0.566	0.613
D1-252-057	D1-252-057	D1-252-056	4.068	34:15 hr	4.498	0.914	0.457	0.428
D1-252-059	D1-252-059	D1-252-057	4.055	34:14 hr	4.434	0.922	0.461	0.435
D1-261-001	D1-261-001	D1-252-059	4.055	34:15 hr	4.893	0.855	0.428	0.38
D1-261-003	D1-261-003	D1-252-050	0.358	32:35 hr	1.556	0.326	0.145	0.045
D1-261-006	D1-261-006	D1-261-001	3.953	34:14 hr	8.882	0.542	0.271	0.161

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-261-008	D1-261-008	D1-261-006	3.95	34:16 hr	4.802	0.85	0.425	0.376
D1-261-020	D1-261-020	D1-261-003	0.162	32:50 hr	1.226	0.223	0.099	0.02
D1-261-021	D1-261-021	D1-261-008	3.942	34:14 hr	4.765	0.854	0.427	0.379
D1-261-023	D1-261-023	D1-261-020	0.164	32:46 hr	1.206	0.228	0.101	0.021
D1-261-036	D1-261-036	D1-261-021	3.938	34:16 hr	4.389	0.909	0.454	0.424
D1-261-037	D1-261-037	D1-261-023	0.166	32:47 hr	1.257	0.223	0.099	0.021
D1-261-052	D1-261-052	D1-261-036	3.947	34:05 hr	2.459	1.475	0.737	0.894
D1-261-059	D1-261-059	D1-261-037	0.166	32:47 hr	1.172	0.234	0.104	0.023
D1-261-061	D1-261-061	D1-261-059	0.166	32:44 hr	2.401	0.144	0.064	0.008
D1-261-075	D1-261-075	D1-261-052	3.957	34:03 hr	3.393	1.117	0.558	0.6
D1-261-084	D1-261-084	D1-261-061	0.165	32:43 hr	1.221	0.226	0.101	0.021
D1-261-103	D1-261-103	D1-261-075	3.953	34:02 hr	4.334	0.92	0.46	0.433
D1-261-116	D1-262-001	D1-261-116	0.17	32:33 hr	1.255	0.249	0.143	0.044
D1-261-116A	D1-261-116	D1-261-084	0.164	32:34 hr	1.256	0.243	0.139	0.041
D1-261-117	D1-261-117	D1-261-103	3.944	34:00 hr	5.946	0.724	0.362	0.28
D1-261-128	D1-261-128	D1-261-117	3.931	34:01 hr	2.686	1.354	0.677	0.801
D1-262-025	D1-262-025	D1-261-128	3.916	33:53 hr	1.929	2	1	1.164
D1-262-030	D1-262-030	D1-262-001	0.162	32:32 hr	1.268	0.239	0.136	0.04
D1-262-040	D1-262-040	D1-262-025	3.909	33:46 hr	3.298	1.132	0.566	0.613
D1-262-067	D1-262-067	D1-262-040	3.898	33:47 hr	4.105	0.949	0.475	0.457
D1-262-079	D1-262-079	D1-262-049	0.165	32:18 hr	1.609	0.206	0.118	0.029
D1-262-088	D1-262-088	D1-262-067	3.902	33:47 hr	3.188	1.162	0.581	0.639
D1-262-100	D1-262-100	D1-262-088	3.899	33:47 hr	3.395	1.103	0.552	0.588
D1-271-018	D1-271-017	D1-271-055	3.938	33:33 hr	3.332	1.129	0.565	0.611
D1-271-051	D1-271-051	D1-271-054	3.093	33:29 hr	5.309	0.702	0.401	0.339
D1-271-054	D1-271-054	D1-271-092	3.116	33:31 hr	5.29	0.664	0.332	0.238
D1-271-055	D1-271-055	D1-262-100	3.925	33:35 hr	2.736	1.331	0.665	0.782
D1-271-092	D1-271-092	D1-271-017	3.103	33:29 hr	5.284	0.662	0.331	0.237
D2-212-001	D2-212-001	D2-212-002	0.45	32:44 hr	4.43	0.254	0.254	0.142
D2-212-002	D2-212-002	D2-212-025	0.451	32:44 hr	4.079	0.27	0.27	0.159
D2-212-003	D2-212-003	D2-212-014	0.469	32:45 hr	4.853	0.245	0.245	0.132
D2-212-011	D2-212-011	D2-212-012	0.451	32:45 hr	4.431	0.254	0.254	0.142
D2-212-012	D2-212-012	D2-212-001	0.449	32:44 hr	4.426	0.254	0.254	0.141
D2-212-013	D2-212-013	D2-212-003	0.466	32:45 hr	4.116	0.275	0.275	0.165
D2-212-014	D2-212-014	D3-212-022	0.471	32:47 hr	4.224	0.272	0.272	0.161
D2-212-025	D2-212-025	D2-212-013	0.451	32:45 hr	4.187	0.322	0.483	0.471
D2-241-006	D2-241-006	D2-241-007	0.029	32:15 hr	1.796	0.084	0.125	0.033
D2-241-007	D2-241-007	D3-241-001	0.033	32:25 hr	1.847	0.089	0.134	0.038
D2-251-004	D2-251-004	D3-251-011	10.379	33:00 hr	4.311	1.349	0.337	0.245
D2-251-005	D2-251-005	D2-251-004	6.479	34:30 hr	8.439	0.602	0.151	0.049
D2-251-008	D2-251-008	9008	0.611	32:31 hr	4.372	0.32	0.32	0.221
D2-251-014	D1-251-005	D2-251-014	0.221	32:31 hr	3.414	0.22	0.329	0.234
D2-251-014A	D2-251-014	D2-251-008	0.481	32:44 hr	9.472	0.157	0.157	0.053
D2-252-002	D2-252-002	D2-252-004	5.72	34:33 hr	3.687	1.228	0.491	0.485
D2-252-004	D2-252-004	D2-252-005	6.144	34:31 hr	5.22	0.995	0.398	0.334
D2-252-005	D2-252-005	D2-251-005	6.547	34:32 hr	2.854	1.302	0.326	0.229
D2-252-006	D2-252-006	D2-252-005	0.707	33:45 hr	3.261	0.327	0.164	0.058
D2-252-008	D2-252-008	D2-252-006	0.711	33:47 hr	1.737	0.511	0.255	0.143
D2-252-010	D2-252-010	D2-252-008	0.712	33:45 hr	2.905	0.356	0.178	0.069
D2-252-011	D2-252-011	D2-251-004	7.05	32:46 hr	5.59	1.109	0.493	0.488
D2-252-012	D2-252-012	D2-252-010	0.712	33:42 hr	1.833	0.492	0.246	0.133
D2-252-014	D2-252-014	D2-252-012	0.715	33:31 hr	0.745	0.957	0.478	0.463
D2-252-015	D2-252-015	D2-252-011	7.059	32:45 hr	13.016	0.594	0.264	0.153
D2-252-026	D2-252-026	D2-252-015	7.169	32:47 hr	3.905	1.405	0.562	0.606
D2-252-033	D2-252-033	D3-252-012	4.127	34:20 hr	4.544	0.917	0.459	0.431
D2-252-039	D2-252-039	D2-252-033	4.141	34:17 hr	4.349	0.951	0.476	0.459
D2-252-049	D2-252-049	D2-252-039	4.15	34:16 hr	6.196	0.729	0.365	0.284
D2-252-050	D2-252-050	D2-252-026	0.339	32:50 hr	2.41	0.243	0.122	0.031
D2-252-052	D2-252-052	D2-252-050	0.34	32:45 hr	1.672	0.3	0.133	0.038
D2-252-056	D2-252-056	D2-252-052	0.341	32:44 hr	6.508	0.119	0.053	0.005
D2-252-057	D2-252-057	D2-252-049	4.155	34:16 hr	6.38	0.714	0.357	0.273
D2-252-062	D2-252-062	D2-252-057	4.052	34:15 hr	4.379	0.93	0.465	0.442

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-252-067	D2-252-067	D2-252-056	0.343	32:34 hr	1.425	0.337	0.15	0.048
D2-252-069	D2-252-069	D2-252-062	4.058	34:16 hr	6.221	0.715	0.358	0.274
D2-252-071	D3-252-054	D2-252-071	7.185	32:30 hr	10.989	0.679	0.302	0.198
D2-252-085	D2-252-085	D2-252-069	4.059	34:16 hr	4.654	0.889	0.445	0.408
D2-252-105	D2-252-105	D2-252-026	6.939	32:37 hr	3.418	2	1	1.064
D2-271-017	D2-271-017	D2-271-019	0.847	33:17 hr	3.692	0.414	0.331	0.237
D2-271-019	D2-271-019	D2-271-022	0.84	33:16 hr	3.684	0.412	0.33	0.235
D2-271-022	D2-271-022	D2-271-023	0.838	33:15 hr	3.681	0.412	0.329	0.234
D2-271-023	D2-271-023	D2-271-109	0.836	33:16 hr	3.679	0.411	0.329	0.234
D2-271-039	D2-271-039	D2-271-042	2.981	33:30 hr	6.154	0.66	0.44	0.401
D2-271-042	D2-271-042	D2-271-043	2.98	33:30 hr	5.272	0.686	0.392	0.325
D2-271-043	D2-271-043	D2-271-045	2.979	33:30 hr	5.273	0.686	0.392	0.325
D2-271-045	D2-271-045	D1-271-051	3.094	33:30 hr	5.327	0.7	0.4	0.337
D2-271-048	D2-271-048	D2-271-039	2.372	33:30 hr	2.99	1.25	1	1.462
D2-271-052	D2-271-052	D2-271-048	2.38	33:32 hr	3.001	1.25	1	1.474
D2-271-063	D2-271-063	D2-271-052	2.394	33:20 hr	3.019	1.25	1	1.468
D2-271-067	D2-271-067	D2-271-063	2.429	33:19 hr	3.063	1.25	1	1.669
D2-271-075	D2-271-075	D2-271-067	2.433	33:15 hr	3.067	1.25	1	1.648
D2-271-109	D2-271-109	D1-271-017	0.837	33:15 hr	3.68	0.411	0.329	0.234
D2-272-011	D2-272-011	D2-271-075	2.411	33:11 hr	3.04	1.25	1	1.647
D2-272-023	D2-272-023	D2-272-025	2.545	32:49 hr	3.209	1.25	1	1.55
D2-272-025	D2-272-025	D2-272-029	2.479	33:03 hr	3.125	1.25	1	1.562
D2-272-029	D2-272-029	D2-272-011	2.468	33:07 hr	3.111	1.25	1	1.534
D2-272-052	D2-272-052	D2-272-023	2.543	32:50 hr	3.206	1.25	1	1.638
D2-272-070	D2-272-070	D2-272-052	2.644	32:35 hr	3.333	1.25	1	1.638
D2-272-072	D2-272-072	D2-272-070	2.719	32:33 hr	3.429	1.25	1	1.677
D2-272-074	D2-272-074	D2-272-072	2.745	32:32 hr	3.461	1.25	1	1.84
D2-272-075	D2-272-075	D2-272-074	2.737	32:30 hr	3.45	1.25	1	1.683
D2-281-002	D2-281-002	D2-272-075	2.744	32:19 hr	3.46	1.25	1	1.694
D3-212-001	D3-212-001	D3-212-002	0.019	32:16 hr	0.935	0.096	0.144	0.044
D3-212-002	D3-212-002	D3-212-003	0.02	32:26 hr	1.606	0.07	0.104	0.023
D3-212-003	D3-212-003	D3-212-004	0.022	32:30 hr	1.813	0.067	0.101	0.021
D3-212-004	D3-212-004	D3-212-012	0.022	32:28 hr	1.649	0.072	0.109	0.025
D3-212-012	D3-212-012	D3-212-013	0.021	32:28 hr	1.637	0.072	0.108	0.024
D3-212-013	D3-212-013	D3-221-016	0.022	32:29 hr	1.66	0.073	0.11	0.025
D3-212-017	D3-212-017	D3-221-016	0.477	32:45 hr	7.689	0.18	0.18	0.071
D3-212-018	D3-212-018	D3-212-017	0.479	32:45 hr	3.367	0.324	0.324	0.227
D3-212-022	D3-212-022	D3-212-018	0.481	32:46 hr	5.377	0.232	0.232	0.118
D3-212-023	D3-212-023	D3-212-001	0.01	32:16 hr	0.771	0.07	0.105	0.023
D3-221-016	D3-221-016	D3-221-024	0.496	32:46 hr	4.11	0.288	0.288	0.18
D3-221-021	D3-221-021	D4-221-004	0.487	32:46 hr	3.97	0.291	0.291	0.184
D3-221-022	D3-221-022	D3-221-021	0.49	32:46 hr	3.662	0.31	0.31	0.208
D3-221-023	D3-221-023	D3-221-022	0.492	32:46 hr	4.748	0.258	0.258	0.145
D3-221-024	D3-221-024	D3-221-023	0.494	32:46 hr	3.407	0.328	0.328	0.232
D3-232-001	D3-232-015	D3-232-001	0.069	32:30 hr	2.291	0.127	0.191	0.079
D3-232-001A	D3-232-001	D3-232-018	0.185	32:29 hr	3.044	0.21	0.315	0.215
D3-232-009	D3-232-009	D3-232-015	0.069	32:30 hr	2.296	0.127	0.191	0.08
D3-232-017	D3-232-017	D4-232-001	0.197	32:29 hr	6.151	0.133	0.2	0.087
D3-232-018	D3-232-018	D3-232-017	0.188	32:29 hr	6.607	0.123	0.184	0.074
D3-241-001	D3-241-001	D3-241-002	0.036	32:29 hr	1.886	0.092	0.139	0.041
D3-241-002	D3-241-002	D3-241-003	0.038	32:29 hr	1.927	0.096	0.143	0.044
D3-241-003	D3-241-003	D3-241-004	0.044	32:30 hr	2.005	0.102	0.153	0.051
D3-241-004	D3-241-004	D3-241-008	0.046	32:30 hr	2.033	0.104	0.156	0.053
D3-241-005	D3-241-009	D3-241-005	0.055	32:30 hr	2.149	0.114	0.171	0.064
D3-241-005A	D3-241-005	D3-241-006	0.057	32:29 hr	2.164	0.116	0.174	0.066
D3-241-006	D3-241-006	D3-241-007	0.066	32:32 hr	2.268	0.125	0.188	0.077
D3-241-007	D3-241-007	D3-232-009	0.069	32:31 hr	2.291	0.127	0.191	0.079
D3-241-009	D3-241-008	D3-241-009	0.048	32:28 hr	2.064	0.107	0.16	0.056
D3-251-001	D3-251-001	D4-251-018	12.759	33:17 hr	3.435	1.756	0.39	0.322
D3-251-002	D3-251-002	D3-251-001	12.851	33:04 hr	3.376	1.788	0.397	0.333
D3-251-004	D3-251-004	D3-251-016	10.385	33:01 hr	3.932	1.444	0.361	0.279
D3-251-008	D3-251-008	D3-251-012	10.339	33:01 hr	2.939	1.789	0.447	0.412

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-251-011	D3-251-011	D3-251-015	10.394	32:59 hr	6.812	0.972	0.243	0.13
D3-251-012	D3-251-012	D3-251-013	12.994	33:00 hr	2.488	2.453	0.613	0.695
D3-251-013	D3-251-013	D3-251-002	12.978	33:02 hr	3.669	1.693	0.376	0.301
D3-251-014	D3-251-014	D3-251-012	4.117	34:31 hr	2.411	1.567	0.784	0.957
D3-251-015	D3-251-015	D3-251-004	10.394	33:00 hr	3.93	1.445	0.361	0.279
D3-251-016	D3-251-016	D3-251-008	10.363	33:00 hr	5.11	1.191	0.298	0.193
D3-252-008	D3-252-008	D3-251-014	4.123	34:31 hr	2.709	1.403	0.702	0.84
D3-252-012	D3-252-012	D3-252-008	4.126	34:31 hr	4.273	0.962	0.481	0.468
D3-252-045	D2-252-071	D3-252-045	7.121	32:30 hr	9.748	0.778	0.389	0.32
D3-252-045A	D3-252-045	D2-252-105	7.117	32:31 hr	8.708	0.846	0.423	0.373
D3-252-057	D3-252-057	D3-252-054	7.188	32:30 hr	10.991	0.679	0.302	0.198
D3-261-010	D3-261-010	D3-252-057	7.204	32:30 hr	10.999	0.68	0.302	0.199
D3-261-014	D3-261-014	D3-261-010	5.883	32:30 hr	4.692	1.104	0.491	0.484
D3-261-025	D3-261-025	D3-261-014	5.107	32:46 hr	4.543	1.014	0.451	0.418
D3-261-045	D3-261-045	D3-261-025	5.114	32:33 hr	4.545	1.015	0.451	0.418
D3-261-075	D3-261-075	D3-261-045	5.393	32:33 hr	4.643	1.04	0.462	0.437
D3-261-086	D3-261-086	D3-261-075	4.903	32:31 hr	4.578	1.043	0.522	0.537
D3-261-117	D3-261-117	D3-261-086	5.193	32:34 hr	4.657	1.077	0.539	0.566
D3-261-130	D3-261-130	D3-261-117	5.311	32:31 hr	3.932	1.263	0.631	0.725
D3-262-017	D3-262-017	D3-261-130	5.377	32:32 hr	3.942	1.273	0.637	0.734
D3-262-018	D3-262-018	D3-262-017	3.44	32:31 hr	4.089	0.865	0.432	0.388
D3-262-042	D3-262-042	D3-262-018	1.417	32:34 hr	2.639	0.621	0.31	0.209
D3-262-065	D3-262-065	D3-262-122	1.392	32:34 hr	2.505	0.734	0.489	0.482
D3-262-083	D3-262-083	D3-262-065	1.424	32:34 hr	2.858	0.675	0.45	0.416
D3-262-122	D3-262-122	D3-262-042	1.298	32:30 hr	2.46	0.705	0.47	0.45
D3-271-013	D3-271-013	D3-262-083	1.378	32:22 hr	2.849	0.659	0.44	0.4
D3-271-019	D3-271-019	D3-271-024	0.856	33:16 hr	3.701	0.416	0.333	0.239
D3-271-024	D3-271-024	D2-271-017	0.852	33:16 hr	3.697	0.415	0.332	0.238
D3-271-029	D3-271-029	D3-271-013	0.026	32:29 hr	0.885	0.093	0.062	0.008
D3-271-038	D3-271-038	D3-271-019	0.859	33:17 hr	3.706	0.417	0.334	0.24
D3-271-055	D3-271-055	D3-271-038	0.859	33:12 hr	3.707	0.417	0.334	0.24
D3-271-059	D3-271-059	D3-271-055	0.856	33:13 hr	3.707	0.416	0.333	0.239
D3-271-068	D3-271-068	D3-271-069	0.884	33:00 hr	3.735	0.423	0.339	0.247
D3-271-069	D3-271-069	D3-271-070	0.882	33:01 hr	3.734	0.423	0.338	0.247
D3-271-070	D3-271-070	D3-271-072	0.875	33:02 hr	3.726	0.421	0.337	0.245
D3-271-072	D3-271-072	D3-271-059	0.863	33:01 hr	3.712	0.418	0.335	0.241
D3-271-075	D3-271-075	D3-271-068	0.884	33:00 hr	3.737	0.423	0.339	0.247
D3-271-111	D3-271-111	D3-271-029	0.014	32:19 hr	0.756	0.068	0.045	0.004
D3-281-006	D3-281-006	D2-281-002	2.763	32:16 hr	3.484	1.25	1	1.652
D4-221-004	D4-221-004	D4-221-005	0.487	32:58 hr	4.306	0.274	0.274	0.164
D4-221-005	D4-221-005	D4-221-008	0.489	33:01 hr	3.777	0.302	0.302	0.199
D4-221-008	D4-221-008	D4-221-009	0.49	33:00 hr	4.215	0.28	0.28	0.171
D4-221-009	D4-221-009	D4-221-010	0.49	33:00 hr	4.013	0.264	0.211	0.098
D4-221-010	D4-221-010	D4-221-011	0.491	33:00 hr	4.583	0.241	0.193	0.081
D4-221-011	D4-221-011	D4-221-015	0.5	33:02 hr	2.631	0.361	0.289	0.182
D4-232-001	D4-232-001	D4-232-002	0.199	32:29 hr	7.784	0.114	0.171	0.063
D4-232-002	D4-232-002	D4-232-003	0.203	32:29 hr	7.15	0.122	0.183	0.073
D4-232-003	D4-232-003	D4-232-004	0.204	32:29 hr	4.233	0.177	0.266	0.155
D4-232-004	D4-232-004	D4-232-005	0.213	32:30 hr	3.348	0.216	0.325	0.228
D4-232-005	D4-232-005	D4-232-006	0.211	32:31 hr	3.399	0.213	0.319	0.22
D4-232-006	D4-232-006	D4-232-007	0.208	32:32 hr	3.842	0.193	0.289	0.183
D4-232-007	D4-232-007	D4-232-008	0.25	32:30 hr	2.543	0.3	0.45	0.416
D4-232-008	D4-232-008	9000	0.25	32:31 hr	3.322	0.245	0.367	0.288
D4-251-001	D4-251-001	E1-251-002	13.008	33:33 hr	3.417	1.788	0.397	0.333
D4-251-005	D4-251-005	D4-251-019	13.027	33:31 hr	2.577	2.221	0.494	0.489
D4-251-008	D4-251-008	D4-251-005	12.71	33:19 hr	3.259	1.821	0.405	0.344
D4-251-018	D4-251-018	D4-251-008	12.736	33:15 hr	3.427	1.757	0.39	0.322
D4-251-019	D4-251-019	D4-251-001	13.019	33:30 hr	2.581	2.217	0.493	0.488
D4-271-014	D4-271-014	D4-271-015	0.897	32:57 hr	3.752	0.427	0.341	0.251
D4-271-015	D4-271-015	D4-271-018	0.897	33:01 hr	3.751	0.427	0.341	0.251
D4-271-018	D4-271-018	D4-271-021	0.895	33:01 hr	3.749	0.426	0.341	0.25
D4-271-021	D4-271-021	D3-271-075	0.892	33:02 hr	3.745	0.425	0.34	0.249

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-221-001	D4-221-015	E1-221-001	0.498	33:00 hr	2.794	0.345	0.276	0.167
E1-221-001A	E1-221-001	E1-222-004	0.503	33:02 hr	2.936	0.335	0.268	0.157
E1-222-004	E1-222-004	E1-222-005	0.501	33:00 hr	6.228	0.203	0.174	0.066
E1-222-005	E1-222-005	E1-222-006	0.502	33:01 hr	4.468	0.249	0.199	0.087
E1-222-006	E1-222-006	E1-222-007	0.502	33:00 hr	3.658	0.287	0.229	0.115
E1-222-007	E1-222-007	E1-222-011	0.503	33:01 hr	3.663	0.287	0.229	0.115
E1-222-011	E1-222-011	E1-222-012	0.502	33:00 hr	4.556	0.229	0.153	0.05
E1-222-012	E1-222-012	E2-222-075	0.503	33:02 hr	2.935	0.311	0.207	0.094
E1-231-012	E1-231-012	E2-231-021	0.404	32:46 hr	4.466	0.281	0.422	0.372
E1-242-001	E1-242-001	E2-242-034	14.985	33:46 hr	3.423	1.987	0.442	0.403
E1-242-002	E1-242-002	E1-242-001	2.111	34:00 hr	3.01	0.755	0.377	0.303
E1-251-001	E1-251-001	E1-242-001	12.922	33:47 hr	5.845	1.204	0.268	0.157
E1-251-002	E1-251-002	E1-251-001	12.948	33:34 hr	3.229	1.86	0.413	0.358
E1-251-003	E1-251-003	E1-251-025	2.113	33:49 hr	2.688	0.822	0.411	0.354
E1-251-004	E1-251-004	E1-251-003	2.125	33:49 hr	2.591	0.848	0.424	0.375
E1-251-007	E1-251-007	E2-251-027	2.104	33:46 hr	3.245	0.712	0.356	0.272
E1-251-018	E1-251-018	E1-251-007	2.102	33:46 hr	3.614	0.658	0.329	0.234
E1-251-019	E1-251-019	E1-251-018	2.098	33:45 hr	3.628	0.655	0.327	0.232
E1-251-020	E1-251-020	E1-251-019	2.088	33:44 hr	3.301	0.699	0.35	0.262
E1-251-021	E1-251-021	E1-251-020	2.087	33:31 hr	3.296	0.7	0.35	0.263
E1-251-023	E1-251-023	E1-251-021	2.096	33:31 hr	3.326	0.697	0.349	0.261
E1-251-025	E1-251-025	E1-242-002	2.111	34:00 hr	2.685	0.822	0.411	0.354
E1-271-068	E1-271-068	E1-271-072	0.93	32:47 hr	3.789	0.435	0.348	0.26
E1-271-072	E1-271-072	E1-271-076	0.915	32:47 hr	3.773	0.431	0.345	0.256
E1-271-076	E1-271-076	D4-271-014	0.897	32:45 hr	3.752	0.427	0.341	0.251
E2-202-016	E2-202-016	E3-202-009	0.294	32:16 hr	4.041	0.239	0.359	0.276
E2-222-015	E2-222-015	E2-222-036	1.404	32:45 hr	6.359	0.372	0.248	0.135
E2-222-016	E2-222-016	E2-222-015	0.927	32:59 hr	13.739	0.191	0.191	0.079
E2-222-017	E2-222-017	E2-222-016	0.506	33:14 hr	7.367	0.166	0.11	0.026
E2-222-028	E2-222-028	E2-222-029	0.412	32:45 hr	4.488	0.284	0.426	0.378
E2-222-028A	E2-222-007	E2-222-028	0.411	32:45 hr	4.485	0.284	0.426	0.378
E2-222-029	E2-222-029	E2-222-030	0.412	32:45 hr	4.488	0.284	0.427	0.379
E2-222-030	E2-222-030	E2-222-031	0.411	32:45 hr	4.486	0.284	0.426	0.378
E2-222-031	E2-222-031	E2-222-048	0.412	32:46 hr	4.488	0.284	0.427	0.379
E2-222-036	E2-222-036	E2-222-037	1.402	32:45 hr	5.972	0.389	0.259	0.147
E2-222-037	E2-222-037	E3-222-065	1.402	32:45 hr	6.065	0.384	0.256	0.144
E2-222-040	E2-222-040	E2-222-015	0.502	32:30 hr	4.899	0.309	0.464	0.44
E2-222-044	E2-222-044	E2-222-017	0.507	33:03 hr	2.759	0.327	0.218	0.104
E2-222-048	E2-222-048	E2-222-050	0.41	32:45 hr	4.482	0.284	0.425	0.377
E2-222-050	E2-222-050	E2-222-040	0.502	32:30 hr	7.035	0.236	0.354	0.268
E2-222-067	E2-222-067	E2-222-044	0.508	33:01 hr	3.653	0.269	0.179	0.07
E2-222-075	E2-222-075	E2-222-067	0.507	33:00 hr	3.671	0.268	0.178	0.069
E2-231-002	E2-231-002	E2-222-007	0.402	32:46 hr	4.313	0.239	0.239	0.125
E2-231-005	E2-231-005	E2-231-002	0.404	32:46 hr	4.309	0.24	0.24	0.126
E2-231-006	E2-231-006	E2-231-005	0.404	32:45 hr	4.322	0.24	0.24	0.126
E2-231-013	E2-231-013	E2-231-006	0.404	32:45 hr	4.467	0.281	0.422	0.372
E2-231-021	E2-231-021	E2-231-013	0.397	32:46 hr	4.445	0.279	0.418	0.365
E2-231-028	E2-231-028	E2-231-029	0.437	32:45 hr	3.663	0.348	0.522	0.538
E2-231-029	E2-231-029	E2-231-030	0.429	32:45 hr	3.52	0.354	0.531	0.553
E2-231-030	E2-231-030	E2-231-031	0.425	32:45 hr	3.173	0.382	0.573	0.626
E2-231-031	E2-231-031	E2-231-035	0.416	32:46 hr	4.084	0.308	0.462	0.436
E2-231-035	E2-231-035	E2-231-037	0.398	32:45 hr	4.448	0.279	0.419	0.366
E2-231-037	E2-231-037	E1-231-012	0.394	32:45 hr	4.436	0.278	0.416	0.362
E2-242-004	E2-242-004	E3-242-012	14.851	34:18 hr	3.506	1.938	0.431	0.385
E2-242-011	E2-242-011	E2-242-004	14.876	34:05 hr	3.331	2.018	0.448	0.414
E2-242-017	E2-242-017	E2-242-011	14.911	34:04 hr	2.81	2.307	0.513	0.522
E2-242-024	E2-242-024	E2-242-017	14.923	34:02 hr	3.828	1.82	0.405	0.344
E2-242-034	E2-242-034	E2-242-024	14.964	33:47 hr	3.354	2.016	0.448	0.413
E2-251-027	E2-251-027	E1-251-004	2.126	33:45 hr	2.841	0.792	0.396	0.331
E2-251-058	E2-251-058	E1-251-023	2.092	33:30 hr	4.392	0.569	0.285	0.177
E2-252-192	E2-252-192	E2-251-058	2.106	33:32 hr	5.802	0.532	0.355	0.27
E2-252-193	E2-252-193	E2-252-196	2.111	33:31 hr	6.291	0.503	0.335	0.242

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E2-252-194	E2-252-194	E2-252-193	2.112	33:30 hr	6.292	0.503	0.335	0.242
E2-252-196	E2-252-196	E2-252-192	2.106	33:29 hr	6.289	0.502	0.334	0.241
E2-271-073	E2-271-076	E2-271-078	0.965	32:32 hr	3.829	0.444	0.355	0.27
E2-271-077	E2-271-078	E2-271-081	0.952	32:46 hr	3.815	0.44	0.352	0.266
E2-271-081	E2-271-081	E2-271-086	0.949	32:47 hr	3.811	0.44	0.352	0.265
E2-271-086	E2-271-086	E1-271-068	0.941	32:47 hr	3.802	0.438	0.35	0.263
E3-202-008	E3-202-010	E3-202-008	0.295	32:30 hr	3.159	0.259	0.31	0.209
E3-202-008A	E3-202-008	E3-202-011	0.3	32:30 hr	3.176	0.261	0.314	0.213
E3-202-009	E3-202-009	E3-202-BV	0.293	32:30 hr	3.16	0.258	0.309	0.208
E3-202-011	E3-202-011	E3-202-012	0.3	32:31 hr	3.261	0.256	0.308	0.206
E3-202-012	E3-202-012	E4-202-001	0.299	32:30 hr	4.686	0.197	0.237	0.123
E3-222-051	E3-222-051	E3-231-006	1.415	32:48 hr	3.051	0.639	0.426	0.378
E3-222-051A	E3-222-064	E3-222-051	1.417	32:46 hr	3.492	0.578	0.385	0.315
E3-222-065	E3-222-065	E3-222-064	1.401	32:45 hr	4.244	0.497	0.331	0.237
E3-231-006	E3-231-006	E4-231-005	1.417	32:52 hr	2.956	0.607	0.347	0.259
E3-241-015	E3-241-015	E4-241-016	16.493	34:33 hr	4.901	1.632	0.363	0.281
E3-241-022	E3-241-022	E3-241-015	16.516	34:18 hr	4.659	1.696	0.377	0.302
E3-241-028	E3-241-028	E3-241-022	16.556	34:17 hr	3.744	2.003	0.445	0.408
E3-241-034	E3-241-034	E3-241-028	2.056	33:15 hr	4.049	0.685	0.456	0.427
E3-241-036	E3-241-036	E3-241-034	2.024	33:15 hr	4.189	0.659	0.439	0.399
E3-241-048	E3-241-048	E3-241-049	2.006	33:15 hr	3.211	0.806	0.537	0.563
E3-241-049	E3-241-049	E3-241-036	2.019	33:15 hr	4.7	0.603	0.402	0.34
E3-242-002	E3-242-002	E3-241-028	14.821	34:18 hr	3.895	1.788	0.397	0.333
E3-242-012	E3-242-012	E3-242-002	14.834	34:15 hr	4.406	1.633	0.363	0.281
E3-252-001	E3-252-001	E3-252-003	2.132	33:19 hr	2.994	0.896	0.598	0.668
E3-252-003	E3-252-003	E3-252-004	2.117	33:33 hr	3.002	0.889	0.593	0.659
E3-252-004	E3-252-004	E3-252-084	2.114	33:29 hr	6.277	0.504	0.336	0.243
E3-252-084	E3-252-084	E2-252-194	2.116	33:31 hr	6.295	0.503	0.335	0.243
E3-252-085	E3-252-085	E3-252-001	2.135	33:15 hr	2.991	0.898	0.599	0.669
E3-271-068	E3-271-068	E3-271-072	0.897	32:31 hr	3.759	0.426	0.341	0.25
E3-271-072	E3-271-072	E3-271-074	0.9	32:31 hr	3.755	0.427	0.342	0.252
E3-271-074	E3-271-074	E2-271-076	0.956	32:30 hr	3.818	0.441	0.353	0.267
E3-271-121	E3-271-121	E3-271-123	0.887	32:31 hr	3.743	0.424	0.339	0.248
E3-271-122	E3-271-122	E3-271-121	0.879	32:30 hr	3.196	0.473	0.379	0.304
E3-271-123	E3-271-123	E3-271-068	0.883	32:31 hr	3.735	0.423	0.338	0.247
E4-202-001	E4-202-001	E4-202-002	0.297	32:30 hr	4.617	0.184	0.184	0.074
E4-202-002	E4-202-002	E4-202-003	0.297	32:31 hr	3.923	0.206	0.206	0.093
E4-202-003	E4-202-003	E4-202-009	0.292	32:30 hr	3.897	0.205	0.205	0.092
E4-202-007	E4-202-007	E4-202-013	0.299	32:30 hr	3.983	0.206	0.206	0.093
E4-202-009	E4-202-009	E4-202-007	0.295	32:30 hr	3.906	0.206	0.206	0.093
E4-202-013	E4-202-013	E4-202-014	0.298	32:31 hr	3.98	0.205	0.205	0.092
E4-202-014	E4-202-014	F1-202-010	0.295	32:30 hr	4.491	0.187	0.187	0.076
E4-231-005	E4-231-005	E4-231-006	1.414	33:00 hr	5.468	0.39	0.223	0.109
E4-231-006	E4-231-006	E4-231-008	1.414	33:01 hr	5.477	0.39	0.223	0.109
E4-231-007	E4-231-007	F1-231-002	1.404	33:04 hr	2.581	0.683	0.41	0.352
E4-231-008	E4-231-008	E4-231-007	1.407	33:01 hr	3.03	0.607	0.364	0.283
E4-232-016	E4-232-016	F1-232-033	16.485	34:48 hr	3.717	2.007	0.446	0.41
E4-241-005	E4-241-005	E4-232-016	16.518	34:35 hr	3.876	1.947	0.433	0.389
E4-241-016	E4-241-016	E4-241-005	16.48	34:32 hr	5.061	1.593	0.354	0.269
E4-241-075	E4-241-075	E4-241-077	1.839	33:14 hr	5.427	0.506	0.337	0.245
E4-241-077	E4-241-077	E4-241-078	1.841	33:17 hr	3.222	0.75	0.5	0.5
E4-241-078	E4-241-078	E4-241-079	1.842	33:16 hr	3.549	0.696	0.464	0.44
E4-241-079	E4-241-079	E4-241-080	1.972	33:15 hr	3.017	0.835	0.557	0.597
E4-241-080	E4-241-080	E3-241-048	1.975	33:16 hr	3.022	0.835	0.557	0.597
E4-241-081	E4-241-081	E4-241-075	1.838	33:11 hr	4.075	0.626	0.417	0.364
E4-242-014	E4-242-014	E4-241-081	1.811	33:02 hr	3.729	0.662	0.441	0.402
E4-242-029	E4-242-029	E4-242-014	1.824	33:03 hr	3.078	0.772	0.515	0.525
E4-242-034	E4-242-034	E4-242-029	1.822	33:00 hr	3.469	0.703	0.468	0.447
E4-242-036	E4-242-036	E4-242-034	1.821	32:59 hr	3.467	0.703	0.469	0.447
E4-242-045	E4-242-045	E4-242-036	1.824	33:01 hr	3.472	0.703	0.469	0.447
E4-242-057	E4-242-057	E4-242-045	1.821	33:02 hr	3.24	0.741	0.494	0.489
E4-242-062	E4-242-062	E4-242-057	1.814	33:01 hr	3.198	0.746	0.497	0.495

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E4-242-069	E4-242-069	E4-242-062	1.816	32:48 hr	2.881	0.811	0.541	0.57
E4-242-078	E4-242-078	E4-242-069	1.802	32:47 hr	3.012	0.778	0.519	0.532
E4-251-001	E4-251-001	E4-242-078	1.8	32:45 hr	3.063	0.767	0.512	0.52
E4-252-009	E4-252-009	E3-252-085	2.135	33:15 hr	2.99	0.898	0.599	0.67
E4-252-010	E4-252-010	E4-252-009	2.137	33:15 hr	2.985	0.9	0.6	0.672
E4-252-011	E4-252-011	E4-252-010	2.145	33:16 hr	3	0.899	0.6	0.671
E4-252-013	E4-252-013	E4-252-014	2.183	33:00 hr	4.375	0.675	0.45	0.417
E4-252-014	E4-252-014	E4-252-019	2.181	33:00 hr	4.283	0.686	0.457	0.429
E4-252-019	E4-252-019	E4-252-021	2.179	33:03 hr	3.299	0.843	0.562	0.606
E4-252-021	E4-252-021	E4-252-023	2.158	33:16 hr	3.321	0.831	0.554	0.593
E4-252-023	E4-252-023	E4-252-011	2.157	33:18 hr	3.035	0.895	0.597	0.666
E4-252-033	E4-252-033	E4-252-013	2.198	33:02 hr	3.795	0.758	0.506	0.51
E4-252-035	E4-252-035	E4-252-033	2.205	33:01 hr	6.14	0.528	0.352	0.266
E4-252-037	E4-252-037	E4-252-035	2.212	33:01 hr	4.549	0.662	0.442	0.403
E4-271-058	E4-271-058	E4-271-060	0.904	32:32 hr	2.32	0.616	0.493	0.488
E4-271-060	E4-271-060	E4-271-062	0.897	32:31 hr	3.921	0.413	0.331	0.236
E4-271-062	E4-271-062	E4-271-063	0.887	32:31 hr	4.376	0.378	0.303	0.199
E4-271-063	E4-271-063	E4-271-064	0.878	32:30 hr	4.785	0.352	0.282	0.173
E4-271-064	E4-271-064	E3-271-122	0.887	32:31 hr	3.393	0.455	0.364	0.284
F1-202-005	F1-202-005	F1-202-007	0.305	32:30 hr	3.782	0.198	0.158	0.054
F1-202-006	F1-202-006	F1-202-005	0.305	32:30 hr	3.976	0.196	0.168	0.061
F1-202-007	F1-202-007	F2-202-001	0.325	32:30 hr	4.521	0.183	0.146	0.046
F1-202-008	F1-202-008	F1-202-006	0.308	32:31 hr	2.892	0.24	0.192	0.08
F1-202-009	F1-202-009	F1-202-008	0.311	32:31 hr	4.123	0.206	0.206	0.093
F1-202-010	F1-202-010	F1-202-009	0.292	32:31 hr	4.292	0.192	0.192	0.08
F1-231-001	F1-231-001	F2-231-024	1.374	33:20 hr	2.205	0.738	0.422	0.371
F1-231-001A	F1-231-003	F1-231-001	1.386	33:18 hr	2.696	0.655	0.393	0.326
F1-231-002	F1-231-002	F1-231-003	1.386	33:17 hr	2.474	0.698	0.419	0.367
F1-232-001	F1-232-001	F2-231-023	16.833	35:02 hr	3.851	1.985	0.441	0.402
F1-232-002	F1-232-002	F1-232-001	16.845	34:50 hr	3.595	2.094	0.465	0.442
F1-232-008	F1-232-008	F1-232-066	1.181	32:30 hr	4.233	0.478	0.383	0.31
F1-232-012	F1-232-012	F1-232-066	16.448	34:45 hr	3.662	2.027	0.45	0.417
F1-232-013	F1-232-013	F1-232-008	1.195	32:32 hr	2.922	0.64	0.512	0.521
F1-232-014	F1-232-014	F1-232-017	0.508	33:44 hr	2.937	0.338	0.27	0.16
F1-232-017	F1-232-017	F1-232-019	0.509	33:48 hr	2.384	0.393	0.315	0.215
F1-232-019	F1-232-019	F1-232-013	1.194	32:30 hr	2.933	0.638	0.51	0.518
F1-232-033	F1-232-033	F1-232-012	16.475	34:48 hr	3.79	1.977	0.439	0.399
F1-232-066	F1-232-066	F1-232-002	16.87	34:47 hr	3.687	2.056	0.457	0.428
F1-241-050	F1-241-050	F1-242-001	0.035	32:41 hr	1.758	0.077	0.061	0.007
F1-241-109	F1-241-109	F1-241-050	0.032	32:33 hr	0.909	0.112	0.09	0.017
F1-241-110	F1-241-110	F1-241-109	0.026	32:37 hr	0.865	0.1	0.08	0.013
F1-242-001	F1-242-001	E4-241-081	0.059	32:29 hr	2.052	0.097	0.078	0.012
F1-251-003	F1-251-003	E4-251-001	1.797	32:45 hr	2.972	0.785	0.523	0.54
F1-251-015	F1-251-015	F1-251-003	1.595	33:01 hr	3.753	0.66	0.528	0.548
F1-251-023	F1-251-023	F1-251-015	1.592	32:47 hr	3.874	0.643	0.514	0.524
F1-251-031	F1-251-031	F1-251-023	1.522	33:00 hr	4.532	0.55	0.44	0.4
F1-251-033	F1-251-033	F1-251-031	1.516	32:58 hr	3.688	0.643	0.514	0.525
F1-251-034	F1-251-034	F1-251-106	1.518	32:46 hr	3.415	0.684	0.547	0.581
F1-251-039	F1-251-039	F1-251-034	1.525	32:47 hr	3.829	0.627	0.502	0.503
F1-251-040	F1-251-040	F1-251-039	1.517	32:47 hr	3.714	0.64	0.512	0.52
F1-251-041	F1-251-041	F1-251-040	1.508	32:45 hr	3.767	0.63	0.504	0.506
F1-251-044	F1-251-044	F1-251-041	1.502	32:46 hr	3.765	0.628	0.502	0.504
F1-251-047	F1-251-047	F1-251-044	1.499	32:47 hr	3.671	0.64	0.512	0.52
F1-251-048	F1-251-048	F1-251-068	1.493	32:45 hr	3.95	0.602	0.482	0.469
F1-251-049	F1-251-049	F1-251-108	1.435	32:45 hr	3.549	0.635	0.508	0.513
F1-251-050	F1-251-050	F1-251-049	1.44	32:32 hr	3.949	0.585	0.468	0.447
F1-251-068	F1-251-068	F1-251-047	1.495	32:45 hr	3.951	0.603	0.482	0.47
F1-251-106	F1-251-106	F1-251-033	1.513	32:58 hr	3.411	0.683	0.547	0.58
F1-251-108	F1-251-108	F1-251-048	1.492	32:45 hr	3.461	0.792	0.792	0.967
F1-252-017	F1-252-017	E4-252-037	2.215	33:00 hr	5.399	0.583	0.388	0.319
F1-252-033	F1-252-033	F1-252-017	2.216	33:00 hr	5.4	0.583	0.389	0.32
F1-252-039	F1-252-039	F1-252-033	2.219	33:01 hr	4.948	0.623	0.415	0.361

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-261-003	F1-261-003	F1-261-004	2.196	32:59 hr	6.611	0.545	0.436	0.394
F1-261-004	F1-261-004	F1-252-039	2.198	32:59 hr	6.234	0.521	0.347	0.259
F1-261-009	F1-261-009	F1-261-003	2.197	32:59 hr	4.653	0.719	0.575	0.629
F1-261-026	F1-261-026	F1-261-009	2.198	32:45 hr	4.654	0.719	0.575	0.629
F1-261-040	F1-261-040	F1-261-026	2.208	32:46 hr	4.648	0.723	0.578	0.634
F1-261-048	F1-261-048	F1-261-040	2.194	32:46 hr	4.641	0.72	0.576	0.63
F1-261-058	F1-261-058	F1-261-048	2.201	32:46 hr	5.64	0.617	0.494	0.489
F1-261-064	F1-261-064	F1-261-058	2.204	32:46 hr	5.347	0.644	0.515	0.526
F1-261-070	F1-261-070	F1-261-064	2.178	32:45 hr	5.332	0.64	0.512	0.52
F1-261-075	F1-261-075	F1-261-070	2.177	32:45 hr	4.806	0.695	0.556	0.596
F1-261-078	F1-261-078	F1-261-075	2.095	32:46 hr	4.763	0.679	0.543	0.574
F1-261-081	F1-261-081	F1-261-078	2.099	32:46 hr	4.208	0.752	0.602	0.675
F1-261-089	F1-261-089	F1-261-081	2.101	32:46 hr	4.209	0.753	0.602	0.676
F1-261-095	F1-261-095	F1-261-089	2.065	32:45 hr	4.208	0.742	0.594	0.661
F1-261-097	F1-261-097	F1-261-095	2.065	32:45 hr	4.205	0.742	0.594	0.662
F1-261-106	F1-261-106	F1-261-097	2.064	32:45 hr	4.208	0.742	0.593	0.66
F1-271-101	F1-271-101	F1-271-103	0.772	32:21 hr	2.228	0.563	0.45	0.417
F1-271-103	F1-271-103	E4-271-058	0.907	32:30 hr	2.717	0.547	0.438	0.396
F2-202-001	F2-202-001	F2-202-023	0.325	32:30 hr	3.595	0.214	0.171	0.064
F2-202-002	F2-202-002	F2-202-007	0.331	32:41 hr	3.567	0.218	0.174	0.066
F2-202-003	F2-202-003	F2-202-005	0.326	32:30 hr	3.658	0.212	0.17	0.063
F2-202-004	F2-202-004	F2-202-006	0.338	32:44 hr	3.489	0.225	0.18	0.07
F2-202-005	F2-202-005	F2-202-002	0.328	32:44 hr	3.752	0.209	0.168	0.061
F2-202-006	F2-202-006	F2-202-024	0.344	32:45 hr	4.718	0.185	0.148	0.047
F2-202-007	F2-202-007	F2-202-004	0.337	32:43 hr	3.785	0.212	0.169	0.062
F2-202-023	F2-202-023	F2-202-003	0.325	32:30 hr	3.326	0.226	0.181	0.071
F2-202-024	F2-202-024	F3-202-006	0.348	32:45 hr	4.025	0.207	0.166	0.06
F2-231-004	F2-231-004	F3-231-015	17.394	35:19 hr	3.155	2.378	0.529	0.549
F2-231-010	F2-231-010	F2-231-004	17.43	35:05 hr	3.869	2.032	0.451	0.419
F2-231-016	F2-231-016	F2-231-010	16.792	35:03 hr	3.829	1.99	0.442	0.404
F2-231-023	F2-231-023	F2-231-016	16.821	35:04 hr	3.696	2.047	0.455	0.425
F2-231-024	F2-231-024	F2-231-010	1.365	33:33 hr	1.925	0.815	0.466	0.442
F2-232-002	F2-232-002	F2-232-003	0.514	33:33 hr	2.33	0.402	0.322	0.224
F2-232-003	F2-232-003	F2-232-004	0.508	33:32 hr	2.3	0.403	0.322	0.225
F2-232-004	F2-232-004	F2-232-005	0.507	33:30 hr	2.297	0.403	0.322	0.225
F2-232-005	F2-232-005	F2-232-006	0.508	33:32 hr	2.245	0.41	0.328	0.232
F2-232-006	F2-232-006	F1-232-014	0.508	33:46 hr	2.399	0.391	0.313	0.212
F2-232-007	F2-232-007	F2-232-002	0.517	33:31 hr	2.052	0.443	0.354	0.269
F2-242-055	F2-242-055	F1-241-110	0.024	32:45 hr	0.819	0.098	0.078	0.012
F2-242-056	F2-242-056	F2-242-055	0.025	32:34 hr	0.885	0.097	0.078	0.012
F2-251-012	F2-251-012	F2-251-028	1.359	32:30 hr	4.125	0.542	0.433	0.389
F2-251-016	F2-251-016	F2-251-017	1.371	32:32 hr	4.044	0.554	0.443	0.405
F2-251-017	F2-251-017	F2-252-027	1.359	32:31 hr	4.153	0.539	0.431	0.386
F2-251-018	F2-251-018	F1-251-050	1.463	32:31 hr	4.359	0.549	0.44	0.399
F2-251-028	F2-251-028	F2-251-016	1.369	32:31 hr	4.134	0.544	0.435	0.392
F2-252-027	F2-252-027	F2-251-018	1.459	32:30 hr	4.227	0.561	0.449	0.415
F2-261-053	F2-261-053	F1-261-106	1.718	33:00 hr	5.63	0.511	0.409	0.351
F2-262-011	F2-262-011	F2-261-053	1.708	32:47 hr	4.914	0.564	0.451	0.419
F2-262-017	F2-262-017	F2-262-011	1.653	32:46 hr	5.764	0.488	0.39	0.322
F2-262-020	F2-262-020	F2-262-017	1.655	32:45 hr	5.765	0.488	0.391	0.323
F2-262-029	F2-262-029	F2-262-020	1.674	32:46 hr	5.088	0.541	0.433	0.389
F2-262-032	F2-262-032	F2-262-029	1.688	32:47 hr	3.607	0.714	0.571	0.622
F2-262-038	F2-262-038	F2-262-032	1.623	32:46 hr	4.355	0.595	0.476	0.46
F3-202-006	F3-202-006	F3-202-007	0.353	32:44 hr	3.677	0.223	0.179	0.07
F3-202-007	F3-202-007	F3-211-010	0.378	32:43 hr	3.751	0.231	0.185	0.075
F3-211-010	F3-211-010	F3-211-011	0.39	32:42 hr	4.101	0.222	0.178	0.069
F3-211-011	F3-211-011	F3-211-012	0.393	32:43 hr	3.814	0.235	0.188	0.077
F3-211-012	F3-211-012	F3-211-013	0.45	32:30 hr	4.069	0.247	0.197	0.085
F3-211-013	F3-211-013	F4-211-002	0.455	32:30 hr	3.937	0.254	0.203	0.09
F3-222-007	F3-222-007	F3-222-019	17.34	35:34 hr	3.751	2.072	0.46	0.434
F3-222-008	F3-222-008	F3-222-007	17.352	35:34 hr	3.683	2.103	0.467	0.445
F3-222-008A	F3-222-020	F3-222-008	17.36	35:18 hr	3.948	1.994	0.443	0.405

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F3-222-019	F3-222-019	F4-222-013	17.302	35:34 hr	3.611	2.13	0.473	0.455
F3-231-015	F3-231-015	F3-222-020	17.383	35:19 hr	3.155	2.377	0.528	0.548
F3-232-001	F3-232-001	F2-232-007	0.518	33:30 hr	2.446	0.391	0.312	0.212
F3-232-002	F3-232-002	F3-232-001	0.52	33:32 hr	2.15	0.43	0.344	0.255
F3-232-003	F3-232-003	F3-232-002	0.521	33:22 hr	2.212	0.422	0.337	0.245
F3-232-004	F3-232-004	F3-232-005	0.544	33:16 hr	2.62	0.374	0.281	0.172
F3-232-005	F3-232-005	F3-232-006	0.54	33:17 hr	2.302	0.409	0.307	0.204
F3-232-006	F3-232-006	F3-232-007	0.532	33:16 hr	2.618	0.369	0.276	0.167
F3-232-007	F3-232-007	F3-232-003	0.527	33:16 hr	3.852	0.286	0.229	0.115
F3-241-004	F3-241-004	F3-242-011	0.017	32:26 hr	1.262	0.059	0.047	0.004
F3-241-005	F3-241-005	F3-241-004	0.017	32:29 hr	0.749	0.083	0.067	0.009
F3-241-006	F3-241-006	F3-241-005	0.01	32:17 hr	0.677	0.063	0.05	0.005
F3-242-010	F3-242-010	F2-242-056	0.026	32:33 hr	0.85	0.103	0.082	0.014
F3-242-011	F3-242-011	F3-242-010	0.024	32:30 hr	0.832	0.097	0.078	0.012
F3-251-023	F3-251-023	F3-251-082	0.844	33:02 hr	3.568	0.423	0.339	0.247
F3-251-024	F3-251-024	F2-251-012	1.368	32:32 hr	3.707	0.591	0.473	0.454
F3-251-082	F3-251-082	F3-251-024	0.877	32:59 hr	4.717	0.356	0.285	0.177
F3-252-001	F3-252-001	F3-252-003	0.791	33:11 hr	4.023	0.37	0.296	0.191
F3-252-003	F3-252-003	F3-251-023	0.84	33:01 hr	4.092	0.382	0.305	0.203
F3-262-038	F3-262-038	F2-262-038	1.61	32:46 hr	5.182	0.518	0.414	0.36
F3-262-052	F3-262-052	F3-262-038	1.616	32:47 hr	3.549	0.698	0.558	0.6
F3-262-057	F3-262-057	F3-262-052	1.596	32:46 hr	5.129	0.519	0.415	0.36
F3-262-063	F3-262-063	F3-262-057	1.461	32:45 hr	6.305	0.417	0.334	0.24
F3-271-152	F3-271-152	F3-262-074	1.409	32:46 hr	3.693	0.606	0.485	0.475
F3-271-152A	F3-262-074	F3-262-063	1.463	32:46 hr	3.494	0.652	0.522	0.537
F3-271-153	F3-271-153	F3-271-152	1.405	32:44 hr	5.746	0.434	0.347	0.259
F4-0232-BV	F4-0232-BV	F4-232-004	0.576	33:04 hr	1.696	0.635	0.635	0.731
F4-211-002	F4-211-002	F4-211-003	0.454	32:30 hr	4.594	0.228	0.182	0.072
F4-211-003	F4-211-003	F4-211-015	0.451	32:32 hr	4.37	0.235	0.188	0.077
F4-211-004	F4-211-004	F4-211-005	0.453	32:40 hr	7.008	0.17	0.136	0.04
F4-211-005	F4-211-005	F4-211-013	0.457	32:30 hr	4.812	0.222	0.177	0.068
F4-211-006	F4-211-006	F4-211-007	0.471	32:30 hr	2.972	0.318	0.254	0.141
F4-211-007	F4-211-007	G1-211-003	0.476	32:31 hr	4.044	0.257	0.206	0.093
F4-211-013	F4-211-013	F4-211-014	0.468	32:30 hr	6.045	0.192	0.154	0.051
F4-211-014	F4-211-014	F4-211-006	0.471	32:30 hr	3.448	0.286	0.229	0.115
F4-211-015	F4-211-015	F4-211-004	0.452	32:30 hr	4.373	0.235	0.188	0.077
F4-221-022	F4-221-022	G1-221-029	17.284	36:03 hr	4.098	1.932	0.429	0.383
F4-222-003	F4-222-003	F4-221-022	17.316	35:49 hr	3.684	2.099	0.466	0.444
F4-222-013	F4-222-013	F4-222-003	17.331	35:48 hr	3.923	2.001	0.445	0.408
F4-232-004	F4-232-004	F4-232-005	0.565	33:05 hr	1.734	0.612	0.612	0.692
F4-232-005	F4-232-005	F4-232-006	0.547	33:16 hr	3.029	0.386	0.386	0.315
F4-232-006	F4-232-006	F3-232-004	0.546	33:16 hr	2.399	0.4	0.3	0.196
F4-241-002	F4-241-002	G1-241-001	0.588	32:45 hr	3.997	0.362	0.435	0.392
F4-241-003	F4-241-003	F4-241-002	0.608	32:49 hr	2.743	0.501	0.602	0.675
F4-241-004	F4-241-004	F4-241-003	0.615	32:48 hr	2.434	0.562	0.674	0.796
F4-241-005	F4-241-005	F4-241-004	0.633	32:34 hr	2.595	0.544	0.653	0.761
F4-241-006	F4-241-006	F4-241-005	0.482	32:48 hr	3.076	0.381	0.457	0.427
F4-241-007	F4-241-007	F4-241-006	0.47	32:48 hr	2.625	0.422	0.506	0.511
F4-241-008	F4-241-008	F4-241-007	0.459	32:48 hr	2.491	0.431	0.517	0.53
F4-241-009	F4-241-009	F3-241-006	0.003	32:18 hr	0.458	0.038	0.031	0.002
F4-241-010	F4-241-010	F4-241-009	0	00:00 hr	0	0	0	0
F4-241-011	F4-241-011	F4-241-010	0	00:00 hr	0	0	0	0
F4-251-016	F4-251-016	F4-251-022	0.778	33:01 hr	3.885	0.375	0.3	0.196
F4-251-022	F4-251-022	F4-251-023	0.777	33:01 hr	3.808	0.38	0.304	0.201
F4-251-023	F4-251-023	F4-252-003	0.791	33:02 hr	3.645	0.397	0.318	0.219
F4-252-003	F4-252-003	F3-252-001	0.79	33:02 hr	3.657	0.396	0.317	0.218
F4-252-005	F4-252-005	F4-251-016	0.776	33:01 hr	3.999	0.367	0.293	0.187
F4-271-034	G1-271-007	F4-271-034	1.417	32:30 hr	4.7	0.507	0.405	0.345
F4-271-034A	F4-271-034	F4-271-075	1.419	32:30 hr	4.533	0.521	0.417	0.363
F4-271-069	F4-271-069	F4-271-073	1.411	32:32 hr	4.374	0.533	0.427	0.379
F4-271-070	F4-271-070	F3-271-153	1.414	32:47 hr	4.682	0.507	0.406	0.346
F4-271-072	F4-271-072	F4-271-070	1.376	32:34 hr	3.591	0.608	0.487	0.478

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F4-271-073	F4-271-073	F4-271-072	1.398	32:32 hr	4.973	0.481	0.385	0.314
F4-271-075	F4-271-075	F4-271-069	1.42	32:31 hr	4.534	0.521	0.417	0.364
G1-211-003	G1-211-003	9010	0.819	32:32 hr	1.916	0.663	0.531	0.552
G1-221-001	G1-221-001	G2-212-041	17.253	36:20 hr	2.996	2.463	0.547	0.581
G1-221-005	G1-221-005	G1-221-001	17.261	36:17 hr	4.313	1.857	0.413	0.357
G1-221-010	G1-221-010	G1-221-005	17.282	36:04 hr	4.097	1.932	0.429	0.383
G1-221-029	G1-221-029	G1-221-010	17.28	36:04 hr	3.355	2.254	0.501	0.501
G1-232-012	G1-232-012	F4-0232-BV	0.584	32:50 hr	2.088	0.54	0.54	0.568
G1-241-001	G1-241-001	G1-232-012	0.585	32:45 hr	6.271	0.239	0.239	0.125
G1-241-002	G1-241-002	F4-241-008	0.459	32:44 hr	2.727	0.402	0.482	0.47
G1-242-001	G1-242-001	G1-241-002	0.46	32:36 hr	2.252	0.469	0.563	0.607
G1-242-006	G1-242-006	G1-242-001	0.467	32:33 hr	2.352	0.458	0.55	0.586
G1-242-014	G1-242-014	G1-242-006	0.467	32:33 hr	2.527	0.432	0.519	0.532
G1-242-025	G1-242-025	G1-242-014	0.457	32:32 hr	2.577	0.419	0.502	0.504
G1-242-028	G1-242-028	G1-242-025	0.197	32:30 hr	2.058	0.264	0.317	0.218
G1-242-038	G1-242-038	G1-242-028	0.193	32:33 hr	1.822	0.284	0.341	0.25
G1-242-045	G1-242-045	G1-242-038	0.175	32:19 hr	1.815	0.265	0.317	0.218
G1-252-004	G1-252-004	G1-252-005	0.728	33:01 hr	4.039	0.385	0.385	0.314
G1-252-005	G1-252-005	F4-252-005	0.756	33:01 hr	3.394	0.405	0.324	0.227
G1-252-006	G1-252-006	G1-252-004	0.728	33:00 hr	3.435	0.435	0.435	0.392
G1-252-007	G1-252-007	G1-252-006	0.732	33:01 hr	3.279	0.453	0.453	0.421
G1-252-008	G1-252-008	G1-252-007	0.731	33:00 hr	3.552	0.426	0.426	0.377
G1-252-009	G1-252-009	G1-252-008	0.732	33:01 hr	3.518	0.429	0.429	0.383
G1-252-011	G1-252-011	G1-252-009	0.732	33:01 hr	3.301	0.45	0.45	0.417
G1-271-007	G1-271-013	G1-271-007	1.394	32:30 hr	4.679	0.502	0.402	0.34
G1-271-013	G1-271-030	G1-271-013	1.398	32:30 hr	4.684	0.503	0.402	0.34
G1-271-030	G1-271-041	G1-271-030	1.4	32:31 hr	3.854	0.584	0.467	0.445
G1-271-042	G1-271-047	G1-271-042	1.058	32:30 hr	3.435	0.515	0.412	0.356
G1-271-047	G1-272-045	G1-271-047	1.054	32:31 hr	4.959	0.392	0.313	0.213
G1-272-045	G1-272-065	G1-272-045	0.92	32:33 hr	3.421	0.465	0.372	0.295
G1-272-065	G1-272-066	G1-272-065	0.859	32:30 hr	3.357	0.449	0.359	0.276
G1-272-066	G2-272-001	G1-272-066	0.856	32:30 hr	3.353	0.448	0.358	0.274
G2-212-001	G2-212-001	G3-212-007	17.263	36:34 hr	2.703	2.681	0.596	0.665
G2-212-002	G2-212-003	G2-212-002	17.287	36:30 hr	5.363	1.581	0.351	0.265
G2-212-002A	G2-212-002	G2-212-001	17.283	36:33 hr	3.253	2.309	0.513	0.523
G2-212-014A	G2-212-014	G2-212-003	2.879	36:30 hr	7.16	0.574	0.383	0.311
G2-212-015	G2-212-015	G2-212-014	17.285	36:30 hr	5.092	1.642	0.365	0.284
G2-212-032	G2-212-032	G2-212-047	17.292	36:30 hr	3.995	1.97	0.438	0.397
G2-212-035	G2-212-035	G2-212-032	17.292	36:19 hr	3.732	2.076	0.461	0.435
G2-212-038	G2-212-038	G2-212-035	17.306	36:16 hr	3.93	1.996	0.444	0.406
G2-212-041	G2-212-041	G2-212-038	17.308	36:15 hr	3.303	2.285	0.508	0.513
G2-212-047	G2-212-047	G2-212-015	17.288	36:30 hr	3.267	2.302	0.512	0.52
G2-252-043	G2-252-043	G2-252-045	0.705	33:00 hr	3.546	0.414	0.414	0.36
G2-252-044	G2-252-044	G2-252-043	0.71	32:47 hr	3.362	0.434	0.434	0.391
G2-252-045	G2-252-045	G1-252-011	0.705	33:00 hr	3.452	0.423	0.423	0.373
G2-252-046	G2-252-046	G2-252-044	0.719	32:47 hr	3.448	0.43	0.43	0.384
G2-252-047	G2-252-047	G2-252-046	0.721	32:46 hr	5.222	0.317	0.317	0.217
G2-272-014	G2-272-014	G2-272-001	0.861	32:32 hr	3.281	0.457	0.365	0.285
G2-272-036	G2-272-036	G2-272-014	0.839	32:31 hr	3.213	0.455	0.364	0.283
G2-272-049	G2-272-049	G2-272-036	0.819	32:31 hr	3.2	0.449	0.359	0.276
G2-272-055	G2-272-055	G2-272-049	0.815	32:30 hr	2.924	0.478	0.382	0.31
G2-272-068	G2-272-068	G2-272-055	0.41	32:30 hr	2.412	0.334	0.267	0.156
G2-272-080	G2-272-080	G2-272-068	0.408	32:16 hr	3.541	0.254	0.203	0.09
G3-211-015	G3-211-015	G3-211-018	19.947	36:31 hr	4.172	2.127	0.473	0.454
G3-211-018	G3-211-018	G3-211-017	19.588	36:31 hr	4.15	2.106	0.468	0.446
G3-212-006	G3-212-006	G3-212-007	3.27	01:30 hr	8.028	0.638	0.511	0.518
G3-212-007	G3-212-007	G3-211-015	20.325	36:32 hr	2.723	3.067	0.682	0.808
G3-252-026	G3-252-026	G3-252-028	0.718	32:46 hr	4.145	0.374	0.374	0.298
G3-252-027	G3-252-027	G3-252-026	0.719	32:45 hr	6.583	0.268	0.268	0.157
G3-252-028	G3-252-028	G3-252-029	0.716	32:45 hr	3.332	0.439	0.439	0.399
G3-252-029	G3-252-029	G2-252-047	0.725	32:46 hr	3.434	0.434	0.434	0.39
G3-252-030	G3-252-030	G3-252-027	0.721	32:45 hr	6.069	0.284	0.284	0.176

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G3-252-031	G3-252-031	G3-252-030	0.722	32:46 hr	3.519	0.425	0.425	0.376
G3-252-032	G3-252-032	G3-252-031	0.717	32:43 hr	3.24	0.449	0.449	0.416
G4-252-008	G4-252-008	G3-252-032	0.719	32:30 hr	3.543	0.421	0.421	0.37
G4-252-008A	G4-261-001	G4-252-008	0.59	32:45 hr	3.358	0.378	0.378	0.303
G4-261-008	G4-261-008	G4-261-015	0.596	32:31 hr	3.957	0.422	0.634	0.729
G4-261-015	G4-261-015	G4-261-016	0.586	32:32 hr	2.598	0.667	1	1.185
G4-261-016	G4-261-016	G4-261-017	0.572	32:31 hr	2.535	0.667	1	1.402
G4-261-017	G4-261-017	G4-261-029	0.572	32:44 hr	5.596	0.255	0.255	0.143
G4-261-018	G4-261-018	G4-261-020	0.585	32:45 hr	3.198	0.39	0.39	0.321
G4-261-020	G4-261-020	G4-261-021	0.589	32:46 hr	3.311	0.382	0.382	0.309
G4-261-021	G4-261-021	G4-261-001	0.591	32:45 hr	3.447	0.371	0.371	0.293
G4-261-029	G4-261-029	G4-261-018	0.581	32:45 hr	3.126	0.394	0.394	0.328
H1-261-006	H1-261-006	H1-261-025	0.637	32:30 hr	3.685	0.41	0.492	0.487
H1-261-008	H1-261-008	H1-261-009	0.633	32:29 hr	6.073	0.28	0.337	0.244
H1-261-009	H1-261-009	H1-261-010	0.632	32:32 hr	4.376	0.407	0.611	0.691
H1-261-010	H1-261-010	H1-261-011	0.624	32:32 hr	3.812	0.454	0.681	0.808
H1-261-011	H1-261-011	H1-261-012	0.625	32:32 hr	4.358	0.405	0.608	0.685
H1-261-012	H1-261-012	H1-261-015	0.608	32:31 hr	3.883	0.437	0.655	0.765
H1-261-015	H1-261-015	G4-261-008	0.595	32:30 hr	3.789	0.438	0.657	0.768
H1-261-025	H1-261-025	H1-261-008	0.636	32:31 hr	4.269	0.366	0.439	0.399
H1-262-023	H1-262-023	H1-261-006	0.642	32:17 hr	3.954	0.391	0.469	0.448

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1118	4685								0.02	
1130	4,698.91							0.018	0	0.023
1132	4,698.91							0.001	0	
1134	4,664.76							0.006	0	
1136	4,668.30							0.001	0	
1138	4,650.91							0.007	0.001	
1140	4,648.22							0.006	0.001	
1142	4,645.25							0.003	0	
1144	4,638.52							0.007	0	
1146	4,869.65							0.052	0	
1148	4,714.99							0.02	0	
1150	4,785.00							0.037	0	
1152	4,745.54							0.034	0	
1154	4,715.00							0.03	0	
1156	4,694.95							0.016	0	
1158	4,681.56							0.009	0	
1176	4,796.40							0.002	0	
1178	4,767.14							0.001	0	
1180	4,746.00							0.001	0	
1182	4,733.95							0.002	0	0.013
1184	4,674.06							0.002	0	
1186	4,656.75							0.001	0	
1188	4,641.11							0.001	0	
1190	4,603.00							0.015	0	
1220	4,580.00									
1222	4,564.00							0.017	0	
1224	4,557.00							0.012	0	
1226	4,550.00							0.094	0.008	
1228	4,535.00							0.002	0.054	
1230	4,521.67							0	0.031	
1236	4,609.12							0.005	0	
1238	4,600.22							0.011	0	
1240	4,568.00							0.014	0	
1242	4,555.00							0.097	0	
1244	4,547.00							0.127	0.012	
1246	4,544.96							0.021	0.026	
1248	4,538.00							0.024	0.021	
1250	4,535.00							0	0.004	
1252	4,539.02							0.015	0.001	
1254	4,536.00							0.017	0.015	
1256	4,644.94							0.021	0	
1258	4,595.00							0.039	0	
1260	4,582.00							0.075	0	
1262	4,582.08							0.2	0.002	
1264	4,565.00							0.15	0	
1266	4,557.00							0.176	0.003	
1268	4,544.00							0.017	0	
1272	4,674.00							0.115	0	
1274	4,647.41							0.028	0	
1276	4,628.00							0.036	0	0.056
1278	4,612.05							0.044	0.004	0.104
1284	4,704.00							0.073	0	
1286	4,703.00							0.002	0	
1288	4,691.30							0.005	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1290	4,675.00							0.012	0	
1292	4,664.09							0.006	0	
1294	4,664.00							0.005	0	
1296	4,645.00							0.011	0	
1298	4,619.00							0.026	0	
1300	4,595.00							0.041	0	
1302	4,588.00							0.005	0.002	
1304	4,582.00							0.004	0	
1306	4,575.00							0.004	0	
1308	4,665.00							0.006	0	
1310	4,628.00							0.005	0	
1312	4,620.61							0.016	0	
1314	4,585.00							0.01	0.009	
1316	4,538.00							0.001	0.014	
132	4,559.77	0.005	0.047					0.01	0	0.016
1332	4,709.12							0.03	0	
1334	4,701.50							0.002	0	
1338	4,722.82							0.001	0	
134	4,555.68	0								
1340	4,684.59							0.003	0	
1344	4,754.53							0.002	0	
1346	4,841.01							0.013	0	
1348	4,753.80							0.004	0	
1350	4,742.00							0.004	0	
1352	4,689.00							0.009	0	
1354	4,649.17							0.003	0	
1356	4,652.84							0.008	0	
1358	4,629.00									
136	4,536.74	0.006						0	0	
1360	4,619.60							0.018	0	
1362	4,569.93							0.009	0	
1364	4,567.00							0.01	0	
1372	4,803.00							0.125	0.072	
1374	4,803.00							0.15	0.086	
1376	4,775.81									
1378	4,725.69							0.455	0.054	
1380	4,765.00									
1382	4,784.68							0	0.043	
1384	4,808.00							0.011	0.012	
1386	4,843.87							0	0.009	
1394	4,692.06							0.001	0	
1396	4,775.00							0.272	0.031	
1398	4,760.49							0.051	0.019	
14	4,640.70	0.008	0.086					0.042	0	
140	4,531.97	0.001	0.026					0.002	0	0.017
1404	4,667.67							0.027	0	
1406	4,659.23							0.049	0.002	
1422	4,696.00							0.004	0	
1424	4,696.00							0	0	
1426	4,697.00							0	0	
1428	4,554.00							0	0	
1430	4,555.49									
148	4,532.39									
150	4,661.19	0.008						0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
152	4,560.00									
154										
1554	4,520.30									
1558	4,533.00							0	0.009	
1560	4,528.00							0	0.004	
1562	4,527.00							0	0.005	
1564	4,525.69							0	0.003	
1566	4,525.00									0.023
1568	4,543.00							0.036	0	
1570	4,542.00							0.008	0	
1572	4,558.00							0.034	0	
1574	4,785.78							0.5	0.01	
1576	4,750.64							0.061	0	
1578	4,714.95							0.043	0.005	
1580	4,705.45							0.057	0.005	
1582	4,683.88							0.003	0	
1584	4,680.21							0.003	0	
1586	4,676.34							0.006	0	
1588	4,674.51							0.001	0	
1590	4,666.00							0.012	0	
1596	4,602.00							1.5	0.098	
1610	4,657.00									
1612	4,706.00							0.099	0	
1614	4,699.50							0.047	0	
1618	4,683.00									
1620	4,542.00							0	0	
1622	4,545.00							0.001	0	
1624	4,545.00							0	0	
1626	4,547.00							0	0	
1628	4,548.00							0	0	
1630	4,548.00							0.004	0	
1632	4,550.00									
1634	4,550.00									
1636	4,552.00									
1638	4,555.00									
1640	4,555.00									
1642	4,565.00									
1644	4,575.00							0	0	
1646	4,585.00							0	0	
1648	4,595.00							0	0	
1650	4,597.00							0	0	
1652	4,608.00							0.001	0	
1654	4,615.00							0.002	0	
1656	4,615.00							0.002	0	
1658	4,625.00							0	0	
1660	4,688.00							0.069	0	
1668	4,943.00							0.066	0	
1672	4,668.00							0.13	0.033	
1676	4,637.70	0.094						0.047	0	
1678	4,670.00							0.022	0.001	
1680	4,669.00							0.052	0.005	
1682	4,728.00							0.06	0	
1684	4,738.00							0.025	0	
1686	4,775.00							0.035	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1688	4,829.00							0.042	0	
1700	4,655.00							0.003	0	
1730	4,680.00									
1732	4,670.00									
1734	4,658.00									
1736	4,640.00									
1738	4,630.00									
1740	4,600.00									
1742	4,580.00									
48	4,663.66	0.001	0.008					0	0	
50	4,662.47	0								
52	4,661.49	0						0	0	
54	4,660.60	0								
56	4,661.79	0								
58	4,659.69	0								
60	4,659.26	0.001								
62	4,658.85	0.001								
64	4,659.13	0.001	0.001					0	0	
66	4,658.47	0						0	0	
68	4,655.95	0						0	0	
70	4,655.24	0.001	0.002							
74	4,631.62	0.001								
76	4,624.82	0	0.004							
770	4,621.89	0.003						0	0	
772	4,627.37	0.003						0	0	
774	4,629.57	0.002	0.006					0.001	0	
776	4,629.63							0.018	0	
778	4,628.22	0						0	0	
78	4,622.00	0.001								
780	4,603.69									
80	4,622.00	0								
802	4,537.13		0.037							
804	4,593.40	0.001	0.021	0.81		0.007		0	0.035	
810	4,555.00							0.032	0.053	
812	4,544.00							0.003	0.008	
814	4,534.90							0.001	0.01	0.057
82	4,603.00	0								
916	4,593.00							0.285	0.032	
B1-272-001	4,656.60		0.03					0.006	0	
B1-272-002	4,657.28							0.001	0	
B1-272-003	4,658.04							0.004	0	
B1-272-005	4,659.62							0.006	0	
B1-272-007	4,660.98							0.013	0	
B1-272-010	4,654.15							0.004	0	
B1-272-012	4,653.42							0.015	0	
B1-272-013	4,650.96							0.015	0	
B1-272-015	4,650.38							0.031	0	
B1-272-016	4,649.85							0.015	0.002	
B1-281-001	4,662.51							0.007	0	
B1-281-002	4,664.91							0.004	0	
B1-281-004	4,667.12		0.07					0	0	
B1-281-005	4,668.75							0.003	0	
B1-281-006	4,670.69							0.003	0	
B1-281-007	4,671.37							0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B1-281-009	4,674.29							0.005	0	
B1-281-010	4,675.02		0.048					0.03	0	0.033
B1-292-001	4,714.95		0.009					0.001	0	
B1-292-002	4,714.30							0.001	0	
B1-292-003	4,716.66							0.009	0	
B1-292-004	4,715.14							0.033	0	
B1-292-010	4,714.07							0.003	0	
B1-292-011	4,709.88							0.005	0	
B1-292-012	4,682.02							0.004	0	
B1-292-013	4,699.01							0.006	0	
B1-292-014	4,698.59							0.001	0	
B1-292-015	4,696.92							0.001	0	
B1-292-016	4,697.59							0	0	
B2-271-019	4,645.97	0.01	0.068					0	0	
B2-271-020	4,646.10							0	0	
B2-271-022	4,646.25							0.046	0	
B2-271-031	4,644.88							0.002	0	
B2-272-004	4,648.22	0.003						0.002	0	
B2-272-005	4,646.98							0.003	0	
B2-272-007	4,648.91	0.003						0.002	0	
B2-272-008	4,648.60							0.006	0.001	
B2-272-009	4,648.92	0.002						0.001	0	
B2-272-014	4,649.73	0.003	0.031					0.002	0	
B2-272-017	4,650.24							0.003	0.001	
B2-272-021	4,651.87							0.007	0.002	
B2-272-027	4,650.27	0.032	0.059			0.027		0.006	0	
B2-272-028	4,651.04		0.053					0.002	0	
B2-272-029	4,651.00							0.003	0	
B2-272-030	4,652.06							0.007	0	
B2-272-033	4,650.96	0.005						0.006	0	
B2-281-001	4,656.19							0.003	0	
B2-281-002	4,657.43							0.004	0	
B2-281-003	4,657.95		0.119					0.001	0	
B2-281-004	4,658.60									
B2-281-005	4,660.30							0	0	
B2-281-006	4,661.91							0	0	
B2-281-013	4,662.47							0.001	0	
B2-281-020	4,653.32							0.005	0	
B2-281-022	4,655.62							0.004	0	
B2-281-027	4,661.75							0	0	
B2-281-029	4,656.57							0.003	0	
B2-282-003	4,662.68							0.003	0	
B2-282-036	4,664.20							0.003	0	
B2-282-037	4,666.15							0.001	0	
B2-282-041	4,666.15							0.001	0	
B2-282-046	4,667.40							0.002	0	
B2-282-047	4,668.61							0.001	0	
B2-282-048	4,669.56							0.002	0	
B2-282-051	4,671.11							0.005	0	
B2-282-054	4,672.79		0.217					0.004	0	0.023
B2-291-024	4,679.63							0.003	0	
B2-291-025	4,678.23							0.007	0	
B2-291-026	4,678.52							0.004	0	
B2-291-027	4,677.84							0.009	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B2-291-028	4,675.12							0.006	0	
B2-291-029	4,674.94							0.003	0	
B2-291-030	4,673.49							0.007	0	
B2-291-045	4,677.89							0.002	0	
B2-292-001	4,689.77							0.004	0	
B2-292-002	4,688.02							0.004	0	
B2-292-003	4,685.12							0.003	0	
B2-292-004	4,683.36							0	0	
B2-292-008	4,682.02							0.004	0	
B2-292-009	4,681.74							0.011	0	
B2-292-010	4,682.23									
B2-292-011	4,682.14							0	0	
B2-292-012	4,685.28							0.001	0	
B2-292-017	4,687.54							0.001	0	
B2-292-018	4,689.26							0.001	0	
B2-292-022	4,690.90							0.001	0	
B2-292-023	4,692.04							0	0	
B2-292-026	4,681.54									
B2-301-001	4,692.06		0.008					0.034	0	
B3-262-023	4,637.90	0.007						0.028	0.003	
B3-262-027	4,639.09	0.007					0.004	0.011	0.001	
B3-262-031	4,640.22	0.006	0.045			0.049		0.003	0	
B3-271-003	4,639.60	0.004						0.001	0	
B3-271-006	4,639.29	0.006						0.004	0	
B3-271-018	4,640.18	0.01						0.004	0	
B3-271-026	4,642.09	0.007	0.023					0.001	0	
B3-271-032	4,643.90	0.009						0.009	0	
B3-271-039	4,644.66	0.009						0.007	0	
B3-271-042	4,641.88	0.005						0.002	0	
B3-271-045	4,644.45	0.004						0.001	0	
B3-271-054	4,643.99	0.004								
B3-271-058	4,645.44	0.008						0.002	0	
B3-271-059	4,645.04	0.003						0	0	
B3-271-063	4,644.83	0.003						0	0	
B4-261-014	4,615.35	0.006						0.002	0.001	
B4-262-001	4,626.61	0.005	0.019					0.014	0.001	
B4-262-011	4,624.94	0.007	0.028					0.002	0.001	
B4-262-016	4,633.29	0.007						0.001	0	
B4-262-022	4,633.48	0.007	0.021					0.002	0	
B4-262-024	4,632.42	0.006					0.008	0	0.002	
B4-262-028	4,634.70	0.002								
B4-262-030	4,635.77	0.006						0	0	
B4-262-031	4,635.58	0.002						0.001	0	
B4-262-036	4,639.18	0.002						0	0	
B4-262-037	4,639.15	0.005					0.005	0.001	0	
B4-262-038	4,638.96	0.007						0	0	
B4-262-044	4,628.65	0.005						0.004	0	
B4-262-114	4,636.36	0.002								
B4-271-001	4,639.11	0.002						0.001	0	
B4-271-011	4,641.78	0.009						0.001	0	
B4-271-028	4,646.15	0.007						0.001	0	
B4-271-033	4,646.99	0.008						0.002	0	
B4-271-128	4,639.74	0.005						0.001	0.001	
B4-271-135	4,639.73	0.006	0.016					0.001	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B4-271-138	4,639.45	0.008						0.004	0	
B4-271-143	4,640.50	0.006						0.001	0	
B4-271-145	4,641.45	0.006						0	0	
B4-271-146	4,643.18	0.008						0.001	0	
B4-271-147	4,644.70	0.006	0.022				0.007	0.001	0	
B4-271-148	4,647.63	0.007						0.002	0	
B4-272-004	4,650.15	0.009	0.071					0.006	0	
B4-272-039	4,651.93	0.005	0.016							
B4-272-040	4,652.26	0.007						0.001	0	
B4-272-044	4,653.41	0.011						0.002	0	
B4-272-048	4,653.82	0.011						0.001	0	
B4-272-086	4,650.62	0.012						0.017	0	
B4-272-091	4,651.17	0.005						0	0	
B4-272-092	4,651.27	0.008								
B4-272-093	4,647.86	0.004						0.001	0	
B4-272-094	4,647.89	0.005						0.003	0	
B4-272-095	4,649.15	0.007								
B4-272-096	4,650.63	0.011						0.002	0	
B4-281-054	4,655.65	0.015						0.001	0	
B4-281-057	4,656.77	0.021						0.001	0	
BV-105	4,555.49									
BV-292-013	4,686.36							0.001	0	
C1-221-018	4,855.42	0						0	0	
C1-221-019	4,856.62	0.002	0.029					0.004	0	
C1-261-020	4,611.50	0.004	0.012					0	0.002	
C1-261-028	4,607.00	0.004						0	0	
C1-261-030	4,607.41	0.002	0.009					0	0	
C1-261-058	4,620.88	0.003						0.004	0	
C1-261-060	4,612.10	0.008	0.027				0.005	0	0.002	
C1-261-062	4,616.02	0.002						0.001	0	
C1-281-035	4,656.27	0.028	0.195					0.01	0	
C2-221-030	4,856.52	0.001						0.001	0	
C2-221-031	4,840.90	0						0.001	0	
C2-221-032	4,852.13	0						0.001	0	
C2-221-033	4,855.02	0						0.001	0	
C2-221-034	4,856.96	0.001						0.001	0	
C2-221-035	4,854.80	0.004						0.001	0	
C2-221-037	4,853.25	0.001						0.001	0	
C2-221-065	4,852.08	0						0.003	0	
C2-261-001	4,603.22									
C2-261-013	4,572.06	0					0.011			
C2-261-024	4,575.01	0								
C3-212-031	4,810.25	0						0	0	
C3-221-003	4,835.19	0	0.01					0.001	0	
C3-221-004	4,830.28	0						0	0	
C3-221-005	4,821.15	0						0.001	0	
C3-221-006	4,811.19	0						0.001	0	
C3-221-030	4,822.68	0	0.003					0	0	
C3-252-001	4,559.32									
C3-252-002	4,561.74									
C3-261-001	4,562.22	0								
C3-261-002	4,563.15	0						0	0.001	
C3-261-004	4,564.51	0								
C3-261-005	4,564.51	0						0	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C3-261-007	4,563.27	0								
C3-261-008	4,565.25	0						0	0	
C3-261-009	4,563.05									
C3-261-010	4,564.47									
C3-261-011	4,563.00									
C3-261-012	4,566.30									
C3-261-013	4,565.68									
C3-261-015	4,565.28	0						0	0	
C3-261-019	4,563.78	0						0	0	
C3-261-021	4,565.00	0	0.022				0.06	0	0	
C3-261-031	4,565.76	0						0	0	
C3-261-035	4,573.34	0						0	0	
C3-261-040	4,566.68	0.001						0	0	
C3-261-043	4,571.45	0						0	0	
C3-261-050	4,567.28	0						0	0	
C3-261-056	4,567.40	0.001	0.017					0	0	0.006
C3-261-062	4,567.35	0.001						0	0.002	
C3-261-075	5,000.00	0						0	0	
C3-261-076	5,000.00	0						0	0	
C3-262-007	4,567.22	0.001						0	0.003	
C3-262-009	4,567.77	0.001						0	0.001	
C3-262-033	4,569.31	0.001						0	0.001	
C3-262-041	4,569.51	0.001						0	0.001	
C3-262-046	4,570.66	0.001						0	0	
C3-262-051	4,568.30	0						0	0	
C3-262-061	4,572.79	0.002						0	0.003	
C3-262-070	4,577.51	0						0	0	
C3-262-071	4,577.15	0.001						0	0.001	
C3-262-074	4,578.59	0.001						0	0	
C3-271-001	4,576.86	0.002						0	0.001	
C3-271-003	4,578.37	0.001	0.004				0.004	0	0.001	
C3-271-004	4,579.69	0.002						0	0.001	
C3-271-007	4,581.04	0.002						0	0.001	
C3-271-010	4,581.04	0.001						0	0.001	
C3-271-012	4,581.04	0.001						0	0.001	
C4-212-059	4,802.26	0						0.001	0	
C4-212-060	4,790.25	0.001	0.004					0	0	
C4-212-061	4,781.59	0						0	0	
C4-221-001	4,776.51	0.001						0.001	0	
C4-252-001	4,557.32									
C4-252-002	4,559.28							0	0	
C4-252-003	4,560.79									
C4-252-004	4,559.57							0	0	
C4-252-005	4,559.66									
C4-252-006	4,557.44									
C4-252-007	4,560.16									
C4-252-008	4,559.21									
D1-212-011	4,757.04	0.001						0.003	0	
D1-212-012	4,751.59	0.001						0.002	0	
D1-212-032	4,767.46	0.001	0.002					0.003	0	
D1-242-011	4,631.80	0.001						0	0	
D1-242-017	4,645.13	0.001						0	0	
D1-242-018	4,656.69	0.002						0	0	
D1-242-019	4,661.02	0.005						0.001	0	0.001

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-242-030	4,631.80	0.001						0	0	
D1-242-031	5,000.00	0.001						0.001	0	
D1-251-005	4,663.66	0.002						0.012	0.002	
D1-251-023	5,000.00	0.002	0.003					0.004	0.001	
D1-252-001	4,554.94	0						0	0	
D1-252-004	4,555.66									
D1-252-005	4,555.31	0								
D1-252-008	4,555.58	0.001						0	0	
D1-252-009	4,556.21									
D1-252-010	4,555.57	0.001	0.004					0	0	
D1-252-011	4,555.56									
D1-252-015	4,556.52									
D1-252-016	4,557.04	0.001						0	0	
D1-252-018	4,556.32									
D1-252-019	4,556.43									
D1-252-023	4,557.57	0.001								
D1-252-031	4,557.39	0.001						0	0	
D1-252-036	4,557.63	0.001	0.002					0	0	
D1-252-041	4,558.20	0.003						0.002	0	
D1-252-042	4,558.62	0.002	0.007					0.001	0	
D1-252-050	4,585.00							0	0	
D1-252-053	4,581.46	0						0.001	0.001	
D1-252-056	4,581.81	0						0.001	0.001	
D1-252-057	4,582.88	0.009						0.003	0.002	
D1-252-059	4,582.91	0.001								
D1-261-001	4,583.74	0	0.053				0.013	0	0	
D1-261-003	4,588.00		0.056				0.012			
D1-261-006	4,583.32	0.004						0.001	0.001	
D1-261-008	4,584.98	0.005						0.005	0.003	
D1-261-020	4,588.00	0						0.011	0.006	
D1-261-021	4,584.67	0.004						0.008	0.004	
D1-261-023	4,587.00	0						0.006	0.003	
D1-261-036	4,586.86	0.006						0.013	0.007	
D1-261-037	4,589.00	0.001						0.002	0.001	
D1-261-052	4,588.29	0.006						0.009	0.005	
D1-261-059	4,588.00	0.001						0.001	0	
D1-261-061	4,588.00	0						0.006	0.004	
D1-261-075	4,589.51	0.01						0.002	0.001	
D1-261-084	4,590.00	0.003						0.01	0.007	
D1-261-103	4,591.22	0.007						0.002	0.001	
D1-261-116	4,588.00							0.017	0.01	
D1-261-117	4,591.75	0.01						0.004	0.002	
D1-261-128	4,590.09	0.015						0.015	0.009	
D1-262-001	4,589.00						0.004	0.009	0.005	
D1-262-025	4,589.16	0.018						0.01	0.006	
D1-262-030	4,590.00							0.003	0.002	
D1-262-040	4,589.76	0.006	0.005				0.008	0.001	0	
D1-262-049	4,590.00							0.007	0.005	
D1-262-067	4,591.72	0.006						0.002	0.001	
D1-262-079	4,592.00		0.048					0.027	0.017	0.031
D1-262-088	4,593.50	0.006						0.003	0.002	
D1-262-100	4,594.93	0.006						0.006	0.004	
D1-271-017	4,596.81	0.003						0	0	
D1-271-051	4,598.99	0.002						0.003	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-271-054	4,596.12	0.002					0.012	0.005	0	
D1-271-055	4,596.12	0.006			0.008			0.006	0.002	
D1-271-092	4,596.12	0.001						0.002	0	
D2-212-001	4,743.95	0						0	0	
D2-212-002	4,742.51	0	0					0	0	
D2-212-003	4,733.57	0.001	0					0	0	
D2-212-011	4,746.35	0	0.002					0.001	0	
D2-212-012	4,744.03	0						0	0	
D2-212-013	4,738.35	0	0.003					0	0	
D2-212-014	4,726.24	0.001						0.001	0	
D2-212-025	4,742.51	0						0	0	
D2-241-006	4,658.54	0.001	0.002					0.002	0	
D2-241-007	4,655.59	0						0	0	
D2-251-004	4,555.68									
D2-251-005	4,555.19									
D2-251-008	4,660.22	0.001	0.039					0.001	0	0.001
D2-251-014	4,657.55	0						0.001	0	
D2-252-002	4,556.35	0.001						0	0	
D2-252-004	4,555.49		0							
D2-252-005	4,556.03									
D2-252-006	4,555.69							0.001	0.001	
D2-252-008	4,557.06							0.001	0.001	
D2-252-010	4,564.13									
D2-252-011	4,556.07							0	0	
D2-252-012	4,555.82	0.002						0	0	
D2-252-014	4,556.19	0.001								
D2-252-015	4,556.19							0.001	0	
D2-252-026	4,559.34		0.009							
D2-252-033	4,559.07									
D2-252-039	4,559.94									
D2-252-049	4,570.51									
D2-252-050	4,577.00									
D2-252-052	4,578.00									
D2-252-056	4,579.00									
D2-252-057	4,573.79		0.015				0.052			
D2-252-062	4,574.15									
D2-252-067	4,587.00									
D2-252-069	4,577.81	0.003								
D2-252-071	4,575.19									
D2-252-085	4,580.75	0.002						0.01	0.006	
D2-252-105	4,572.19									
D2-271-017	4,603.11									
D2-271-019	4,601.30							0	0	
D2-271-022	4,600.17	0.001								
D2-271-023	4,598.81	0.001								
D2-271-039	4,601.59	0.001	0.297		0.012		0.049			0.046
D2-271-042	4,601.00	0.002								
D2-271-043	4,599.90	0.002								
D2-271-045	4,598.99	0.002	0.07							
D2-271-048	4,601.69	0.001								
D2-271-052	4,603.54	0.001						0	0	
D2-271-063	4,604.76	0.009						0.003	0	
D2-271-067	4,605.65	0.005						0.001	0	
D2-271-075	4,605.91	0.007					0.01	0.005	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D2-271-109	4,597.40	0.003						0.002	0	
D2-272-011	4,606.03	0.008						0.006	0	
D2-272-023	4,607.35	0.01						0.006	0	
D2-272-025	4,604.90	0.003						0	0	
D2-272-029	4,604.13	0.003						0	0	
D2-272-052	4,605.25	0.009						0	0	
D2-272-070	4,605.84	0.007						0	0	
D2-272-072	4,607.18	0.009						0.003	0.002	
D2-272-074	4,608.78	0.007						0.004	0.002	
D2-272-075	4,608.78	0						0	0	
D2-281-002	4,608.78	0								
D3-212-001	4,713.00	0	0.001					0	0	
D3-212-002	4,710.90	0						0	0	
D3-212-003	4,708.13	0						0	0	
D3-212-004	4,705.24	0						0	0	
D3-212-012	4,702.84	0	0					0	0	
D3-212-013	4,698.75	0						0	0	
D3-212-017	4,697.20	0								
D3-212-018	4,701.55	0						0	0	
D3-212-022	4,716.93	0.001	0.002					0	0	
D3-212-023	4,715.72	0	0.001					0.001	0	
D3-221-016	4,695.09	0						0	0	
D3-221-021	4,683.00	0.001						0.001	0	
D3-221-022	4,683.00	0.001						0.001	0	
D3-221-023	4,683.00	0.001						0	0	
D3-221-024	4,683.00	0						0	0	
D3-232-001	4,628.13	0	0.012					0	0	0.014
D3-232-009	4,644.58	0						0	0	
D3-232-015	4,634.34	0						0	0	
D3-232-017	4,613.76	0.001						0.003	0	
D3-232-018	4,626.19	0						0.001	0	
D3-241-001	4,650.99	0						0	0	
D3-241-002	4,651.19	0						0.001	0	
D3-241-003	4,654.39	0.001						0	0	
D3-241-004	4,649.91	0						0	0	
D3-241-005	4,650.33	0						0	0	
D3-241-006	4,650.09	0.001						0	0	
D3-241-007	4,649.00	0						0	0	
D3-241-008	4,651.31	0						0.001	0	
D3-241-009	4,652.37	0.001						0	0	
D3-251-001	4,555.45									
D3-251-002	4,555.84									
D3-251-004	4,554.87									
D3-251-008	4,553.38									
D3-251-011	4,555.31		0.008							
D3-251-012	4,555.45									
D3-251-013	4,556.46							0.022	0.012	
D3-251-014	4,559.45	0								
D3-251-015	4,554.87									
D3-251-016	4,548.92									
D3-252-008	4,556.68	0.002						0	0.012	
D3-252-012	4,555.65	0.002						0.005	0.003	
D3-252-045	4,572.19	0.003						0.004	0.004	
D3-252-054	4,576.99	0.002						0.003	0.002	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D3-252-057	5,000.00	0.002						0.023	0.013	
D3-261-010	4,591.00	0	0.034				0.101	0	0.003	
D3-261-014	4,591.00	0.001	0.132					0.003	0.001	
D3-261-025	4,594.00	0.002						0.003	0.001	
D3-261-045	4,597.00	0.003						0.002	0.001	
D3-261-075	4,600.00	0.004	0.036				0.029	0.002	0	
D3-261-086	4,602.00	0.007						0.007	0.002	
D3-261-117	4,607.00	0.002						0.009	0.001	
D3-261-130	4,608.00	0.004						0.005	0	
D3-262-017	4,609.00	0.007	0.118				0.08	0.001	0	
D3-262-018	4,610.00	0.007	0.208				0.005	0.001	0	
D3-262-042	4,608.00	0.004					0.009	0.001	0	
D3-262-065	4,606.00	0.006						0.002	0	
D3-262-083	4,610.00	0.007						0	0	
D3-262-122	4,608.00	0.004						0.001	0	
D3-271-013	4,612.50	0.003	0.015		0.085		0.033	0	0	
D3-271-019	4,607.81							0.002	0	
D3-271-024	4,605.19							0	0	
D3-271-029	4,613.00	0.001								
D3-271-038	4,608.37							0	0	
D3-271-055	4,610.45	0.002								
D3-271-059	4,611.12							0	0	
D3-271-068	4,617.13	0								
D3-271-069	4,616.85									
D3-271-070	4,615.82							0.002	0	
D3-271-072	4,613.27							0.001	0	
D3-271-075	4,617.94									
D3-271-111	4,614.00	0.001								
D3-281-006	4,608.96	0		0.8				0.103	0.04	
D4-221-004	4,683.00	0.001						0.001	0	
D4-221-005	4,662.00	0.001						0.001	0	
D4-221-008	4,654.90	0.001						0.001	0	
D4-221-009	4,651.00	0.001						0.001	0	
D4-221-010	4,646.00	0.001						0.001	0	
D4-221-011	4,643.00	0.001	0.002					0.001	0.001	
D4-221-015	4,637.85	0.001						0.002	0	
D4-232-001	4,595.25	0						0	0	
D4-232-002	4,575.21	0						0	0	
D4-232-003	4,563.00	0						0	0	
D4-232-004	4,562.51	0.001						0	0	
D4-232-005	4,555.62							0	0	
D4-232-006	4,546.99							0.001	0	
D4-232-007	4,539.68		0.005					0.001	0	
D4-232-008	4,539.41							0	0	
D4-232-020	4,788.00	0	0.005					0	0	
D4-251-001	4,551.09									
D4-251-005	4,552.08		0.187			0.031	0.031			0.133
D4-251-008	4,552.54									
D4-251-018	5,000.00									
D4-251-019	5,000.00									
D4-271-014	4,624.56							0.003	0.002	
D4-271-015	4,622.79									
D4-271-018	4,621.51									
D4-271-021	4,620.89									

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E1-221-001	4,639.87	0.001	0.001					0.001	0	
E1-222-004	4,638.00	0.001						0.002	0.001	
E1-222-005	4,627.00	0.001						0.002	0	
E1-222-006	4,620.00	0.001						0.002	0.001	
E1-222-007	4,623.00	0						0.003	0	
E1-222-011	4,618.00	0.001						0.001	0	
E1-222-012	4,612.00	0.001						0.001	0	
E1-231-012	4,639.85	0.001	0.002					0.003	0	
E1-232-001	4,537.50									
E1-232-025	4,538.19									
E1-242-001	4,548.46									
E1-242-002	4,548.17									
E1-251-001	4,548.07									
E1-251-002	4,549.16									
E1-251-003	4,549.50	0.005						0	0.006	
E1-251-004	4,548.81	0.003						0	0.002	
E1-251-007	4,550.14	0.003						0	0	
E1-251-018	4,552.73	0.003						0	0.001	
E1-251-019	4,553.70	0.001	0.005					0	0	
E1-251-020	4,553.70	0.001						0	0	
E1-251-021	4,554.64	0.003						0	0.001	
E1-251-023	4,555.81	0.002						0.004	0.001	
E1-251-025	4,548.17	0.002						0	0.006	
E1-271-068	4,630.77							0.001	0	
E1-271-072	4,627.97							0.001	0	
E1-271-076	4,624.85							0.003	0.002	
E2-202-016	4,725.54	0.009	0.076					0.032	0	
E2-222-007	4,637.79	0.001	0.002							
E2-222-015	4,603.00	0								
E2-222-016	4,603.00	0								
E2-222-017	4,602.00	0								
E2-222-028	4,637.79	0						0	0	
E2-222-029	4,637.79	0								
E2-222-030	4,637.79	0								
E2-222-031	4,637.79	0								
E2-222-036	4,591.00	0.001								
E2-222-037	4,591.00	0						0	0	
E2-222-040	4,637.79	0								
E2-222-044	4,598.00	0.001						0.001	0	
E2-222-048	4,637.79	0						0	0	
E2-222-050	4,637.79	0	0.015							
E2-222-067	4,603.00	0.001						0.001	0	
E2-222-075	4,610.00	0.001	0.002					0	0	
E2-231-002	4,643.10	0.001						0	0	
E2-231-005	4,641.90	0.001						0.002	0	
E2-231-006	4,637.10	0.001						0.001	0	
E2-231-013	4,635.95	0.001	0.002					0	0	
E2-231-021	4,636.94	0.001								
E2-231-028	4,647.50	0.002						0.002	0	
E2-231-029	4,646.62	0						0	0	
E2-231-030	4,645.21	0								
E2-231-031	4,644.31	0						0	0	
E2-231-035	4,640.93	0						0	0	
E2-231-037	4,640.55	0						0.001	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E2-232-013	4,538.60									
E2-232-014	4,555.40									
E2-242-004	4,550.05									
E2-242-011	4,552.87									
E2-242-017	4,552.84									
E2-242-024	4,549.64									
E2-242-034	4,548.66									
E2-251-027	4,550.68	0.005	0.012					0	0.005	
E2-251-058	4,555.97	0.001						0	0	
E2-252-192	4,559.30	0								
E2-252-193	4,565.83	0.001						0.005	0	
E2-252-194	4,576.19	0.001						0.004	0.001	
E2-252-196	4,559.47	0.001						0.001	0.001	
E2-271-076	4,645.81	0.006						0	0	
E2-271-078	4,642.38							0	0	
E2-271-081	4,639.14							0.001	0	
E2-271-086	4,635.95							0	0	
E3-202-008	4,711.83	0	0.002					0.001	0	
E3-202-009	4,718.61	0.001						0.001	0	
E3-202-010	4,713.19	0						0.001	0	
E3-202-011	4,710.71	0						0.001	0	
E3-202-012	4,709.38	0						0.001	0	
E3-202-BV	4,718.07	0						0.001	0	
E3-222-051	4,561.00	0.002						0	0	
E3-222-064	4,559.72	0.001	0.003					0	0	
E3-222-065	4,558.00	0.001						0	0	
E3-231-006	4,552.00	0.002	0.003					0.004	0	
E3-241-015	4,547.53									0.033
E3-241-022	4,547.99									
E3-241-028	4,548.74									
E3-241-034	4,550.68	0.003				0.017		0	0.002	
E3-241-036	4,553.65	0.004						0	0.002	
E3-241-048	4,554.31	0.002	0.017					0.004	0.002	
E3-241-049	4,555.23	0.007						0.005	0.006	
E3-242-002	4,549.96									
E3-242-012	4,549.55									
E3-252-001	4,579.49	0	0.001					0	0.001	
E3-252-003	4,578.01	0.001						0.001	0	
E3-252-004	4,581.01	0						0.008	0	
E3-252-084	4,581.28	0.001						0	0.001	
E3-252-085	4,580.53	0						0	0	
E3-271-068	4,650.07	0.004					0.005	0	0	
E3-271-072	4,647.15	0.006						0.001	0	
E3-271-074	4,645.76	0.005	0.016					0.001	0.001	
E3-271-121	4,664.18	0.002						0.001	0	
E3-271-122	4,664.18	0.002						0.001	0	
E3-271-123	4,654.21	0.004						0	0	
E4-202-001	4,701.01	0						0.001	0	
E4-202-002	4,691.43	0						0	0	
E4-202-003	4,682.45	0						0	0	
E4-202-007	4,681.68	0	0.002					0	0	
E4-202-009	4,683.62	0	0.001					0	0	
E4-202-013	4,675.41	0						0	0	
E4-202-014	4,668.71	0						0	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E4-231-005	4,549.56									
E4-231-006	4,548.23									
E4-231-007	4,537.67	0.002						0	0.001	
E4-231-008	4,538.95									
E4-232-016	4,544.02									
E4-241-005	4,545.86					0.047				
E4-241-016	4,545.76									
E4-241-075	4,559.77	0								
E4-241-077	4,557.41	0.001						0.002	0.001	
E4-241-078	4,554.86	0.002						0.002	0.001	
E4-241-079	4,553.36	0.002	0.075					0.002	0.001	
E4-241-080	4,553.60	0.002						0.004	0.002	
E4-241-081	4,560.82	0								
E4-242-014	4,561.53	0.002						0.002	0.001	
E4-242-029	4,562.46	0.003						0.005	0.003	
E4-242-034	4,562.86	0.001						0.001	0.001	
E4-242-036	4,562.95	0.002						0.005	0.003	
E4-242-045	4,563.48	0.005						0.014	0.008	
E4-242-057	4,564.49	0.005						0.018	0.005	
E4-242-062	4,565.50	0.004						0.024	0.005	
E4-242-069	4,565.79	0.003	0.006					0.011	0.006	
E4-242-078	4,567.20	0.001						0.003	0.003	
E4-251-001	4,567.38	0.001						0.012	0.004	
E4-252-009	4,581.22	0						0	0	
E4-252-010	4,581.19	0								
E4-252-011	4,581.87	0.001						0	0	
E4-252-013	4,586.51	0						0	0	
E4-252-014	4,586.55	0						0	0	
E4-252-019	4,586.54	0								
E4-252-021	4,586.49	0.001						0.004	0	
E4-252-023	4,585.78	0.002						0.014	0	
E4-252-033	4,588.12	0.001						0.001	0	
E4-252-035	4,593.09	0.001						0.003	0	
E4-252-037	4,596.23	0						0	0	
E4-271-058	4,679.36	0.001						0.017	0	
E4-271-060	4,677.07	0.001						0.007	0	
E4-271-062	4,672.66	0.001						0.006	0	
E4-271-063	4,670.03	0						0.005	0	
E4-271-064	4,668.97	0.001	0.004					0.005	0	
F1-202-005	4,635.52	0						0.001	0	
F1-202-006	4,633.60	0						0.001	0	
F1-202-007	4,631.66	0.001	0.005					0.001	0	
F1-202-008	4,636.08	0.001						0.002	0	
F1-202-009	4,646.60	0	0.007					0	0	
F1-202-010	4,657.51	0						0	0	
F1-231-001	4,535.76	0.002						0	0.004	
F1-231-002	4,534.29	0.002						0	0.001	
F1-231-003	4,533.00	0.002						0	0.003	
F1-232-001	4,541.76									
F1-232-002	4,542.61									
F1-232-008	4,542.87									
F1-232-012	4,542.90									
F1-232-013	4,543.00	0						0.003	0.002	
F1-232-014	4,544.35	0.001						0.006	0.003	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-232-017	4,545.30	0.001						0.006	0.003	
F1-232-019	4,543.99	0.003	0.083					0.039	0.023	
F1-232-033	4,542.97									
F1-232-066	4,542.90									
F1-241-050	4,562.29	0.001						0.003	0.002	
F1-241-109	4,564.40	0.002						0.009	0.005	
F1-241-110	4,567.50	0.001						0.011	0.005	
F1-242-001	4,561.36	0	0.005					0	0	
F1-251-003	4,567.58	0.001	0.075					0.012	0.002	
F1-251-015	4,568.22	0.004						0.006	0.006	
F1-251-023	4,569.76	0.004	0.023					0.007	0.006	
F1-251-031	4,570.51	0.002						0.002	0.002	
F1-251-033	4,571.32	0.001						0.001	0.001	
F1-251-034	4,571.74	0.005						0.008	0.003	
F1-251-039	4,574.01	0.008						0.019	0.002	
F1-251-040	4,576.83	0.004						0.01	0.001	
F1-251-041	4,576.74	0.003	0.002					0.013	0.001	
F1-251-044	4,579.14	0.004						0.013	0	
F1-251-047	4,581.16	0.002						0.009	0	
F1-251-048	4,581.18	0.001						0.004	0	
F1-251-049	4,586.77	0.003						0.005	0.001	
F1-251-050	4,586.77	0.003						0.01	0.001	
F1-251-068	4,580.49	0.001						0.007	0	
F1-251-106	4,571.32	0.002						0.002	0.002	
F1-251-108	4,581.83	0.002	0.016					0.003	0	
F1-252-017	4,597.89	0						0	0	
F1-252-033	4,599.93	0						0	0	
F1-252-039	4,609.51	0.001	0.008					0	0	
F1-261-003	4,609.31	0						0	0	
F1-261-004	4,609.98	0.001						0	0	
F1-261-009	4,607.52	0.001						0.001	0	
F1-261-026	4,607.64	0.002						0.004	0	
F1-261-040	4,608.58	0.001	0.008					0.002	0	
F1-261-048	4,611.41	0.002						0.002	0	
F1-261-058	4,615.25	0.002						0.003	0	
F1-261-064	4,617.47	0.002	0.003				0.005	0.004	0	
F1-261-070	4,619.40	0.001						0.003	0.001	
F1-261-075	4,621.68	0.002	0.027					0.006	0.001	
F1-261-078	4,625.58	0.001						0.009	0.004	
F1-261-081	4,626.87	0.001						0.006	0.002	
F1-261-089	4,630.42	0.001					0.011	0.002	0	
F1-261-095	4,635.78	0								
F1-261-097	4,635.78	0						0.001	0	
F1-261-106	4,635.78	0.007	0.066				0.042	0.008	0.004	
F1-271-101	4,680.72	0.007	0.206				0.011	0.034	0.001	
F1-271-103	4,678.53	0.002	0.022				0.017	0	0.001	
F2-202-001	4,625.07	0.001						0.002	0	
F2-202-002	4,613.34	0.001						0.006	0	
F2-202-003	4,618.05	0.001						0.002	0	
F2-202-004	4,606.95	0.001						0	0	
F2-202-005	4,616.09	0.001						0.002	0	
F2-202-006	4,600.68	0.003						0.001	0	
F2-202-007	4,610.35	0.002						0.005	0	
F2-202-023	4,618.05	0.001						0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F2-202-024	4,600.68	0.001						0	0	
F2-231-004	4,537.75									
F2-231-010	4,538.23									
F2-231-016	4,539.66									
F2-231-023	4,540.25									
F2-231-024	4,536.76	0.004						0	0.011	
F2-232-002	4,548.42	0						0.006	0.004	
F2-232-003	4,546.58	0.001						0.013	0.01	
F2-232-004	4,546.87	0.001	0.002					0.01	0.007	
F2-232-005	4,546.09	0.001						0.008	0.005	
F2-232-006	4,544.74	0.001						0.019	0.011	
F2-232-007	4,548.35	0						0.007	0.004	
F2-242-055	4,568.60	0						0.02	0.002	
F2-242-056	4,569.90	0						0.028	0	
F2-251-012	4,594.81	0.002						0	0	
F2-251-016	4,590.51	0.005						0.001	0	
F2-251-017	4,588.87	0.004						0	0	
F2-251-018	4,586.77	0.002						0.004	0	
F2-251-028	4,593.38	0.003						0	0	
F2-252-027	4,587.15	0.002	0.023					0	0	
F2-261-053	4,646.02	0.002	0.006					0.002	0	
F2-262-011	4,647.99	0.004	0.017					0.002	0	
F2-262-017	4,647.02	0.001						0.001	0	
F2-262-020	4,651.23	0.001						0	0	
F2-262-029	4,651.02	0.002						0	0	
F2-262-032	4,658.08	0.003	0.022					0	0	
F2-262-038	4,659.40	0.003	0.005					0.001	0	
F3-202-006	4,584.95	0.003						0.003	0	
F3-202-007	4,585.30	0.001	0.009					0	0	
F3-211-010	4,579.68	0.005						0.01	0	
F3-211-011	4,579.68	0.001						0	0	
F3-211-012	4,573.98	0.002	0.018					0.001	0	
F3-211-013	4,573.89	0.001						0.001	0	
F3-222-007	4,536.73									
F3-222-008	4,537.93									
F3-222-019	4,534.77									
F3-222-020	4,534.77		0.007							
F3-231-015	4,537.75									
F3-232-001	4,549.86							0.005	0.013	
F3-232-002	4,550.38							0.002	0.001	
F3-232-003	4,552.62							0.004	0.002	
F3-232-004	4,558.46	0.001						0.021	0.005	
F3-232-005	4,557.00	0.001						0.033	0.005	
F3-232-006	4,555.72	0.001						0.043	0.005	
F3-232-007	4,555.62	0.001						0.099	0.049	
F3-241-004	4,571.60	0						0.001	0	
F3-241-005	4,572.40	0.001						0.027	0	
F3-241-006	4,573.10	0.001						0.025	0	
F3-242-010	4,571.00	0.001						0.031	0	
F3-242-011	4,571.50	0.001						0.029	0	
F3-251-023	4,603.93	0.003						0.002	0	
F3-251-024	4,597.37	0.002	0.113					0.001	0	
F3-251-082	4,594.99	0.002	0.015					0.003	0	
F3-252-001	4,608.13	0.002						0.001	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F3-252-003	4,605.73	0.002	0.021					0.001	0	
F3-262-038	4,659.25	0.004						0.008	0	
F3-262-052	4,662.53	0.002	0.007					0.004	0	
F3-262-057	4,667.06	0.005	0.039					0.007	0.001	
F3-262-063	4,675.61	0.004						0.005	0.001	
F3-262-074	4,679.91	0.002				0.02		0.009	0.002	
F3-271-152	4,680.45	0.002						0.009	0.002	
F3-271-153	4,679.84	0.001						0.004	0.001	
F4-0232-BV	4,566.57	0						0.009	0.007	
F4-211-002	4,569.32	0.001						0.002	0	
F4-211-003	4,560.88	0						0.001	0	
F4-211-004	4,557.38	0						0.002	0	
F4-211-005	4,545.39	0.002						0.001	0	
F4-211-006	4,534.99	0.001						0.001	0	
F4-211-007	4,531.09	0.002						0.001	0	
F4-211-013	4,540.04	0.004						0.004	0	
F4-211-014	4,538.11	0.001						0.001	0	
F4-211-015	4,560.77	0						0.001	0	
F4-221-022	4,534.01									
F4-222-003	4,533.85									
F4-222-013	4,534.75					0.021				
F4-232-004	4,562.39	0						0.006	0.004	
F4-232-005	4,561.05	0						0.003	0.001	
F4-232-006	4,559.91	0						0.003	0.002	
F4-241-002	4,566.47	0						0.001	0.001	
F4-241-003	4,566.62	0						0.004	0.002	
F4-241-004	4,567.97	0						0.003	0.002	
F4-241-005	4,570.14	0.002	0.02					0.005	0	
F4-241-006	4,571.84	0.004						0.024	0	
F4-241-007	4,573.09	0.003						0.062	0.001	
F4-241-008	4,575.11	0						0.062	0.001	
F4-241-009	4,573.70	0.001						0.026	0	
F4-241-010	4,573.80	0						0.029	0	
F4-241-011	4,575.00	0						0.055	0	
F4-251-016	4,622.17	0.003						0.021	0	
F4-251-022	4,619.81	0.002						0.001	0	
F4-251-023	4,616.20	0.002	0.006					0	0	
F4-252-003	4,613.52	0.002						0.001	0	
F4-252-005	4,617.73	0.002	0.009					0.004	0	
F4-271-034	4,703.96	0.001						0.002	0	
F4-271-069	4,699.58	0.004						0.006	0.002	
F4-271-070	4,684.67	0.005	0.008					0.005	0.001	
F4-271-072	4,689.09	0.008						0.012	0.002	
F4-271-073	4,694.83	0.007						0.007	0.002	
F4-271-075	4,702.43	0.002						0.003	0.001	
G1-211-003	4,525.00		0.105					0.003	0	0.012
G1-221-001	4,528.35									
G1-221-005	4,528.52									
G1-221-010	4,529.55					0.015				0.176
G1-221-029	4,527.64									
G1-232-012	4,566.84	0						0.029	0.021	
G1-241-001	4,566.56	0								
G1-241-002	4,573.55	0.004								
G1-242-001	4,578.93	0.002						0.004	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G1-242-006	4,580.63	0.002						0.004	0	
G1-242-014	4,582.77	0.002								
G1-242-025	4,584.18	0.001	0.022							
G1-242-028	4,584.54	0.001								
G1-242-038	4,586.47	0.002								
G1-242-045	4,587.72	0.004	0.011					0.008	0	
G1-252-004	4,629.56	0.001						0.002	0	
G1-252-005	4,623.68	0.003	0.012					0.008	0	
G1-252-006	4,630.58	0.001						0.01	0	
G1-252-007	4,632.94	0.001						0.019	0	
G1-252-008	4,634.84	0.001						0.001	0	
G1-252-009	4,637.04	0.001						0.002	0	
G1-252-011	4,638.26	0.001	0.011					0.001	0	
G1-271-007	4,705.24	0.001	0.004					0	0	
G1-271-013	4,705.17	0.001						0	0	
G1-271-030	4,706.39	0.004						0	0	
G1-271-041	4,709.41	0.003	0.01			0.056				
G1-271-042	4,709.44	0.001								
G1-271-047	4,710.78	0.004						0	0	
G1-272-045	4,715.12	0.01				0.026		0	0	
G1-272-065	4,718.95	0.006	0.007					0	0.001	
G1-272-066	4,719.38	0.001						0	0	
G2-212-001	4,523.96									
G2-212-002	4,524.99									
G2-212-003	4,526.68	0.001						0	0.003	
G2-212-014	4,529.91	0.001						0	0.02	
G2-212-015	4,525.62									
G2-212-032	4,527.22									
G2-212-035	4,526.27									
G2-212-038	4,526.47									
G2-212-041	4,528.13		0.051							0.044
G2-212-047	4,522.78									
G2-252-043	4,631.26	0.001						0.001	0	
G2-252-044	4,633.64	0.001						0.003	0	
G2-252-045	4,639.87	0.001						0.026	0	
G2-252-046	4,637.78	0.002						0.004	0	
G2-252-047	4,649.25	0.001						0.001	0	
G2-272-001	4,719.61	0.003						0.001	0	
G2-272-014	4,721.87	0.007						0.005	0.002	
G2-272-036	4,724.33	0.005						0.011	0.005	
G2-272-049	4,727.32	0.001						0.02	0.01	
G2-272-055	4,730.67	0.001	0.049			0.031		0.007	0.004	
G2-272-068	4,732.77	0.002						0.018	0.012	
G2-272-080	4,738.67	0.008	0.027			0.045		0.277	0.187	
G3-211-015	4,522.45		0.013							
G3-211-017	5,000.00									
G3-211-018	5,000.00							0.011	0	
G3-212-006	4,521.80	0.001						0	0.002	
G3-212-007	4,522.94									
G3-252-026	4,654.93	0						0	0	
G3-252-027	4,659.06	0						0	0	
G3-252-028	4,656.53	0.001						0	0	
G3-252-029	4,656.26	0.004						0.025	0.003	
G3-252-030	4,670.54	0						0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G3-252-031	4,675.63	0.002						0.006	0	
G3-252-032	4,676.72	0.001						0.001	0	
G4-252-008	4,676.64		0.038					0.005	0	
G4-261-001	4,672.72	0.001						0	0	
G4-261-008	4,685.23	0.001						0	0	
G4-261-015	4,682.77	0						0.002	0	
G4-261-016	4,680.50	0.001						0	0	
G4-261-017	4,680.57	0.002						0	0	
G4-261-018	4,683.13	0.002						0.004	0	
G4-261-020	4,681.65	0.002						0	0	
G4-261-021	4,680.57	0.002						0.001	0	
G4-261-029	4,680.57	0.003						0.001	0	
H1-261-006	4,708.26	0.001						0.009	0	
H1-261-008	4,704.71	0						0.011	0	
H1-261-009	4,704.78	0						0.003	0	
H1-261-010	4,699.17	0.001						0.007	0	
H1-261-011	4,695.36	0.004						0.008	0	
H1-261-012	4,689.20	0.001						0.006	0	
H1-261-015	4,689.98	0						0.01	0	
H1-261-025	4,708.22	0						0.004	0	
H1-262-023	4,717.08	0.016	0.11					0.053	0	
SS_1_A	4,580.72							0	0.001	
SS_3	4,582.40							0	0	0.016
SS_4	4,583.40							0	0	
SS_5	4,583.90	0.001		0.13				0	0.014	
SS_6	4,585.50	0.001						0	0.003	
SS_7	4,588.00	0.001						0	0.003	
SS_8	4,591.00	0.001						0	0.001	

Notes:

1) For the Wet Weather Scenario, all demands had the "PWWF" Pattern.

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
0C2-261-013	4,556.99	4,556.74	204.399	21	RCP	River Trunk	Existing
0G1-271-041	4,703.98	4,703.94	8.167	15	RCP	Horizon Drive	Existing
1003	4,694.00	4,688.91	1,273.23	10		C Road	FUTURE
1005	4,688.91	4,683.54	1,341.70	10		C Road	FUTURE
1007	4,670.39	4,679.67	2,630.55	8			FUTURE
1009	4,531.04	4,527.29	232	12		Ridges Connector	FUTURE
101	4,643.41	4,643.05	144.8	8		Redlands	Existing
1011	4,533.18	4,531.04	536	12		Ridges Connector	FUTURE
1013	4,535.69	4,533.18	629	12		Ridges Connector	FUTURE
1015	4,537.20	4,535.69	379	12		Ridges Connector	FUTURE
1017	4,538.58	4,537.20	345	12		Ridges Connector	FUTURE
1019	4,539.90	4,538.58	329	12		Ridges Connector	FUTURE
1021	4,540.86	4,539.90	240	12		Ridges Connector	FUTURE
1023	4,542.02	4,540.86	289	12		Ridges Connector	FUTURE
1025	4,543.54	4,542.02	382	12		Ridges Connector	FUTURE
1027	4,545.14	4,543.54	399	12		Ridges Connector	FUTURE
1029	4,548.85	4,545.14	530	12		Ridges Connector	FUTURE
103	4,642.86	4,641.41	303.78	8		Redlands	Existing
1031	4,558.12	4,548.85	309	8		Ridges Connector	FUTURE
1033	4,569.61	4,558.12	383	8		Ridges Connector	FUTURE
1035	4,574.80	4,569.61	173	8		Ridges Connector	FUTURE
1037	4,583.54	4,574.80	437	8		Ridges Connector	FUTURE
1039	4,590.66	4,583.54	356	8		Ridges Connector	FUTURE
1041	4,597.92	4,590.66	363	8		Ridges Connector	FUTURE
1043	4,604.20	4,597.92	314	8		Ridges Connector	FUTURE
1045	4,612.75	4,604.20	285	8		Ridges Connector	FUTURE
1047	4,618.21	4,612.75	156	8		Ridges Connector	FUTURE
1049	4,623.67	4,618.21	156	8		Ridges Connector	FUTURE
105	4,641.21	4,639.76	346.62	8		Redlands	Existing
1051	4,516.58	4,513.57	1,543.17	21			FUTURE
1053	4,683.54	4,678.39	1,286.48	10		C Road	FUTURE
1057	4,596.51	4,511.56	5,986.47	8			FUTURE
1061	4,633.12	4,523.59	4,056.57	8			FUTURE
1063	4,673.86	4,523.46	7,540.55	10			FUTURE
1065	4,744.98	4,551.00	6,085.72	10			FUTURE
1069	4,642.98	4,551.00	3,944.87	8			FUTURE
107	4,639.49	4,623.63	270	8		Redlands	Existing
1071	4,559.67	4,551.00	4,360.58	8			FUTURE
1073	4,594.55	4,577.61	8,861.37	24			FUTURE
1075	4,714.77	4,579.82	21,706.66	15			FUTURE
1077	4,584.61	4,519.71	15,199.69	15			FUTURE
1087	4,513.34	4,513.07	664.462	36			FUTURE_REC
1093	4,601.28	4,594.10	7,911.69	21			FUTURE_REC
1097	4,576.75	4,565.04	3,663.57	15			FUTURE_REC
1105	4,933.00	4,623.67	16,667.16	10			FUTURE
1107	4,626.78	4,623.67	3.654	8			FUTURE
1109	4,819.00	4,770.00	966.573	12			FUTURE
111	4,623.36	4,616.80	123	8		Redlands	Existing
1111	4,770.00	4,735.00	1,033.62	12			FUTURE
1113	4,735.00	4,725.00	910.037	12			FUTURE
1115	4,725.00	4,667.00	659.264	12			FUTURE
1117	4,667.00	4,660.00	1,314.56	12			FUTURE
1119	4,660.00	4,646.95	1,864.76	12			FUTURE
1121	4,646.95	4,580.93	2,590.11	12			FUTURE
1123	4,660.00	4,601.78	13,592.32	15			FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
1125	4,589.29	4,580.04	3,093.95	12		24 1/2 Rd	FUTURE
113	4,616.40	4,610.10	74.11	8		Redlands	Existing
1131	0.00	0.00	1009.254	8		Lime Kiln	FUTURE
1133	0.00	0.00	617.395	8		Lime Kiln	FUTURE
1135	4,660.00	4,648.00	1171.199	8		Lime Kiln	FUTURE
1137	4,648.00	4,630.00	1271.107	8		Lime Kiln	FUTURE
1139	4,630.00	4,620.00	1264.866	8		Lime Kiln	FUTURE
1141	4,620.00	4,590.00	1000	8		Lime Kiln	FUTURE
1143	4,570.00	4,523.59	2586	8			FUTURE
1145	4,590.00	4,570.00	1200	8			FUTURE
115	4,609.90	4,589.98	213.82	8		Redlands	Existing
117	4,589.88	4,586.26	38.47	8		Redlands	Existing
119	4,586.16	4,573.55	134.02	8		Redlands	Existing
121	4,554.58	4,550.81	38.8	8	PVC	Ridges	Existing
123	4,550.52	4,529.41	87.67	8	PVC	Ridges	Existing
125	4,529.21	4,526.59	59.29	8	PVC	Ridges	Existing
127	4,523.59	4,521.66	215.16	8	PVC	Ridges	Existing
135	4,563.21	4,654.16	4,837.11	8	PVC		Existing
137	4,653.88	4,652.58	142.739	8	PVC	Redlands	Existing
139	4,600.86	4,600.67	69.73	24		Orchard Mesa	Existing
141	4,600.67	4,599.47	378.78	24		Orchard Mesa	Existing
143	4,599.47	4,598.75	362.65	24		Orchard Mesa	Existing
145	4,598.75	4,598.15	392.08	24		Orchard Mesa	Existing
147	4,598.15	4,597.06	426.27	24		Orchard Mesa	Existing
153	4,597.06	4,596.34	397.67	24		Orchard Mesa	Existing
155	4,596.34	4,596.31	21.25	24		Orchard Mesa	Existing
157	4,596.31	4,562.75	1,004.50	12		Orchard Mesa	Existing
161	4,523.46	4,521.29	511.1	10		Scenic School	Existing
163	4,577.14	4,576.70	340	30		South Side	Existing
165	4,574.96	4,573.97	303.73	20	RCP	South Side	Existing
167	4,577.61	4,577.24	289	30	PVC	South Side	Existing
169	4,577.71	4,577.61	75	24	PVC	South Side	Existing
171	4,578.21	4,577.81	308	24	PVC	South Side	Existing
173	4,579.82	4,579.23	457	24	PVC	South Side	Existing
175	4,579.23	4,578.73	387	24	PVC	South Side	Existing
177	4,578.73	4,578.21	402	24	PVC	South Side	Existing
181	4,543.00	4,537.25	2,052.73	12		G Road	FUTURE
183	4,537.25	4,533.34	1,398.72	12		G Road	FUTURE
185	4,529.86	4,528.15	534.626	12		G Road	FUTURE
483	4,693.91	4,692.10	626.246	12		E 1/2 road	FUTURE
485	4,692.10	4,689.93	747.576	12		E 1/2 road	FUTURE
487	4,658.76	4,657.82	236.609	8		Greenwood Drive	FUTURE
489	4,657.82	4,645.81	632.008	8		Greenwood Drive	FUTURE
491	4,645.81	4,643.95	123.804	8		Greenwood Drive	FUTURE
493	4,643.95	4,636.04	527.482	8		Greenwood Drive	FUTURE
495	4,636.04	4,633.12	194.46	8		Greenwood Drive	FUTURE
497	4,859.65	4,703.03	1,160.14	8		Easter Hill	FUTURE
499	4,703.03	4,645.81	706.83	8		Easter Hill	FUTURE
501	4,775.00	4,737.78	1,488.82	8		Alcove Drive	FUTURE
503	4,737.78	4,708.97	1,029.09	8		Alcove Drive	FUTURE
505	4,708.97	4,683.03	926.267	8		Alcove Drive	FUTURE
507	4,683.03	4,673.86	327.547	8		Alcove Drive	FUTURE
525	4,786.40	4,760.44	865.146	8		Broadway	FUTURE
527	4,760.44	4,733.64	893.316	8		Broadway	FUTURE
529	4,733.64	4,718.47	505.686	8		Broadway	FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
531	4,718.47	4,667.50	1,699.01	8		Broadway	FUTURE
533	4,667.50	4,649.92	1,172.00	8		Broadway	FUTURE
535	4,649.92	4,631.04	1,258.46	8		Broadway	FUTURE
537	4,631.04	4,596.51	1,726.88	8		Broadway	FUTURE
567	4,570.00	4,556.77	2,645.94	8		21 Road	FUTURE
569	4,556.77	4,551.38	1,346.50	8		21 Road	FUTURE
57	4,705.13	4,702.55	262.09	10	PVC		Existing
571	4,551.38	4,544.89	1,299.01	8		21 Road	FUTURE
573	4,544.89	4,527.86	3,405.84	8		21 Road	FUTURE
575	4,527.86	4,517.25	2,122.20	10		21 Road	FUTURE
577	4,517.25	4,510.53	1,678.71	10		21 Road	FUTURE
581	4,599.12	4,586.12	1,299.01	8		22 Road	FUTURE
583	4,586.12	4,559.52	1,330.39	8		22 Road	FUTURE
585	4,559.52	4,554.25	1,316.09	8		22 Road	FUTURE
587	4,548.99	4,536.63	3,088.83	10		22 Road	FUTURE
589	4,536.63	4,534.30	582.245	12		22 Road	FUTURE
591	4,534.30	4,528.52	1,654.12	12		22 Road	FUTURE
595	4,533.31	4,526.54	2,258.82	18		23 Road	FUTURE
597	4,526.54	4,524.00	714.837	18		23 Road	FUTURE
599	4,634.94	4,586.97	2,998.22	8		23 Road	FUTURE
601	4,586.97	4,575.06	851.104	8		23 Road	FUTURE
603	4,575.06	4,569.59	1,367.51	10		23 Road	FUTURE
605	4,569.59	4,555.05	3,635.02	12		23 Road	FUTURE
607	4,555.05	4,547.61	1,652.12	15		23 Road	FUTURE
609	4,547.61	4,538.91	1,932.55	15		23 Road	FUTURE
613	4,528.52	4,524.00	1,240.00	12		22 Road	FUTURE
615	4,664.00	4,638.75	2,295.59	8		24 1/2 Rd	FUTURE
617	4,638.75	4,618.90	1,804.38	8		24 1/2 Rd	FUTURE
619	4,618.90	4,605.85	1,186.69	8		24 1/2 Rd	FUTURE
627	4,694.00	4,689.28	673.665	8		26 Road	FUTURE
629	4,689.28	4,680.30	1,282.87	8		26 Road	FUTURE
631	4,680.30	4,671.16	1,306.94	8		26 Road	FUTURE
633	4,671.16	4,656.61	2,077.28	8		26 Road	FUTURE
635	4,656.61	4,649.04	1,081.70	8		26 Road	FUTURE
637	4,649.04	4,629.16	1,529.81	8		26 Road	FUTURE
639	4,629.16	4,611.95	1,323.32	8		26 Road	FUTURE
641	4,611.95	4,589.29	1,888.57	12		26 Road	FUTURE
643	4,589.29	4,580.04	771.101	12		26 Road	FUTURE
645	4,580.04	4,575.66	1,151.73	15		26 Road	FUTURE
647	4,575.66	4,569.36	1,656.66	15		26 Road	FUTURE
649	4,655.00	4,618.28	1,836.09	8		25 Road	FUTURE
651	4,618.28	4,613.83	1,647.79	12		25 Road	FUTURE
653	4,613.83	4,611.95	711.137	12		25 Road	FUTURE
655	4,581.96	4,580.04	686.164	12		26 Road	FUTURE
657	4,533.34	4,529.86	1,242.83	12		G Road	FUTURE
673	4,701.12	4,691.93	1,880.30	8		Monument Drive	FUTURE
677	4,712.82	4,691.93	596.637	8		Monument Drive	FUTURE
679	4,691.93	4,669.68	1,391.13	8		Monument Drive	FUTURE
681	4,669.68	4,646.06	1,312.27	8		Monument Drive	FUTURE
683	4,637.60	4,744.98	932.306	4			FUTURE
685	4,831.01	4,749.28	996.645	8		Bella Pago	FUTURE
687	4,749.28	4,744.98	1,076.66	8		Bella Pago	FUTURE
689	4,732.00	4,682.31	1,242.15	8		Mira Monte	FUTURE
691	4,682.31	4,645.18	1,237.68	8		Mira Monte	FUTURE
693	4,645.18	4,642.98	550.801	8		Mira Monte	FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
695	4,619.00	4,610.72	413.891	8		Rosevale	FUTURE
697	4,610.72	4,562.63	1,603.13	8		Rosevale	FUTURE
699	4,562.63	4,559.67	147.851	8		Rosevale	FUTURE
707	4,793.00	4,785.40	1,519.15	12		I-70 Interceptor	FUTURE
709	4,785.40	4,761.63	2,165.89	12		I-70 Interceptor	FUTURE
711	4,753.36	4,714.77	1,543.64	15		I-70 Interceptor	FUTURE
713	4,761.63	4,753.36	2,066.21	15		I-70 Interceptor	FUTURE
715	4,779.69	4,761.63	4,515.61	8		I-70 Interceptor	FUTURE
717	4,796.34	4,779.69	3,330.38	8		I-70 Interceptor	FUTURE
719	4,833.87	4,796.34	1,876.52	8		I-70 Interceptor	FUTURE
727	4,762.60	4,750.11	1,921.29	15		29 Road	FUTURE
733	4,657.67	4,650.64	1,171.15	8		US HWY 50	FUTURE
735	4,650.64	4,638.84	1,371.28	8		US HWY 50	FUTURE
749	4,689.93	4,689.06	300.636	12		E 1/2 road	FUTURE
751	4,689.06	4,688.78	95.714	12		E 1/2 road	FUTURE
753	4,688.78	4,687.93	290.211	12		E 1/2 road	FUTURE
757	4,547.55	4,546.92	334.196	10		Ridges	Existing
759	4,547.55	4,546.92	335.43	8		Ridges	Existing
761	4,546.92	4,546.82	9.951	8		Ridges	Existing
763	4,516.05	4,513.14	145.763	30	RCP	River Road	Existing
773	4,658.97	4,656.78	408	12	VCP	B 1/2 Road	Existing
775	4,656.75	4,655.22	123.2	12	VCP	B 1/2 Road	Existing
777	4,655.22	4,655.09	248.4	12	VCP	B 1/2 Road	Existing
779	4,655.09	4,653.77	333.6	12	VCP	B 1/2 Road	Existing
781	4,653.67	4,652.71	248.5	12	VCP	B 1/2 Road	Existing
785	4,652.64	4,651.67	251	12	VCP	B 1/2 Road	Existing
787	4,651.66	4,650.11	291.592	12	VCP	B 1/2 Road	Existing
789	4,650.44	4,650.15	65.206	12	VCP	B 1/2 Road	Existing
791	4,650.14	4,648.83	396.421	12	VCP	B 1/2 Road	Existing
793	4,648.80	4,647.45	379.463	12		B 1/2 Road	Existing
795	4,647.39	4,646.80	179.547	12		B 1/2 Road	Existing
797	4,646.80	4,646.21	201.687	12	VCP	B 1/2 Road	Existing
799	4,646.11	4,645.05	348	12	VCP	B 1/2 Road	Existing
801	4,644.97	4,644.95	37.1	12	VCP	B 1/2 Road	Existing
803	4,644.57	4,643.61	378.906	12	VCP	B 1/2 Road	Existing
805	4,643.57	4,642.10	324	12	VCP	B 1/2 Road	Existing
807	4,642.00	4,641.40	392	12	VCP	B 1/2 Road	Existing
809	4,641.30	4,639.77	399.077	12	VCP	B 1/2 Road	Existing
811	4,639.71	4,639.39	108.076	12	VCP	B 1/2 Road	Existing
813	4,639.39	4,638.24	293.59	12	VCP	B 1/2 Road	Existing
85	4,652.36	4,651.54	204.94	8	PVC	Redlands	Existing
87	4,651.52	4,650.96	218.91	8		Redlands	Existing
889	4,637.21	4,636.52	325	15		Frontage Rd	Existing
89	4,650.53	4,649.68	208.2	8		Redlands	Existing
891	4,636.45	4,635.40	338	15		Frontage Rd	Existing
893	4,635.26	4,634.52	345	15		Frontage Rd	Existing
895	4,634.45	4,633.58	145	15		Frontage Rd	Existing
897	4,633.58	4,633.24	12.52	15		Frontage Rd	Existing
91	4,649.48	4,648.80	161.6	8		Redlands	Existing
93	4,648.55	4,647.31	268.34	8		Redlands	Existing
939	4,503.19	4,513.80	666.64	6		21 Road	FUTURE
943	4,522.30	4,519.37	975.74	21		22 Road	FUTURE
945	4,519.37	4,518.94	171.855	21		22 Road	FUTURE
947	4,518.94	4,517.29	660.428	21		22 Road	FUTURE
949	4,517.29	4,516.58	283.874	21		22 Road	FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
95	4,647.13	4,645.76	272.44	8		Redlands	Existing
951	4,524.00	4,522.30	666.531	21		22 Road	FUTURE
953	4,538.91	4,537.65	315.643	15		23 Road	FUTURE
955	4,537.65	4,536.15	375.976	15		23 Road	FUTURE
957	4,536.15	4,533.31	944.567	15		23 Road	FUTURE
959	4,554.25	4,548.99	1,315.88	8		22 Road	FUTURE
961	4,569.36	4,568.73	167.92	15		26 Road	FUTURE
963	4,775.78	4,762.60	2,028.59	15		29 Road	FUTURE
965	4,750.11	4,742.91	359.96	15		29 Road	FUTURE
967	4,742.91	4,708.77	2,276.14	15		29 Road	FUTURE
969	4,708.77	4,694.18	1,325.86	15		29 Road	FUTURE
97	4,645.57	4,644.67	196.21	8		Redlands	Existing
971	4,694.18	4,679.67	1,318.98	15		29 Road	FUTURE
973	4,679.67	4,673.05	1,325.26	18		29 Road	FUTURE
975	4,673.05	4,666.46	1,316.49	18		29 Road	FUTURE
977	4,666.46	4,661.84	925.484	18		29 Road	FUTURE
979	4,661.84	4,653.48	1,670.87	18		29 Road	FUTURE
981	4,653.48	4,647.09	1,279.28	18		29 Road	FUTURE
987	4,647.09	4,594.55	5,253.59	18		29 Road	FUTURE
99	4,644.46	4,643.51	254.49	8	PVC	Redlands	Existing
B1-272-001	4,646.75	4,646.04	245	12		B Road	Existing
B1-272-002	4,647.88	4,646.82	254	10		B Road	Existing
B1-272-003	4,648.97	4,647.96	271	10		B Road	Existing
B1-272-005	4,650.32	4,649.13	277	10		B Road	Existing
B1-272-007	4,651.33	4,650.34	336	10		B Road	Existing
B1-272-010	4,645.97	4,645.09	235	12		B Road	Existing
B1-281-001	4,652.64	4,651.37	337	10		B Road	Existing
B1-281-002	4,654.03	4,652.72	338	10		B Road	Existing
B1-281-004	4,656.80	4,654.09	450	10		B Road	Existing
B1-281-005	4,658.25	4,656.82	253	10		B Road	Existing
B1-281-006	4,659.90	4,658.31	300	10		B Road	Existing
B1-281-007	4,661.06	4,659.92	105	10		B Road	Existing
B1-281-009	4,664.19	4,661.02	301	10		B Road	Existing
B1-281-010	4,667.56	4,664.70	280	10		B Road	Existing
B1-292-001	4,710.24	4,709.43	401	10		Chipeta	Existing
B1-292-002	4,709.41	4,708.82	396	10		Chipeta	Existing
B1-292-003	4,708.82	4,707.80	401	10		Chipeta	Existing
B1-292-004	4,707.70	4,705.49	218	10		Chipeta	Existing
B1-292-010	4,705.49	4,702.44	293	10		Chipeta	Existing
B1-292-011	4,702.28	4,693.49	291	10		Chipeta	Existing
B1-292-012	4,674.06	4,673.62	302	10		Chipeta	Existing
B1-292-013	4,691.01	4,690.47	87	8		Chipeta	Existing
B1-292-014	4,690.47	4,689.38	266	10		Chipeta	Existing
B1-292-015	4,689.36	4,688.51	106	10		Chipeta	Existing
B1-292-016	4,688.51	4,685.74	145	8		Chipeta	Existing
B2-271-019	4,633.24	4,632.55	252.002	15	VCP	Orchard Mesa	Existing
B2-272-004	4,634.19	4,633.34	302.842	15	VCP	B 1/2 Road	Existing
B2-272-007	4,634.99	4,634.19	289.23	15	VCP	B 1/2 Road	Existing
B2-272-009	4,635.13	4,634.99	49.889	15	VCP	B 1/2 Road	Existing
B2-272-012	4,645.09	4,643.48	430	15		B Road	Existing
B2-272-013	4,643.33	4,642.53	186	15		B Road	Existing
B2-272-014	4,635.43	4,635.13	177.973	15	VCP	B 1/2 Road	Existing
B2-272-015	4,642.50	4,641.11	463	15		B Road	Existing
B2-272-016	4,639.99	4,638.97	440	15		B Road	Existing
B2-272-017	4,638.03	4,637.27	325	15		Frontage Rd	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B2-272-021	4,638.84	4,638.08	316	15		Frontage Rd	Existing
B2-272-027	4,638.22	4,636.76	430	12	VCP	B 1/2 Road	Existing
B2-272-033	4,636.69	4,635.49	208	12	VCP	B 1/2 Road	Existing
B2-282-048	4,660.36	4,658.98	353	12		B 1/2 Road	Existing
B2-282-051	4,661.76	4,660.36	329	12	VCP	B 1/2 Road	Existing
B2-282-054	4,663.80	4,661.80	450	12	VCP	B 1/2 Road	Existing
B2-291-024	4,671.85	4,670.65	135	12	VCP	B 1/2 Road	Existing
B2-291-025	4,670.56	4,667.90	528	12	VCP	B 1/2 Road	Existing
B2-291-026	4,667.87	4,667.72	413	12	VCP	B 1/2 Road	Existing
B2-291-027	4,667.71	4,666.81	443.2	12	VCP	B 1/2 Road	Existing
B2-291-028	4,666.77	4,666.62	78.1	12	VCP	B 1/2 Road	Existing
B2-291-029	4,666.60	4,665.18	299	12	VCP	B 1/2 Road	Existing
B2-291-030	4,665.03	4,663.80	465	12	VCP	B 1/2 Road	Existing
B2-291-045	4,670.65	4,670.57	248	12	VCP	B 1/2 Road	Existing
B2-292-001	4,681.06	4,679.10	400.9	10		B 1/2 Road	Existing
B2-292-002	4,679.00	4,676.86	400.4	10		B 1/2 Road	Existing
B2-292-003	4,676.86	4,676.36	200.7	10		B 1/2 Road	Existing
B2-292-004	4,676.23	4,675.08	95.7	12		B 1/2 Road	Existing
B2-292-008	4,674.06	4,673.62	501	12		B 1/2 Road	Existing
B2-292-009	4,673.56	4,671.86	503.5	12		B 1/2 Road	Existing
B2-292-010	4,675.08	4,674.72	150.5	12		B 1/2 Road	Existing
B2-292-011	4,676.30	4,675.48	145	8		Chipeta	Existing
B2-292-012	4,677.97	4,676.80	285	8		Chipeta	Existing
B2-292-017	4,680.45	4,679.15	163	8		Chipeta	Existing
B2-292-018	4,682.29	4,680.21	255	8		Chipeta	Existing
B2-292-022	4,684.69	4,682.13	220	8		Chipeta	Existing
B2-292-023	4,685.95	4,684.47	85	8		Chipeta	Existing
B2-292-026	4,674.71	4,674.07	222.8	12		B 1/2 Road	Existing
B2-301-001	4,682.29	4,681.46	213	10		B 1/2 Road	Existing
B3-262-023	4,622.01	4,620.76	319.833	18	VCP	Orchard Mesa	Existing
B3-262-027	4,622.49	4,622.01	404.358	18	VCP	Orchard Mesa	Existing
B3-262-031	4,622.98	4,622.49	407.081	18	VCP	Orchard Mesa	Existing
B3-271-003	4,623.79	4,623.13	234.126	15	VCP	Orchard Mesa	Existing
B3-271-006	4,624.41	4,623.79	220.318	15	VCP	Orchard Mesa	Existing
B3-271-018	4,625.47	4,624.41	378.578	15	VCP	Orchard Mesa	Existing
B3-271-026	4,627.09	4,626.58	149.6	15	VCP	Orchard Mesa	Existing
B3-271-032	4,627.95	4,627.09	304.646	15	VCP	Orchard Mesa	Existing
B3-271-039	4,628.92	4,627.95	346.729	15	VCP	Orchard Mesa	Existing
B3-271-042	4,629.70	4,628.92	278.734	15	VCP	Orchard Mesa	Existing
B3-271-045	4,630.11	4,629.70	143.795	15	VCP	Orchard Mesa	Existing
B3-271-054	4,630.84	4,630.11	225.041	15	VCP	Orchard Mesa	Existing
B3-271-058	4,631.39	4,630.84	158.555	15	VCP	Orchard Mesa	Existing
B3-271-058A	4,632.02	4,631.39	225.434	15	VCP	Orchard Mesa	Existing
B3-271-063	4,632.55	4,632.02	188.895	15	VCP	Orchard Mesa	Existing
B4-261-014	4,608.87	4,607.44	237.8	15		Orchard Mesa	Existing
B4-262-001	4,611.26	4,608.87	398.782	15		Orchard Mesa	Existing
B4-262-011	4,615.11	4,612.98	355.552	18		Orchard Mesa	Existing
B4-262-016	4,617.18	4,615.11	344.761	18	RCP	Orchard Mesa	Existing
B4-262-022	4,619.06	4,617.18	313.273	18	RCP	Orchard Mesa	Existing
B4-262-024	4,619.50	4,619.06	208.903	18	RCP	Orchard Mesa	Existing
B4-262-028	4,619.83	4,619.50	301.71	18	RCP	Orchard Mesa	Existing
B4-262-030	4,620.04	4,619.83	192.158	18	VCP	Orchard Mesa	Existing
B4-262-031	4,620.76	4,620.58	94.76	18	VCP	Orchard Mesa	Existing
B4-262-036	4,625.37	4,625.13	110.831	12	VCP	Unaweep Road	Existing
B4-262-037	4,625.13	4,624.18	428.532	12	VCP	Unaweep Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B4-262-038	4,624.18	4,623.16	460.25	12	VCP	Unaweep Road	Existing
B4-262-043	4,612.98	4,611.26	288.279	15		Orchard Mesa	Existing
B4-262-114	4,620.58	4,620.04	209.8	18	VCP	Orchard Mesa	Existing
B4-271-001	4,625.44	4,625.37	28.798	12	VCP	Unaweep Road	Existing
B4-271-011	4,626.58	4,625.47	396.1	15	VCP	Orchard Mesa	Existing
B4-271-028	4,632.08	4,631.64	157.309	12	PVC	Unaweep Road	Existing
B4-271-033	4,633.06	4,632.08	348.762	12	PVC	Unaweep Road	Existing
B4-271-128	4,626.11	4,625.44	304.942	12	VCP	Unaweep Road	Existing
B4-271-135	4,627.28	4,626.11	415.674	12	PVC	Unaweep Road	Existing
B4-271-138	4,628.38	4,627.28	392.386	12	PVC	Unaweep Road	Existing
B4-271-143	4,629.27	4,628.38	315.864	12	PVC	Unaweep Road	Existing
B4-271-145	4,629.82	4,629.27	195.586	12	PVC	Unaweep Road	Existing
B4-271-146	4,630.72	4,629.82	318.521	12	PVC	Unaweep Road	Existing
B4-271-147	4,631.64	4,630.72	325.212	12	PVC	Unaweep Road	Existing
B4-271-148	4,633.50	4,633.06	154.783	12	PVC	Unaweep Road	Existing
B4-272-004	4,635.36	4,634.33	366	12	PVC	Unaweep Road	Existing
B4-272-039	4,639.40	4,639.08	125.854	12	PVC	Unaweep Road	Existing
B4-272-040	4,639.58	4,639.40	72.652	12	PVC	Unaweep Road	Existing
B4-272-044	4,640.18	4,639.58	241.31	12	PVC	Unaweep Road	Existing
B4-272-048	4,640.59	4,640.18	193.848	12	PVC	Unaweep Road	Existing
B4-272-086	4,636.41	4,635.36	372.542	12	PVC	Unaweep Road	Existing
B4-272-091	4,638.20	4,637.73	167.7	12	PVC	Unaweep Road	Existing
B4-272-092	4,639.08	4,638.49	237.1	12	PVC	Unaweep Road	Existing
B4-272-093	4,634.28	4,633.50	276.7	12	PVC	Unaweep Road	Existing
B4-272-094	4,634.33	4,634.28	18.6	12	PVC	Unaweep Road	Existing
B4-272-095	4,638.49	4,638.20	104.5	12	PVC	Unaweep Road	Existing
B4-272-096	4,637.73	4,636.41	468.3	12	PVC	Unaweep Road	Existing
B4-281-054	4,641.06	4,640.59	189.453	12	PVC	Unaweep Road	Existing
B4-281-057	4,641.94	4,641.06	320.62	12	PVC	Unaweep Road	Existing
BV-100	4,540.00	4,549.55	1,147.16	12		Scenic	Existing
BV-105	4,546.92	4,546.82	9.951	10		Ridges	Existing
BV-292-013	4,678.94	4,678.13	158	8		Chipeta	Existing
C1-221-018	4,846.93	4,846.06	249.9	12	PVC	South Camp	Existing
C1-221-019	4,847.43	4,846.93	124.148	12	PVC	South Camp	Existing
C1-261-028	4,603.26	4,600.82	408.196	18	VCP	Orchard Mesa	Existing
C1-261-030	4,604.33	4,603.26	178.662	18	VCP	Orchard Mesa	Existing
C1-261-058	4,607.44	4,606.78	110.175	15		Orchard Mesa	Existing
C1-261-060	4,605.22	4,604.33	149.994	18	VCP	Orchard Mesa	Existing
C1-261-062	4,606.78	4,605.22	260.432	15		Orchard Mesa	Existing
C1-281-035	4,642.19	4,641.94	101.155	10	PVC	Unaweep Road	Existing
C2-221-030	4,846.06	4,844.64	479.4	12	PVC	South Camp	Existing
C2-221-031	4,836.04	4,821.72	162.9	12	PVC	South Camp	Existing
C2-221-032	4,840.59	4,839.55	170.7	12	PVC	South Camp	Existing
C2-221-033	4,841.58	4,840.59	368.7	12	PVC	South Camp	Existing
C2-221-034	4,842.57	4,841.58	361.7	12	PVC	South Camp	Existing
C2-221-035	4,843.98	4,842.57	172.1	12	PVC	South Camp	Existing
C2-221-037	4,844.64	4,843.98	502.3	12	PVC	South Camp	Existing
C2-221-065	4,839.55	4,836.04	164.7	12	PVC	South Camp	Existing
C2-261-001A	4,596.31	4,562.75	1,005.71	14	DIP	Orchard Mesa	Existing
C2-261-024	4,557.05	4,556.99	49.5	27	VCP	River Trunk	Existing
C3-212-031	4,796.10	4,792.35	273.3	12	PVC	South Camp	Existing
C3-221-003	4,821.72	4,819.43	114.997	12	PVC	South Camp	Existing
C3-221-004	4,819.43	4,813.83	280.4	12	PVC	South Camp	Existing
C3-221-005	4,811.89	4,801.75	492.3	12	PVC	South Camp	Existing
C3-221-006	4,801.75	4,796.10	342	12	PVC	South Camp	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
C3-221-030	4,813.83	4,811.89	97.3	12	PVC	South Camp	Existing
C3-252-002	4,556.31	4,555.59	479.142	30	RCP	South Side	Existing
C3-261-001	4,554.75	4,553.86	725.733	21	CONCRETE	River Trunk	Existing
C3-261-002	4,557.21	4,556.31	471.205	27	polyvinyl chlori	South Side	Existing
C3-261-004	4,555.11	4,554.75	299.7	21	CONCRETE	River Trunk	Existing
C3-261-005	4,558.11	4,557.21	303.203	27	PVC	South Side	Existing
C3-261-007	4,555.56	4,555.11	363.588	21	RCP	River Trunk	Existing
C3-261-008	4,558.49	4,558.11	365.753	27	PVC	South Side	Existing
C3-261-009	4,558.78	4,558.49	280.834	27	PVC	South Side	Existing
C3-261-010	4,558.86	4,558.78	76.621	27	PVC	South Side	Existing
C3-261-011	4,555.94	4,555.56	310.78	21	RCP	River Trunk	Existing
C3-261-012	4,558.88	4,558.86	17.843	30	RCP	South Side	Existing
C3-261-012A	3	3	46.018	21	PVC		Existing
C3-261-013	4,560.28	4,558.88	92.693	20	RCP	South Side	Existing
C3-261-015	4,556.22	4,555.94	227.894	21	RCP	River Trunk	Existing
C3-261-019	4,556.59	4,556.22	309.3	21	RCP	River Trunk	Existing
C3-261-021	4,556.74	4,556.59	123.197	21	RCP	River Trunk	Existing
C3-261-031	4,561.71	4,560.78	518.568	20	RCP	South Side	Existing
C3-261-035	4,557.14	4,557.05	74.4	27	VCP	River Trunk	Existing
C3-261-040	4,561.85	4,561.71	77.933	20	RCP	South Side	Existing
C3-261-043	4,557.18	4,557.14	31.718	27	VCP	River Trunk	Existing
C3-261-050	4,557.37	4,557.34	28	10	VCP	River Trunk	Existing
C3-261-056	4,557.50	4,557.37	80.918	10	VCP	River Trunk	Existing
C3-261-062	4,562.74	4,561.85	490.491	20	RCP	South Side	Existing
C3-261-075	4,557.34	4,557.24	13	12	PVC	River Trunk	Existing
C3-261-076	4,557.24	4,557.18	44.4	10	VCP	River Trunk	Existing
C3-262-007	4,563.98	4,563.70	154.554	20	RCP	South Side	Existing
C3-262-009	4,563.60	4,562.74	478.88	20	RCP	South Side	Existing
C3-262-033	4,564.91	4,564.08	463.661	20	RCP	South Side	Existing
C3-262-041	4,565.58	4,564.91	154.9	20	RCP	South Side	Existing
C3-262-046	4,566.92	4,565.58	319.406	20	RCP	South Side	Existing
C3-262-051	4,567.21	4,566.92	61.434	20	RCP	South Side	Existing
C3-262-061	4,568.19	4,567.21	206.673	20	RCP	South Side	Existing
C3-262-070	4,570.48	4,570.07	158.03	20	RCP	South Side	Existing
C3-262-071	4,570.07	4,568.19	373.756	20	RCP	South Side	Existing
C3-262-074	4,571.47	4,570.48	500.889	20	RCP	South Side	Existing
C3-271-001	4,572.32	4,571.47	421.48	20	RCP	South Side	Existing
C3-271-003	4,572.91	4,572.32	295.102	20	RCP	South Side	Existing
C3-271-004	4,573.07	4,572.91	77.966	20	RCP	South Side	Existing
C3-271-007	4,573.87	4,573.07	401.374	20	RCP	South Side	Existing
C3-271-010	4,575.40	4,575.16	28	20	RCP	South Side	Existing
C3-271-012	4,576.65	4,575.60	111	20	RCP	South Side	Existing
C4-212-059	4,792.35	4,780.23	489.901	12	PVC	South Camp	Existing
C4-212-060	4,776.84	4,772.96	226	12	PVC	South Camp	Existing
C4-212-061	4,770.23	4,764.84	299.9	12	PVC	South Camp	Existing
C4-221-001	4,764.84	4,751.11	391.4	12	PVC	South Camp	Existing
C4-221-011	4,772.96	4,770.23	159.3	12	PVC	South Camp	Existing
C4-252-001	4,552.80	4,552.03	536.838	30	RCP	South Side	Existing
C4-252-002	4,552.35	4,551.70	533.459	21	RCP	River Trunk	Existing
C4-252-003	4,555.59	4,554.87	297.594	30	RCP	South Side	Existing
C4-252-004	4,552.79	4,552.35	360.57	21	RCP	River Trunk	Existing
C4-252-005	4,554.19	4,553.57	346.893	30	RCP	South Side	Existing
C4-252-006	4,553.57	4,552.80	311.862	30	RCP	South Side	Existing
C4-252-007	4,553.86	4,553.32	441.554	21	RCP	River Trunk	Existing
C4-252-007A	4,553.32	4,552.79	436.699	21	RCP	River Trunk	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
C4-252-008	4,554.87	4,554.19	377.462	30	RCP	South Side	Existing
D1-212-011	4,745.82	4,738.58	284	12	PVC	South Camp	Existing
D1-212-012	4,738.58	4,733.37	274.602	12	PVC	South Camp	Existing
D1-212-032	4,751.11	4,745.82	500.7	12	PVC	South Camp	Existing
D1-242-011	4,625.05	4,620.05	124.968	10	PVC	Ridges	Existing
D1-242-017	4,635.90	4,625.71	275	10	PVC	Ridges	Existing
D1-242-018	4,648.75	4,636.15	294.478	10	PVC	Ridges	Existing
D1-242-019	4,652.05	4,648.85	199.457	12	PVC	Ridges	Existing
D1-242-030	4,619.95	4,600.75	399.963	10	PVC	Ridges	Existing
D1-242-031	4,600.00	4,586.00	293.724	10	PVC	Ridges	Existing
D1-242-031A	4,598.00	4,586.00	295.397	8	PVC	Ridges	Existing
D1-251-001	4,582.38	4,581.56	267.2	21		South Avenue	Existing
D1-251-005	4,586.00	4,556.00	1,267.13	10	PVC	Ridges	Existing
D1-251-005A	4,586.00	4,556.00	1,268.05	8	PVC	Ridges	Existing
D1-251-005B	4,556.00	4,551.00	343.186	10	PVC	Ridges	Existing
D1-252-001	4,549.53	4,548.08	371.427	30	RCP	South Side	Existing
D1-252-004	4,550.10	4,549.53	309.337	30	RCP	South Side	Existing
D1-252-005	4,548.94	4,548.69	201.72	24	VCP	River Trunk	Existing
D1-252-008	4,549.09	4,548.94	126.018	24	VCP	River Trunk	Existing
D1-252-008A	4,549.28	4,549.09	158.194	24	VCP	River Trunk	Existing
D1-252-009	4,550.62	4,550.10	292.478	30	RCP	South Side	Existing
D1-252-010	4,549.50	4,549.28	173.25	21	VCP	River Trunk	Existing
D1-252-011	4,549.87	4,549.50	310.091	21	VCP	River Trunk	Existing
D1-252-015	4,550.86	4,550.62	133.43	30	RCP	South Side	Existing
D1-252-018	4,551.45	4,550.86	398.159	30	RCP	South Side	Existing
D1-252-019	4,552.03	4,551.45	260.038	30	RCP	South Side	Existing
D1-252-023	4,550.29	4,549.87	343.449	21	VCP	River Trunk	Existing
D1-252-031	4,550.50	4,550.29	167.247	21	VCP	River Trunk	Existing
D1-252-036	4,550.70	4,550.50	164.131	21	VCP	River Trunk	Existing
D1-252-041	4,550.89	4,550.70	161.278	21	VCP	River Trunk	Existing
D1-252-042	4,551.70	4,550.89	662.626	21	VCP	River Trunk	Existing
D1-252-050	4,572.48	4,572.14	176.234	27	VCP	South Avenue	Existing
D1-252-053	4,564.58	4,564.29	272	24	RCP	Colorado Avenue	Existing
D1-252-056	4,564.84	4,564.67	83	24	RCP	Colorado Avenue	Existing
D1-252-057	4,565.78	4,564.84	223.762	24	RCP	Colorado Avenue	Existing
D1-252-059	4,565.89	4,565.78	27.158	24	RCP	Colorado Avenue	Existing
D1-261-001	4,566.50	4,566.09	77.506	24	PVC	Colorado Avenue	Existing
D1-261-003	4,573.60	4,572.48	723.306	27	VCP	South Avenue	Existing
D1-261-006	4,567.95	4,566.50	51.594	24	RCP	Colorado Avenue	Existing
D1-261-008	4,569.50	4,567.95	302.547	24	RCP	Colorado Avenue	Existing
D1-261-020	4,574.54	4,573.60	606.866	27	VCP	South Avenue	Existing
D1-261-021	4,570.00	4,569.50	99.515	24	RCP	Colorado Avenue	Existing
D1-261-023	4,577.36	4,577.02	233.241	27	VCP	South Avenue	Existing
D1-261-036	4,571.70	4,570.00	422.792	24	RCP	Colorado Avenue	Existing
D1-261-037	4,577.85	4,577.36	301.563	27	VCP	South Avenue	Existing
D1-261-052	4,572.10	4,571.70	440.734	24	RCP	Colorado Avenue	Existing
D1-261-059	4,578.49	4,577.85	481.274	27	VCP	South Avenue	Existing
D1-261-061	4,578.59	4,578.49	9.6	27	VCP	South Avenue	Existing
D1-261-075	4,573.00	4,572.10	445.227	24	RCP	Colorado Avenue	Existing
D1-261-084	4,579.30	4,578.59	471.5	27	VCP	South Avenue	Existing
D1-261-103	4,575.00	4,573.00	515.7	24	RCP	Colorado Avenue	Existing
D1-261-116	4,580.97	4,580.52	312.518	21	VCP	South Avenue	Existing
D1-261-116A	4,580.52	4,579.80	482.521	21	VCP	South Avenue	Existing
D1-261-117	4,575.50	4,575.00	54.284	24	RCP	Colorado Avenue	Existing
D1-261-128	4,575.80	4,575.50	267.746	24	RCP	Colorado Avenue	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D1-262-025	4,576.00	4,575.80	380	24	RCP	Colorado Avenue	Existing
D1-262-030	4,581.56	4,580.97	380.677	21	VCP	South Avenue	Existing
D1-262-040	4,576.50	4,576.00	264.434	24	RCP	Colorado Avenue	Existing
D1-262-067	4,578.20	4,576.50	502.758	24	RCP	Colorado Avenue	Existing
D1-262-079	4,583.87	4,582.38	495.739	21	VCP	South Avenue	Existing
D1-262-088	4,579.00	4,578.20	461.496	24	RCP	Colorado Avenue	Existing
D1-262-100	4,580.00	4,579.00	489.507	24	RCP	Colorado Avenue	Existing
D1-271-018	4,581.55	4,580.67	455.198	24	RCP	Colorado Avenue	Existing
D1-271-051	4,585.43	4,585.36	8.462	21	PVC	Colorado Avenue	Existing
D1-271-054	4,585.36	4,581.71	457.7	24	RCP	Colorado Avenue	Existing
D1-271-055	4,580.63	4,580.00	537.1	24	RCP	Colorado Avenue	Existing
D1-271-092	4,581.71	4,581.55	19.4	24	RCP	Colorado Avenue	Existing
D2-212-001	4,731.19	4,729.46	91.02	12	PVC	South Camp	Existing
D2-212-002	4,729.46	4,729.13	21.7	12	PVC	South Camp	Existing
D2-212-003	4,722.94	4,714.33	363.5	12	PVC	South Camp	Existing
D2-212-011	4,733.37	4,731.40	104.468	12	PVC	South Camp	Existing
D2-212-012	4,731.40	4,731.19	11.086	12	PVC	South Camp	Existing
D2-212-013	4,726.69	4,722.94	249.903	12	PVC	South Camp	Existing
D2-212-014	4,714.33	4,706.40	496.1	12	PVC	South Camp	Existing
D2-212-025	4,729.13	4,726.69	163	8	PVC	South Camp	Existing
D2-241-006	4,648.54	4,645.54	239.276	8	PVC	Scenic School	Existing
D2-241-007	4,645.54	4,641.85	302.842	8	PVC	Scenic School	Existing
D2-251-004	4,544.90	4,544.75	72.455	48	RCP	River Road	Existing
D2-251-005	4,545.26	4,544.90	17.81	48	RCP	River Road	Existing
D2-251-008	4,550.50	4,545.06	380	12		Ridges	Existing
D2-251-014	4,556.00	4,551.00	344.531	8	PVC	Ridges	Existing
D2-251-014A	4,551.00	4,550.50	3.246	12		Ridges	Existing
D2-252-002	4,548.08	4,547.05	523.849	30	RCP	South Side	Existing
D2-252-004	4,547.05	4,545.56	310.878	30	RCP	South Side	Existing
D2-252-005	4,545.56	4,545.26	318.46	48	RCP	River Road	Existing
D2-252-006	4,546.44	4,545.56	128.248	24	VCP	River Trunk	Existing
D2-252-008	4,546.82	4,546.44	330.165	24	VCP	River Trunk	Existing
D2-252-010	4,548.43	4,546.82	327.541	24	VCP	River Trunk	Existing
D2-252-011	4,549.30	4,547.05	433.714	27	PVC	Grand Avenue	Existing
D2-252-012	4,548.67	4,548.43	179.711	24	VCP	River Trunk	Existing
D2-252-014	4,548.69	4,548.67	180.728	24	VCP	River Trunk	Existing
D2-252-015	4,550.85	4,550.25	11.283	27	PVC	Grand Avenue	Existing
D2-252-026	4,551.69	4,550.85	423.546	30	VCP	Grand Avenue	Existing
D2-252-033	4,551.00	4,547.10	912.627	24	PVC	Colorado Avenue	Existing
D2-252-039	4,552.50	4,551.00	395.765	24	PVC	Colorado Avenue	Existing
D2-252-049	4,556.50	4,552.50	402.686	24	PVC	Colorado Avenue	Existing
D2-252-050	4,569.00	4,563.00	1,108.44	24	VCP	South Avenue	Existing
D2-252-052	4,569.41	4,569.00	206.443	27	VCP	South Avenue	Existing
D2-252-056	4,571.64	4,569.41	22.862	27	VCP	South Avenue	Existing
D2-252-057	4,559.50	4,556.50	278.866	24	PVC	Colorado Avenue	Existing
D2-252-062	4,559.77	4,559.50	68.9	24	PVC	Colorado Avenue	Existing
D2-252-067	4,572.14	4,571.64	400.1	27	VCP	South Avenue	Existing
D2-252-069	4,562.72	4,559.87	278.964	24	RCP	Colorado Avenue	Existing
D2-252-071	4,572.57	4,562.82	298.414	27	VCP	Grand Avenue	Existing
D2-252-085	4,564.19	4,562.81	299.202	24	RCP	Colorado Avenue	Existing
D2-252-105	4,553.17	4,551.69	749.5	24	VCP	Grand Avenue	Existing
D2-271-017	4,590.64	4,588.08	351.518	15	PVC	15th Street	Existing
D2-271-019	4,588.08	4,586.34	238.423	15	PVC	15th Street	Existing
D2-271-022	4,586.34	4,585.45	122.114	15	PVC	15th Street	Existing
D2-271-023	4,585.45	4,583.64	247.8	15	PVC	15th Street	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D2-271-039	4,591.68	4,589.83	154.586	18	PVC	Colorado Avenue	Existing
D2-271-042	4,589.83	4,588.61	153.504	21	RCP	Colorado Avenue	Existing
D2-271-043	4,588.61	4,586.86	218.809	21	RCP	Colorado Avenue	Existing
D2-271-045	4,586.86	4,585.43	179.022	21	PVC	Colorado Avenue	Existing
D2-271-048	4,594.65	4,594.60	30.635	15	VCP	Rood Avenue	Existing
D2-271-052	4,595.09	4,594.65	298.414	15	VCP	Rood Avenue	Existing
D2-271-063	4,595.66	4,595.09	375.396	15	VCP	Rood Avenue	Existing
D2-271-067	4,596.06	4,595.66	330.821	15	VCP	Rood Avenue	Existing
D2-271-075	4,596.17	4,596.06	88.527	15	VCP	Rood Avenue	Existing
D2-271-109	4,583.64	4,582.30	183.2	15	PVC	15th Street	Existing
D2-272-011	4,597.00	4,596.17	678.337	15	VCP	Rood Avenue	Existing
D2-272-023	4,598.93	4,598.42	331.313	15	VCP	Rood Avenue	Existing
D2-272-025	4,598.42	4,597.89	368.902	15	VCP	Rood Avenue	Existing
D2-272-029	4,597.89	4,597.00	602.667	15	VCP	Rood Avenue	Existing
D2-272-052	4,600.00	4,598.93	778.278	15	VCP	Rood Avenue	Existing
D2-272-070	4,600.60	4,600.00	403.899	15	VCP	Rood Avenue	Existing
D2-272-072	4,601.12	4,600.60	346.401	15	VCP	Rood Avenue	Existing
D2-272-074	4,601.53	4,601.12	322.916	15	VCP	Rood Avenue	Existing
D2-272-075	4,601.57	4,601.53	26.502	15	VCP	Rood Avenue	Existing
D2-281-002	4,601.72	4,601.57	100.171	15	VCP	Rood Avenue	Existing
D3-212-001	4,702.89	4,702.53	126.57	8	PVC	Goat Wash	Existing
D3-212-002	4,702.47	4,698.00	354.55	8	PVC	Goat Wash	Existing
D3-212-003	4,697.82	4,691.93	351.26	8	PVC	Goat Wash	Existing
D3-212-004	4,691.93	4,689.60	184.762	8	PVC	Goat Wash	Existing
D3-212-012	4,689.60	4,687.50	166.263	8	PVC	Goat Wash	Existing
D3-212-013	4,687.50	4,684.81	212.938	8	PVC	Goat Wash	Existing
D3-212-017	4,689.93	4,684.20	66.8	12	PVC	South Camp	Existing
D3-212-018	4,690.94	4,689.93	120.6	12	PVC	South Camp	Existing
D3-212-022	4,706.40	4,690.94	499.2	12	PVC	South Camp	Existing
D3-212-023	4,703.43	4,702.89	186.9	8	PVC	Goat Wash	Existing
D3-221-016	4,684.72	4,680.30	311.272	12	PVC	Goat Wash	Existing
D3-221-021	4,663.43	4,658.80	353.85	12	PVC	Goat Wash	Existing
D3-221-022	4,672.04	4,669.22	271.125	12	PVC	Goat Wash	Existing
D3-221-023	4,677.90	4,672.08	271.37	12	PVC	Goat Wash	Existing
D3-221-024	4,680.25	4,678.00	266.008	12	PVC	Goat Wash	Existing
D3-232-001	4,621.48	4,620.08	114.767	8	PVC	Scenic School	Existing
D3-232-001A	4,620.28	4,620.08	16.5	8	PVC	Scenic School	Existing
D3-232-009	4,622.35	4,621.48	71.045	8	PVC	Scenic School	Existing
D3-232-017	4,608.64	4,593.30	184.5	8	PVC	Scenic School	Existing
D3-232-018	4,620.08	4,610.69	88.61	8	PVC	Scenic School	Existing
D3-241-001	4,641.85	4,640.95	73.702	8	PVC	Scenic School	Existing
D3-241-002	4,640.95	4,638.42	207.066	8	PVC	Scenic School	Existing
D3-241-003	4,638.42	4,636.83	130.642	8	PVC	Scenic School	Existing
D3-241-004	4,636.83	4,634.94	154.75	8	PVC	Scenic School	Existing
D3-241-005	4,633.39	4,629.78	296.578	8	PVC	Scenic School	Existing
D3-241-005A	4,629.78	4,629.64	11.185	8	PVC	Scenic School	Existing
D3-241-006	4,629.64	4,625.45	343.711	8	PVC	Scenic School	Existing
D3-241-007	4,625.45	4,622.35	254.233	8	PVC	Scenic School	Existing
D3-241-009	4,634.94	4,633.39	126.674	8	PVC	Scenic School	Existing
D3-251-001	4,542.85	4,542.41	454.116	54	RCP	River Road	Existing
D3-251-002	4,543.23	4,542.85	414.428	54	RCP	River Road	Existing
D3-251-004	4,544.59	4,543.96	394	48	RCP	River Road	Existing
D3-251-008	4,543.80	4,543.63	234.094	48	RCP	River Road	Existing
D3-251-011	4,544.75	4,544.65	13.054	48	RCP	River Road	Existing
D3-251-012	4,543.63	4,543.62	24.764	48	RCP	River Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D3-251-013	4,543.62	4,543.23	340.89	54	RCP	River Road	Existing
D3-251-014	4,545.76	4,545.63	145.304	24	PVC	Colorado Avenue	Existing
D3-251-015	4,544.65	4,544.59	38.1	48	RCP	River Road	Existing
D3-251-016	4,543.96	4,543.80	48.1	48	RCP	River Road	Existing
D3-252-008	4,546.00	4,545.76	218.35	24	PVC	Colorado Avenue	Existing
D3-252-012	4,547.10	4,546.00	303.63	24	PVC	Colorado Avenue	Existing
D3-252-045	4,562.82	4,560.20	113.75	24	PVC	Grand Avenue	Existing
D3-252-045A	4,560.14	4,553.17	411.8	24	PVC	Grand Avenue	Existing
D3-252-057	4,577.57	4,572.57	153.11	27	VCP	Grand Avenue	Existing
D3-261-010	4,584.00	4,577.57	196.964	27	VCP	Grand Avenue	Existing
D3-261-014	4,585.03	4,585.00	7.905	27	VCP	Grand Avenue	Existing
D3-261-025	4,586.31	4,585.03	345.646	27	VCP	Grand Avenue	Existing
D3-261-045	4,588.09	4,586.31	479.864	27	VCP	Grand Avenue	Existing
D3-261-075	4,590.00	4,588.09	504.234	27	VCP	Grand Avenue	Existing
D3-261-086	4,593.11	4,592.00	286.508	24	VCP	Grand Avenue	Existing
D3-261-117	4,595.78	4,593.11	681.486	24	VCP	Grand Avenue	Existing
D3-261-130	4,596.52	4,595.78	297.66	24	VCP	Grand Avenue	Existing
D3-262-017	4,597.50	4,596.52	391.37	24	VCP	Grand Avenue	Existing
D3-262-018	4,598.50	4,597.50	273.749	24	VCP	Grand Avenue	Existing
D3-262-042	4,599.50	4,598.50	468.023	24	VCP	Grand Avenue	Existing
D3-262-065	4,600.39	4,599.54	472	18	VCP	Grand Avenue	Existing
D3-262-083	4,601.61	4,600.39	482.816	18	VCP	Grand Avenue	Existing
D3-262-122	4,599.54	4,599.50	22.8	18	DIP	Grand Avenue	Existing
D3-271-013	4,603.00	4,601.61	542.184	18	VCP	Grand Avenue	Existing
D3-271-019	4,595.79	4,593.35	334.757	15	PVC	15th Street	Existing
D3-271-024	4,593.35	4,590.64	371.362	15	PVC	15th Street	Existing
D3-271-029	4,604.18	4,603.00	464.186	18	VCP	Grand Avenue	Existing
D3-271-038	4,599.05	4,595.79	445.686	15	PVC	15th Street	Existing
D3-271-055	4,601.95	4,599.05	397.208	15	PVC	15th Street	Existing
D3-271-059	4,602.09	4,601.95	19.942	15	PVC	15th Street	Existing
D3-271-068	4,610.32	4,609.63	95.022	15	PVC	15th Street	Existing
D3-271-069	4,609.63	4,607.45	298.119	15	PVC	15th Street	Existing
D3-271-070	4,607.45	4,604.42	415.97	15	PVC	15th Street	Existing
D3-271-072	4,604.42	4,602.09	318.094	15	PVC	15th Street	Existing
D3-271-075	4,610.76	4,610.32	59.991	15	PVC	15th Street	Existing
D3-271-111	4,605.40	4,604.18	441.6	18	VCP	Grand Avenue	Existing
D3-281-006	4,601.78	4,601.72	37.589	15	VCP	Rood Avenue	Existing
D4-221-004	4,658.76	4,654.62	251.838	12	PVC	Goat Wash	Existing
D4-221-005	4,654.52	4,650.54	350.65	12	PVC	Goat Wash	Existing
D4-221-008	4,650.44	4,645.81	300.612	12	PVC	Goat Wash	Existing
D4-221-009	4,640.75	4,637.90	198.99	15	PVC	Goat Wash	Existing
D4-221-010	4,637.77	4,631.55	298.775	15	PVC	Goat Wash	Existing
D4-221-011	4,631.45	4,630.16	300.24	15	PVC	Goat Wash	Existing
D4-232-001	4,593.08	4,572.75	126.5	8	PVC	Scenic School	Existing
D4-232-002	4,572.53	4,554.95	141.3	8	PVC	Scenic School	Existing
D4-232-003	4,554.74	4,551.59	111.5	8	PVC	Scenic School	Existing
D4-232-004	4,551.41	4,549.55	131.2	8	PVC	Scenic School	Existing
D4-232-005	4,547.40	4,543.02	294.03	8	PVC	Scenic School	Existing
D4-232-006	4,542.82	4,533.87	422.7	8	PVC	Scenic School	Existing
D4-232-007	4,533.69	4,533.27	71.2	8	PVC	Scenic School	Existing
D4-232-008	4,526.81	4,524.29	205.6	8	PVC	Scenic School	Existing
D4-251-001	4,541.56	4,541.03	564.16	54	RCP	River Road	Existing
D4-251-005	4,541.81	4,541.60	480.618	54	RCP	River Road	Existing
D4-251-008	4,542.29	4,541.81	571.671	54	RCP	River Road	Existing
D4-251-018	4,542.41	4,542.29	125.788	54	RCP	River Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D4-251-019	4,541.60	4,541.56	91.184	54	RCP	River Road	Existing
D4-271-014	4,620.92	4,619.45	201.031	15	PVC	15th Street	Existing
D4-271-015	4,619.45	4,616.97	339.939	15	PVC	15th Street	Existing
D4-271-018	4,616.97	4,614.52	335.413	15	PVC	15th Street	Existing
D4-271-021	4,614.52	4,610.76	515.485	15	PVC	15th Street	Existing
E1-221-001	4,630.05	4,629.03	200.12	15	PVC	Goat Wash	Existing
E1-221-001A	4,628.98	4,626.63	403.702	15	PVC	Goat Wash	Existing
E1-222-004	4,626.53	4,616.86	202.35	14	DIP	Goat Wash	Existing
E1-222-005	4,616.76	4,611.53	275.05	15	PVC	Goat Wash	Existing
E1-222-006	4,611.53	4,609.83	157.276	15	PVC	Goat Wash	Existing
E1-222-007	4,609.72	4,606.39	307.041	15	PVC	Goat Wash	Existing
E1-222-011	4,606.39	4,599.71	311.698	18	PVC	Goat Wash	Existing
E1-222-012	4,599.62	4,597.21	392.36	18	PVC	Goat Wash	Existing
E1-231-012	4,627.63	4,623.16	231.896	8	PVC	Connected Lakes	Existing
E1-232-001	4,524.29	4,527.07	982.8	6	PVC	Connected Lakes	Existing
E1-232-025	4,527.07	4,532.08	1,164.80	6	PVC	Connected Lakes	Existing
E1-242-001	4,538.07	4,537.93	164.394	54	RCP	River Road	Existing
E1-242-002	4,539.59	4,539.31	123.689	24		Horizon Drive	Existing
E1-251-001	4,540.69	4,538.07	625.102	54	RCP	River Road	Existing
E1-251-002	4,541.03	4,540.69	421.218	54	RCP	River Road	Existing
E1-251-003	4,540.76	4,539.90	516.239	24		Horizon Drive	Existing
E1-251-004	4,541.65	4,540.89	508.531	24		Horizon Drive	Existing
E1-251-007	4,543.10	4,542.09	361.751	24	CONCRETE	Horizon Drive	Existing
E1-251-018	4,544.60	4,543.17	379.857	24	CONCRETE	Horizon Drive	Existing
E1-251-019	4,545.14	4,544.64	131.2	24	CONCRETE	Horizon Drive	Existing
E1-251-020	4,545.20	4,545.14	21.386	24	CONCRETE	Horizon Drive	Existing
E1-251-021	4,545.79	4,545.20	200.146	24	CONCRETE	Horizon Drive	Existing
E1-251-023	4,546.77	4,545.79	326.95	24	CONCRETE	Horizon Drive	Existing
E1-251-025	4,539.90	4,539.74	99.122	24		Horizon Drive	Existing
E1-271-068	4,628.02	4,625.04	408.4	15	PVC	15th Street	Existing
E1-271-072	4,625.04	4,621.79	444.9	15	PVC	15th Street	Existing
E1-271-076	4,621.79	4,620.92	119.097	15	PVC	15th Street	Existing
E2-202-016	4,711.65	4,705.93	307.8	8	PVC		Existing
E2-222-015	4,567.50	4,559.61	337.25	18	PVC	Goat Wash	Existing
E2-222-016	4,570.44	4,567.89	9.98	12		Goat Wash	Existing
E2-222-017	4,579.68	4,572.72	83.02	18	PVC	Goat Wash	Existing
E2-222-028	4,593.04	4,591.61	73.964	8	PVC	Connected Lakes	Existing
E2-222-028A	4,596.12	4,593.14	154.521	8	PVC	Connected Lakes	Existing
E2-222-029	4,591.51	4,587.75	194.799	8	PVC	Connected Lakes	Existing
E2-222-030	4,587.65	4,586.97	35.03	8	PVC	Connected Lakes	Existing
E2-222-031	4,586.87	4,581.37	285.36	8	PVC	Connected Lakes	Existing
E2-222-036	4,559.30	4,555.83	176.628	18	PVC	Goat Wash	Existing
E2-222-037	4,555.76	4,548.93	333.084	18	PVC	Goat Wash	Existing
E2-222-040	4,571.36	4,567.89	163.213	8	PVC	Connected Lakes	Existing
E2-222-044	4,590.76	4,588.22	496.38	18	PVC	Goat Wash	Existing
E2-222-048	4,581.27	4,578.95	120.146	8	PVC	Connected Lakes	Existing
E2-222-050	4,578.85	4,571.46	129.166	8	PVC	Connected Lakes	Existing
E2-222-067	4,595.73	4,590.82	434.11	18	PVC	Goat Wash	Existing
E2-222-075	4,597.10	4,596.10	86.953	18	PVC	Goat Wash	Existing
E2-231-002	4,603.37	4,596.22	370.312	12		Connected Lakes	Existing
E2-231-005	4,610.62	4,603.47	373.362	12		Connected Lakes	Existing
E2-231-006	4,615.27	4,610.72	235.57	12		Connected Lakes	Existing
E2-231-013	4,618.13	4,615.37	143.27	8	PVC	Connected Lakes	Existing
E2-231-021	4,623.06	4,618.23	249.903	8	PVC	Connected Lakes	Existing
E2-231-028	4,641.17	4,639.85	122.9	8	PVC	Connected Lakes	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E2-231-029	4,639.69	4,638.76	95.054	8	PVC	Connected Lakes	Existing
E2-231-030	4,638.52	4,637.71	107.945	8	PVC	Connected Lakes	Existing
E2-231-031	4,637.60	4,632.91	315.864	8	PVC	Connected Lakes	Existing
E2-231-035	4,632.81	4,630.49	120.573	8	PVC	Connected Lakes	Existing
E2-231-037	4,630.39	4,627.73	137.563	8	PVC	Connected Lakes	Existing
E2-232-013	4,532.08	4,533.39	305.8	6	PVC	Connected Lakes	Existing
E2-232-014	4,533.39	4,643.59	1,085.30	6	PVC	Connected Lakes	Existing
E2-242-004	4,536.23	4,535.65	633.926	54	RCP	River Road	Existing
E2-242-011	4,536.71	4,536.23	604.045	54	RCP	River Road	Existing
E2-242-017	4,537.01	4,536.71	596.271	54	RCP	River Road	Existing
E2-242-024	4,537.65	4,537.01	552.418	54	RCP	River Road	Existing
E2-242-034	4,537.93	4,537.65	346.991	54	RCP	River Road	Existing
E2-251-027	4,542.09	4,541.72	192.634	24		Horizon Drive	Existing
E2-251-058	4,547.27	4,547.03	36.867	24	CONCRETE	Horizon Drive	Existing
E2-252-192	4,557.18	4,548.58	654	18	PVC	Horizon Drive	Existing
E2-252-193	4,565.18	4,557.37	475.1	18	PVC	Horizon Drive	Existing
E2-252-194	4,567.93	4,565.18	167.9	18	PVC	Horizon Drive	Existing
E2-252-196	4,557.37	4,557.18	11.8	18	PVC	Horizon Drive	Existing
E2-271-073	4,640.61	4,637.43	435.912	15	PVC	15th Street	Existing
E2-271-077	4,637.43	4,634.50	401.8	15	PVC	15th Street	Existing
E2-271-081	4,634.50	4,631.30	437.4	15	PVC	15th Street	Existing
E2-271-086	4,631.30	4,628.02	450.2	15	PVC	15th Street	Existing
E3-202-008	4,702.45	4,700.84	163.377	10	PVC		Existing
E3-202-008A	4,700.74	4,699.77	98.498	10	PVC		Existing
E3-202-009	4,705.83	4,705.23	61.23	10	PVC		Existing
E3-202-011	4,699.64	4,696.85	263.614	10	PVC		Existing
E3-202-012	4,696.79	4,687.93	301.465	10	PVC		Existing
E3-222-051	4,546.11	4,544.70	465.366	18	PVC	Goat Wash	Existing
E3-222-051A	4,547.31	4,546.11	274.16	18	PVC	Goat Wash	Existing
E3-222-065	4,548.83	4,547.41	187.682	18	PVC	Goat Wash	Existing
E3-231-006	4,544.56	4,542.00	900.02	21		Goat Wash	Existing
E3-241-015	4,533.01	4,531.11	896.457	54	RCP	River Road	Existing
E3-241-022	4,534.22	4,533.01	657.05	54	RCP	River Road	Existing
E3-241-028	4,534.67	4,534.22	444.899	54	RCP	River Road	Existing
E3-241-034	4,537.66	4,536.64	203.95	18	DI	24 1/2 Road	Existing
E3-241-036	4,539.03	4,537.66	247.017	18	PVC	24 1/2 Road	Existing
E3-241-048	4,541.05	4,540.95	36.539	18	PVC	24 1/2 Road	Existing
E3-241-049	4,540.95	4,539.03	252.56	18		24 1/2 Road	Existing
E3-242-002	4,535.29	4,534.67	508.006	54	RCP	River Road	Existing
E3-242-012	4,535.65	4,535.29	210.281	54	RCP	River Road	Existing
E3-252-001	4,576.93	4,575.97	435.978	18	CIP	Horizon Drive	Existing
E3-252-003	4,575.97	4,575.03	422.07	18	CIP	Horizon Drive	Existing
E3-252-004	4,575.03	4,574.81	13.5	18	PVC	Horizon Drive	Existing
E3-252-084	4,574.81	4,567.93	418.9	18	PVC	Horizon Drive	Existing
E3-252-085	4,577.07	4,576.93	62.9	18	PVC	Horizon Drive	Existing
E3-271-068	4,645.72	4,643.65	282.3	15	PVC	15th Street	Existing
E3-271-072	4,643.65	4,641.84	247.2	15	PVC	15th Street	Existing
E3-271-074	4,641.84	4,640.61	168.9	15	PVC	15th Street	Existing
E3-271-121	4,649.80	4,647.68	289.8	15	PVC	15th Street	Existing
E3-271-122	4,649.90	4,649.80	21	15	PVC	15th Street	Existing
E3-271-123	4,647.68	4,645.72	268.5	15	PVC	15th Street	Existing
E4-202-001	4,687.84	4,682.01	194.078	12	PVC		Existing
E4-202-002	4,681.87	4,674.32	398.454	12	PVC		Existing
E4-202-003	4,674.21	4,671.73	131.626	12	PVC		Existing
E4-202-007	4,667.94	4,664.29	186.042	12	PVC		Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E4-202-009	4,671.73	4,668.17	189.387	12	PVC		Existing
E4-202-013	4,664.14	4,658.33	295.528	12	PVC		Existing
E4-202-014	4,656.10	4,646.58	340.628	12	PVC		Existing
E4-231-005	4,542.00	4,539.69	145.009	21	DIP	Goat Wash	Existing
E4-231-006	4,539.27	4,532.41	428.663	21	DIP	Goat Wash	Existing
E4-231-007	4,531.58	4,530.60	501.23	20	DIP	Goat Wash	Existing
E4-231-008	4,532.18	4,531.58	197.882	20	DIP	Goat Wash	Existing
E4-232-016	4,529.10	4,528.53	572.95	54	RCP	River Road	Existing
E4-241-005	4,529.85	4,529.10	673.974	54	RCP	River Road	Existing
E4-241-016	4,531.11	4,529.85	543.693	54	RCP	River Road	Existing
E4-241-075	4,547.08	4,544.15	241.703	18	PVC	24 1/2 Road	Existing
E4-241-077	4,544.15	4,543.11	355.847	18	PVC	24 1/2 Road	Existing
E4-241-078	4,543.11	4,541.95	306.418	18	PVC	24 1/2 Road	Existing
E4-241-079	4,541.95	4,541.82	54.874	18	PVC	24 1/2 Road	Existing
E4-241-080	4,541.82	4,541.05	326.852	18	PVC	24 1/2 Road	Existing
E4-241-081	4,547.62	4,547.08	97.941	18		24 1/2 Road	Existing
E4-242-014	4,549.43	4,547.75	383.727	18	PVC	Paradise Hills	Existing
E4-242-029	4,550.42	4,549.43	380.382	18	PVC	Paradise Hills	Existing
E4-242-034	4,550.83	4,550.42	114.866	18	PVC	Paradise Hills	Existing
E4-242-036	4,550.91	4,550.83	20.664	18	PVC	Paradise Hills	Existing
E4-242-045	4,551.79	4,550.91	246.164	18	PVC	Paradise Hills	Existing
E4-242-057	4,552.92	4,551.79	378.446	18	PVC	Paradise Hills	Existing
E4-242-062	4,554.02	4,552.92	380.218	18	PVC	Paradise Hills	Existing
E4-242-069	4,554.85	4,554.02	378.84	18	PVC	Paradise Hills	Existing
E4-242-078	4,555.69	4,554.85	339.382	18	PVC	Paradise Hills	Existing
E4-251-001	4,555.79	4,555.69	38.606	18	PVC	Paradise Hills	Existing
E4-252-009	4,577.14	4,577.07	32.4	18	PVC	Horizon Drive	Existing
E4-252-010	4,577.18	4,577.14	21.09	18	PVC	Horizon Drive	Existing
E4-252-011	4,577.52	4,577.18	153.865	18	PVC	Horizon Drive	Existing
E4-252-013	4,581.79	4,581.35	74.39	18	RCP	Horizon Drive	Existing
E4-252-014	4,581.34	4,581.22	21.484	18	PVC	Horizon Drive	Existing
E4-252-019	4,581.14	4,580.06	386.843	18	PVC	Horizon Drive	Existing
E4-252-021	4,579.99	4,578.73	440.93	18	PVC	Horizon Drive	Existing
E4-252-023	4,578.66	4,577.52	502.758	18	PVC	Horizon Drive	Existing
E4-252-033	4,583.11	4,581.79	328.689	18	RCP	Horizon Drive	Existing
E4-252-035	4,587.99	4,583.11	328.853	18	RCP	Horizon Drive	Existing
E4-252-037	4,590.20	4,587.99	339.546	18	RCP	Horizon Drive	Existing
E4-271-058	4,665.16	4,664.59	291.395	15	PVC	15th Street	Existing
E4-271-060	4,664.59	4,662.15	295.725	15	PVC	15th Street	Existing
E4-271-062	4,662.15	4,659.19	261.908	15	PVC	15th Street	Existing
E4-271-063	4,659.19	4,656.13	209.297	15	PVC	15th Street	Existing
E4-271-064	4,651.17	4,649.90	227.6	15	PVC	15th Street	Existing
F1-202-005	4,624.27	4,622.35	106.797	15	PVC		Existing
F1-202-006	4,626.01	4,624.39	79.966	14	DIP		Existing
F1-202-007	4,622.23	4,616.37	206.542	15	PVC		Existing
F1-202-008	4,628.00	4,626.13	224.057	15	PVC		Existing
F1-202-009	4,636.50	4,628.11	399.701	12	PVC		Existing
F1-202-010	4,646.50	4,636.58	400.455	12	PVC		Existing
F1-231-001	4,528.61	4,527.96	499.675	21	PVC	Goat Wash	Existing
F1-231-001A	4,529.72	4,528.61	499.05	20	DIP	Goat Wash	Existing
F1-231-002	4,530.60	4,529.72	500.42	20	DIP	Goat Wash	Existing
F1-232-001	4,526.89	4,526.32	528.047	54	RCP	River Road	Existing
F1-232-002	4,527.37	4,526.89	536.214	54	RCP	River Road	Existing
F1-232-008	4,530.29	4,530.09	24.2	15	PVC	24 Road	Existing
F1-232-012	4,527.92	4,527.77	152.5	54	RCP	River Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F1-232-013	4,531.41	4,530.37	346.368	15	PVC	24 Road	Existing
F1-232-014	4,533.42	4,533.25	29.454	15	PVC	24 Road	Existing
F1-232-017	4,533.11	4,531.82	401.242	15	PVC	24 Road	Existing
F1-232-019	4,531.76	4,531.43	108.699	15	PVC	24 Road	Existing
F1-232-033	4,528.53	4,527.92	581.216	54	RCP	River Road	Existing
F1-232-066	4,527.77	4,527.37	421.9	54	RCP	River Road	Existing
F1-241-050	4,552.55	4,549.66	223.434	15	PVC	24 1/2 Road	Existing
F1-241-109	4,553.53	4,552.55	465	15	PVC	24 1/2 Road	Existing
F1-241-110	4,554.75	4,553.71	470.8	15	PVC	24 1/2 Road	Existing
F1-242-001	4,549.66	4,547.62	158.293	15	PVC	24 1/2 Road	Existing
F1-251-003	4,555.90	4,555.79	45.953	18	PVC	Paradise Hills	Existing
F1-251-015	4,557.63	4,555.90	358.012	15	PVC	Paradise Hills	Existing
F1-251-023	4,559.69	4,557.63	391.271	15	PVC	Paradise Hills	Existing
F1-251-031	4,561.00	4,559.69	158.358	15	PVC	Paradise Hills	Existing
F1-251-033	4,561.58	4,561.00	121.7	15	VCP	Paradise Hills	Existing
F1-251-034	4,562.43	4,561.89	139.3	15	VCP	Paradise Hills	Existing
F1-251-039	4,564.24	4,562.43	344.859	15	VCP	Paradise Hills	Existing
F1-251-040	4,565.92	4,564.24	346.106	15	VCP	Paradise Hills	Existing
F1-251-041	4,566.47	4,565.92	108.666	15	VCP	Paradise Hills	Existing
F1-251-044	4,567.63	4,566.47	228.911	15	VCP	Paradise Hills	Existing
F1-251-047	4,569.24	4,567.63	339.218	15	VCP	Paradise Hills	Existing
F1-251-048	4,571.12	4,570.21	156.948	15	VCP	Paradise Hills	Existing
F1-251-049	4,572.58	4,571.60	219.6	15	VCP	Paradise Hills	Existing
F1-251-050	4,574.53	4,572.58	329.017	15	PVC	Paradise Hills	Existing
F1-251-068	4,570.21	4,569.24	168.1	15	VCP	Paradise Hills	Existing
F1-251-106	4,561.89	4,561.58	79.3	15	VCP	Paradise Hills	Existing
F1-251-108	4,571.60	4,571.12	107.6	12		Paradise Hills	Existing
F1-252-017	4,592.37	4,590.20	209.067	18	RCP	Horizon Drive	Existing
F1-252-033	4,593.99	4,592.37	156.1	18	RCP	Horizon Drive	Existing
F1-252-039	4,598.44	4,593.99	545.1	18	RCP	Horizon Drive	Existing
F1-261-003	4,601.05	4,600.19	48.5	15	RCP	Horizon Drive	Existing
F1-261-004	4,600.19	4,598.44	112.8	18	RCP	Horizon Drive	Existing
F1-261-009	4,602.40	4,601.34	152.586	15	RCP	Horizon Drive	Existing
F1-261-026	4,603.63	4,602.40	176.4	15	RCP	Horizon Drive	Existing
F1-261-040	4,605.33	4,603.63	245	15	RCP	Horizon Drive	Existing
F1-261-048	4,607.00	4,605.33	241.9	15	RCP	Horizon Drive	Existing
F1-261-058	4,610.87	4,607.30	309.206	15	RCP	Horizon Drive	Existing
F1-261-064	4,613.31	4,610.91	239.998	15	RCP	Horizon Drive	Existing
F1-261-070	4,615.23	4,613.31	191.814	15	RCP	Horizon Drive	Existing
F1-261-075	4,615.99	4,615.23	100.106	15	RCP	Horizon Drive	Existing
F1-261-078	4,618.31	4,615.99	304.515	15	RCP	Horizon Drive	Existing
F1-261-081	4,620.40	4,619.21	215.201	15	RCP	Horizon Drive	Existing
F1-261-089	4,621.95	4,620.40	281.654	15	RCP	Horizon Drive	Existing
F1-261-095	4,624.44	4,623.16	229.141	15	RCP	Horizon Drive	Existing
F1-261-097	4,624.85	4,624.44	73.767	15	RCP	Horizon Drive	Existing
F1-261-106	4,625.38	4,624.85	96.038	15	RCP	Horizon Drive	Existing
F1-271-101	4,666.06	4,665.41	331.4	15	VCP	15th Street	Existing
F1-271-103	4,665.41	4,665.16	83.7	15	PVC	15th Street	Existing
F2-202-001	4,616.31	4,613.21	209.986	15	PVC		Existing
F2-202-002	4,604.15	4,599.43	331.51	15	PVC		Existing
F2-202-003	4,610.41	4,607.10	214.118	15	PVC		Existing
F2-202-004	4,597.01	4,593.69	252.855	15	PVC		Existing
F2-202-005	4,606.99	4,604.26	165.148	15	PVC		Existing
F2-202-006	4,593.41	4,585.36	264.204	15	PVC		Existing
F2-202-007	4,599.29	4,597.14	129.593	15	PVC		Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F2-202-023	4,613.03	4,610.44	218.907	15	PVC		Existing
F2-202-024	4,585.27	4,578.45	354.306	15	PVC		Existing
F2-231-004	4,524.32	4,523.89	701.526	54	RCP	River Road	Existing
F2-231-010	4,525.21	4,524.32	831.316	54	RCP	River Road	Existing
F2-231-016	4,525.73	4,525.21	492.361	54	RCP	River Road	Existing
F2-231-023	4,526.32	4,525.73	610.769	54	RCP	River Road	Existing
F2-231-024	4,527.82	4,527.40	464.874	21	PVC	Goat Wash	Existing
F2-232-002	4,537.77	4,536.80	323.736	15	PVC	24 Road	Existing
F2-232-003	4,536.76	4,535.92	287.951	15	PVC	24 Road	Existing
F2-232-004	4,535.89	4,535.82	24.042	15	PVC	24 Road	Existing
F2-232-005	4,535.76	4,534.87	326.196	15	PVC	24 Road	Existing
F2-232-006	4,534.71	4,533.58	344.695	15	PVC	24 Road	Existing
F2-232-007	4,538.55	4,538.01	257.185	15	PVC	24 Road	Existing
F2-242-055	4,555.85	4,554.92	455	15	PVC	24 1/2 Road	Existing
F2-242-056	4,557.08	4,556.03	434.7	15	PVC	24 1/2 Road	Existing
F2-251-012	4,583.65	4,583.39	37.851	15	PVC	Paradise Hills	Existing
F2-251-016	4,581.40	4,579.28	324.064	15	PVC	Paradise Hills	Existing
F2-251-017	4,579.28	4,577.52	248.854	15	PVC	Paradise Hills	Existing
F2-251-018	4,576.98	4,574.53	320.095	15	PVC	Paradise Hills	Existing
F2-251-028	4,583.39	4,581.40	285.885	15	PVC	Paradise Hills	Existing
F2-252-027	4,577.52	4,576.98	76.522	15	PVC	Paradise Hills	Existing
F2-261-053	4,635.22	4,630.88	317.242	15	RCP	Horizon Drive	Existing
F2-262-011	4,640.09	4,635.32	502.594	15	RCP	Horizon Drive	Existing
F2-262-017	4,644.05	4,640.09	263.515	15	RCP	Horizon Drive	Existing
F2-262-020	4,646.00	4,644.05	130.282	15	RCP	Horizon Drive	Existing
F2-262-029	4,650.32	4,646.00	408.262	15	RCP	Horizon Drive	Existing
F2-262-032	4,651.58	4,650.32	299.694	15	RCP	Horizon Drive	Existing
F2-262-038	4,655.55	4,653.48	291.494	15	RCP	Horizon Drive	Existing
F3-202-006	4,578.39	4,577.44	64.452	15	PVC		Existing
F3-202-007	4,577.44	4,573.23	286.902	15	PVC		Existing
F3-211-010	4,573.13	4,568.35	259.579	15	PVC		Existing
F3-211-011	4,567.19	4,563.42	253.38	15	PVC		Existing
F3-211-012	4,563.08	4,561.63	90.79	15	PVC		Existing
F3-211-013	4,561.45	4,557.41	280.014	15	PVC		Existing
F3-222-007	4,522.40	4,521.71	701.166	54	RCP	River Road	Existing
F3-222-008	4,523.05	4,522.40	694.179	54	RCP	River Road	Existing
F3-222-008A	4,523.59	4,523.05	478.3	54	RCP	River Road	Existing
F3-222-019	4,521.71	4,521.18	595.681	54	RCP	River Road	Existing
F3-231-015	4,523.89	4,523.59	478.3	54	RCP	River Road	Existing
F3-232-001	4,538.86	4,538.60	76.227	15	PVC	24 Road	Existing
F3-232-002	4,539.70	4,538.93	323.998	15	PVC	24 Road	Existing
F3-232-003	4,540.54	4,539.72	319.242	15	PVC	24 Road	Existing
F3-232-004	4,548.18	4,546.81	339	16	HDPE	24 Road	Existing
F3-232-005	4,546.75	4,545.78	342.7	16	HDPE	24 Road	Existing
F3-232-006	4,545.74	4,544.53	294.9	16	HDPE	24 Road	Existing
F3-232-007	4,544.53	4,540.56	330.3	15	PVC	24 Road	Existing
F3-241-004	4,559.45	4,559.19	27.9	15	PVC	24 1/2 Road	Existing
F3-241-005	4,560.25	4,559.60	309	15	PVC	24 1/2 Road	Existing
F3-241-006	4,561.28	4,560.44	339.5	15	PVC	24 1/2 Road	Existing
F3-242-010	4,558.20	4,557.28	444.8	15	PVC	24 1/2 Road	Existing
F3-242-011	4,559.03	4,558.38	304.6	15	PVC	24 1/2 Road	Existing
F3-251-023	4,590.13	4,587.17	444.571	15	PVC	Paradise Hills	Existing
F3-251-024	4,585.33	4,583.65	324.392	15	PVC	Paradise Hills	Existing
F3-251-082	4,587.17	4,585.33	130.938	15	PVC	Paradise Hills	Existing
F3-252-001	4,593.68	4,592.21	150.027	15	PVC	Paradise Hills	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F3-252-003	4,592.21	4,590.13	212.839	15	PVC	Paradise Hills	Existing
F3-262-038	4,659.00	4,655.55	301.662	15	RCP	Horizon Drive	Existing
F3-262-052	4,660.53	4,659.00	369.623	15	RCP	Horizon Drive	Existing
F3-262-057	4,664.20	4,660.53	327.869	15	RCP	Horizon Drive	Existing
F3-262-063	4,672.06	4,665.70	301.202	15	RCP	Horizon Drive	Existing
F3-271-152	4,675.11	4,673.60	300.514	15	RCP	Horizon Drive	Existing
F3-271-152A	4,673.60	4,672.36	293.2	15	RCP	Horizon Drive	Existing
F3-271-153	4,675.60	4,675.26	20.2	15	PVC	Horizon Drive	Existing
F4-0232-BV	4,552.06	4,551.69	317.28	12		24 Road	Existing
F4-211-002	4,556.72	4,551.06	252.56	15	PVC		Existing
F4-211-003	4,544.08	4,543.65	21.976	15	PVC		Existing
F4-211-004	4,538.94	4,527.02	159.9	15	PVC		Existing
F4-211-005	4,526.75	4,523.36	133.463	15	PVC		Existing
F4-211-006	4,517.22	4,516.63	93.04	15	PVC		Existing
F4-211-007	4,516.33	4,511.16	344.892	15	PVC		Existing
F4-211-013	4,523.75	4,519.02	99.45	15	PVC		Existing
F4-211-014	4,518.73	4,517.70	106.895	15	PVC		Existing
F4-211-015	4,543.65	4,541.94	87.543	15	PVC		Existing
F4-221-022	4,519.88	4,519.04	670.202	54	RCP	River Road	Existing
F4-222-003	4,520.51	4,519.88	671.416	54	RCP	River Road	Existing
F4-222-013	4,521.18	4,520.51	603.094	54	RCP	River Road	Existing
F4-232-004	4,551.59	4,551.15	352.6	12	PVC	24 Road	Existing
F4-232-005	4,551.10	4,549.36	308	12	HDPE	24 Road	Existing
F4-232-006	4,549.28	4,548.22	336.6	16	HDPE	24 Road	Existing
F4-241-002	4,558.40	4,557.49	81.5	10	PVC	24 Road	Existing
F4-241-003	4,560.16	4,558.53	405.014	10	PVC	24 Road	Existing
F4-241-004	4,561.33	4,560.16	394.781	10	PVC	24 Road	Existing
F4-241-005	4,562.70	4,561.33	399.963	10	PVC	24 Road	Existing
F4-241-006	4,565.23	4,562.70	400.357	10	PVC	24 Road	Existing
F4-241-007	4,566.91	4,565.23	399.734	10	PVC	24 Road	Existing
F4-241-008	4,568.35	4,566.91	387.401	10	PVC	24 Road	Existing
F4-241-009	4,562.23	4,561.47	351.5	15	PVC	24 1/2 Road	Existing
F4-241-010	4,563.15	4,562.45	300	15	PVC	24 1/2 Road	Existing
F4-241-011	4,564.41	4,563.36	350	15	PVC	24 1/2 Road	Existing
F4-251-016	4,605.10	4,601.99	346.138	15	PVC	Paradise Hills	Existing
F4-251-022	4,601.99	4,599.02	349.287	15	PVC	Paradise Hills	Existing
F4-251-023	4,599.02	4,596.44	347.188	15	PVC	Paradise Hills	Existing
F4-252-003	4,596.44	4,593.68	367.786	15	PVC	Paradise Hills	Existing
F4-252-005	4,608.55	4,605.10	352.928	15	PVC	Paradise Hills	Existing
F4-271-034	4,700.50	4,699.60	93.054	15	RCP	Horizon Drive	Existing
F4-271-034A	4,699.51	4,698.60	104.1	15	RCP	Horizon Drive	Existing
F4-271-069	4,696.03	4,692.78	410	15	PVC	Horizon Drive	Existing
F4-271-070	4,680.25	4,675.60	487.7	15	PVC	Horizon Drive	Existing
F4-271-072	4,684.12	4,681.27	601.5	15	PVC	Horizon Drive	Existing
F4-271-073	4,691.57	4,685.07	573.1	15	PVC	Horizon Drive	Existing
F4-271-075	4,698.60	4,696.09	288.8	15	RCP	Horizon Drive	Existing
G1-211-001	4,507.06	4,515.66	3,785.00	12	DIP		Existing
G1-211-003	4,504.06	4,503.70	286.8	15	PVC		Existing
G1-221-001	4,516.73	4,516.37	663.61	54	RCP	River Road	Existing
G1-221-005	4,517.71	4,516.73	679.583	54	RCP	River Road	Existing
G1-221-010	4,518.56	4,517.71	678.534	54	RCP	River Road	Existing
G1-221-029	4,519.04	4,518.56	656.197	54	RCP	River Road	Existing
G1-232-012	4,552.92	4,552.15	388.96	12		24 Road	Existing
G1-241-001	4,557.49	4,554.47	74.11	12	PVC	24 Road	Existing
G1-241-002	4,568.73	4,568.45	59.204	10	PVC	24 Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
G1-242-001	4,570.26	4,568.83	502.365	10	PVC	24 Road	Existing
G1-242-006	4,571.33	4,570.26	338.988	10	PVC	24 Road	Existing
G1-242-014	4,572.57	4,571.33	324.818	10	PVC	24 Road	Existing
G1-242-025	4,573.81	4,572.57	303.367	10	PVC	24 Road	Existing
G1-242-028	4,573.88	4,573.81	17.876	10	PVC	24 Road	Existing
G1-242-038	4,574.89	4,573.88	340.89	10	PVC	24 Road	Existing
G1-242-045	4,575.95	4,574.89	334.396	10	PVC	24 Road	Existing
G1-252-004	4,614.01	4,610.79	319.997	12	PVC	Paradise Hills	Existing
G1-252-005	4,610.79	4,608.55	354.666	15	PVC	Paradise Hills	Existing
G1-252-006	4,615.08	4,614.01	165.574	12	PVC	Paradise Hills	Existing
G1-252-007	4,616.78	4,615.08	299.53	12	PVC	Paradise Hills	Existing
G1-252-008	4,617.98	4,616.78	170.134	12	PVC	Paradise Hills	Existing
G1-252-009	4,620.11	4,617.98	310.157	12	PVC	Paradise Hills	Existing
G1-252-011	4,621.45	4,620.11	231.896	12	PVC	Paradise Hills	Existing
G1-271-007	4,700.96	4,700.50	47.954	15	RCP	Horizon Drive	Existing
G1-271-013	4,702.45	4,700.96	155.242	15	RCP	Horizon Drive	Existing
G1-271-030	4,703.94	4,702.45	263.253	15	RCP	Horizon Drive	Existing
G1-271-042	4,704.45	4,703.98	92.726	15	RCP	Horizon Drive	Existing
G1-271-047	4,710.11	4,705.74	312.814	15	RCP	Horizon Drive	Existing
G1-272-045	4,713.46	4,710.19	588.76	15	RCP	Horizon Drive	Existing
G1-272-065	4,713.80	4,713.46	61.828	15	RCP	Horizon Drive	Existing
G1-272-066	4,713.99	4,713.80	34.243	15	RCP	Horizon Drive	Existing
G2-212-001	4,511.84	4,511.66	433.386	54	RCP	River Road	Existing
G2-212-002	4,512.35	4,512.14	80.065	54	RCP	River Road	Existing
G2-212-002A	4,512.14	4,511.84	445.326	54	RCP	River Road	Existing
G2-212-014A	4,516.55	4,513.85	145.763	18	RCP	River Road	Existing
G2-212-015	4,515.25	4,515.05	87.97	54	RCP	River Road	Existing
G2-212-032	4,515.90	4,515.45	384.9	54	RCP	River Road	Existing
G2-212-035	4,516.04	4,515.90	143.992	54	RCP	River Road	Existing
G2-212-038	4,516.31	4,516.04	241.638	54	RCP	River Road	Existing
G2-212-041	4,516.37	4,516.31	85.641	54	RCP	River Road	Existing
G2-212-047	4,515.45	4,515.25	293.6	54	RCP	River Road	Existing
G2-252-043	4,624.69	4,623.00	234.356	12	PVC	Paradise Hills	Existing
G2-252-044	4,626.85	4,624.69	348.074	12	PVC	Paradise Hills	Existing
G2-252-045	4,623.00	4,621.45	231.404	12	PVC	Paradise Hills	Existing
G2-252-046	4,629.20	4,626.85	356.962	12	PVC	Paradise Hills	Existing
G2-252-047	4,636.54	4,629.20	355.814	12	PVC	Paradise Hills	Existing
G2-272-014	4,715.85	4,713.99	357.684	15	RCP	Horizon Drive	Existing
G2-272-036	4,720.62	4,718.80	363.686	15	RCP	Horizon Drive	Existing
G2-272-049	4,721.87	4,720.62	247.902	15	RCP	Horizon Drive	Existing
G2-272-055	4,724.49	4,724.00	123.886	15	RCP	Horizon Drive	Existing
G2-272-068	4,724.93	4,724.49	111.717	15	RCP	Horizon Drive	Existing
G2-272-080	4,731.50	4,727.50	342	15	RCP	Horizon Drive	Existing
G3-211-015	4,511.57	4,511.17	336.364	54	RCP	River Road	Existing
G3-211-018	4,511.17	4,510.87	256.89	54	RCP	River Road	Existing
G3-212-006	4,515.66	4,514.91	32.997	15	PVC		Existing
G3-212-007	4,511.66	4,511.57	231.076	54	RCP	River Road	Existing
G3-252-026	4,642.80	4,639.47	305.106	12	PVC	Paradise Hills	Existing
G3-252-027	4,650.29	4,642.80	189.617	12	PVC	Paradise Hills	Existing
G3-252-028	4,639.47	4,638.48	164.295	12	PVC	Paradise Hills	Existing
G3-252-029	4,638.48	4,636.54	299.53	12	PVC	Paradise Hills	Existing
G3-252-030	4,657.84	4,650.29	240.621	12	PVC	Paradise Hills	Existing
G3-252-031	4,659.59	4,657.84	252.101	12	PVC	Paradise Hills	Existing
G3-252-032	4,661.34	4,659.59	313.765	12	PVC	Paradise Hills	Existing
G4-252-008	4,662.47	4,661.34	158.588	12	PVC	Paradise Hills	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
G4-252-008A	4,663.19	4,662.47	102.303	12	PVC	Paradise Hills	Existing
G4-261-008	4,679.32	4,677.37	178.662	8	PVC	Paradise Hills	Existing
G4-261-015	4,677.17	4,676.45	180.334	8	PVC	Paradise Hills	Existing
G4-261-016	4,676.25	4,675.92	121.524	8	PVC	Paradise Hills	Existing
G4-261-017	4,675.82	4,669.37	214.2	12	PVC	Paradise Hills	Existing
G4-261-018	4,667.52	4,666.30	195.652	12	PVC	Paradise Hills	Existing
G4-261-020	4,666.30	4,664.93	200.736	12	PVC	Paradise Hills	Existing
G4-261-021	4,664.93	4,663.19	228.485	12	PVC	Paradise Hills	Existing
G4-261-029	4,669.37	4,667.52	313.8	12	PVC	Paradise Hills	Existing
H1-261-006	4,701.96	4,701.33	74.3	10	PVC	Paradise Hills	Existing
H1-261-008	4,697.93	4,697.73	6	10	PVC	Paradise Hills	Existing
H1-261-009	4,697.63	4,692.71	360.308	8	PVC	Paradise Hills	Existing
H1-261-010	4,692.71	4,689.30	350.074	8	PVC	Paradise Hills	Existing
H1-261-011	4,688.00	4,682.72	388.483	8	PVC	Paradise Hills	Existing
H1-261-012	4,682.52	4,680.37	208.5	8	PVC	Paradise Hills	Existing
H1-261-015	4,680.17	4,679.52	66.3	8	PVC	Paradise Hills	Existing
H1-261-025	4,701.02	4,698.18	225.5	10	PVC	Paradise Hills	Existing
H1-262-023	4,705.38	4,701.96	335.675	10	PVC	Paradise Hills	Existing

Notes:

1) All gravity lines have an "n-value" of 0.013

2) All force mains have a "C-value" of 110

Wet Well Input Information Future PWWF System Scenarios							
ID	Description	Type	Bottom Elevation	Minimum Level	Maximum Level	Initial Level	Diameter
			(feet)	(feet)	(feet)	(feet)	(feet)
9000	Connected Lakes LS	0: Cylindrical	4,518.81	0	18	0.5	6
9006	Lime Kiln Gulch LS	0: Cylindrical	4,516.82	0	15.5	0.5	6
9008	Rosevale LS	0: Cylindrical	4,530.00	0	15	3	6
9010	Tiara Rado LS	0: Cylindrical	4,487.25	1	24	1	8
9014	21 Road LS	0: Cylindrical	4,509.19	1	10	1	6
9016	Monument Road LS	0: Cylindrical	4,636.26	1	15	1	6
9018	C Road LS	0: Cylindrical	4,668.39	1	10	1	6

Pump Input Information Future PWWF System Scenarios			
ID	Description	Pump Type	Pump Capacity
			(mgd)
5016	Redlands Village Pump #1	0: Constant Capacity	0.279
5018	Redlands Village Pump #2	0: Constant Capacity	0.279
5020	Rosevale Pump #1	0: Constant Capacity	0.684
5022	Rosevale Pump #2	0: Constant Capacity	0.684
5024	Tiara Rado Pump #1	0: Constant Capacity	3.272
5026	Tiara Rado Pump #2	0: Constant Capacity	3.272
5038	Connected Lakes Pump #1	0: Constant Capacity	0.212
5040	Connected Lakes Pump #2	0: Constant Capacity	0.212
5046	21 Road Pump #1	0: Constant Capacity	0.35
5048	21 Road Pump #2	0: Constant Capacity	0.35
5050	Monument Road Pump #1	0: Constant Capacity	0.1
5052	Monument Road Pump #2	0: Constant Capacity	0.1
5054	C Road Pump#1	0: Constant Capacity	0.35
5056	C Road Pump#2	0: Constant Capacity	0.35
5058	Connected Lakes Pump #4	0: Constant Capacity	0.001
5060	Connected Lakes Pump #3	0: Constant Capacity	0.001

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.302	32:30 hr	1.402	0.344	0.196	0.084
0G1-271-041	G1-271-042	G1-271-041	2.769	32:30 hr	4.249	0.957	0.766	0.934
1003	1612	1614	0.339	32:30 hr	2.369	0.355	0.426	0.378
1005	1614	1660	0.494	32:45 hr	2.608	0.441	0.529	0.55
1009	1620	D4-232-007	0.831	33:15 hr	4.974	0.364	0.364	0.283
101	64	66	0.586	32:47 hr	2.597	0.667	1	1.5
1011	1622	1620	0.831	33:14 hr	2.967	0.541	0.541	0.57
1013	1624	1622	0.848	33:05 hr	2.981	0.548	0.548	0.582
1015	1626	1624	0.857	33:02 hr	2.986	0.551	0.551	0.588
1017	1628	1626	0.86	33:01 hr	2.994	0.552	0.552	0.589
1019	1630	1628	0.865	32:48 hr	3.001	0.553	0.553	0.591
1021	1632	1630	0.869	32:47 hr	3.001	0.555	0.555	0.595
1023	1634	1632	0.882	32:47 hr	3.015	0.56	0.56	0.603
1025	1636	1634	0.896	32:48 hr	3.016	0.567	0.567	0.615
1027	1638	1636	0.902	32:47 hr	3.03	0.568	0.568	0.617
1029	1640	1638	0.922	32:33 hr	3.762	0.487	0.487	0.478
103	66	68	0.578	32:48 hr	2.56	0.667	1	1.067
1031	1642	1640	0.937	32:31 hr	6.487	0.407	0.611	0.691
1033	1644	1642	0.954	32:31 hr	6.512	0.412	0.619	0.704
1035	1646	1644	0.962	32:30 hr	6.523	0.415	0.622	0.709
1037	1648	1646	0.982	32:32 hr	5.545	0.488	0.733	0.887
1039	1650	1648	0.996	32:31 hr	5.555	0.494	0.741	0.899
1041	1652	1650	1.006	32:31 hr	5.561	0.498	0.747	0.908
1043	1654	1652	1.009	32:31 hr	5.563	0.5	0.749	0.911
1045	1656	1654	1.006	32:31 hr	6.583	0.427	0.641	0.742
1047	1658	1656	0.997	32:29 hr	6.984	0.403	0.605	0.681
1049	1676	1658	1.003	32:15 hr	6.992	0.405	0.607	0.684
105	68	70	0.569	33:03 hr	2.521	0.667	1	1.123
1051	1566	G3-211-015	2.686	34:13 hr	3.04	0.969	0.554	0.592
1053	1660	9018	0.662	32:58 hr	2.787	0.532	0.638	0.737
1057	1190	G1-211-003	0.101	33:11 hr	2.703	0.148	0.222	0.108
1061	1144	140	0.11	32:49 hr	3.486	0.132	0.198	0.086
1063	1158	802	0.404	33:08 hr	4.452	0.254	0.305	0.202
1065	1344	D2-251-014	0.163	32:53 hr	4.042	0.143	0.172	0.064
1069	1356	D2-251-014	0.076	32:49 hr	2.967	0.114	0.171	0.064
107	70	74	0.577	33:00 hr	7.378	0.252	0.378	0.304
1071	1364	D2-251-014	0.121	33:44 hr	1.408	0.271	0.407	0.348
1073	1596	SS_5	6.243	33:43 hr	3.597	1.594	0.797	0.974
1075	1378	804	2.545	34:56 hr	4.592	0.824	0.659	0.771
1077	916	G1-221-010	1.085	34:25 hr	3.249	0.547	0.438	0.397
1087	G2-212-001	G3-211-015	0	00:00 hr	0	0	0	0
1093	D3-281-006	D2-271-039	0	00:00 hr	0	0	0	0
1097	D1-262-025	D2-252-085	0	00:00 hr	0	0	0	0
1105	1668	1676	0.229	33:43 hr	3.685	0.194	0.232	0.118
1107	14	1676	0.469	32:14 hr	18.027	0.115	0.173	0.065
1109	1688	1686	0.145	32:17 hr	4.481	0.115	0.115	0.028
111	74	76	0.578	33:00 hr	7.128	0.259	0.389	0.319
1111	1686	1684	0.264	32:32 hr	4.653	0.169	0.169	0.062
1113	1684	1682	0.346	32:35 hr	3.382	0.255	0.255	0.143
1115	1682	1680	0.539	32:30 hr	8.042	0.19	0.19	0.079
1117	1680	1678	0.725	32:40 hr	3.194	0.458	0.458	0.43
1119	1678	1700	0.758	32:44 hr	3.575	0.435	0.435	0.392
1121	1700	E2-222-050	0.765	32:54 hr	5.729	0.309	0.309	0.208
1123	1672	D3-281-006	0.559	34:10 hr	2.713	0.383	0.307	0.204
1125	1278	1302	1.092	33:07 hr	2.799	0.718	0.718	0.865
113	76	78	0.59	33:00 hr	8.491	0.231	0.347	0.259
1131	1118	1730	0.069	34:52 hr	0.307	0.667	1.000	2.794
1133	1730	1732	0.069	36:37 hr	0.305	0.667	1.000	2.778
1135	1732	1734	0.063	36:49 hr	2.102	0.127	0.191	0.08
1137	1734	1736	0.062	36:52 hr	2.338	0.116	0.174	0.066
1139	1736	1738	0.06	37:09 hr	1.894	0.133	0.199	0.087
1141	1738	1740	0.058	37:12 hr	2.997	0.094	0.141	0.043

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
1143	1742	140	0.114	32:45 hr	3.044	0.148	0.222	0.108
1145	1740	1742	0.058	37:20 hr	2.435	0.109	0.163	0.058
115	78	80	0.592	33:00 hr	8.783	0.226	0.339	0.248
117	80	82	0.592	33:00 hr	8.816	0.226	0.338	0.247
119	82	E2-222-016	0.592	32:59 hr	8.815	0.226	0.338	0.247
121	132	134	0.27	32:15 hr	7.124	0.15	0.225	0.111
123	134	136	0.27	32:15 hr	9.814	0.12	0.179	0.07
125	136	9006	0.291	32:15 hr	5.501	0.19	0.285	0.177
127	140	9006	0.243	32:31 hr	2.942	0.262	0.394	0.327
137	150	48	0.592	32:31 hr	3.674	0.448	0.672	0.793
139	C1-261-020	770	5.289	34:12 hr	4.067	1.223	0.611	0.691
141	770	772	5.294	34:15 hr	4.314	1.165	0.582	0.642
143	772	774	5.297	34:16 hr	3.583	1.367	0.683	0.811
145	774	776	5.304	34:17 hr	3.206	1.519	0.759	0.925
147	776	778	5.321	34:18 hr	3.971	1.254	0.627	0.718
153	778	780	5.304	34:18 hr	3.449	1.417	0.708	0.85
155	780	C2-261-001	5.29	34:28 hr	3.089	1.572	0.786	0.96
157	C2-261-001	C3-261-013	2.446	34:31 hr	8.619	0.546	0.546	0.58
161	802	9000	0.451	33:18 hr	2.609	0.411	0.493	0.488
163	SS_3	C3-271-012	9.847	35:32 hr	3.104	2.5	1	1.03
165	SS_1_A	C3-271-007	9.8	35:32 hr	6.95	1.667	1	1.904
167	SS_4	SS_3	9.859	35:32 hr	3.107	2.5	1	1.037
169	SS_5	SS_4	9.87	35:30 hr	4.861	2	1	1.844
171	SS_6	SS_5	3.819	35:18 hr	2.834	1.26	0.63	0.723
173	804	SS_8	3.926	35:02 hr	2.844	1.287	0.643	0.745
175	SS_8	SS_7	3.87	35:04 hr	2.836	1.274	0.637	0.734
177	SS_7	SS_6	3.822	35:17 hr	2.83	1.262	0.631	0.725
181	810	812	0.293	32:42 hr	1.977	0.333	0.333	0.239
183	812	1316	0.317	33:01 hr	2.02	0.348	0.348	0.26
185	814	F2-231-004	0.455	33:20 hr	2.342	0.408	0.408	0.349
483	1130	1132	0.141	32:21 hr	1.623	0.227	0.227	0.113
485	1132	1422	0.144	32:38 hr	1.634	0.23	0.23	0.116
487	1134	1136	0.019	32:16 hr	1.059	0.09	0.135	0.039
489	1136	1138	0.023	32:32 hr	1.929	0.067	0.101	0.021
491	1138	1140	0.052	32:27 hr	2.265	0.105	0.157	0.054
493	1140	1142	0.075	32:30 hr	2.524	0.126	0.189	0.078
495	1142	1144	0.087	32:30 hr	2.639	0.135	0.203	0.09
497	1146	1148	0.179	32:17 hr	7.088	0.113	0.169	0.062
499	1148	D4-221-009	0.245	32:30 hr	6.494	0.149	0.224	0.11
501	1150	1152	0.13	32:22 hr	3.557	0.146	0.219	0.105
503	1152	1154	0.243	32:34 hr	4.439	0.194	0.292	0.185
505	1154	1156	0.337	32:34 hr	4.867	0.231	0.346	0.257
507	1156	1158	0.381	32:31 hr	5.032	0.246	0.369	0.29
525	1176	1178	0.008	32:18 hr	1.619	0.036	0.054	0.006
527	1178	1180	0.009	32:26 hr	1.711	0.039	0.059	0.007
529	1180	1182	0.011	32:27 hr	1.82	0.043	0.064	0.008
531	1182	1184	0.062	32:30 hr	3.053	0.097	0.146	0.046
533	1184	1186	0.068	32:36 hr	2.455	0.12	0.18	0.071
535	1186	1188	0.067	32:53 hr	2.445	0.119	0.179	0.07
537	1188	1190	0.068	32:53 hr	2.717	0.112	0.168	0.061
567	1220	1222	0	00:00 hr	0	0	0	0
569	1222	1224	0.059	32:32 hr	1.48	0.156	0.234	0.12
57	E3-202-BV	E3-202-010	0.41	32:30 hr	3.463	0.308	0.37	0.291
571	1224	1226	0.096	32:45 hr	1.842	0.188	0.283	0.174
573	1226	1228	0.42	33:05 hr	2.7	0.434	0.651	0.759
575	1228	1230	0.525	33:20 hr	2.879	0.428	0.513	0.523
577	1230	9014	0.556	33:44 hr	2.683	0.474	0.569	0.619
581	1236	1238	0.016	32:24 hr	1.374	0.065	0.098	0.02
583	1238	1240	0.052	32:35 hr	2.508	0.098	0.147	0.047
585	1240	1572	0.099	32:45 hr	1.713	0.202	0.303	0.199
587	1242	1244	0.488	33:03 hr	2.6	0.438	0.525	0.543
589	1244	1246	0.762	33:03 hr	2.908	0.513	0.513	0.522

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
591	1246	1248	0.882	32:47 hr	2.858	0.585	0.585	0.646
595	1252	1254	1.719	34:01 hr	3.197	0.716	0.477	0.461
597	1254	1250	1.768	34:03 hr	3.43	0.693	0.462	0.436
599	1256	1258	0.072	32:35 hr	2.553	0.121	0.182	0.072
601	1258	1260	0.196	32:35 hr	3.255	0.208	0.312	0.211
603	1260	1262	0.44	32:44 hr	2.534	0.412	0.494	0.49
605	1262	1264	1.07	33:05 hr	3.142	0.636	0.636	0.733
607	1264	1266	1.331	33:13 hr	3.494	0.606	0.484	0.474
609	1266	1268	1.627	33:29 hr	3.67	0.683	0.546	0.579
613	1248	1250	0.979	32:57 hr	2.973	0.618	0.618	0.702
615	1272	1274	0.396	32:33 hr	3.608	0.327	0.49	0.483
617	1274	1276	0.462	32:55 hr	3.748	0.358	0.537	0.563
619	1276	1278	0.688	32:53 hr	4.076	0.467	0.7	0.838
627	1284	1286	0.251	32:21 hr	2.711	0.286	0.429	0.382
629	1286	1288	0.254	32:42 hr	2.72	0.288	0.432	0.388
631	1288	1290	0.259	32:56 hr	2.732	0.291	0.437	0.395
633	1290	1292	0.276	33:18 hr	2.781	0.302	0.453	0.421
635	1292	1294	0.284	33:24 hr	2.8	0.307	0.46	0.434
637	1294	1296	0.284	33:37 hr	3.514	0.258	0.388	0.318
639	1296	1298	0.3	33:38 hr	3.567	0.266	0.399	0.336
641	1298	1300	0.386	33:53 hr	3.602	0.264	0.264	0.153
643	1300	1302	0.449	33:48 hr	3.76	0.285	0.285	0.178
645	1302	1304	1.54	33:10 hr	3.397	0.695	0.556	0.596
647	1304	1306	1.543	33:29 hr	3.399	0.696	0.557	0.598
649	1308	1310	0.018	32:24 hr	1.838	0.06	0.09	0.017
651	1310	1312	0.036	32:47 hr	1.061	0.12	0.12	0.03
653	1312	1298	0.082	32:37 hr	1.341	0.178	0.178	0.069
655	1314	1302	0.066	32:24 hr	1.281	0.158	0.158	0.054
657	1316	814	0.341	33:13 hr	2.063	0.361	0.361	0.279
673	1332	1334	0.103	32:37 hr	1.861	0.196	0.294	0.188
677	1338	1334	0.004	32:11 hr	1.355	0.024	0.036	0.002
679	1334	1340	0.11	32:53 hr	2.896	0.15	0.225	0.111
681	1340	9016	0.108	33:00 hr	3.001	0.144	0.216	0.103
685	1346	1348	0.043	32:17 hr	3.893	0.064	0.096	0.019
687	1348	1344	0.058	32:42 hr	1.471	0.155	0.232	0.118
689	1350	1352	0.013	32:18 hr	2.123	0.044	0.065	0.009
691	1352	1354	0.043	32:28 hr	2.738	0.082	0.122	0.032
693	1354	1356	0.054	32:34 hr	1.435	0.148	0.222	0.108
695	1358	1360	0	00:00 hr	0	0	0	0
697	1360	1362	0.061	32:21 hr	3.032	0.096	0.144	0.045
699	1362	1364	0.091	32:29 hr	2.965	0.129	0.194	0.082
707	1372	1374	0.679	32:30 hr	3.068	0.449	0.449	0.416
709	1374	1376	1.477	32:42 hr	5	0.564	0.564	0.611
711	1380	1378	1.52	33:05 hr	6.774	0.407	0.326	0.23
713	1376	1380	1.538	33:01 hr	3.463	0.684	0.547	0.581
715	1382	1376	0.203	33:25 hr	2.086	0.297	0.446	0.409
717	1384	1382	0.109	33:05 hr	1.909	0.201	0.301	0.197
719	1386	1384	0.031	32:25 hr	2.153	0.077	0.115	0.028
727	1396	1398	2.764	32:43 hr	4.747	0.86	0.688	0.819
733	1404	1406	0.095	32:27 hr	1.956	0.178	0.267	0.156
735	1406	B2-272-021	0.267	32:41 hr	2.974	0.28	0.42	0.368
749	1422	1424	0.145	32:47 hr	1.635	0.23	0.23	0.116
751	1424	1426	0.144	32:43 hr	1.639	0.229	0.229	0.115
753	1426	E4-202-001	0.144	32:46 hr	1.64	0.229	0.229	0.115
757	1428	BV-105	0.389	09:39 hr	1.849	0.48	0.576	0.631
759	1428	1430	0.294	09:37 hr	1.694	0.48	0.719	0.867
761	1430	D2-252-004	0.294	09:44 hr	3.229	0.283	0.424	0.374
763	G2-212-014	G2-212-003	24.569	37:30 hr	12.62	1.474	0.59	0.654
773	B2-282-047	B2-282-046	1.083	32:33 hr	3.536	0.582	0.582	0.64
775	B2-282-046	B2-282-041	1.071	32:45 hr	4.837	0.45	0.45	0.416
777	B2-282-041	B2-282-037	1.06	32:47 hr	2.088	1	1	2.007
779	B2-282-037	B2-282-036	1.054	32:47 hr	3.119	0.632	0.632	0.726

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
781	B2-282-036	B2-282-003	1.046	32:47 hr	3.085	0.634	0.634	0.729
785	B2-282-003	B2-281-013	1.04	32:59 hr	3.082	0.631	0.631	0.725
787	B2-281-013	B2-281-027	1.041	33:01 hr	3.491	0.569	0.569	0.618
789	B2-281-027	B2-281-006	1.038	33:00 hr	3.255	0.601	0.601	0.674
791	B2-281-006	B2-281-005	1.037	33:03 hr	2.892	0.665	0.665	0.781
793	B2-281-005	B2-281-004	1.028	33:03 hr	2.974	0.644	0.644	0.746
795	B2-281-004	B2-281-003	1.014	33:01 hr	2.873	0.656	0.656	0.766
797	B2-281-003	B2-281-002	1.249	33:01 hr	2.461	1	1	1
799	B2-281-002	B2-281-029	1.252	33:02 hr	2.861	0.804	0.804	0.983
801	B2-281-029	B2-281-001	1.249	33:00 hr	2.461	1	1	2.331
803	B2-281-001	B2-281-022	1.254	33:04 hr	2.47	1	1	1.079
805	B2-281-022	B2-281-020	1.253	33:13 hr	3.408	0.68	0.68	0.806
807	B2-281-020	B2-272-030	1.259	33:18 hr	2.481	1	1	1.394
809	B2-272-030	B2-272-029	1.269	33:19 hr	3.181	0.733	0.733	0.888
811	B2-272-029	B2-272-028	1.267	33:15 hr	2.496	1	1	1.009
813	B2-272-028	B2-272-027	1.361	33:29 hr	3.237	0.772	0.772	0.942
85	48	50	0.662	32:32 hr	2.935	0.667	1	1.337
87	50	52	0.639	32:46 hr	2.833	0.667	1	1.614
889	B2-272-008	B2-272-005	1.174	33:01 hr	2.55	0.704	0.563	0.608
89	52	54	0.638	32:47 hr	2.83	0.667	1	1.276
891	B2-272-005	B2-271-022	1.178	33:02 hr	2.949	0.629	0.503	0.505
893	B2-271-022	B2-271-031	1.265	33:02 hr	2.604	0.736	0.589	0.652
895	B2-271-031	B2-271-020	1.264	33:00 hr	3.834	0.542	0.433	0.39
897	B2-271-020	B2-271-019	1.261	32:59 hr	6.62	0.362	0.29	0.183
91	54	56	0.632	32:46 hr	2.802	0.667	1	1.244
93	56	58	0.627	32:47 hr	2.777	0.667	1	1.177
943	1558	1560	2.652	33:51 hr	3.566	0.845	0.483	0.471
945	1560	1562	2.651	33:45 hr	3.33	0.892	0.509	0.516
947	1562	1564	2.654	33:50 hr	3.33	0.893	0.51	0.517
949	1564	1566	2.653	34:00 hr	3.33	0.892	0.51	0.517
95	58	60	0.614	32:47 hr	2.723	0.667	1	1.106
951	1250	1558	2.651	33:35 hr	3.354	0.887	0.507	0.511
953	1268	1568	1.654	33:31 hr	3.519	0.716	0.573	0.625
955	1568	1570	1.705	33:32 hr	3.543	0.73	0.584	0.645
957	1570	1252	1.708	33:38 hr	3.171	0.803	0.643	0.744
959	1572	1242	0.198	32:46 hr	2.072	0.293	0.44	0.4
961	1306	G1-241-002	1.55	33:31 hr	3.385	0.701	0.561	0.604
963	1574	1396	1.758	32:30 hr	4.298	0.64	0.512	0.521
965	1398	1576	2.912	32:46 hr	7.434	0.619	0.495	0.492
967	1576	1578	3.023	32:55 hr	6.729	0.69	0.552	0.59
969	1578	1580	3	33:06 hr	5.959	0.758	0.607	0.683
97	60	62	0.603	32:47 hr	2.672	0.667	1	1.137
971	1580	1394	3.061	33:06 hr	5.984	0.768	0.615	0.697
973	1394	1582	3.657	33:22 hr	4.635	0.978	0.652	0.76
975	1582	1584	3.647	33:24 hr	4.637	0.976	0.651	0.757
977	1584	1586	3.599	33:35 hr	4.62	0.968	0.645	0.748
979	1586	1588	3.531	33:41 hr	4.606	0.954	0.636	0.733
981	1588	1590	3.508	33:53 hr	4.596	0.951	0.634	0.729
987	1590	1596	3.451	34:23 hr	5.981	0.756	0.504	0.507
99	62	64	0.594	32:48 hr	2.635	0.667	1	1.242
B1-272-001	B1-272-001	B1-272-010	0.757	32:46 hr	2.568	0.563	0.563	0.609
B1-272-002	B1-272-002	B1-272-001	0.674	32:47 hr	2.844	0.531	0.637	0.734
B1-272-003	B1-272-003	B1-272-002	0.675	32:46 hr	2.718	0.553	0.663	0.779
B1-272-005	B1-272-005	B1-272-003	0.669	32:46 hr	2.872	0.523	0.628	0.719
B1-272-007	B1-272-007	B1-272-005	0.665	32:34 hr	2.46	0.597	0.716	0.863
B1-272-010	B1-272-010	B1-272-012	0.762	32:46 hr	2.836	0.523	0.523	0.539
B1-281-001	B1-281-001	B1-272-007	0.648	32:33 hr	2.709	0.535	0.642	0.744
B1-281-002	B1-281-002	B1-281-001	0.646	32:33 hr	2.737	0.529	0.635	0.731
B1-281-004	B1-281-004	B1-281-002	0.646	32:33 hr	3.25	0.459	0.55	0.586
B1-281-005	B1-281-005	B1-281-004	0.414	32:31 hr	2.836	0.36	0.432	0.388
B1-281-006	B1-281-006	B1-281-005	0.408	32:31 hr	2.76	0.364	0.437	0.395
B1-281-007	B1-281-007	B1-281-006	0.402	32:30 hr	3.57	0.297	0.356	0.272

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B1-281-009	B1-281-009	B1-281-007	0.396	32:31 hr	3.516	0.297	0.356	0.272
B1-281-010	B1-281-010	B1-281-009	0.384	32:16 hr	3.448	0.294	0.353	0.268
B1-292-001	B1-292-001	B1-292-002	0.034	32:20 hr	0.964	0.131	0.157	0.054
B1-292-002	B1-292-002	B1-292-003	0.035	32:33 hr	0.873	0.143	0.172	0.064
B1-292-003	B1-292-003	B1-292-004	0.065	32:34 hr	1.262	0.17	0.203	0.091
B1-292-004	B1-292-004	B1-292-010	0.175	32:29 hr	2.752	0.197	0.237	0.123
B1-292-010	B1-292-010	B1-292-011	0.187	32:31 hr	2.828	0.202	0.242	0.129
B1-292-011	B1-292-011	B1-292-012	0.201	32:30 hr	4.213	0.161	0.193	0.081
B1-292-012	B1-292-012	B1-292-013	0.212	32:31 hr	2.698	0.229	0.275	0.165
B1-292-013	B1-292-013	B1-292-014	0.23	32:30 hr	2.536	0.282	0.423	0.374
B1-292-014	B1-292-014	B1-292-015	0.231	32:31 hr	2.154	0.287	0.344	0.254
B1-292-015	B1-292-015	B1-292-016	0.23	32:30 hr	2.737	0.24	0.288	0.181
B1-292-016	B1-292-016	B2-292-023	0.23	32:30 hr	3.813	0.209	0.313	0.213
B2-271-019	B2-271-019	B3-271-059	3.097	33:01 hr	3.904	1.25	1	1.414
B2-272-004	B2-272-004	B2-271-019	1.682	33:02 hr	3.075	0.814	0.651	0.758
B2-272-007	B2-272-007	B2-272-004	1.672	33:02 hr	3.057	0.814	0.651	0.759
B2-272-009	B2-272-009	B2-272-007	1.662	32:59 hr	3.068	0.807	0.646	0.75
B2-272-012	B1-272-012	B1-272-013	0.793	32:48 hr	2.847	0.477	0.382	0.31
B2-272-013	B1-272-013	B1-272-015	0.821	32:45 hr	3.023	0.469	0.375	0.299
B2-272-014	B2-272-014	B2-272-009	1.657	33:01 hr	2.461	0.99	0.792	0.967
B2-272-015	B1-272-015	B1-272-016	0.894	32:49 hr	2.712	0.542	0.433	0.39
B2-272-016	B1-272-016	B2-272-021	0.925	32:50 hr	2.487	0.595	0.476	0.459
B2-272-017	B2-272-017	B2-272-008	1.178	32:48 hr	2.649	0.685	0.548	0.582
B2-272-021	B2-272-021	B2-272-017	1.188	32:47 hr	2.683	0.682	0.546	0.579
B2-272-027	B2-272-027	B2-272-033	1.57	33:03 hr	3.094	1	1	1.167
B2-272-033	B2-272-033	B2-272-014	1.59	33:30 hr	3.913	0.746	0.746	0.906
B2-282-048	B2-282-048	B2-282-047	1.114	32:33 hr	3.138	0.659	0.659	0.772
B2-282-051	B2-282-051	B2-282-048	1.134	32:32 hr	3.259	0.648	0.648	0.753
B2-282-054	B2-282-054	B2-282-051	1.129	32:32 hr	3.313	0.636	0.636	0.734
B2-291-024	B2-291-024	B2-291-045	0.412	33:00 hr	3.295	0.295	0.295	0.189
B2-291-025	B2-291-025	B2-291-026	0.42	33:03 hr	2.703	0.345	0.345	0.257
B2-291-026	B2-291-026	B2-291-027	0.417	33:16 hr	0.986	0.776	0.776	0.947
B2-291-027	B2-291-027	B2-291-028	0.431	33:20 hr	1.954	0.449	0.449	0.415
B2-291-028	B2-291-028	B2-291-029	0.437	33:29 hr	1.92	0.459	0.459	0.432
B2-291-029	B2-291-029	B2-291-030	0.442	33:28 hr	2.682	0.36	0.36	0.278
B2-291-030	B2-291-030	B2-282-054	0.452	33:32 hr	2.18	0.428	0.428	0.381
B2-291-045	B2-291-045	B2-291-025	0.411	33:03 hr	0.931	0.811	0.811	0.99
B2-292-001	B2-292-001	B2-292-002	0.154	32:31 hr	2.046	0.222	0.266	0.155
B2-292-002	B2-292-002	B2-292-003	0.167	32:32 hr	2.162	0.226	0.272	0.161
B2-292-003	B2-292-003	B2-292-004	0.172	32:32 hr	1.658	0.28	0.336	0.243
B2-292-004	B2-292-004	B2-292-010	0.169	32:30 hr	2.832	0.175	0.175	0.067
B2-292-008	B2-292-008	B2-292-009	0.39	32:52 hr	1.392	0.541	0.541	0.571
B2-292-009	B2-292-009	B2-291-024	0.411	32:50 hr	2.323	0.38	0.38	0.306
B2-292-010	B2-292-010	B2-292-026	0.385	32:40 hr	2.013	0.403	0.403	0.341
B2-292-011	B2-292-011	B2-292-010	0.229	32:45 hr	2.447	0.289	0.433	0.389
B2-292-012	B2-292-012	B2-292-011	0.229	32:33 hr	2.173	0.316	0.474	0.456
B2-292-017	B2-292-017	BV-292-013	0.23	32:30 hr	2.777	0.263	0.395	0.329
B2-292-018	B2-292-018	B2-292-017	0.232	32:31 hr	2.806	0.262	0.394	0.327
B2-292-022	B2-292-022	B2-292-018	0.232	32:31 hr	3.194	0.239	0.358	0.275
B2-292-023	B2-292-023	B2-292-022	0.229	32:30 hr	3.683	0.213	0.32	0.222
B2-292-026	B2-292-026	B2-292-008	0.385	32:45 hr	2.152	0.383	0.383	0.311
B2-301-001	B2-301-001	B2-292-001	0.144	32:17 hr	1.852	0.228	0.273	0.163
B3-262-023	B3-262-023	B4-262-031	5.019	33:43 hr	4.394	1.5	1	1.179
B3-262-027	B3-262-027	B3-262-023	4.987	33:35 hr	4.366	1.5	1	2.126
B3-262-031	B3-262-031	B3-262-027	4.968	33:33 hr	4.35	1.5	1	2.104
B3-271-003	B3-271-003	B3-262-031	3.25	33:31 hr	4.098	1.25	1	1.466
B3-271-006	B3-271-006	B3-271-003	3.246	33:31 hr	4.092	1.25	1	1.464
B3-271-018	B3-271-018	B3-271-006	3.229	33:31 hr	4.071	1.25	1	1.456
B3-271-026	B3-271-026	B4-271-011	3.204	33:15 hr	4.04	1.25	1	1.311
B3-271-032	B3-271-032	B3-271-026	3.16	33:17 hr	3.984	1.25	1	1.421
B3-271-039	B3-271-039	B3-271-032	3.136	33:17 hr	3.953	1.25	1	1.416
B3-271-042	B3-271-042	B3-271-039	3.111	33:15 hr	3.923	1.25	1	1.405

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B3-271-045	B3-271-045	B3-271-042	3.1	33:01 hr	3.908	1.25	1	1.387
B3-271-054	B3-271-054	B3-271-045	3.105	33:01 hr	3.915	1.25	1	1.302
B3-271-058	B3-271-058	B3-271-054	3.106	33:01 hr	3.916	1.25	1	1.26
B3-271-058A	B3-271-063	B3-271-058	3.095	33:01 hr	3.903	1.25	1	1.399
B3-271-063	B3-271-059	B3-271-063	3.096	33:01 hr	3.904	1.25	1	1.396
B4-261-014	B4-261-014	C1-261-058	5.201	34:01 hr	6.557	1.25	1	1.605
B4-262-001	B4-262-001	B4-261-014	5.196	34:01 hr	6.551	1.25	1	1.603
B4-262-011	B4-262-011	B4-262-044	5.126	34:01 hr	5.257	1.194	0.796	0.973
B4-262-016	B4-262-016	B4-262-011	5.067	34:00 hr	5.259	1.18	0.786	0.961
B4-262-022	B4-262-022	B4-262-016	5.066	33:46 hr	5.254	1.18	0.787	0.961
B4-262-024	B4-262-024	B4-262-022	5.031	33:46 hr	4.405	1.5	1	1.61
B4-262-028	B4-262-028	B4-262-024	5.021	33:48 hr	4.396	1.5	1	2.23
B4-262-030	B4-262-030	B4-262-028	5.027	33:45 hr	4.401	1.5	1	2.234
B4-262-031	B4-262-031	B4-262-114	5.023	33:45 hr	4.398	1.5	1	1.693
B4-262-036	B4-262-036	B4-262-037	1.553	33:15 hr	3.06	1	1	1.431
B4-262-037	B4-262-037	B4-262-038	1.57	33:19 hr	3.093	1	1	1.446
B4-262-038	B4-262-038	B3-262-031	1.574	33:20 hr	3.1	1	1	1.449
B4-262-043	B4-262-044	B4-262-001	5.138	34:01 hr	6.478	1.25	1	1.586
B4-262-114	B4-262-114	B4-262-030	5.025	33:46 hr	4.399	1.5	1	1.455
B4-271-001	B4-271-001	B4-262-036	1.55	33:14 hr	3.053	1	1	1.424
B4-271-011	B4-271-011	B3-271-018	3.214	33:18 hr	4.052	1.25	1	1.449
B4-271-028	B4-271-028	B4-271-147	1.413	32:46 hr	2.783	1	1	1.153
B4-271-033	B4-271-033	B4-271-028	1.411	32:48 hr	2.78	1	1	1.152
B4-271-128	B4-271-128	B4-271-001	1.549	33:04 hr	3.052	1	1	1.426
B4-271-135	B4-271-135	B4-271-128	1.559	33:04 hr	3.07	1	1	1.273
B4-271-138	B4-271-138	B4-271-135	1.527	33:03 hr	3.009	1	1	1.246
B4-271-143	B4-271-143	B4-271-138	1.511	33:02 hr	2.977	1	1	1.234
B4-271-145	B4-271-145	B4-271-143	1.499	33:01 hr	2.954	1	1	1.223
B4-271-146	B4-271-146	B4-271-145	1.491	32:48 hr	2.937	1	1	1.217
B4-271-147	B4-271-147	B4-271-146	1.491	32:48 hr	2.936	1	1	1.217
B4-271-148	B4-271-148	B4-271-033	1.395	32:46 hr	2.749	1	1	1.139
B4-272-004	B4-272-004	B4-272-094	1.351	32:46 hr	2.662	1	1	1.103
B4-272-039	B4-272-039	B4-272-092	1.05	32:30 hr	2.582	0.747	0.747	0.907
B4-272-040	B4-272-040	B4-272-039	0.985	32:30 hr	2.527	0.718	0.718	0.864
B4-272-044	B4-272-044	B4-272-040	0.979	32:32 hr	2.551	0.707	0.707	0.848
B4-272-048	B4-272-048	B4-272-044	0.947	32:31 hr	2.354	0.739	0.739	0.896
B4-272-086	B4-272-086	B4-272-004	1.14	32:48 hr	2.743	0.763	0.763	0.93
B4-272-091	B4-272-091	B4-272-096	1.064	32:31 hr	2.717	0.721	0.721	0.869
B4-272-092	B4-272-092	B4-272-095	1.062	32:32 hr	2.583	0.755	0.755	0.919
B4-272-093	B4-272-093	B4-271-148	1.382	32:46 hr	2.722	1	1	1.128
B4-272-094	B4-272-094	B4-272-093	1.371	32:45 hr	2.701	1	1	1.123
B4-272-095	B4-272-095	B4-272-091	1.059	32:31 hr	2.707	0.72	0.72	0.868
B4-272-096	B4-272-096	B4-272-086	1.087	32:35 hr	2.726	0.733	0.733	0.887
B4-281-054	B4-281-054	B4-272-048	0.919	32:31 hr	2.525	0.674	0.674	0.796
B4-281-057	B4-281-057	B4-281-054	0.871	32:31 hr	2.594	0.628	0.628	0.72
BV-105	BV-105	D2-252-004	0.389	09:45 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.231	32:31 hr	2.365	0.298	0.447	0.412
C1-221-018	C1-221-018	C2-221-030	0.32	32:31 hr	2.192	0.33	0.33	0.235
C1-221-019	C1-221-019	C1-221-018	0.322	32:16 hr	2.315	0.319	0.319	0.22
C1-261-028	C1-261-028	C1-261-020	5.275	34:02 hr	4.619	1.5	1	1.001
C1-261-030	C1-261-030	C1-261-028	5.276	34:00 hr	4.619	1.5	1	1.002
C1-261-058	C1-261-058	C1-261-062	5.205	34:00 hr	6.562	1.25	1	1.606
C1-261-060	C1-261-060	C1-261-030	5.263	34:00 hr	4.608	1.5	1	1.001
C1-261-062	C1-261-062	C1-261-060	5.205	34:01 hr	6.562	1.25	1	1.606
C1-281-035	C1-281-035	B4-281-057	0.805	32:16 hr	2.283	0.833	1	1.133
C2-221-030	C2-221-030	C2-221-037	0.325	32:34 hr	2.078	0.347	0.347	0.259
C2-221-031	C2-221-031	C3-221-003	0.331	32:45 hr	6.956	0.15	0.15	0.048
C2-221-032	C2-221-032	C2-221-065	0.322	32:45 hr	2.685	0.286	0.286	0.179
C2-221-033	C2-221-033	C2-221-032	0.326	32:48 hr	2.006	0.356	0.356	0.272
C2-221-034	C2-221-034	C2-221-033	0.324	32:46 hr	2.016	0.354	0.354	0.268
C2-221-035	C2-221-035	C2-221-034	0.319	32:40 hr	2.976	0.264	0.264	0.153
C2-221-037	C2-221-037	C2-221-035	0.32	32:37 hr	1.539	0.429	0.429	0.383

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C2-221-065	C2-221-065	C2-221-031	0.328	32:45 hr	4.213	0.211	0.211	0.097
C2-261-001A	C2-261-001	C3-261-013	2.843	34:31 hr	8.949	0.547	0.468	0.447
C2-261-024	C2-261-024	C2-261-013	0.195	32:29 hr	1.191	0.259	0.115	0.028
C3-212-031	C3-212-031	C4-212-059	0.414	32:45 hr	3.853	0.264	0.264	0.153
C3-221-003	C3-221-003	C3-221-004	0.389	32:44 hr	4.324	0.233	0.233	0.119
C3-221-004	C3-221-004	C3-221-030	0.391	32:45 hr	4.331	0.234	0.234	0.12
C3-221-005	C3-221-005	C3-221-006	0.411	32:43 hr	4.445	0.238	0.238	0.124
C3-221-006	C3-221-006	C3-212-031	0.415	32:45 hr	4.12	0.253	0.253	0.14
C3-221-030	C3-221-030	C3-221-005	0.407	32:43 hr	4.383	0.239	0.239	0.125
C3-252-002	C3-252-002	C4-252-003	13.741	36:33 hr	4.331	2.5	1	1.334
C3-261-001	C3-261-001	C3-252-001	0.907	32:52 hr	1.923	0.6	0.343	0.253
C3-261-002	C3-261-002	C3-252-002	13.75	36:32 hr	5.351	2.25	1	1.568
C3-261-004	C3-261-004	C3-261-001	0.913	32:45 hr	1.928	0.602	0.344	0.254
C3-261-005	C3-261-005	C3-261-002	13.752	36:30 hr	5.351	2.25	1	1.258
C3-261-007	C3-261-007	C3-261-004	0.982	32:34 hr	1.971	0.625	0.357	0.273
C3-261-008	C3-261-008	C3-261-005	13.771	36:19 hr	5.359	2.25	1	2.129
C3-261-009	C3-261-009	C3-261-008	13.793	36:17 hr	5.367	2.25	1	2.131
C3-261-010	C3-261-010	C3-261-009	13.799	36:15 hr	5.37	2.25	1	2.128
C3-261-011	C3-261-011	C3-261-007	1.04	32:33 hr	1.998	0.645	0.369	0.29
C3-261-012	C3-261-012	C3-261-010	13.801	36:14 hr	4.35	2.5	1	1.635
C3-261-012A	C3-261-012	C3-261-011	0	00:00 hr	0	0	0	0
C3-261-013	C3-261-013	C3-261-012	13.804	36:15 hr	9.789	1.667	1	1.246
C3-261-015	C3-261-015	C3-261-011	1.078	32:32 hr	2.018	0.658	0.376	0.301
C3-261-019	C3-261-019	C3-261-015	1.097	32:32 hr	2.026	0.664	0.38	0.306
C3-261-021	C3-261-021	C3-261-019	1.103	32:30 hr	2.029	0.667	0.381	0.308
C3-261-031	C3-261-031	C3-261-013	9.557	36:20 hr	6.778	1.667	1	2.503
C3-261-035	C3-261-035	C2-261-024	0.196	32:29 hr	1.196	0.258	0.115	0.028
C3-261-040	C3-261-040	C3-261-031	9.563	36:15 hr	6.782	1.667	1	2.503
C3-261-043	C3-261-043	C3-261-035	0.196	32:29 hr	1.198	0.258	0.115	0.028
C3-261-050	C3-261-050	C3-261-075	0.197	32:29 hr	1.323	0.365	0.439	0.398
C3-261-056	C3-261-056	C3-261-050	0.2	32:16 hr	1.47	0.342	0.411	0.353
C3-261-062	C3-261-062	C3-261-040	9.585	36:19 hr	6.797	1.667	1	2.496
C3-261-075	C3-261-075	C3-261-076	0.196	32:28 hr	2.528	0.21	0.21	0.097
C3-261-076	C3-261-076	C3-261-043	0.197	32:30 hr	1.324	0.365	0.438	0.397
C3-262-007	C3-262-007	C3-262-009	9.596	36:01 hr	6.806	1.667	1	2.501
C3-262-009	C3-262-009	C3-261-062	9.586	36:17 hr	6.798	1.667	1	2.509
C3-262-033	C3-262-033	C3-262-007	9.638	36:04 hr	6.835	1.667	1	2.527
C3-262-041	C3-262-041	C3-262-033	9.648	36:00 hr	6.842	1.667	1	1.627
C3-262-046	C3-262-046	C3-262-041	9.659	36:01 hr	6.85	1.667	1	1.654
C3-262-051	C3-262-051	C3-262-046	9.659	36:00 hr	6.85	1.667	1	1.559
C3-262-061	C3-262-061	C3-262-051	9.664	36:01 hr	6.854	1.667	1	1.557
C3-262-070	C3-262-070	C3-262-071	9.664	36:00 hr	6.854	1.667	1	2.112
C3-262-071	C3-262-071	C3-262-061	9.664	36:01 hr	6.854	1.667	1	1.511
C3-262-074	C3-262-074	C3-262-070	9.713	35:50 hr	6.888	1.667	1	2.423
C3-271-001	C3-271-001	C3-262-074	9.753	35:48 hr	6.917	1.667	1	2.409
C3-271-003	C3-271-003	C3-271-001	9.769	35:46 hr	6.928	1.667	1	2.417
C3-271-004	C3-271-004	C3-271-003	9.761	35:45 hr	6.923	1.667	1	2.413
C3-271-007	C3-271-007	C3-271-004	9.76	35:45 hr	6.922	1.667	1	2.425
C3-271-010	C3-271-010	SS_1_A	9.803	35:30 hr	6.952	1.667	1	1.174
C3-271-012	C3-271-012	C3-271-010	9.809	35:30 hr	6.956	1.667	1	1.119
C4-212-059	C4-212-059	C4-212-060	0.415	32:46 hr	4.757	0.228	0.228	0.114
C4-212-060	C4-212-060	D4-232-020	0.44	32:45 hr	4.247	0.258	0.258	0.145
C4-212-061	C4-212-061	C4-221-001	0.47	32:44 hr	4.4	0.263	0.263	0.152
C4-221-001	C4-221-001	D1-212-032	0.476	32:45 hr	5.603	0.224	0.224	0.11
C4-221-011	D4-232-020	C4-212-061	0.467	32:43 hr	4.319	0.266	0.266	0.154
C4-252-001	C4-252-001	D1-252-019	13.675	36:49 hr	4.31	2.5	1	1.358
C4-252-002	C4-252-002	D1-252-042	0.793	33:06 hr	1.853	0.559	0.319	0.221
C4-252-003	C4-252-003	C4-252-008	13.723	36:31 hr	4.325	2.5	1	1.05
C4-252-004	C4-252-004	C4-252-002	0.823	33:03 hr	1.871	0.57	0.326	0.23
C4-252-005	C4-252-005	C4-252-006	13.689	36:32 hr	4.315	2.5	1	1.218
C4-252-006	C4-252-006	C4-252-001	13.677	36:45 hr	4.311	2.5	1	1.036
C4-252-007	C3-252-001	C4-252-007	0.865	32:50 hr	1.899	0.585	0.334	0.241

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C4-252-007A	C4-252-007	C4-252-004	0.84	33:04 hr	1.883	0.576	0.329	0.234
C4-252-008	C4-252-008	C4-252-005	13.71	36:32 hr	4.321	2.5	1	1.215
D1-212-011	D1-212-011	D1-212-012	0.512	32:45 hr	5.108	0.252	0.252	0.139
D1-212-012	D1-212-012	D2-212-011	0.519	32:45 hr	4.615	0.273	0.273	0.163
D1-212-032	D1-212-032	D1-212-011	0.5	32:46 hr	3.705	0.312	0.312	0.211
D1-242-011	D1-242-011	D1-242-030	0.04	32:28 hr	2.865	0.069	0.083	0.014
D1-242-017	D1-242-017	D1-242-011	0.036	32:21 hr	2.709	0.067	0.08	0.013
D1-242-018	D1-242-018	D1-242-017	0.032	32:15 hr	2.736	0.061	0.073	0.011
D1-242-019	D1-242-019	D1-242-018	0.024	32:15 hr	1.74	0.064	0.064	0.008
D1-242-030	D1-242-030	D1-242-031	0.044	32:30 hr	3.154	0.07	0.083	0.014
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.049	32:26 hr	3.17	0.081	0.121	0.031
D1-251-001	D1-262-049	D1-262-030	0.459	32:31 hr	2.197	0.336	0.192	0.081
D1-251-005	D1-251-023	D1-251-005	0.042	32:28 hr	2.432	0.08	0.097	0.019
D1-251-005A	D1-251-023	D1-251-005	0.038	32:35 hr	2.424	0.081	0.122	0.032
D1-251-005B	D1-251-005	D2-251-014	0.071	32:30 hr	2.399	0.116	0.139	0.042
D1-252-001	D1-252-001	D2-252-002	13.612	36:59 hr	5.841	1.722	0.689	0.82
D1-252-004	D1-252-004	D1-252-001	13.624	36:47 hr	4.294	2.5	1	1.194
D1-252-005	D1-252-005	D2-252-014	0.76	33:31 hr	1.811	0.52	0.26	0.148
D1-252-008	D1-252-008	D1-252-005	0.764	33:30 hr	1.812	0.522	0.261	0.149
D1-252-008A	D1-252-010	D1-252-008	0.765	33:31 hr	1.812	0.522	0.261	0.149
D1-252-009	D1-252-009	D1-252-004	13.639	36:47 hr	4.299	2.5	1	1.217
D1-252-010	D1-252-011	D1-252-010	0.76	33:31 hr	1.83	0.547	0.313	0.212
D1-252-011	D1-252-016	D1-252-011	0.766	33:32 hr	1.834	0.549	0.314	0.214
D1-252-015	D1-252-015	D1-252-009	13.644	36:45 hr	4.301	2.5	1	1.21
D1-252-018	D1-252-018	D1-252-015	13.659	36:47 hr	4.305	2.5	1	1.335
D1-252-019	D1-252-019	D1-252-018	13.667	36:46 hr	4.308	2.5	1	1.089
D1-252-023	D1-252-023	D1-252-016	0.765	33:19 hr	1.834	0.549	0.314	0.213
D1-252-031	D1-252-031	D1-252-023	0.774	33:16 hr	1.84	0.552	0.315	0.216
D1-252-036	D1-252-036	D1-252-031	0.782	33:16 hr	1.845	0.555	0.317	0.218
D1-252-041	D1-252-041	D1-252-036	0.785	33:16 hr	1.848	0.556	0.318	0.219
D1-252-042	D1-252-042	D1-252-041	0.789	33:21 hr	1.85	0.558	0.319	0.22
D1-252-050	D1-252-050	D2-252-067	0.86	32:45 hr	2.178	0.475	0.211	0.098
D1-252-053	D1-252-053	D2-252-085	5.151	34:16 hr	2.537	2	1	1.076
D1-252-056	D1-252-056	D1-252-053	5.153	34:15 hr	3.61	1.324	0.662	0.777
D1-252-057	D1-252-057	D1-252-056	5.153	34:15 hr	4.775	1.05	0.525	0.542
D1-252-059	D1-252-059	D1-252-057	5.133	34:14 hr	4.705	1.059	0.529	0.55
D1-261-001	D1-261-001	D1-252-059	5.133	34:15 hr	5.201	0.978	0.489	0.481
D1-261-003	D1-261-003	D1-252-050	0.865	32:49 hr	2.018	0.503	0.223	0.109
D1-261-006	D1-261-006	D1-261-001	5.032	34:15 hr	9.514	0.614	0.307	0.205
D1-261-008	D1-261-008	D1-261-006	5.027	34:15 hr	5.112	0.975	0.488	0.479
D1-261-020	D1-261-020	D1-261-003	0.707	32:50 hr	1.903	0.455	0.202	0.089
D1-261-021	D1-261-021	D1-261-008	5.008	34:15 hr	5.07	0.979	0.489	0.482
D1-261-023	D1-261-023	D1-261-020	0.668	32:46 hr	1.831	0.449	0.2	0.087
D1-261-036	D1-261-036	D1-261-021	4.986	34:16 hr	4.658	1.043	0.521	0.536
D1-261-037	D1-261-037	D1-261-023	0.649	32:46 hr	1.887	0.431	0.192	0.08
D1-261-052	D1-261-052	D1-261-036	4.962	34:05 hr	2.444	2	1	1.123
D1-261-059	D1-261-059	D1-261-037	0.64	32:35 hr	1.751	0.45	0.2	0.088
D1-261-061	D1-261-061	D1-261-059	0.637	32:43 hr	3.604	0.272	0.121	0.031
D1-261-075	D1-261-075	D1-261-052	4.955	34:03 hr	3.564	1.294	0.647	0.752
D1-261-084	D1-261-084	D1-261-061	0.63	32:34 hr	1.821	0.433	0.192	0.081
D1-261-103	D1-261-103	D1-261-075	4.952	34:02 hr	4.588	1.05	0.525	0.542
D1-261-116	D1-262-001	D1-261-116	0.516	32:32 hr	1.739	0.43	0.246	0.132
D1-261-116A	D1-261-116	D1-261-084	0.592	32:34 hr	1.832	0.457	0.261	0.149
D1-261-117	D1-261-117	D1-261-103	4.939	34:00 hr	6.32	0.818	0.409	0.351
D1-261-128	D1-261-128	D1-261-117	4.917	34:01 hr	2.422	2	1	1.002
D1-262-025	D1-262-025	D1-261-128	4.862	33:53 hr	2.395	2	1	1.446
D1-262-030	D1-262-030	D1-262-001	0.469	32:32 hr	1.736	0.402	0.23	0.116
D1-262-040	D1-262-040	D1-262-025	4.836	33:47 hr	3.453	1.303	0.651	0.759
D1-262-067	D1-262-067	D1-262-040	4.828	33:47 hr	4.329	1.078	0.539	0.566
D1-262-079	D1-262-079	D1-262-049	0.424	32:18 hr	2.131	0.325	0.186	0.075
D1-262-088	D1-262-088	D1-262-067	4.83	33:47 hr	3.333	1.343	0.671	0.791

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-262-100	D1-262-100	D1-262-088	4.822	33:47 hr	3.56	1.266	0.633	0.728
D1-271-018	D1-271-017	D1-271-055	4.843	33:33 hr	3.485	1.294	0.647	0.751
D1-271-051	D1-271-051	D1-271-054	3.743	33:29 hr	5.585	0.78	0.446	0.41
D1-271-054	D1-271-054	D1-271-092	3.774	33:31 hr	5.579	0.735	0.367	0.288
D1-271-055	D1-271-055	D1-262-100	4.834	33:35 hr	2.816	1.576	0.788	0.963
D1-271-092	D1-271-092	D1-271-017	3.761	33:30 hr	5.573	0.734	0.367	0.287
D2-212-001	D2-212-001	D2-212-002	0.533	32:44 hr	4.649	0.277	0.277	0.168
D2-212-002	D2-212-002	D2-212-025	0.533	32:44 hr	4.278	0.294	0.294	0.188
D2-212-003	D2-212-003	D2-212-014	0.553	32:45 hr	5.088	0.267	0.267	0.156
D2-212-011	D2-212-011	D2-212-012	0.532	32:45 hr	4.646	0.277	0.277	0.167
D2-212-012	D2-212-012	D2-212-001	0.531	32:44 hr	4.645	0.277	0.277	0.167
D2-212-013	D2-212-013	D2-212-003	0.549	32:45 hr	4.313	0.299	0.299	0.194
D2-212-014	D2-212-014	D3-212-022	0.558	32:46 hr	4.432	0.296	0.296	0.191
D2-212-025	D2-212-025	D2-212-013	0.533	32:45 hr	4.277	0.294	0.294	0.189
D2-241-006	D2-241-006	D2-241-007	0.037	32:16 hr	1.925	0.093	0.14	0.042
D2-241-007	D2-241-007	D3-241-001	0.04	32:24 hr	1.959	0.098	0.147	0.047
D2-251-004	D2-251-004	D3-251-011	16.499	36:45 hr	4.89	1.733	0.433	0.39
D2-251-005	D2-251-005	D2-251-004	14.203	37:14 hr	10.636	0.885	0.221	0.107
D2-251-008	D2-251-008	9008	0.471	33:01 hr	4.059	0.279	0.279	0.17
D2-251-014	D1-251-005	D2-251-014	0.063	32:31 hr	2.369	0.116	0.174	0.066
D2-251-014A	D2-251-014	D2-251-008	0.385	32:59 hr	8.859	0.14	0.14	0.042
D2-252-002	D2-252-002	D2-252-004	13.612	37:02 hr	4.29	2.5	1	1.155
D2-252-004	D2-252-004	D2-252-005	14.014	36:46 hr	6.385	1.633	0.653	0.762
D2-252-005	D2-252-005	D2-251-005	14.238	36:47 hr	3.515	1.996	0.499	0.498
D2-252-006	D2-252-006	D2-252-005	0.735	33:45 hr	3.299	0.334	0.167	0.061
D2-252-008	D2-252-008	D2-252-006	0.736	33:47 hr	1.755	0.52	0.26	0.148
D2-252-010	D2-252-010	D2-252-008	0.735	33:45 hr	2.933	0.362	0.181	0.071
D2-252-011	D2-252-011	D2-251-004	7.777	32:46 hr	5.728	1.175	0.522	0.538
D2-252-012	D2-252-012	D2-252-010	0.735	33:43 hr	1.85	0.5	0.25	0.137
D2-252-014	D2-252-014	D2-252-012	0.738	33:31 hr	0.751	0.975	0.487	0.479
D2-252-015	D2-252-015	D2-252-011	7.787	32:45 hr	13.387	0.624	0.277	0.168
D2-252-026	D2-252-026	D2-252-015	7.908	32:47 hr	3.993	1.496	0.598	0.669
D2-252-033	D2-252-033	D3-252-012	5.229	34:28 hr	4.823	1.053	0.527	0.546
D2-252-039	D2-252-039	D2-252-033	5.245	34:17 hr	4.611	1.095	0.547	0.581
D2-252-049	D2-252-049	D2-252-039	5.257	34:16 hr	6.607	0.829	0.415	0.36
D2-252-050	D2-252-050	D2-252-026	0.843	33:05 hr	3.16	0.378	0.189	0.078
D2-252-052	D2-252-052	D2-252-050	0.842	32:58 hr	2.187	0.467	0.207	0.094
D2-252-056	D2-252-056	D2-252-052	0.843	32:57 hr	8.567	0.183	0.081	0.013
D2-252-057	D2-252-057	D2-252-049	5.263	34:15 hr	6.805	0.812	0.406	0.346
D2-252-062	D2-252-062	D2-252-057	5.162	34:15 hr	4.652	1.073	0.536	0.562
D2-252-067	D2-252-067	D2-252-056	0.855	32:48 hr	1.864	0.527	0.234	0.12
D2-252-069	D2-252-069	D2-252-062	5.167	34:15 hr	6.645	0.815	0.408	0.349
D2-252-071	D3-252-054	D2-252-071	7.475	32:30 hr	11.114	0.693	0.308	0.206
D2-252-085	D2-252-085	D2-252-069	5.171	34:16 hr	4.95	1.023	0.511	0.519
D2-252-105	D2-252-105	D2-252-026	7.246	32:37 hr	3.569	2	1	1.112
D2-271-017	D2-271-017	D2-271-019	1.1	33:17 hr	3.968	0.476	0.381	0.307
D2-271-019	D2-271-019	D2-271-022	1.093	33:16 hr	3.961	0.474	0.379	0.306
D2-271-022	D2-271-022	D2-271-023	1.089	33:15 hr	3.957	0.473	0.379	0.305
D2-271-023	D2-271-023	D2-271-109	1.087	33:16 hr	3.956	0.473	0.378	0.304
D2-271-039	D2-271-039	D2-271-042	3.631	33:30 hr	6.476	0.739	0.493	0.488
D2-271-042	D2-271-042	D2-271-043	3.63	33:30 hr	5.558	0.765	0.437	0.396
D2-271-043	D2-271-043	D2-271-045	3.628	33:30 hr	5.558	0.765	0.437	0.395
D2-271-045	D2-271-045	D1-271-051	3.74	33:30 hr	5.602	0.778	0.445	0.408
D2-271-048	D2-271-048	D2-271-039	2.944	33:30 hr	3.712	1.25	1	1.815
D2-271-052	D2-271-052	D2-271-048	2.956	33:32 hr	3.727	1.25	1	1.831
D2-271-063	D2-271-063	D2-271-052	2.967	33:20 hr	3.741	1.25	1	1.819
D2-271-067	D2-271-067	D2-271-063	3.007	33:19 hr	3.792	1.25	1	2.066
D2-271-075	D2-271-075	D2-271-067	3.013	33:15 hr	3.798	1.25	1	2.042
D2-271-109	D2-271-109	D1-271-017	1.09	33:15 hr	3.96	0.473	0.379	0.305
D2-272-011	D2-272-011	D2-271-075	2.983	33:12 hr	3.761	1.25	1	2.037
D2-272-023	D2-272-023	D2-272-025	3.133	32:49 hr	3.95	1.25	1	1.908
D2-272-025	D2-272-025	D2-272-029	3.059	33:02 hr	3.857	1.25	1	1.928

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-272-029	D2-272-029	D2-272-011	3.044	33:07 hr	3.838	1.25	1	1.892
D2-272-052	D2-272-052	D2-272-023	3.127	32:51 hr	3.943	1.25	1	2.015
D2-272-070	D2-272-070	D2-272-052	3.244	32:35 hr	4.091	1.25	1	2.011
D2-272-072	D2-272-072	D2-272-070	3.341	32:33 hr	4.212	1.25	1	2.06
D2-272-074	D2-272-074	D2-272-072	3.365	32:32 hr	4.242	1.25	1	2.256
D2-272-075	D2-272-075	D2-272-074	3.339	32:30 hr	4.21	1.25	1	2.053
D2-281-002	D2-281-002	D2-272-075	3.344	32:19 hr	4.216	1.25	1	2.064
D3-212-001	D3-212-001	D3-212-002	0.022	32:17 hr	0.982	0.104	0.155	0.052
D3-212-002	D3-212-002	D3-212-003	0.023	32:25 hr	1.67	0.074	0.111	0.026
D3-212-003	D3-212-003	D3-212-004	0.024	32:28 hr	1.869	0.071	0.106	0.024
D3-212-004	D3-212-004	D3-212-012	0.025	32:30 hr	1.723	0.078	0.117	0.029
D3-212-012	D3-212-012	D3-212-013	0.025	32:28 hr	1.713	0.077	0.116	0.028
D3-212-013	D3-212-013	D3-221-016	0.026	32:29 hr	1.733	0.078	0.118	0.029
D3-212-017	D3-212-017	D3-221-016	0.566	32:45 hr	8.085	0.196	0.196	0.084
D3-212-018	D3-212-018	D3-212-017	0.568	32:45 hr	3.53	0.354	0.354	0.269
D3-212-022	D3-212-022	D3-212-018	0.569	32:46 hr	5.644	0.253	0.253	0.14
D3-212-023	D3-212-023	D3-212-001	0.012	32:15 hr	0.827	0.079	0.118	0.029
D3-221-016	D3-221-016	D3-221-024	0.589	32:46 hr	4.314	0.314	0.314	0.214
D3-221-021	D3-221-021	D4-221-004	0.585	32:46 hr	4.18	0.32	0.32	0.221
D3-221-022	D3-221-022	D3-221-021	0.585	32:46 hr	3.849	0.34	0.34	0.248
D3-221-023	D3-221-023	D3-221-022	0.585	32:46 hr	4.991	0.282	0.282	0.173
D3-221-024	D3-221-024	D3-221-023	0.587	32:46 hr	3.576	0.36	0.36	0.277
D3-232-001	D3-232-015	D3-232-001	0.082	32:30 hr	2.414	0.139	0.208	0.095
D3-232-001A	D3-232-001	D3-232-018	0.247	32:29 hr	3.299	0.244	0.366	0.286
D3-232-009	D3-232-009	D3-232-015	0.083	32:30 hr	2.425	0.14	0.21	0.096
D3-232-017	D3-232-017	D4-232-001	0.274	32:29 hr	6.77	0.157	0.235	0.121
D3-232-018	D3-232-018	D3-232-017	0.254	32:29 hr	7.219	0.142	0.213	0.1
D3-241-001	D3-241-001	D3-241-002	0.042	32:27 hr	1.986	0.1	0.151	0.049
D3-241-002	D3-241-002	D3-241-003	0.047	32:28 hr	2.049	0.106	0.158	0.054
D3-241-003	D3-241-003	D3-241-004	0.054	32:29 hr	2.13	0.113	0.169	0.062
D3-241-004	D3-241-004	D3-241-008	0.056	32:30 hr	2.158	0.115	0.173	0.065
D3-241-005	D3-241-009	D3-241-005	0.069	32:30 hr	2.289	0.127	0.19	0.079
D3-241-005A	D3-241-005	D3-241-006	0.07	32:29 hr	2.299	0.128	0.192	0.081
D3-241-006	D3-241-006	D3-241-007	0.08	32:31 hr	2.395	0.137	0.205	0.092
D3-241-007	D3-241-007	D3-232-009	0.083	32:31 hr	2.426	0.14	0.21	0.096
D3-241-009	D3-241-008	D3-241-009	0.061	32:30 hr	2.212	0.12	0.18	0.071
D3-251-001	D3-251-001	D4-251-018	20.61	35:31 hr	3.893	2.303	0.512	0.52
D3-251-002	D3-251-002	D3-251-001	20.644	35:18 hr	3.817	2.342	0.521	0.535
D3-251-004	D3-251-004	D3-251-016	16.501	36:47 hr	4.45	1.863	0.466	0.443
D3-251-008	D3-251-008	D3-251-012	16.461	36:47 hr	3.295	2.364	0.591	0.656
D3-251-011	D3-251-011	D3-251-015	16.508	36:45 hr	7.776	1.231	0.308	0.206
D3-251-012	D3-251-012	D3-251-013	20.653	35:15 hr	2.543	4	1	1.104
D3-251-013	D3-251-013	D3-251-002	20.694	35:17 hr	4.151	2.197	0.488	0.48
D3-251-014	D3-251-014	D3-251-012	5.245	34:31 hr	2.583	2	1	1.22
D3-251-015	D3-251-015	D3-251-004	16.506	36:45 hr	4.448	1.865	0.466	0.443
D3-251-016	D3-251-016	D3-251-008	16.469	36:45 hr	5.814	1.52	0.38	0.307
D3-252-008	D3-252-008	D3-251-014	5.254	34:31 hr	2.587	2	1	1.07
D3-252-012	D3-252-012	D3-252-008	5.242	34:31 hr	4.532	1.11	0.555	0.594
D3-252-045	D2-252-071	D3-252-045	7.41	32:30 hr	9.854	0.795	0.397	0.333
D3-252-045A	D3-252-045	D2-252-105	7.432	32:31 hr	8.809	0.867	0.433	0.39
D3-252-057	D3-252-057	D3-252-054	7.461	32:30 hr	11.108	0.692	0.308	0.206
D3-261-010	D3-261-010	D3-252-057	7.352	32:30 hr	11.063	0.687	0.305	0.203
D3-261-014	D3-261-014	D3-261-010	6.021	32:30 hr	4.719	1.119	0.497	0.495
D3-261-025	D3-261-025	D3-261-014	5.223	32:46 hr	4.57	1.027	0.457	0.427
D3-261-045	D3-261-045	D3-261-025	5.233	32:33 hr	4.572	1.028	0.457	0.428
D3-261-075	D3-261-075	D3-261-045	5.503	32:33 hr	4.667	1.052	0.468	0.446
D3-261-086	D3-261-086	D3-261-075	5.005	32:31 hr	4.601	1.056	0.528	0.548
D3-261-117	D3-261-117	D3-261-086	5.266	32:34 hr	4.673	1.086	0.543	0.574
D3-261-130	D3-261-130	D3-261-117	5.348	32:31 hr	3.938	1.269	0.634	0.73
D3-262-017	D3-262-017	D3-261-130	5.399	32:32 hr	3.945	1.277	0.638	0.737
D3-262-018	D3-262-018	D3-262-017	3.456	32:31 hr	4.093	0.867	0.434	0.39
D3-262-042	D3-262-042	D3-262-018	1.431	32:34 hr	2.646	0.624	0.312	0.211

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-262-065	D3-262-065	D3-262-122	1.399	32:34 hr	2.508	0.736	0.491	0.485
D3-262-083	D3-262-083	D3-262-065	1.426	32:34 hr	2.859	0.675	0.45	0.417
D3-262-122	D3-262-122	D3-262-042	1.309	32:30 hr	2.466	0.709	0.472	0.454
D3-271-013	D3-271-013	D3-262-083	1.378	32:22 hr	2.849	0.66	0.44	0.4
D3-271-019	D3-271-019	D3-271-024	1.108	33:16 hr	3.974	0.478	0.382	0.31
D3-271-024	D3-271-024	D2-271-017	1.104	33:16 hr	3.973	0.477	0.381	0.309
D3-271-029	D3-271-029	D3-271-013	0.026	32:29 hr	0.885	0.093	0.062	0.008
D3-271-038	D3-271-038	D3-271-019	1.108	33:17 hr	3.976	0.478	0.382	0.31
D3-271-055	D3-271-055	D3-271-038	1.113	33:02 hr	3.982	0.479	0.383	0.311
D3-271-059	D3-271-059	D3-271-055	1.109	33:00 hr	3.982	0.478	0.382	0.31
D3-271-068	D3-271-068	D3-271-069	1.138	33:00 hr	4.004	0.485	0.388	0.318
D3-271-069	D3-271-069	D3-271-070	1.136	33:01 hr	4.004	0.484	0.387	0.318
D3-271-070	D3-271-070	D3-271-072	1.132	33:02 hr	3.999	0.483	0.387	0.316
D3-271-072	D3-271-072	D3-271-059	1.12	33:01 hr	3.988	0.48	0.384	0.313
D3-271-075	D3-271-075	D3-271-068	1.139	33:00 hr	4.006	0.485	0.388	0.318
D3-271-111	D3-271-111	D3-271-029	0.014	32:19 hr	0.756	0.068	0.045	0.004
D3-281-006	D3-281-006	D2-281-002	3.366	32:16 hr	4.244	1.25	1	2.013
D4-221-004	D4-221-004	D4-221-005	0.583	32:57 hr	4.533	0.301	0.301	0.197
D4-221-005	D4-221-005	D4-221-008	0.586	32:58 hr	3.974	0.332	0.332	0.238
D4-221-008	D4-221-008	D4-221-009	0.59	33:01 hr	4.444	0.308	0.308	0.206
D4-221-009	D4-221-009	D4-221-010	0.768	32:45 hr	4.571	0.331	0.265	0.153
D4-221-010	D4-221-010	D4-221-011	0.771	32:46 hr	5.228	0.302	0.241	0.128
D4-221-011	D4-221-011	D4-221-015	0.788	32:46 hr	2.989	0.459	0.367	0.287
D4-232-001	D4-232-001	D4-232-002	0.278	32:30 hr	8.583	0.134	0.201	0.088
D4-232-002	D4-232-002	D4-232-003	0.281	32:29 hr	7.871	0.144	0.216	0.102
D4-232-003	D4-232-003	D4-232-004	0.281	32:29 hr	4.642	0.209	0.314	0.214
D4-232-004	D4-232-004	D4-232-005	0.29	32:30 hr	3.649	0.255	0.383	0.311
D4-232-005	D4-232-005	D4-232-006	0.288	32:31 hr	3.707	0.251	0.376	0.301
D4-232-006	D4-232-006	D4-232-007	0.288	32:32 hr	4.212	0.229	0.343	0.253
D4-232-007	D4-232-007	D4-232-008	0.974	33:00 hr	4.315	0.667	1	1.619
D4-232-008	D4-232-008	9000	0.973	33:01 hr	4.314	0.667	1	1.123
D4-251-001	D4-251-001	E1-251-002	21.128	35:48 hr	3.875	2.358	0.524	0.541
D4-251-005	D4-251-005	D4-251-019	21.138	35:37 hr	2.875	3.027	0.673	0.794
D4-251-008	D4-251-008	D4-251-005	20.596	35:34 hr	3.69	2.402	0.534	0.558
D4-251-018	D4-251-018	D4-251-008	20.604	35:30 hr	3.885	2.306	0.513	0.521
D4-251-019	D4-251-019	D4-251-001	21.132	35:45 hr	2.879	3.022	0.671	0.792
D4-271-014	D4-271-014	D4-271-015	1.154	32:46 hr	4.021	0.488	0.391	0.323
D4-271-015	D4-271-015	D4-271-018	1.151	33:00 hr	4.017	0.488	0.39	0.322
D4-271-018	D4-271-018	D4-271-021	1.15	33:01 hr	4.017	0.487	0.39	0.322
D4-271-021	D4-271-021	D3-271-075	1.147	33:02 hr	4.013	0.487	0.389	0.321
E1-221-001	D4-221-015	E1-221-001	0.792	32:46 hr	3.183	0.439	0.351	0.265
E1-221-001A	E1-221-001	E1-222-004	0.801	32:47 hr	3.351	0.427	0.341	0.251
E1-222-004	E1-222-004	E1-222-005	0.801	32:45 hr	7.152	0.256	0.219	0.105
E1-222-005	E1-222-005	E1-222-006	0.809	32:45 hr	5.132	0.316	0.253	0.14
E1-222-006	E1-222-006	E1-222-007	0.815	32:45 hr	4.205	0.366	0.293	0.187
E1-222-007	E1-222-007	E1-222-011	0.823	32:46 hr	4.222	0.368	0.294	0.189
E1-222-011	E1-222-011	E1-222-012	0.826	32:59 hr	5.281	0.292	0.195	0.083
E1-222-012	E1-222-012	E2-222-075	0.831	33:01 hr	3.396	0.4	0.267	0.156
E1-231-012	E1-231-012	E2-231-021	0.513	32:28 hr	4.751	0.322	0.483	0.472
E1-242-001	E1-242-001	E2-242-034	23.723	35:45 hr	3.835	2.611	0.58	0.638
E1-242-002	E1-242-002	E1-242-001	3.794	34:07 hr	3.507	1.051	0.526	0.544
E1-251-001	E1-251-001	E1-242-001	21.093	35:47 hr	6.714	1.552	0.345	0.256
E1-251-002	E1-251-002	E1-251-001	21.113	35:48 hr	3.657	2.468	0.548	0.583
E1-251-003	E1-251-003	E1-251-025	3.813	34:04 hr	3.118	1.161	0.581	0.639
E1-251-004	E1-251-004	E1-251-003	3.812	34:03 hr	2.994	1.201	0.6	0.673
E1-251-007	E1-251-007	E2-251-027	3.775	34:00 hr	3.791	0.985	0.492	0.487
E1-251-018	E1-251-018	E1-251-007	3.782	33:47 hr	4.238	0.905	0.452	0.42
E1-251-019	E1-251-019	E1-251-018	3.781	33:45 hr	4.257	0.901	0.451	0.418
E1-251-020	E1-251-020	E1-251-019	3.771	33:45 hr	3.866	0.969	0.485	0.474
E1-251-021	E1-251-021	E1-251-020	3.779	33:46 hr	3.862	0.972	0.486	0.476
E1-251-023	E1-251-023	E1-251-021	3.786	33:46 hr	3.895	0.967	0.483	0.472
E1-251-025	E1-251-025	E1-242-002	3.797	34:00 hr	3.112	1.159	0.58	0.637

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-271-068	E1-271-068	E1-271-072	1.173	32:47 hr	4.039	0.493	0.394	0.328
E1-271-072	E1-271-072	E1-271-076	1.158	32:47 hr	4.025	0.489	0.391	0.324
E1-271-076	E1-271-076	D4-271-014	1.147	32:45 hr	4.014	0.487	0.389	0.321
E2-202-016	E2-202-016	E3-202-009	0.404	32:16 hr	4.403	0.284	0.426	0.378
E2-222-015	E2-222-015	E2-222-036	2.775	33:00 hr	7.714	0.529	0.353	0.267
E2-222-016	E2-222-016	E2-222-015	1.439	32:59 hr	15.626	0.237	0.237	0.123
E2-222-017	E2-222-017	E2-222-016	0.847	32:59 hr	8.595	0.212	0.141	0.043
E2-222-028	E2-222-028	E2-222-029	0.607	32:29 hr	4.954	0.356	0.534	0.558
E2-222-028A	E2-222-007	E2-222-028	0.603	32:30 hr	4.946	0.355	0.532	0.555
E2-222-029	E2-222-029	E2-222-030	0.61	32:30 hr	4.96	0.357	0.536	0.561
E2-222-030	E2-222-030	E2-222-031	0.611	32:30 hr	4.962	0.357	0.536	0.562
E2-222-031	E2-222-031	E2-222-048	0.613	32:30 hr	4.966	0.358	0.537	0.564
E2-222-036	E2-222-036	E2-222-037	2.772	33:00 hr	7.238	0.554	0.369	0.29
E2-222-037	E2-222-037	E3-222-065	2.77	33:00 hr	7.351	0.547	0.365	0.284
E2-222-040	E2-222-040	E2-222-015	1.337	33:00 hr	5.926	0.667	1	1.171
E2-222-044	E2-222-044	E2-222-017	0.848	33:02 hr	3.201	0.424	0.282	0.174
E2-222-048	E2-222-048	E2-222-050	0.614	32:30 hr	4.966	0.358	0.538	0.564
E2-222-050	E2-222-050	E2-222-040	1.337	32:59 hr	9.019	0.416	0.625	0.714
E2-222-067	E2-222-067	E2-222-044	0.845	32:59 hr	4.239	0.346	0.231	0.117
E2-222-075	E2-222-075	E2-222-067	0.84	32:59 hr	4.258	0.344	0.229	0.115
E2-231-002	E2-231-002	E2-222-007	0.576	32:30 hr	4.785	0.287	0.287	0.18
E2-231-005	E2-231-005	E2-231-002	0.568	32:30 hr	4.754	0.285	0.285	0.178
E2-231-006	E2-231-006	E2-231-005	0.555	32:30 hr	4.734	0.281	0.281	0.173
E2-231-013	E2-231-013	E2-231-006	0.547	32:30 hr	4.83	0.335	0.502	0.503
E2-231-021	E2-231-021	E2-231-013	0.518	32:30 hr	4.764	0.324	0.486	0.477
E2-231-028	E2-231-028	E2-231-029	0.456	32:15 hr	3.702	0.358	0.536	0.562
E2-231-029	E2-231-029	E2-231-030	0.458	32:15 hr	3.575	0.369	0.553	0.591
E2-231-030	E2-231-030	E2-231-031	0.459	32:20 hr	3.23	0.402	0.603	0.677
E2-231-031	E2-231-031	E2-231-035	0.463	32:27 hr	4.197	0.328	0.491	0.485
E2-231-035	E2-231-035	E2-231-037	0.467	32:28 hr	4.637	0.305	0.458	0.429
E2-231-037	E2-231-037	E1-231-012	0.473	32:29 hr	4.654	0.307	0.461	0.435
E2-242-004	E2-242-004	E3-242-012	23.676	36:04 hr	3.941	2.549	0.567	0.614
E2-242-011	E2-242-011	E2-242-004	23.681	36:03 hr	3.732	2.667	0.593	0.659
E2-242-017	E2-242-017	E2-242-011	23.697	35:51 hr	3.109	3.126	0.695	0.829
E2-242-024	E2-242-024	E2-242-017	23.714	35:47 hr	4.314	2.373	0.527	0.547
E2-242-034	E2-242-034	E2-242-024	23.72	35:46 hr	3.756	2.656	0.59	0.655
E2-251-027	E2-251-027	E1-251-004	3.808	34:00 hr	3.298	1.108	0.554	0.593
E2-251-058	E2-251-058	E1-251-023	3.777	33:45 hr	5.179	0.777	0.388	0.319
E2-252-192	E2-252-192	E2-251-058	3.789	33:47 hr	6.784	0.737	0.491	0.485
E2-252-193	E2-252-193	E2-252-196	3.789	33:46 hr	7.369	0.691	0.461	0.434
E2-252-194	E2-252-194	E2-252-193	3.78	33:45 hr	7.364	0.69	0.46	0.433
E2-252-196	E2-252-196	E2-252-192	3.789	33:45 hr	7.372	0.691	0.461	0.434
E2-271-073	E2-271-076	E2-271-078	1.212	32:32 hr	4.074	0.502	0.401	0.339
E2-271-077	E2-271-078	E2-271-081	1.194	32:46 hr	4.057	0.497	0.398	0.334
E2-271-081	E2-271-081	E2-271-086	1.193	32:47 hr	4.057	0.497	0.398	0.333
E2-271-086	E2-271-086	E1-271-068	1.185	32:47 hr	4.049	0.495	0.396	0.331
E3-202-008	E3-202-010	E3-202-008	0.412	32:30 hr	3.468	0.309	0.37	0.292
E3-202-008A	E3-202-008	E3-202-011	0.419	32:30 hr	3.483	0.311	0.374	0.297
E3-202-009	E3-202-009	E3-202-BV	0.406	32:29 hr	3.459	0.306	0.367	0.288
E3-202-011	E3-202-011	E3-202-012	0.423	32:31 hr	3.587	0.307	0.368	0.29
E3-202-012	E3-202-012	E4-202-001	0.424	32:30 hr	5.185	0.235	0.283	0.174
E3-222-051	E3-222-051	E3-231-006	2.768	33:03 hr	3.589	0.959	0.639	0.739
E3-222-051A	E3-222-064	E3-222-051	2.775	33:01 hr	4.147	0.851	0.568	0.616
E3-222-065	E3-222-065	E3-222-064	2.767	33:00 hr	5.096	0.721	0.481	0.467
E3-231-006	E3-231-006	E4-231-005	2.763	33:06 hr	3.531	0.88	0.503	0.504
E3-241-015	E3-241-015	E4-241-016	26.399	36:18 hr	5.557	2.116	0.47	0.45
E3-241-022	E3-241-022	E3-241-015	26.35	36:03 hr	5.271	2.202	0.489	0.482
E3-241-028	E3-241-028	E3-241-022	26.361	36:02 hr	4.198	2.644	0.588	0.65
E3-241-034	E3-241-034	E3-241-028	4.133	33:15 hr	4.739	1.071	0.714	0.859
E3-241-036	E3-241-036	E3-241-034	4.095	33:14 hr	4.94	1.022	0.681	0.808
E3-241-048	E3-241-048	E3-241-049	4.053	33:13 hr	3.549	1.5	1	1.138
E3-241-049	E3-241-049	E3-241-036	4.09	33:01 hr	5.604	0.915	0.61	0.689

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E3-242-002	E3-242-002	E3-241-028	23.655	36:03 hr	4.397	2.333	0.518	0.531
E3-242-012	E3-242-012	E3-242-002	23.661	36:00 hr	4.991	2.113	0.469	0.449
E3-252-001	E3-252-001	E3-252-003	3.792	33:34 hr	3.32	1.5	1	1.188
E3-252-003	E3-252-003	E3-252-004	3.765	33:34 hr	3.296	1.5	1	1.173
E3-252-004	E3-252-004	E3-252-084	3.771	33:44 hr	7.339	0.691	0.461	0.434
E3-252-084	E3-252-084	E2-252-194	3.773	33:46 hr	7.36	0.69	0.46	0.433
E3-252-085	E3-252-085	E3-252-001	3.793	33:30 hr	3.321	1.5	1	1.19
E3-271-068	E3-271-068	E3-271-072	1.145	32:31 hr	4.019	0.486	0.388	0.319
E3-271-072	E3-271-072	E3-271-074	1.146	32:31 hr	4.013	0.486	0.389	0.32
E3-271-074	E3-271-074	E2-271-076	1.205	32:30 hr	4.068	0.5	0.4	0.337
E3-271-121	E3-271-121	E3-271-123	1.14	32:31 hr	4.011	0.485	0.388	0.318
E3-271-122	E3-271-122	E3-271-121	1.13	32:30 hr	3.419	0.543	0.434	0.391
E3-271-123	E3-271-123	E3-271-068	1.133	32:31 hr	4	0.483	0.387	0.317
E4-202-001	E4-202-001	E4-202-002	0.553	32:30 hr	5.537	0.251	0.251	0.138
E4-202-002	E4-202-002	E4-202-003	0.551	32:31 hr	4.693	0.282	0.282	0.173
E4-202-003	E4-202-003	E4-202-009	0.542	32:30 hr	4.661	0.28	0.28	0.171
E4-202-007	E4-202-007	E4-202-013	0.547	32:30 hr	4.742	0.278	0.278	0.169
E4-202-009	E4-202-009	E4-202-007	0.544	32:30 hr	4.664	0.28	0.28	0.172
E4-202-013	E4-202-013	E4-202-014	0.544	32:31 hr	4.738	0.277	0.277	0.168
E4-202-014	E4-202-014	F1-202-010	0.538	32:31 hr	5.355	0.252	0.252	0.139
E4-231-005	E4-231-005	E4-231-006	2.725	33:15 hr	6.602	0.545	0.311	0.21
E4-231-006	E4-231-006	E4-231-008	2.725	33:16 hr	6.612	0.544	0.311	0.21
E4-231-007	E4-231-007	F1-231-002	2.721	33:18 hr	3.042	1.01	0.606	0.683
E4-231-008	E4-231-008	E4-231-007	2.721	33:15 hr	3.602	0.88	0.528	0.548
E4-232-016	E4-232-016	F1-232-033	26.447	36:30 hr	4.174	2.664	0.592	0.658
E4-241-005	E4-241-005	E4-232-016	26.458	36:19 hr	4.36	2.571	0.571	0.622
E4-241-016	E4-241-016	E4-241-005	26.393	36:16 hr	5.744	2.062	0.458	0.43
E4-241-075	E4-241-075	E4-241-077	3.898	33:00 hr	6.627	0.768	0.512	0.52
E4-241-077	E4-241-077	E4-241-078	3.893	33:02 hr	3.408	1.5	1	1.058
E4-241-078	E4-241-078	E4-241-079	3.871	33:02 hr	4.163	1.138	0.759	0.924
E4-241-079	E4-241-079	E4-241-080	4.02	33:00 hr	3.52	1.5	1	1.218
E4-241-080	E4-241-080	E3-241-048	4.034	33:03 hr	3.532	1.5	1	1.22
E4-241-081	E4-241-081	E4-241-075	3.901	33:00 hr	4.884	0.989	0.659	0.772
E4-242-014	E4-242-014	E4-241-081	3.029	33:02 hr	4.23	0.901	0.6	0.672
E4-242-029	E4-242-029	E4-242-014	3.035	33:03 hr	3.428	1.086	0.724	0.874
E4-242-034	E4-242-034	E4-242-029	3.019	33:00 hr	3.908	0.961	0.64	0.74
E4-242-036	E4-242-036	E4-242-034	3.014	33:00 hr	3.903	0.96	0.64	0.74
E4-242-045	E4-242-045	E4-242-036	3.001	33:01 hr	3.904	0.956	0.638	0.736
E4-242-057	E4-242-057	E4-242-045	2.951	33:01 hr	3.613	1.009	0.672	0.793
E4-242-062	E4-242-062	E4-242-057	2.897	33:00 hr	3.554	1.007	0.671	0.791
E4-242-069	E4-242-069	E4-242-062	2.838	32:48 hr	3.153	1.103	0.735	0.891
E4-242-078	E4-242-078	E4-242-069	2.791	32:48 hr	3.312	1.037	0.692	0.824
E4-251-001	E4-251-001	E4-242-078	2.772	32:45 hr	3.37	1.015	0.677	0.8
E4-252-009	E4-252-009	E3-252-085	3.794	33:30 hr	3.322	1.5	1	1.191
E4-252-010	E4-252-010	E4-252-009	3.796	33:30 hr	3.323	1.5	1	1.194
E4-252-011	E4-252-011	E4-252-010	3.801	33:30 hr	3.328	1.5	1	1.19
E4-252-013	E4-252-013	E4-252-014	3.816	33:15 hr	5.001	0.95	0.634	0.729
E4-252-014	E4-252-014	E4-252-019	3.814	33:15 hr	4.888	0.969	0.646	0.75
E4-252-019	E4-252-019	E4-252-021	3.811	33:17 hr	3.337	1.5	1	1.06
E4-252-021	E4-252-021	E4-252-023	3.792	33:18 hr	3.32	1.5	1	1.042
E4-252-023	E4-252-023	E4-252-011	3.811	33:33 hr	3.337	1.5	1	1.177
E4-252-033	E4-252-033	E4-252-013	3.829	33:17 hr	4.267	1.1	0.733	0.888
E4-252-035	E4-252-035	E4-252-033	3.833	33:15 hr	7.118	0.716	0.478	0.462
E4-252-037	E4-252-037	E4-252-035	3.834	33:16 hr	5.199	0.923	0.615	0.698
E4-271-058	E4-271-058	E4-271-060	1.084	32:32 hr	2.426	0.687	0.55	0.586
E4-271-060	E4-271-060	E4-271-062	1.099	32:31 hr	4.148	0.46	0.368	0.289
E4-271-062	E4-271-062	E4-271-063	1.108	32:31 hr	4.659	0.425	0.34	0.249
E4-271-063	E4-271-063	E4-271-064	1.114	32:30 hr	5.119	0.399	0.319	0.22
E4-271-064	E4-271-064	E3-271-122	1.139	32:31 hr	3.631	0.522	0.417	0.364
F1-202-005	F1-202-005	F1-202-007	0.56	32:44 hr	4.521	0.267	0.213	0.1
F1-202-006	F1-202-006	F1-202-005	0.558	32:45 hr	4.75	0.264	0.227	0.113
F1-202-007	F1-202-007	F2-202-001	0.578	32:45 hr	5.363	0.242	0.194	0.082

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-202-008	F1-202-008	F1-202-006	0.555	32:44 hr	3.435	0.322	0.257	0.145
F1-202-009	F1-202-009	F1-202-008	0.548	32:41 hr	4.86	0.274	0.274	0.164
F1-202-010	F1-202-010	F1-202-009	0.532	32:31 hr	5.113	0.259	0.259	0.146
F1-231-001	F1-231-001	F2-231-024	2.684	33:34 hr	2.596	1.104	0.631	0.725
F1-231-001A	F1-231-003	F1-231-001	2.68	33:19 hr	3.188	0.96	0.576	0.63
F1-231-002	F1-231-002	F1-231-003	2.708	33:20 hr	2.915	1.043	0.626	0.716
F1-232-001	F1-232-001	F2-231-023	28.959	36:32 hr	4.396	2.752	0.612	0.692
F1-232-002	F1-232-002	F1-232-001	28.962	36:32 hr	4.081	2.934	0.652	0.76
F1-232-008	F1-232-008	F1-232-066	3.149	32:30 hr	5.362	0.867	0.694	0.828
F1-232-012	F1-232-012	F1-232-066	26.438	36:30 hr	4.112	2.696	0.599	0.67
F1-232-013	F1-232-013	F1-232-008	3.228	32:33 hr	4.07	1.25	1	1.407
F1-232-014	F1-232-014	F1-232-017	2.773	34:15 hr	4.519	0.903	0.723	0.872
F1-232-017	F1-232-017	F1-232-019	2.788	34:18 hr	3.515	1.25	1	1.175
F1-232-019	F1-232-019	F1-232-013	3.227	32:30 hr	4.069	1.25	1	1.399
F1-232-033	F1-232-033	F1-232-012	26.445	36:33 hr	4.262	2.618	0.582	0.641
F1-232-066	F1-232-066	F1-232-002	28.963	36:20 hr	4.193	2.866	0.637	0.734
F1-241-050	F1-241-050	F1-242-001	0.891	32:45 hr	4.597	0.367	0.293	0.187
F1-241-109	F1-241-109	F1-241-050	0.894	32:49 hr	2.38	0.599	0.48	0.465
F1-241-110	F1-241-110	F1-241-109	0.867	32:48 hr	2.402	0.581	0.465	0.44
F1-242-001	F1-242-001	E4-241-081	0.902	32:45 hr	4.613	0.369	0.295	0.19
F1-251-003	F1-251-003	E4-251-001	2.732	32:45 hr	3.254	1.034	0.689	0.82
F1-251-015	F1-251-015	F1-251-003	2.512	33:01 hr	4.128	0.896	0.717	0.863
F1-251-023	F1-251-023	F1-251-015	2.482	33:01 hr	4.271	0.859	0.687	0.817
F1-251-031	F1-251-031	F1-251-023	2.394	33:00 hr	5.072	0.719	0.575	0.629
F1-251-033	F1-251-033	F1-251-031	2.38	33:00 hr	4.069	0.864	0.691	0.824
F1-251-034	F1-251-034	F1-251-106	2.362	33:00 hr	3.728	0.931	0.745	0.904
F1-251-039	F1-251-039	F1-251-034	2.335	32:47 hr	4.218	0.823	0.658	0.77
F1-251-040	F1-251-040	F1-251-039	2.282	32:47 hr	4.069	0.832	0.666	0.783
F1-251-041	F1-251-041	F1-251-040	2.247	32:45 hr	4.126	0.811	0.649	0.755
F1-251-044	F1-251-044	F1-251-041	2.211	32:46 hr	4.114	0.802	0.641	0.742
F1-251-047	F1-251-047	F1-251-044	2.184	32:47 hr	3.998	0.813	0.65	0.757
F1-251-048	F1-251-048	F1-251-068	2.146	32:45 hr	4.308	0.752	0.601	0.674
F1-251-049	F1-251-049	F1-251-108	2.082	32:46 hr	3.864	0.804	0.643	0.744
F1-251-050	F1-251-050	F1-251-049	2.068	32:46 hr	4.313	0.728	0.582	0.642
F1-251-068	F1-251-068	F1-251-047	2.161	32:45 hr	4.314	0.755	0.604	0.679
F1-251-106	F1-251-106	F1-251-033	2.372	32:59 hr	3.727	0.935	0.748	0.909
F1-251-108	F1-251-108	F1-251-048	2.137	32:45 hr	3.883	0.819	0.655	0.764
F1-252-017	F1-252-017	E4-252-037	3.837	33:15 hr	6.225	0.797	0.531	0.553
F1-252-033	F1-252-033	F1-252-017	3.839	33:15 hr	6.226	0.797	0.531	0.554
F1-252-039	F1-252-039	F1-252-033	3.839	33:15 hr	5.68	0.858	0.572	0.624
F1-261-003	F1-261-003	F1-261-004	3.822	33:14 hr	7.57	0.76	0.608	0.686
F1-261-004	F1-261-004	F1-252-039	3.823	33:13 hr	7.232	0.706	0.471	0.451
F1-261-009	F1-261-009	F1-261-003	3.825	33:00 hr	4.823	1.25	1	1.095
F1-261-026	F1-261-026	F1-261-009	3.834	33:00 hr	4.834	1.25	1	1.098
F1-261-040	F1-261-040	F1-261-026	3.839	33:01 hr	4.84	1.25	1	1.102
F1-261-048	F1-261-048	F1-261-040	3.829	33:01 hr	4.827	1.25	1	1.099
F1-261-058	F1-261-058	F1-261-048	3.834	33:01 hr	6.368	0.887	0.71	0.852
F1-261-064	F1-261-064	F1-261-058	3.834	33:01 hr	5.987	0.941	0.753	0.916
F1-261-070	F1-261-070	F1-261-064	3.81	33:00 hr	5.982	0.936	0.749	0.91
F1-261-075	F1-261-075	F1-261-070	3.802	33:00 hr	4.793	1.25	1	1.041
F1-261-078	F1-261-078	F1-261-075	3.735	33:01 hr	4.71	1.25	1	1.023
F1-261-081	F1-261-081	F1-261-078	3.719	33:01 hr	4.689	1.25	1	1.196
F1-261-089	F1-261-089	F1-261-081	3.712	33:01 hr	4.68	1.25	1	1.194
F1-261-095	F1-261-095	F1-261-089	3.69	33:01 hr	4.652	1.25	1	1.182
F1-261-097	F1-261-097	F1-261-095	3.691	33:00 hr	4.654	1.25	1	1.183
F1-261-106	F1-261-106	F1-261-097	3.688	33:00 hr	4.65	1.25	1	1.181
F1-271-101	F1-271-101	F1-271-103	0.893	32:21 hr	2.313	0.612	0.489	0.482
F1-271-103	F1-271-103	E4-271-058	1.029	32:30 hr	2.808	0.588	0.47	0.45
F2-202-001	F2-202-001	F2-202-023	0.585	32:45 hr	4.271	0.286	0.229	0.115
F2-202-002	F2-202-002	F2-202-007	0.624	32:45 hr	4.297	0.298	0.239	0.125
F2-202-003	F2-202-003	F2-202-005	0.6	32:45 hr	4.373	0.287	0.229	0.115
F2-202-004	F2-202-004	F2-202-006	0.642	32:45 hr	4.209	0.309	0.247	0.134

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F2-202-005	F2-202-005	F2-202-002	0.607	32:45 hr	4.494	0.283	0.227	0.113
F2-202-006	F2-202-006	F2-202-024	0.649	32:45 hr	5.69	0.252	0.201	0.089
F2-202-007	F2-202-007	F2-202-004	0.64	32:44 hr	4.57	0.291	0.233	0.119
F2-202-023	F2-202-023	F2-202-003	0.591	32:45 hr	3.961	0.304	0.243	0.13
F2-202-024	F2-202-024	F3-202-006	0.652	32:45 hr	4.844	0.283	0.226	0.112
F2-231-004	F2-231-004	F3-231-015	30.819	36:38 hr	3.514	3.58	0.796	0.972
F2-231-010	F2-231-010	F2-231-004	30.568	36:35 hr	4.423	2.867	0.637	0.735
F2-231-016	F2-231-016	F2-231-010	28.94	36:33 hr	4.371	2.764	0.614	0.696
F2-231-023	F2-231-023	F2-231-016	28.951	36:33 hr	4.207	2.856	0.635	0.731
F2-231-024	F2-231-024	F2-231-010	2.688	33:36 hr	2.237	1.263	0.722	0.871
F2-232-002	F2-232-002	F2-232-003	2.624	34:03 hr	3.308	1.25	1	1.145
F2-232-003	F2-232-003	F2-232-004	2.661	34:16 hr	3.355	1.25	1	1.177
F2-232-004	F2-232-004	F2-232-005	2.693	34:14 hr	3.395	1.25	1	1.192
F2-232-005	F2-232-005	F2-232-006	2.715	34:16 hr	3.423	1.25	1	1.242
F2-232-006	F2-232-006	F1-232-014	2.76	34:15 hr	3.479	1.25	1	1.151
F2-232-007	F2-232-007	F2-232-002	2.61	34:02 hr	3.291	1.25	1	1.361
F2-242-055	F2-242-055	F1-241-110	0.828	32:36 hr	2.306	0.578	0.463	0.437
F2-242-056	F2-242-056	F2-242-055	0.792	32:34 hr	2.425	0.538	0.431	0.385
F2-251-012	F2-251-012	F2-251-028	1.918	32:30 hr	4.503	0.661	0.529	0.55
F2-251-016	F2-251-016	F2-251-017	1.93	32:45 hr	4.408	0.676	0.541	0.57
F2-251-017	F2-251-017	F2-252-027	1.943	32:46 hr	4.548	0.663	0.53	0.552
F2-251-018	F2-251-018	F1-251-050	2.038	32:46 hr	4.741	0.666	0.533	0.556
F2-251-028	F2-251-028	F2-251-016	1.929	32:31 hr	4.51	0.664	0.531	0.553
F2-252-027	F2-252-027	F2-251-018	2.022	32:45 hr	4.588	0.68	0.544	0.575
F2-261-053	F2-261-053	F1-261-106	3.412	33:01 hr	6.673	0.768	0.615	0.697
F2-262-011	F2-262-011	F2-261-053	3.416	33:02 hr	5.758	0.875	0.7	0.838
F2-262-017	F2-262-017	F2-262-011	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-020	F2-262-020	F2-262-017	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-029	F2-262-029	F2-262-020	3.385	33:01 hr	6.012	0.835	0.668	0.786
F2-262-032	F2-262-032	F2-262-029	3.387	33:01 hr	4.271	1.25	1	1.248
F2-262-038	F2-262-038	F2-262-032	3.335	33:01 hr	5.06	0.968	0.775	0.945
F3-202-006	F3-202-006	F3-202-007	0.664	32:44 hr	4.421	0.305	0.244	0.131
F3-202-007	F3-202-007	F3-211-010	0.688	32:45 hr	4.469	0.311	0.249	0.136
F3-211-010	F3-211-010	F3-211-011	0.726	32:45 hr	4.917	0.302	0.241	0.128
F3-211-011	F3-211-011	F3-211-012	0.729	32:45 hr	4.565	0.319	0.255	0.143
F3-211-012	F3-211-012	F3-211-013	0.78	32:44 hr	4.773	0.324	0.259	0.147
F3-211-013	F3-211-013	F4-211-002	0.785	32:44 hr	4.612	0.334	0.267	0.156
F3-222-007	F3-222-007	F3-222-019	30.803	37:03 hr	4.291	2.963	0.659	0.77
F3-222-008	F3-222-008	F3-222-007	30.81	36:50 hr	4.206	3.017	0.67	0.79
F3-222-008A	F3-222-020	F3-222-008	30.819	36:47 hr	4.534	2.827	0.628	0.72
F3-222-019	F3-222-019	F4-222-013	30.798	37:03 hr	4.118	3.073	0.683	0.81
F3-231-015	F3-231-015	F3-222-020	30.815	36:47 hr	3.515	3.579	0.795	0.972
F3-232-001	F3-232-001	F2-232-007	2.593	34:00 hr	3.269	1.25	1	1.06
F3-232-002	F3-232-002	F3-232-001	2.566	34:02 hr	3.235	1.25	1	1.257
F3-232-003	F3-232-003	F3-232-002	2.564	34:01 hr	3.233	1.25	1	1.209
F3-232-004	F3-232-004	F3-232-005	2.182	34:00 hr	3.779	0.814	0.611	0.69
F3-232-005	F3-232-005	F3-232-006	2.243	34:01 hr	3.289	0.943	0.707	0.848
F3-232-006	F3-232-006	F3-232-007	2.319	34:00 hr	3.85	0.844	0.633	0.728
F3-232-007	F3-232-007	F3-232-003	2.557	34:01 hr	5.943	0.667	0.533	0.557
F3-241-004	F3-241-004	F3-242-011	0.544	32:30 hr	3.551	0.31	0.248	0.134
F3-241-005	F3-241-005	F3-241-004	0.551	32:32 hr	2.09	0.458	0.367	0.287
F3-241-006	F3-241-006	F3-241-005	0.465	32:32 hr	2.114	0.401	0.321	0.223
F3-242-010	F3-242-010	F2-242-056	0.731	32:34 hr	2.242	0.537	0.43	0.384
F3-242-011	F3-242-011	F3-242-010	0.644	32:33 hr	2.193	0.497	0.397	0.333
F3-251-023	F3-251-023	F3-251-082	1.513	33:02 hr	4.176	0.582	0.466	0.443
F3-251-024	F3-251-024	F2-251-012	1.944	32:32 hr	4.037	0.731	0.584	0.645
F3-251-082	F3-251-082	F3-251-024	1.551	33:00 hr	5.53	0.48	0.384	0.313
F3-252-001	F3-252-001	F3-252-003	1.452	33:00 hr	4.761	0.511	0.409	0.351
F3-252-003	F3-252-003	F3-251-023	1.505	33:00 hr	4.806	0.521	0.417	0.363
F3-262-038	F3-262-038	F2-262-038	3.317	33:00 hr	6.179	0.801	0.641	0.741
F3-262-052	F3-262-052	F3-262-038	3.329	32:48 hr	4.197	1.25	1	1.236
F3-262-057	F3-262-057	F3-262-052	3.323	32:46 hr	6.129	0.808	0.646	0.75

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F3-262-063	F3-262-063	F3-262-057	3.183	32:46 hr	7.756	0.642	0.514	0.523
F3-271-152	F3-271-152	F3-262-074	3.142	32:46 hr	3.961	1.25	1	1.059
F3-271-152A	F3-262-074	F3-262-063	3.197	32:47 hr	4.031	1.25	1	1.174
F3-271-153	F3-271-153	F3-271-152	3.115	32:45 hr	7.081	0.679	0.543	0.574
F4-0232-BV	F4-0232-BV	F4-232-004	2.113	33:50 hr	4.163	1	1	2.68
F4-211-002	F4-211-002	F4-211-003	0.791	32:44 hr	5.407	0.3	0.24	0.126
F4-211-003	F4-211-003	F4-211-015	0.793	32:44 hr	5.152	0.311	0.249	0.136
F4-211-004	F4-211-004	F4-211-005	0.801	32:44 hr	8.299	0.224	0.179	0.07
F4-211-005	F4-211-005	F4-211-013	0.807	32:44 hr	5.684	0.293	0.235	0.121
F4-211-006	F4-211-006	F4-211-007	0.837	32:45 hr	3.497	0.427	0.341	0.251
F4-211-007	F4-211-007	G1-211-003	0.843	32:45 hr	4.773	0.343	0.274	0.165
F4-211-013	F4-211-013	F4-211-014	0.827	32:44 hr	7.15	0.254	0.203	0.091
F4-211-014	F4-211-014	F4-211-006	0.833	32:45 hr	4.061	0.382	0.305	0.203
F4-211-015	F4-211-015	F4-211-004	0.796	32:44 hr	5.159	0.311	0.249	0.136
F4-221-022	F4-221-022	G1-221-029	30.804	37:18 hr	4.723	2.729	0.606	0.683
F4-222-003	F4-222-003	F4-221-022	30.805	37:15 hr	4.209	3.014	0.67	0.789
F4-222-013	F4-222-013	F4-222-003	30.817	37:03 hr	4.505	2.842	0.632	0.725
F4-232-004	F4-232-004	F4-232-005	2.127	33:59 hr	4.19	1	1	2.608
F4-232-005	F4-232-005	F4-232-006	2.133	34:01 hr	4.203	1	1	1.229
F4-232-006	F4-232-006	F3-232-004	2.141	34:00 hr	3.409	0.875	0.656	0.767
F4-241-002	F4-241-002	G1-241-001	2.013	33:45 hr	5.71	0.833	1	1.342
F4-241-003	F4-241-003	F4-241-002	2.013	33:48 hr	5.71	0.833	1	2.235
F4-241-004	F4-241-004	F4-241-003	2.003	33:47 hr	5.683	0.833	1	2.592
F4-241-005	F4-241-005	F4-241-004	2	33:34 hr	5.672	0.833	1	2.406
F4-241-006	F4-241-006	F4-241-005	1.957	33:32 hr	5.552	0.833	1	1.734
F4-241-007	F4-241-007	F4-241-006	1.919	33:33 hr	5.443	0.833	1	2.084
F4-241-008	F4-241-008	F4-241-007	1.816	33:33 hr	5.152	0.833	1	2.098
F4-241-009	F4-241-009	F3-241-006	0.379	32:32 hr	1.902	0.374	0.299	0.195
F4-241-010	F4-241-010	F4-241-009	0.289	32:31 hr	1.809	0.32	0.256	0.143
F4-241-011	F4-241-011	F4-241-010	0.191	32:18 hr	1.753	0.244	0.195	0.083
F4-251-016	F4-251-016	F4-251-022	1.435	33:01 hr	4.599	0.52	0.416	0.362
F4-251-022	F4-251-022	F4-251-023	1.436	33:01 hr	4.508	0.528	0.422	0.372
F4-251-023	F4-251-023	F4-252-003	1.45	33:01 hr	4.301	0.551	0.441	0.402
F4-252-003	F4-252-003	F3-252-001	1.452	33:02 hr	4.318	0.55	0.44	0.4
F4-252-005	F4-252-005	F4-251-016	1.388	33:01 hr	4.702	0.499	0.399	0.335
F4-271-034	G1-271-007	F4-271-034	3.073	32:30 hr	5.678	0.807	0.645	0.748
F4-271-034A	F4-271-034	F4-271-075	3.077	32:30 hr	5.455	0.836	0.669	0.788
F4-271-069	F4-271-069	F4-271-073	3.066	32:32 hr	5.246	0.863	0.691	0.823
F4-271-070	F4-271-070	F3-271-153	3.142	32:47 hr	5.683	0.822	0.657	0.769
F4-271-072	F4-271-072	F4-271-070	3.12	32:48 hr	3.933	1.25	1	1.083
F4-271-073	F4-271-073	F4-271-072	3.072	32:47 hr	6.061	0.763	0.61	0.689
F4-271-075	F4-271-075	F4-271-069	3.081	32:31 hr	5.457	0.837	0.67	0.789
G1-211-003	G1-211-003	9010	1.262	32:33 hr	2.099	0.886	0.709	0.851
G1-221-001	G1-221-001	G2-212-041	31.473	37:22 hr	3.062	4.5	1	1.06
G1-221-005	G1-221-005	G1-221-001	31.489	37:18 hr	5.013	2.644	0.588	0.651
G1-221-010	G1-221-010	G1-221-005	31.492	37:17 hr	4.745	2.769	0.615	0.698
G1-221-029	G1-221-029	G1-221-010	30.797	37:19 hr	3.791	3.317	0.737	0.893
G1-232-012	G1-232-012	F4-0232-BV	2.091	33:48 hr	4.12	1	1	2.036
G1-241-001	G1-241-001	G1-232-012	2.013	33:45 hr	8.846	0.459	0.459	0.432
G1-241-002	G1-241-002	F4-241-008	1.712	33:30 hr	4.856	0.833	1	1.753
G1-242-001	G1-242-001	G1-241-002	0.51	32:36 hr	2.306	0.501	0.601	0.673
G1-242-006	G1-242-006	G1-242-001	0.506	32:33 hr	2.396	0.482	0.578	0.635
G1-242-014	G1-242-014	G1-242-006	0.494	32:33 hr	2.562	0.447	0.537	0.563
G1-242-025	G1-242-025	G1-242-014	0.485	32:32 hr	2.615	0.434	0.52	0.535
G1-242-028	G1-242-028	G1-242-025	0.225	32:29 hr	2.134	0.282	0.339	0.247
G1-242-038	G1-242-038	G1-242-028	0.222	32:33 hr	1.893	0.305	0.367	0.287
G1-242-045	G1-242-045	G1-242-038	0.203	32:19 hr	1.894	0.286	0.344	0.254
G1-252-004	G1-252-004	G1-252-005	1.314	33:01 hr	4.706	0.539	0.539	0.567
G1-252-005	G1-252-005	F4-252-005	1.36	33:02 hr	3.983	0.557	0.445	0.409
G1-252-006	G1-252-006	G1-252-004	1.31	33:00 hr	3.963	0.62	0.62	0.706
G1-252-007	G1-252-007	G1-252-006	1.29	33:01 hr	3.752	0.641	0.641	0.742
G1-252-008	G1-252-008	G1-252-007	1.253	33:00 hr	4.061	0.585	0.585	0.646

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G1-252-009	G1-252-009	G1-252-008	1.25	33:00 hr	4.017	0.589	0.589	0.653
G1-252-011	G1-252-011	G1-252-009	1.243	32:54 hr	3.75	0.621	0.621	0.708
G1-271-007	G1-271-013	G1-271-007	3.05	32:30 hr	5.668	0.803	0.642	0.743
G1-271-013	G1-271-030	G1-271-013	3.069	32:30 hr	5.678	0.806	0.645	0.747
G1-271-030	G1-271-041	G1-271-030	3.109	32:31 hr	4.527	1.01	0.808	0.987
G1-271-042	G1-271-047	G1-271-042	2.777	32:30 hr	4.265	0.956	0.765	0.933
G1-271-047	G1-272-045	G1-271-047	2.803	32:31 hr	6.432	0.674	0.539	0.567
G1-272-045	G1-272-065	G1-272-045	2.742	32:33 hr	4.435	0.909	0.728	0.879
G1-272-065	G1-272-066	G1-272-065	2.687	32:30 hr	4.422	0.895	0.716	0.862
G1-272-066	G2-272-001	G1-272-066	2.687	32:30 hr	4.422	0.895	0.716	0.862
G2-212-001	G2-212-001	G3-212-007	31.561	37:37 hr	3.07	4.5	1	1.215
G2-212-002	G2-212-003	G2-212-002	31.574	37:30 hr	6.297	2.207	0.49	0.484
G2-212-002A	G2-212-002	G2-212-001	31.571	37:33 hr	3.663	3.517	0.781	0.954
G2-212-014A	G2-212-014	G2-212-003	7.001	37:30 hr	8.915	0.974	0.65	0.756
G2-212-015	G2-212-015	G2-212-014	31.55	37:30 hr	5.967	2.301	0.511	0.519
G2-212-032	G2-212-032	G2-212-047	31.557	37:31 hr	4.62	2.838	0.631	0.724
G2-212-035	G2-212-035	G2-212-032	31.558	37:29 hr	4.289	3.028	0.673	0.794
G2-212-038	G2-212-038	G2-212-035	31.559	37:29 hr	4.537	2.883	0.641	0.741
G2-212-041	G2-212-041	G2-212-038	31.559	37:24 hr	3.729	3.452	0.767	0.936
G2-212-047	G2-212-047	G2-212-015	31.554	37:31 hr	3.682	3.496	0.777	0.949
G2-252-043	G2-252-043	G2-252-045	1.16	32:46 hr	4.024	0.553	0.553	0.592
G2-252-044	G2-252-044	G2-252-043	1.176	32:47 hr	3.81	0.585	0.585	0.647
G2-252-045	G2-252-045	G1-252-011	1.213	32:59 hr	3.952	0.583	0.583	0.642
G2-252-046	G2-252-046	G2-252-044	1.181	32:47 hr	3.901	0.576	0.576	0.63
G2-252-047	G2-252-047	G2-252-046	1.172	32:46 hr	5.97	0.411	0.411	0.354
G2-272-014	G2-272-014	G2-272-001	2.722	32:32 hr	4.309	0.929	0.743	0.902
G2-272-036	G2-272-036	G2-272-014	2.705	32:31 hr	4.233	0.939	0.751	0.913
G2-272-049	G2-272-049	G2-272-036	2.644	32:31 hr	4.235	0.918	0.734	0.889
G2-272-055	G2-272-055	G2-272-049	2.543	32:30 hr	3.778	0.989	0.791	0.967
G2-272-068	G2-272-068	G2-272-055	2.103	32:30 hr	3.684	0.845	0.676	0.8
G2-272-080	G2-272-080	G2-272-068	2.016	32:16 hr	5.542	0.584	0.467	0.445
G3-211-015	G3-211-015	G3-211-018	36.95	37:47 hr	4.791	3.16	0.702	0.841
G3-211-018	G3-211-018	G3-211-017	36.856	37:46 hr	4.786	3.156	0.701	0.839
G3-212-006	G3-212-006	G3-212-007	3.279	32:15 hr	8.033	0.639	0.512	0.52
G3-212-007	G3-212-007	G3-211-015	34.833	37:46 hr	3.389	4.5	1	1.385
G3-252-026	G3-252-026	G3-252-028	1.103	32:46 hr	4.645	0.475	0.475	0.457
G3-252-027	G3-252-027	G3-252-026	1.105	32:45 hr	7.435	0.334	0.334	0.241
G3-252-028	G3-252-028	G3-252-029	1.099	32:46 hr	3.709	0.566	0.566	0.613
G3-252-029	G3-252-029	G2-252-047	1.177	32:46 hr	3.874	0.578	0.578	0.633
G3-252-030	G3-252-030	G3-252-027	1.106	32:45 hr	6.845	0.355	0.355	0.271
G3-252-031	G3-252-031	G3-252-030	1.106	32:46 hr	3.921	0.544	0.544	0.575
G3-252-032	G3-252-032	G3-252-031	1.086	32:46 hr	3.591	0.576	0.576	0.63
G4-252-008	G4-252-008	G3-252-032	1.082	32:45 hr	3.933	0.533	0.533	0.556
G4-252-008A	G4-261-001	G4-252-008	0.946	32:45 hr	3.803	0.492	0.492	0.487
G4-261-008	G4-261-008	G4-261-015	0.956	32:31 hr	4.24	0.667	1	1.169
G4-261-015	G4-261-015	G4-261-016	0.948	32:32 hr	4.202	0.667	1	1.916
G4-261-016	G4-261-016	G4-261-017	0.927	32:31 hr	4.11	0.667	1	2.272
G4-261-017	G4-261-017	G4-261-029	0.917	32:30 hr	6.401	0.325	0.325	0.229
G4-261-018	G4-261-018	G4-261-020	0.938	32:45 hr	3.617	0.508	0.508	0.514
G4-261-020	G4-261-020	G4-261-021	0.942	32:46 hr	3.746	0.497	0.497	0.494
G4-261-021	G4-261-021	G4-261-001	0.947	32:45 hr	3.908	0.482	0.482	0.47
G4-261-029	G4-261-029	G4-261-018	0.924	32:32 hr	3.528	0.512	0.512	0.521
H1-261-006	H1-261-006	H1-261-025	0.85	32:30 hr	3.948	0.489	0.587	0.65
H1-261-008	H1-261-008	H1-261-009	0.896	32:29 hr	6.679	0.338	0.405	0.345
H1-261-009	H1-261-009	H1-261-010	0.904	32:32 hr	4.624	0.539	0.809	0.988
H1-261-010	H1-261-010	H1-261-011	0.917	32:32 hr	4.065	0.667	1	1.187
H1-261-011	H1-261-011	H1-261-012	0.942	32:32 hr	4.176	0.667	1	1.032
H1-261-012	H1-261-012	H1-261-015	0.937	32:31 hr	4.155	0.667	1	1.179
H1-261-015	H1-261-015	G4-261-008	0.955	32:30 hr	4.233	0.667	1	1.232
H1-261-025	H1-261-025	H1-261-008	0.861	32:30 hr	4.61	0.436	0.524	0.54
H1-262-023	H1-262-023	H1-261-006	0.825	32:17 hr	4.209	0.454	0.544	0.576

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1118	4685								0.02	0
1130	4,698.91							0.018	0	0.023
1132	4,698.91							0.001	0	
1134	4,664.76							0.006	0	
1136	4,668.30							0.001	0	
1138	4,650.91							0.007	0.001	
1140	4,648.22							0.006	0.001	
1142	4,645.25							0.003	0	
1144	4,638.52							0.007	0	
1146	4,869.65							0.052	0	
1148	4,714.99							0.02	0	
1150	4,785.00							0.037	0	
1152	4,745.54							0.034	0	
1154	4,715.00							0.03	0	
1156	4,694.95							0.016	0	
1158	4,681.56							0.009	0	
1176	4,796.40							0.002	0	
1178	4,767.14							0.001	0	
1180	4,746.00							0.001	0	
1182	4,733.95							0.002	0	0.013
1184	4,674.06							0.002	0	
1186	4,656.75							0.001	0	
1188	4,641.11							0.001	0	
1190	4,603.00							0.015	0	
1220	4,580.00									
1222	4,564.00							0.017	0	
1224	4,557.00							0.012	0	
1226	4,550.00							0.094	0.008	
1228	4,535.00							0.002	0.054	
1230	4,521.67							0	0.031	
1236	4,609.12							0.005	0	
1238	4,600.22							0.011	0	
1240	4,568.00							0.014	0	
1242	4,555.00							0.097	0	
1244	4,547.00							0.127	0.012	
1246	4,544.96							0.021	0.026	
1248	4,538.00							0.024	0.021	
1250	4,535.00							0	0.004	
1252	4,539.02							0.015	0.001	
1254	4,536.00							0.017	0.015	
1256	4,644.94							0.021	0	
1258	4,595.00							0.039	0	
1260	4,582.00							0.075	0	
1262	4,582.08							0.2	0.002	
1264	4,565.00							0.15	0	
1266	4,557.00							0.176	0.003	
1268	4,544.00							0.017	0	
1272	4,674.00							0.115	0	
1274	4,647.41							0.028	0	
1276	4,628.00							0.036	0	0.056
1278	4,612.05							0.044	0.004	0.104
1284	4,704.00							0.073	0	
1286	4,703.00							0.002	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1288	4,691.30							0.005	0	
1290	4,675.00							0.012	0	
1292	4,664.09							0.006	0	
1294	4,664.00							0.005	0	
1296	4,645.00							0.011	0	
1298	4,619.00							0.026	0	
1300	4,595.00							0.041	0	
1302	4,588.00							0.005	0.002	
1304	4,582.00							0.004	0	
1306	4,575.00							0.004	0	
1308	4,665.00							0.006	0	
1310	4,628.00							0.005	0	
1312	4,620.61							0.016	0	
1314	4,585.00							0.01	0.009	
1316	4,538.00							0.001	0.014	
132	4,559.77	0.005	0.047					0.01	0	0.016
1332	4,709.12							0.03	0	
1334	4,701.50							0.002	0	
1338	4,722.82							0.001	0	
134	4,555.68	0								
1340	4,684.59							0.003	0	
1344	4,754.53							0.002	0	
1346	4,841.01							0.013	0	
1348	4,753.80							0.004	0	
1350	4,742.00							0.004	0	
1352	4,689.00							0.009	0	
1354	4,649.17							0.003	0	
1356	4,652.84							0.008	0	
1358	4,629.00									
136	4,536.74	0.006						0	0	
1360	4,619.60							0.018	0	
1362	4,569.93							0.009	0	
1364	4,567.00							0.01	0	
1372	4,803.00							0.125	0.072	
1374	4,803.00							0.15	0.086	
1376	4,775.81									
1378	4,725.69							0.455	0.054	
1380	4,765.00									
1382	4,784.68							0	0.043	
1384	4,808.00							0.011	0.012	
1386	4,843.87							0	0.009	
1394	4,692.06							0.001	0	
1396	4,775.00							0.272	0.031	
1398	4,760.49							0.051	0.019	
14	4,640.70	0.008	0.086					0.042	0	
140	4,531.97	0.001	0.026					0.002	0	0.017
1404	4,667.67							0.027	0	
1406	4,659.23							0.049	0.002	
1422	4,696.00							0.004	0	
1424	4,696.00							0	0	
1426	4,697.00							0	0	
1428	4,554.00							0	0	
1430	4,555.49									

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
148	4,532.39									
150	4,661.19	0.008						0.002	0	
152	4,560.00									
154										
1554	4,520.30									
1558	4,533.00							0	0.009	
1560	4,528.00							0	0.004	
1562	4,527.00							0	0.005	
1564	4,525.69							0	0.003	
1566	4,525.00									0.023
1568	4,543.00							0.036	0	
1570	4,542.00							0.008	0	
1572	4,558.00							0.034	0	
1574	4,785.78							0.5	0.01	
1576	4,750.64							0.061	0	
1578	4,714.95							0.043	0.005	
1580	4,705.45							0.057	0.005	
1582	4,683.88							0.003	0	
1584	4,680.21							0.003	0	
1586	4,676.34							0.006	0	
1588	4,674.51							0.001	0	
1590	4,666.00							0.012	0	
1596	4,602.00							1.5	0.098	
1610	4,657.00									
1612	4,706.00							0.099	0	
1614	4,699.50							0.047	0	
1618	4,683.00									
1620	4,542.00							0	0	
1622	4,545.00							0.001	0	
1624	4,545.00							0	0	
1626	4,547.00							0	0	
1628	4,548.00							0	0	
1630	4,548.00							0.004	0	
1632	4,550.00									
1634	4,550.00									
1636	4,552.00									
1638	4,555.00									
1640	4,555.00									
1642	4,565.00									
1644	4,575.00							0	0	
1646	4,585.00							0	0	
1648	4,595.00							0	0	
1650	4,597.00							0	0	
1652	4,608.00							0.001	0	
1654	4,615.00							0.002	0	
1656	4,615.00							0.002	0	
1658	4,625.00							0	0	
1660	4,688.00							0.069	0	
1668	4,943.00							0.066	0	
1672	4,668.00							0.13	0.033	
1676	4,637.70	0.094						0.047	0	
1678	4,670.00							0.022	0.001	
1680	4,669.00							0.052	0.005	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1682	4,728.00							0.06	0	
1684	4,738.00							0.025	0	
1686	4,775.00							0.035	0	
1688	4,829.00							0.042	0	
1700	4,655.00							0.003	0	
1730	4,680.00									
1732	4,670.00									
1734	4,658.00									
1736	4,640.00									
1738	4,630.00									
1740	4,600.00									
1742	4,580.00									
48	4,663.66	0.001	0.008					0	0	
50	4,662.47	0								
52	4,661.49	0						0	0	
54	4,660.60	0								
56	4,661.79	0								
58	4,659.69	0								
60	4,659.26	0.001								
62	4,658.85	0.001								
64	4,659.13	0.001	0.001					0	0	
66	4,658.47	0						0	0	
68	4,655.95	0						0	0	
70	4,655.24	0.001	0.002							
74	4,631.62	0.001								
76	4,624.82	0	0.004							
770	4,621.89	0.003						0	0	
772	4,627.37	0.003						0	0	
774	4,629.57	0.002	0.006					0.001	0	
776	4,629.63							0.018	0	
778	4,628.22	0						0	0	
78	4,622.00	0.001								
780	4,603.69									
80	4,622.00	0								
802	4,537.13		0.037							
804	4,593.40	0.001	0.021	0.81		0.007		0	0.035	
810	4,555.00							0.032	0.053	
812	4,544.00							0.003	0.008	
814	4,534.90							0.001	0.01	0.057
82	4,603.00	0								
916	4,593.00							0.285	0.032	
B1-272-001	4,656.60		0.03					0.006	0	
B1-272-002	4,657.28							0.001	0	
B1-272-003	4,658.04							0.004	0	
B1-272-005	4,659.62							0.006	0	
B1-272-007	4,660.98							0.013	0	
B1-272-010	4,654.15							0.004	0	
B1-272-012	4,653.42							0.015	0	
B1-272-013	4,650.96							0.015	0	
B1-272-015	4,650.38							0.031	0	
B1-272-016	4,649.85							0.015	0.002	
B1-281-001	4,662.51							0.007	0	
B1-281-002	4,664.91							0.004	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B1-281-004	4,667.12		0.07					0	0	
B1-281-005	4,668.75							0.003	0	
B1-281-006	4,670.69							0.003	0	
B1-281-007	4,671.37							0.002	0	
B1-281-009	4,674.29							0.005	0	
B1-281-010	4,675.02		0.048					0.03	0	0.033
B1-292-001	4,714.95		0.009					0.001	0	
B1-292-002	4,714.30							0.001	0	
B1-292-003	4,716.66							0.009	0	
B1-292-004	4,715.14							0.033	0	
B1-292-010	4,714.07							0.003	0	
B1-292-011	4,709.88							0.005	0	
B1-292-012	4,682.02							0.004	0	
B1-292-013	4,699.01							0.006	0	
B1-292-014	4,698.59							0.001	0	
B1-292-015	4,696.92							0.001	0	
B1-292-016	4,697.59							0	0	
B2-271-019	4,645.97	0.01	0.068					0	0	
B2-271-020	4,646.10							0	0	
B2-271-022	4,646.25							0.046	0	
B2-271-031	4,644.88							0.002	0	
B2-272-004	4,648.22	0.003						0.002	0	
B2-272-005	4,646.98							0.003	0	
B2-272-007	4,648.91	0.003						0.002	0	
B2-272-008	4,648.60							0.006	0.001	
B2-272-009	4,648.92	0.002						0.001	0	
B2-272-014	4,649.73	0.003	0.031					0.002	0	
B2-272-017	4,650.24							0.003	0.001	
B2-272-021	4,651.87							0.007	0.002	
B2-272-027	4,650.27	0.032	0.059			0.027		0.006	0	
B2-272-028	4,651.04		0.053					0.002	0	
B2-272-029	4,651.00							0.003	0	
B2-272-030	4,652.06							0.007	0	
B2-272-033	4,650.96	0.005						0.006	0	
B2-281-001	4,656.19							0.003	0	
B2-281-002	4,657.43							0.004	0	
B2-281-003	4,657.95		0.119					0.001	0	
B2-281-004	4,658.60									
B2-281-005	4,660.30							0	0	
B2-281-006	4,661.91							0	0	
B2-281-013	4,662.47							0.001	0	
B2-281-020	4,653.32							0.005	0	
B2-281-022	4,655.62							0.004	0	
B2-281-027	4,661.75							0	0	
B2-281-029	4,656.57							0.003	0	
B2-282-003	4,662.68							0.003	0	
B2-282-036	4,664.20							0.003	0	
B2-282-037	4,666.15							0.001	0	
B2-282-041	4,666.15							0.001	0	
B2-282-046	4,667.40							0.002	0	
B2-282-047	4,668.61							0.001	0	
B2-282-048	4,669.56							0.002	0	
B2-282-051	4,671.11							0.005	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B2-282-054	4,672.79		0.217					0.004	0	0.023
B2-291-024	4,679.63							0.003	0	
B2-291-025	4,678.23							0.007	0	
B2-291-026	4,678.52							0.004	0	
B2-291-027	4,677.84							0.009	0	
B2-291-028	4,675.12							0.006	0	
B2-291-029	4,674.94							0.003	0	
B2-291-030	4,673.49							0.007	0	
B2-291-045	4,677.89							0.002	0	
B2-292-001	4,689.77							0.004	0	
B2-292-002	4,688.02							0.004	0	
B2-292-003	4,685.12							0.003	0	
B2-292-004	4,683.36							0	0	
B2-292-008	4,682.02							0.004	0	
B2-292-009	4,681.74							0.011	0	
B2-292-010	4,682.23									
B2-292-011	4,682.14							0	0	
B2-292-012	4,685.28							0.001	0	
B2-292-017	4,687.54							0.001	0	
B2-292-018	4,689.26							0.001	0	
B2-292-022	4,690.90							0.001	0	
B2-292-023	4,692.04							0	0	
B2-292-026	4,681.54									
B2-301-001	4,692.06		0.008					0.034	0	
B3-262-023	4,637.90	0.007						0.028	0.003	
B3-262-027	4,639.09	0.007					0.004	0.011	0.001	
B3-262-031	4,640.22	0.006	0.045			0.049		0.003	0	
B3-271-003	4,639.60	0.004						0.001	0	
B3-271-006	4,639.29	0.006						0.004	0	
B3-271-018	4,640.18	0.01						0.004	0	
B3-271-026	4,642.09	0.007	0.023					0.001	0	
B3-271-032	4,643.90	0.009						0.009	0	
B3-271-039	4,644.66	0.009						0.007	0	
B3-271-042	4,641.88	0.005						0.002	0	
B3-271-045	4,644.45	0.004						0.001	0	
B3-271-054	4,643.99	0.004								
B3-271-058	4,645.44	0.008						0.002	0	
B3-271-059	4,645.04	0.003						0	0	
B3-271-063	4,644.83	0.003						0	0	
B4-261-014	4,615.35	0.006						0.002	0.001	
B4-262-001	4,626.61	0.005	0.019					0.014	0.001	
B4-262-011	4,624.94	0.007	0.028					0.002	0.001	
B4-262-016	4,633.29	0.007						0.001	0	
B4-262-022	4,633.48	0.007	0.021					0.002	0	
B4-262-024	4,632.42	0.006					0.008	0	0.002	
B4-262-028	4,634.70	0.002								
B4-262-030	4,635.77	0.006						0	0	
B4-262-031	4,635.58	0.002						0.001	0	
B4-262-036	4,639.18	0.002						0	0	
B4-262-037	4,639.15	0.005					0.005	0.001	0	
B4-262-038	4,638.96	0.007						0	0	
B4-262-044	4,628.65	0.005						0.004	0	
B4-262-114	4,636.36	0.002								

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B4-271-001	4,639.11	0.002						0.001	0	
B4-271-011	4,641.78	0.009						0.001	0	
B4-271-028	4,646.15	0.007						0.001	0	
B4-271-033	4,646.99	0.008						0.002	0	
B4-271-128	4,639.74	0.005						0.001	0.001	
B4-271-135	4,639.73	0.006	0.016					0.001	0	
B4-271-138	4,639.45	0.008						0.004	0	
B4-271-143	4,640.50	0.006						0.001	0	
B4-271-145	4,641.45	0.006						0	0	
B4-271-146	4,643.18	0.008						0.001	0	
B4-271-147	4,644.70	0.006	0.022				0.007	0.001	0	
B4-271-148	4,647.63	0.007						0.002	0	
B4-272-004	4,650.15	0.009	0.071					0.006	0	
B4-272-039	4,651.93	0.005	0.016							
B4-272-040	4,652.26	0.007						0.001	0	
B4-272-044	4,653.41	0.011						0.002	0	
B4-272-048	4,653.82	0.011						0.001	0	
B4-272-086	4,650.62	0.012						0.017	0	
B4-272-091	4,651.17	0.005						0	0	
B4-272-092	4,651.27	0.008								
B4-272-093	4,647.86	0.004						0.001	0	
B4-272-094	4,647.89	0.005						0.003	0	
B4-272-095	4,649.15	0.007								
B4-272-096	4,650.63	0.011						0.002	0	
B4-281-054	4,655.65	0.015						0.001	0	
B4-281-057	4,656.77	0.021						0.001	0	
BV-105	4,555.49									
BV-292-013	4,686.36							0.001	0	
C1-221-018	4,855.42	0						0	0	
C1-221-019	4,856.62	0.002	0.029					0.004	0	
C1-261-020	4,611.50	0.004	0.012					0	0.002	
C1-261-028	4,607.00	0.004						0	0	
C1-261-030	4,607.41	0.002	0.009					0	0	
C1-261-058	4,620.88	0.003						0.004	0	
C1-261-060	4,612.10	0.008	0.027				0.005	0	0.002	
C1-261-062	4,616.02	0.002						0.001	0	
C1-281-035	4,656.27	0.028	0.195					0.01	0	
C2-221-030	4,856.52	0.001						0.001	0	
C2-221-031	4,840.90	0						0.001	0	
C2-221-032	4,852.13	0						0.001	0	
C2-221-033	4,855.02	0						0.001	0	
C2-221-034	4,856.96	0.001						0.001	0	
C2-221-035	4,854.80	0.004						0.001	0	
C2-221-037	4,853.25	0.001						0.001	0	
C2-221-065	4,852.08	0						0.003	0	
C2-261-001	4,603.22									
C2-261-013	4,572.06	0					0.011			
C2-261-024	4,575.01	0								
C3-212-031	4,810.25	0						0	0	
C3-221-003	4,835.19	0	0.01					0.001	0	
C3-221-004	4,830.28	0						0	0	
C3-221-005	4,821.15	0						0.001	0	
C3-221-006	4,811.19	0						0.001	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C3-221-030	4,822.68	0	0.003					0	0	
C3-252-001	4,559.32									
C3-252-002	4,561.74									
C3-261-001	4,562.22	0								
C3-261-002	4,563.15	0						0	0.001	
C3-261-004	4,564.51	0								
C3-261-005	4,564.51	0						0	0	
C3-261-007	4,563.27	0								
C3-261-008	4,565.25	0						0	0	
C3-261-009	4,563.05									
C3-261-010	4,564.47									
C3-261-011	4,563.00									
C3-261-012	4,566.30									
C3-261-013	4,565.68									
C3-261-015	4,565.28	0						0	0	
C3-261-019	4,563.78	0						0	0	
C3-261-021	4,565.00	0	0.022				0.06	0	0	
C3-261-031	4,565.76	0						0	0	
C3-261-035	4,573.34	0						0	0	
C3-261-040	4,566.68	0.001						0	0	
C3-261-043	4,571.45	0						0	0	
C3-261-050	4,567.28	0						0	0	
C3-261-056	4,567.40	0.001	0.017					0	0	0.006
C3-261-062	4,567.35	0.001						0	0.002	
C3-261-075	5,000.00	0						0	0	
C3-261-076	5,000.00	0						0	0	
C3-262-007	4,567.22	0.001						0	0.003	
C3-262-009	4,567.77	0.001						0	0.001	
C3-262-033	4,569.31	0.001						0	0.001	
C3-262-041	4,569.51	0.001						0	0.001	
C3-262-046	4,570.66	0.001						0	0	
C3-262-051	4,568.30	0						0	0	
C3-262-061	4,572.79	0.002						0	0.003	
C3-262-070	4,577.51	0						0	0	
C3-262-071	4,577.15	0.001						0	0.001	
C3-262-074	4,578.59	0.001						0	0	
C3-271-001	4,576.86	0.002						0	0.001	
C3-271-003	4,578.37	0.001	0.004				0.004	0	0.001	
C3-271-004	4,579.69	0.002						0	0.001	
C3-271-007	4,581.04	0.002						0	0.001	
C3-271-010	4,581.04	0.001						0	0.001	
C3-271-012	4,581.04	0.001						0	0.001	
C4-212-059	4,802.26	0						0.001	0	
C4-212-060	4,790.25	0.001	0.004					0	0	
C4-212-061	4,781.59	0						0	0	
C4-221-001	4,776.51	0.001						0.001	0	
C4-252-001	4,557.32									
C4-252-002	4,559.28							0	0	
C4-252-003	4,560.79									
C4-252-004	4,559.57							0	0	
C4-252-005	4,559.66									
C4-252-006	4,557.44									
C4-252-007	4,560.16									

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C4-252-008	4,559.21									
D1-212-011	4,757.04	0.001						0.003	0	
D1-212-012	4,751.59	0.001						0.002	0	
D1-212-032	4,767.46	0.001	0.002					0.003	0	
D1-242-011	4,631.80	0.001						0	0	
D1-242-017	4,645.13	0.001						0	0	
D1-242-018	4,656.69	0.002						0	0	
D1-242-019	4,661.02	0.005						0.001	0	0.001
D1-242-030	4,631.80	0.001						0	0	
D1-242-031	5,000.00	0.001						0.001	0	
D1-251-005	4,663.66	0.002						0.012	0.002	
D1-251-023	5,000.00	0.002	0.003					0.004	0.001	
D1-252-001	4,554.94	0						0	0	
D1-252-004	4,555.66									
D1-252-005	4,555.31	0								
D1-252-008	4,555.58	0.001						0	0	
D1-252-009	4,556.21									
D1-252-010	4,555.57	0.001	0.004					0	0	
D1-252-011	4,555.56									
D1-252-015	4,556.52									
D1-252-016	4,557.04	0.001						0	0	
D1-252-018	4,556.32									
D1-252-019	4,556.43									
D1-252-023	4,557.57	0.001								
D1-252-031	4,557.39	0.001						0	0	
D1-252-036	4,557.63	0.001	0.002					0	0	
D1-252-041	4,558.20	0.003						0.002	0	
D1-252-042	4,558.62	0.002	0.007					0.001	0	
D1-252-050	4,585.00							0	0	
D1-252-053	4,581.46	0						0.001	0.001	
D1-252-056	4,581.81	0						0.001	0.001	
D1-252-057	4,582.88	0.009						0.003	0.002	
D1-252-059	4,582.91	0.001								
D1-261-001	4,583.74	0	0.053				0.013	0	0	
D1-261-003	4,588.00		0.056				0.012			
D1-261-006	4,583.32	0.004						0.001	0.001	
D1-261-008	4,584.98	0.005						0.005	0.003	
D1-261-020	4,588.00	0						0.011	0.006	
D1-261-021	4,584.67	0.004						0.008	0.004	
D1-261-023	4,587.00	0						0.006	0.003	
D1-261-036	4,586.86	0.006						0.013	0.007	
D1-261-037	4,589.00	0.001						0.002	0.001	
D1-261-052	4,588.29	0.006						0.009	0.005	
D1-261-059	4,588.00	0.001						0.001	0	
D1-261-061	4,588.00	0						0.006	0.004	
D1-261-075	4,589.51	0.01						0.002	0.001	
D1-261-084	4,590.00	0.003						0.01	0.007	
D1-261-103	4,591.22	0.007						0.002	0.001	
D1-261-116	4,588.00							0.017	0.01	
D1-261-117	4,591.75	0.01						0.004	0.002	
D1-261-128	4,590.09	0.015						0.015	0.009	
D1-262-001	4,589.00						0.004	0.009	0.005	
D1-262-025	4,589.16	0.018						0.01	0.006	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-262-030	4,590.00							0.003	0.002	
D1-262-040	4,589.76	0.006	0.005				0.008	0.001	0	
D1-262-049	4,590.00							0.007	0.005	
D1-262-067	4,591.72	0.006						0.002	0.001	
D1-262-079	4,592.00		0.048					0.027	0.017	0.031
D1-262-088	4,593.50	0.006						0.003	0.002	
D1-262-100	4,594.93	0.006						0.006	0.004	
D1-271-017	4,596.81	0.003						0	0	
D1-271-051	4,598.99	0.002						0.003	0	
D1-271-054	4,596.12	0.002					0.012	0.005	0	
D1-271-055	4,596.12	0.006			0.008			0.006	0.002	
D1-271-092	4,596.12	0.001						0.002	0	
D2-212-001	4,743.95	0						0	0	
D2-212-002	4,742.51	0	0					0	0	
D2-212-003	4,733.57	0.001	0					0	0	
D2-212-011	4,746.35	0	0.002					0.001	0	
D2-212-012	4,744.03	0						0	0	
D2-212-013	4,738.35	0	0.003					0	0	
D2-212-014	4,726.24	0.001						0.001	0	
D2-212-025	4,742.51	0						0	0	
D2-241-006	4,658.54	0.001	0.002					0.002	0	
D2-241-007	4,655.59	0						0	0	
D2-251-004	4,555.68									
D2-251-005	4,555.19									
D2-251-008	4,660.22	0.001	0.039					0.001	0	0.001
D2-251-014	4,657.55	0						0.001	0	
D2-252-002	4,556.35	0.001						0	0	
D2-252-004	4,555.49		0							
D2-252-005	4,556.03									
D2-252-006	4,555.69							0.001	0.001	
D2-252-008	4,557.06							0.001	0.001	
D2-252-010	4,564.13									
D2-252-011	4,556.07							0	0	
D2-252-012	4,555.82	0.002						0	0	
D2-252-014	4,556.19	0.001								
D2-252-015	4,556.19							0.001	0	
D2-252-026	4,559.34		0.009							
D2-252-033	4,559.07									
D2-252-039	4,559.94									
D2-252-049	4,570.51									
D2-252-050	4,577.00									
D2-252-052	4,578.00									
D2-252-056	4,579.00									
D2-252-057	4,573.79		0.015				0.052			
D2-252-062	4,574.15									
D2-252-067	4,587.00									
D2-252-069	4,577.81	0.003								
D2-252-071	4,575.19									
D2-252-085	4,580.75	0.002						0.01	0.006	
D2-252-105	4,572.19									
D2-271-017	4,603.11									
D2-271-019	4,601.30							0	0	
D2-271-022	4,600.17	0.001								

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D2-271-023	4,598.81	0.001								
D2-271-039	4,601.59	0.001	0.297		0.012		0.049			0.046
D2-271-042	4,601.00	0.002								
D2-271-043	4,599.90	0.002								
D2-271-045	4,598.99	0.002	0.07							
D2-271-048	4,601.69	0.001								
D2-271-052	4,603.54	0.001						0	0	
D2-271-063	4,604.76	0.009						0.003	0	
D2-271-067	4,605.65	0.005						0.001	0	
D2-271-075	4,605.91	0.007					0.01	0.005	0	
D2-271-109	4,597.40	0.003						0.002	0	
D2-272-011	4,606.03	0.008						0.006	0	
D2-272-023	4,607.35	0.01						0.006	0	
D2-272-025	4,604.90	0.003						0	0	
D2-272-029	4,604.13	0.003						0	0	
D2-272-052	4,605.25	0.009						0	0	
D2-272-070	4,605.84	0.007						0	0	
D2-272-072	4,607.18	0.009						0.003	0.002	
D2-272-074	4,608.78	0.007						0.004	0.002	
D2-272-075	4,608.78	0						0	0	
D2-281-002	4,608.78	0								
D3-212-001	4,713.00	0	0.001					0	0	
D3-212-002	4,710.90	0						0	0	
D3-212-003	4,708.13	0						0	0	
D3-212-004	4,705.24	0						0	0	
D3-212-012	4,702.84	0	0					0	0	
D3-212-013	4,698.75	0						0	0	
D3-212-017	4,697.20	0								
D3-212-018	4,701.55	0						0	0	
D3-212-022	4,716.93	0.001	0.002					0	0	
D3-212-023	4,715.72	0	0.001					0.001	0	
D3-221-016	4,695.09	0						0	0	
D3-221-021	4,683.00	0.001						0.001	0	
D3-221-022	4,683.00	0.001						0.001	0	
D3-221-023	4,683.00	0.001						0	0	
D3-221-024	4,683.00	0						0	0	
D3-232-001	4,628.13	0	0.012					0	0	0.014
D3-232-009	4,644.58	0						0	0	
D3-232-015	4,634.34	0						0	0	
D3-232-017	4,613.76	0.001						0.003	0	
D3-232-018	4,626.19	0						0.001	0	
D3-241-001	4,650.99	0						0	0	
D3-241-002	4,651.19	0						0.001	0	
D3-241-003	4,654.39	0.001						0	0	
D3-241-004	4,649.91	0						0	0	
D3-241-005	4,650.33	0						0	0	
D3-241-006	4,650.09	0.001						0	0	
D3-241-007	4,649.00	0						0	0	
D3-241-008	4,651.31	0						0.001	0	
D3-241-009	4,652.37	0.001						0	0	
D3-251-001	4,555.45									
D3-251-002	4,555.84									
D3-251-004	4,554.87									

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D3-251-008	4,553.38									
D3-251-011	4,555.31		0.008							
D3-251-012	4,555.45									
D3-251-013	4,556.46							0.022	0.012	
D3-251-014	4,559.45	0								
D3-251-015	4,554.87									
D3-251-016	4,548.92									
D3-252-008	4,556.68	0.002						0	0.012	
D3-252-012	4,555.65	0.002						0.005	0.003	
D3-252-045	4,572.19	0.003						0.004	0.004	
D3-252-054	4,576.99	0.002						0.003	0.002	
D3-252-057	5,000.00	0.002						0.023	0.013	
D3-261-010	4,591.00	0	0.034				0.101	0	0.003	
D3-261-014	4,591.00	0.001	0.132					0.003	0.001	
D3-261-025	4,594.00	0.002						0.003	0.001	
D3-261-045	4,597.00	0.003						0.002	0.001	
D3-261-075	4,600.00	0.004	0.036				0.029	0.002	0	
D3-261-086	4,602.00	0.007						0.007	0.002	
D3-261-117	4,607.00	0.002						0.009	0.001	
D3-261-130	4,608.00	0.004						0.005	0	
D3-262-017	4,609.00	0.007	0.118				0.08	0.001	0	
D3-262-018	4,610.00	0.007	0.208				0.005	0.001	0	
D3-262-042	4,608.00	0.004					0.009	0.001	0	
D3-262-065	4,606.00	0.006						0.002	0	
D3-262-083	4,610.00	0.007						0	0	
D3-262-122	4,608.00	0.004						0.001	0	
D3-271-013	4,612.50	0.003	0.015		0.085		0.033	0	0	
D3-271-019	4,607.81							0.002	0	
D3-271-024	4,605.19							0	0	
D3-271-029	4,613.00	0.001								
D3-271-038	4,608.37							0	0	
D3-271-055	4,610.45	0.002								
D3-271-059	4,611.12							0	0	
D3-271-068	4,617.13	0								
D3-271-069	4,616.85									
D3-271-070	4,615.82							0.002	0	
D3-271-072	4,613.27							0.001	0	
D3-271-075	4,617.94									
D3-271-111	4,614.00	0.001								
D3-281-006	4,608.96	0		0.8				0.103	0.04	
D4-221-004	4,683.00	0.001						0.001	0	
D4-221-005	4,662.00	0.001						0.001	0	
D4-221-008	4,654.90	0.001						0.001	0	
D4-221-009	4,651.00	0.001						0.001	0	
D4-221-010	4,646.00	0.001						0.001	0	
D4-221-011	4,643.00	0.001	0.002					0.001	0.001	
D4-221-015	4,637.85	0.001						0.002	0	
D4-232-001	4,595.25	0						0	0	
D4-232-002	4,575.21	0						0	0	
D4-232-003	4,563.00	0						0	0	
D4-232-004	4,562.51	0.001						0	0	
D4-232-005	4,555.62							0	0	
D4-232-006	4,546.99							0.001	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D4-232-007	4,539.68		0.005					0.001	0	
D4-232-008	4,539.41							0	0	
D4-232-020	4,788.00	0	0.005					0	0	
D4-251-001	4,551.09									
D4-251-005	4,552.08		0.187			0.031	0.031			0.133
D4-251-008	4,552.54									
D4-251-018	5,000.00									
D4-251-019	5,000.00									
D4-271-014	4,624.56							0.003	0.002	
D4-271-015	4,622.79									
D4-271-018	4,621.51									
D4-271-021	4,620.89									
E1-221-001	4,639.87	0.001	0.001					0.001	0	
E1-222-004	4,638.00	0.001						0.002	0.001	
E1-222-005	4,627.00	0.001						0.002	0	
E1-222-006	4,620.00	0.001						0.002	0.001	
E1-222-007	4,623.00	0						0.003	0	
E1-222-011	4,618.00	0.001						0.001	0	
E1-222-012	4,612.00	0.001						0.001	0	
E1-231-012	4,639.85	0.001	0.002					0.003	0	
E1-232-001	4,537.50									
E1-232-025	4,538.19									
E1-242-001	4,548.46									
E1-242-002	4,548.17									
E1-251-001	4,548.07									
E1-251-002	4,549.16									
E1-251-003	4,549.50	0.005						0	0.006	
E1-251-004	4,548.81	0.003						0	0.002	
E1-251-007	4,550.14	0.003						0	0	
E1-251-018	4,552.73	0.003						0	0.001	
E1-251-019	4,553.70	0.001	0.005					0	0	
E1-251-020	4,553.70	0.001						0	0	
E1-251-021	4,554.64	0.003						0	0.001	
E1-251-023	4,555.81	0.002						0.004	0.001	
E1-251-025	4,548.17	0.002						0	0.006	
E1-271-068	4,630.77							0.001	0	
E1-271-072	4,627.97							0.001	0	
E1-271-076	4,624.85							0.003	0.002	
E2-202-016	4,725.54	0.009	0.076					0.032	0	
E2-222-007	4,637.79	0.001	0.002							
E2-222-015	4,603.00	0								
E2-222-016	4,603.00	0								
E2-222-017	4,602.00	0								
E2-222-028	4,637.79	0						0	0	
E2-222-029	4,637.79	0								
E2-222-030	4,637.79	0								
E2-222-031	4,637.79	0								
E2-222-036	4,591.00	0.001								
E2-222-037	4,591.00	0						0	0	
E2-222-040	4,637.79	0								
E2-222-044	4,598.00	0.001						0.001	0	
E2-222-048	4,637.79	0						0	0	
E2-222-050	4,637.79	0	0.015							

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E2-222-067	4,603.00	0.001						0.001	0	
E2-222-075	4,610.00	0.001	0.002					0	0	
E2-231-002	4,643.10	0.001						0	0	
E2-231-005	4,641.90	0.001						0.002	0	
E2-231-006	4,637.10	0.001						0.001	0	
E2-231-013	4,635.95	0.001	0.002					0	0	
E2-231-021	4,636.94	0.001								
E2-231-028	4,647.50	0.002						0.002	0	
E2-231-029	4,646.62	0						0	0	
E2-231-030	4,645.21	0								
E2-231-031	4,644.31	0						0	0	
E2-231-035	4,640.93	0						0	0	
E2-231-037	4,640.55	0						0.001	0	
E2-232-013	4,538.60									
E2-232-014	4,555.40									
E2-242-004	4,550.05									
E2-242-011	4,552.87									
E2-242-017	4,552.84									
E2-242-024	4,549.64									
E2-242-034	4,548.66									
E2-251-027	4,550.68	0.005	0.012					0	0.005	
E2-251-058	4,555.97	0.001						0	0	
E2-252-192	4,559.30	0								
E2-252-193	4,565.83	0.001						0.005	0	
E2-252-194	4,576.19	0.001						0.004	0.001	
E2-252-196	4,559.47	0.001						0.001	0.001	
E2-271-076	4,645.81	0.006						0	0	
E2-271-078	4,642.38							0	0	
E2-271-081	4,639.14							0.001	0	
E2-271-086	4,635.95							0	0	
E3-202-008	4,711.83	0	0.002					0.001	0	
E3-202-009	4,718.61	0.001						0.001	0	
E3-202-010	4,713.19	0						0.001	0	
E3-202-011	4,710.71	0						0.001	0	
E3-202-012	4,709.38	0						0.001	0	
E3-202-BV	4,718.07	0						0.001	0	
E3-222-051	4,561.00	0.002						0	0	
E3-222-064	4,559.72	0.001	0.003					0	0	
E3-222-065	4,558.00	0.001						0	0	
E3-231-006	4,552.00	0.002	0.003					0.004	0	
E3-241-015	4,547.53									0.033
E3-241-022	4,547.99									
E3-241-028	4,548.74									
E3-241-034	4,550.68	0.003				0.017		0	0.002	
E3-241-036	4,553.65	0.004						0	0.002	
E3-241-048	4,554.31	0.002	0.017					0.004	0.002	
E3-241-049	4,555.23	0.007						0.005	0.006	
E3-242-002	4,549.96									
E3-242-012	4,549.55									
E3-252-001	4,579.49	0	0.001					0	0.001	
E3-252-003	4,578.01	0.001						0.001	0	
E3-252-004	4,581.01	0						0.008	0	
E3-252-084	4,581.28	0.001						0	0.001	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E3-252-085	4,580.53	0						0	0	
E3-271-068	4,650.07	0.004					0.005	0	0	
E3-271-072	4,647.15	0.006						0.001	0	
E3-271-074	4,645.76	0.005	0.016					0.001	0.001	
E3-271-121	4,664.18	0.002						0.001	0	
E3-271-122	4,664.18	0.002						0.001	0	
E3-271-123	4,654.21	0.004						0	0	
E4-202-001	4,701.01	0						0.001	0	
E4-202-002	4,691.43	0						0	0	
E4-202-003	4,682.45	0						0	0	
E4-202-007	4,681.68	0	0.002					0	0	
E4-202-009	4,683.62	0	0.001					0	0	
E4-202-013	4,675.41	0						0	0	
E4-202-014	4,668.71	0						0	0	
E4-231-005	4,549.56									
E4-231-006	4,548.23									
E4-231-007	4,537.67	0.002						0	0.001	
E4-231-008	4,538.95									
E4-232-016	4,544.02									
E4-241-005	4,545.86					0.047				
E4-241-016	4,545.76									
E4-241-075	4,559.77	0								
E4-241-077	4,557.41	0.001						0.002	0.001	
E4-241-078	4,554.86	0.002						0.002	0.001	
E4-241-079	4,553.36	0.002	0.075					0.002	0.001	
E4-241-080	4,553.60	0.002						0.004	0.002	
E4-241-081	4,560.82	0								
E4-242-014	4,561.53	0.002						0.002	0.001	
E4-242-029	4,562.46	0.003						0.005	0.003	
E4-242-034	4,562.86	0.001						0.001	0.001	
E4-242-036	4,562.95	0.002						0.005	0.003	
E4-242-045	4,563.48	0.005						0.014	0.008	
E4-242-057	4,564.49	0.005						0.018	0.005	
E4-242-062	4,565.50	0.004						0.024	0.005	
E4-242-069	4,565.79	0.003	0.006					0.011	0.006	
E4-242-078	4,567.20	0.001						0.003	0.003	
E4-251-001	4,567.38	0.001						0.012	0.004	
E4-252-009	4,581.22	0						0	0	
E4-252-010	4,581.19	0								
E4-252-011	4,581.87	0.001						0	0	
E4-252-013	4,586.51	0						0	0	
E4-252-014	4,586.55	0						0	0	
E4-252-019	4,586.54	0								
E4-252-021	4,586.49	0.001						0.004	0	
E4-252-023	4,585.78	0.002						0.014	0	
E4-252-033	4,588.12	0.001						0.001	0	
E4-252-035	4,593.09	0.001						0.003	0	
E4-252-037	4,596.23	0						0	0	
E4-271-058	4,679.36	0.001						0.017	0	
E4-271-060	4,677.07	0.001						0.007	0	
E4-271-062	4,672.66	0.001						0.006	0	
E4-271-063	4,670.03	0						0.005	0	
E4-271-064	4,668.97	0.001	0.004					0.005	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-202-005	4,635.52	0						0.001	0	
F1-202-006	4,633.60	0						0.001	0	
F1-202-007	4,631.66	0.001	0.005					0.001	0	
F1-202-008	4,636.08	0.001						0.002	0	
F1-202-009	4,646.60	0	0.007					0	0	
F1-202-010	4,657.51	0						0	0	
F1-231-001	4,535.76	0.002						0	0.004	
F1-231-002	4,534.29	0.002						0	0.001	
F1-231-003	4,533.00	0.002						0	0.003	
F1-232-001	4,541.76									
F1-232-002	4,542.61									
F1-232-008	4,542.87									
F1-232-012	4,542.90									
F1-232-013	4,543.00	0						0.003	0.002	
F1-232-014	4,544.35	0.001						0.006	0.003	
F1-232-017	4,545.30	0.001						0.006	0.003	
F1-232-019	4,543.99	0.003	0.083					0.039	0.023	
F1-232-033	4,542.97									
F1-232-066	4,542.90									
F1-241-050	4,562.29	0.001						0.003	0.002	
F1-241-109	4,564.40	0.002						0.009	0.005	
F1-241-110	4,567.50	0.001						0.011	0.005	
F1-242-001	4,561.36	0	0.005					0	0	
F1-251-003	4,567.58	0.001	0.075					0.012	0.002	
F1-251-015	4,568.22	0.004						0.006	0.006	
F1-251-023	4,569.76	0.004	0.023					0.007	0.006	
F1-251-031	4,570.51	0.002						0.002	0.002	
F1-251-033	4,571.32	0.001						0.001	0.001	
F1-251-034	4,571.74	0.005						0.008	0.003	
F1-251-039	4,574.01	0.008						0.019	0.002	
F1-251-040	4,576.83	0.004						0.01	0.001	
F1-251-041	4,576.74	0.003	0.002					0.013	0.001	
F1-251-044	4,579.14	0.004						0.013	0	
F1-251-047	4,581.16	0.002						0.009	0	
F1-251-048	4,581.18	0.001						0.004	0	
F1-251-049	4,586.77	0.003						0.005	0.001	
F1-251-050	4,586.77	0.003						0.01	0.001	
F1-251-068	4,580.49	0.001						0.007	0	
F1-251-106	4,571.32	0.002						0.002	0.002	
F1-251-108	4,581.83	0.002	0.016					0.003	0	
F1-252-017	4,597.89	0						0	0	
F1-252-033	4,599.93	0						0	0	
F1-252-039	4,609.51	0.001	0.008					0	0	
F1-261-003	4,609.31	0						0	0	
F1-261-004	4,609.98	0.001						0	0	
F1-261-009	4,607.52	0.001						0.001	0	
F1-261-026	4,607.64	0.002						0.004	0	
F1-261-040	4,608.58	0.001	0.008					0.002	0	
F1-261-048	4,611.41	0.002						0.002	0	
F1-261-058	4,615.25	0.002						0.003	0	
F1-261-064	4,617.47	0.002	0.003				0.005	0.004	0	
F1-261-070	4,619.40	0.001						0.003	0.001	
F1-261-075	4,621.68	0.002	0.027					0.006	0.001	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-261-078	4,625.58	0.001						0.009	0.004	
F1-261-081	4,626.87	0.001						0.006	0.002	
F1-261-089	4,630.42	0.001					0.011	0.002	0	
F1-261-095	4,635.78	0								
F1-261-097	4,635.78	0						0.001	0	
F1-261-106	4,635.78	0.007	0.066				0.042	0.008	0.004	
F1-271-101	4,680.72	0.007	0.206				0.011	0.034	0.001	
F1-271-103	4,678.53	0.002	0.022				0.017	0	0.001	
F2-202-001	4,625.07	0.001						0.002	0	
F2-202-002	4,613.34	0.001						0.006	0	
F2-202-003	4,618.05	0.001						0.002	0	
F2-202-004	4,606.95	0.001						0	0	
F2-202-005	4,616.09	0.001						0.002	0	
F2-202-006	4,600.68	0.003						0.001	0	
F2-202-007	4,610.35	0.002						0.005	0	
F2-202-023	4,618.05	0.001						0.002	0	
F2-202-024	4,600.68	0.001						0	0	
F2-231-004	4,537.75									
F2-231-010	4,538.23									
F2-231-016	4,539.66									
F2-231-023	4,540.25									
F2-231-024	4,536.76	0.004						0	0.011	
F2-232-002	4,548.42	0						0.006	0.004	
F2-232-003	4,546.58	0.001						0.013	0.01	
F2-232-004	4,546.87	0.001	0.002					0.01	0.007	
F2-232-005	4,546.09	0.001						0.008	0.005	
F2-232-006	4,544.74	0.001						0.019	0.011	
F2-232-007	4,548.35	0						0.007	0.004	
F2-242-055	4,568.60	0						0.02	0.002	
F2-242-056	4,569.90	0						0.028	0	
F2-251-012	4,594.81	0.002						0	0	
F2-251-016	4,590.51	0.005						0.001	0	
F2-251-017	4,588.87	0.004						0	0	
F2-251-018	4,586.77	0.002						0.004	0	
F2-251-028	4,593.38	0.003						0	0	
F2-252-027	4,587.15	0.002	0.023					0	0	
F2-261-053	4,646.02	0.002	0.006					0.002	0	
F2-262-011	4,647.99	0.004	0.017					0.002	0	
F2-262-017	4,647.02	0.001						0.001	0	
F2-262-020	4,651.23	0.001						0	0	
F2-262-029	4,651.02	0.002						0	0	
F2-262-032	4,658.08	0.003	0.022					0	0	
F2-262-038	4,659.40	0.003	0.005					0.001	0	
F3-202-006	4,584.95	0.003						0.003	0	
F3-202-007	4,585.30	0.001	0.009					0	0	
F3-211-010	4,579.68	0.005						0.01	0	
F3-211-011	4,579.68	0.001						0	0	
F3-211-012	4,573.98	0.002	0.018					0.001	0	
F3-211-013	4,573.89	0.001						0.001	0	
F3-222-007	4,536.73									
F3-222-008	4,537.93									
F3-222-019	4,534.77									
F3-222-020	4,534.77		0.007							

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F3-231-015	4,537.75									
F3-232-001	4,549.86							0.005	0.013	
F3-232-002	4,550.38							0.002	0.001	
F3-232-003	4,552.62							0.004	0.002	
F3-232-004	4,558.46	0.001						0.021	0.005	
F3-232-005	4,557.00	0.001						0.033	0.005	
F3-232-006	4,555.72	0.001						0.043	0.005	
F3-232-007	4,555.62	0.001						0.099	0.049	
F3-241-004	4,571.60	0						0.001	0	
F3-241-005	4,572.40	0.001						0.027	0	
F3-241-006	4,573.10	0.001						0.025	0	
F3-242-010	4,571.00	0.001						0.031	0	
F3-242-011	4,571.50	0.001						0.029	0	
F3-251-023	4,603.93	0.003						0.002	0	
F3-251-024	4,597.37	0.002	0.113					0.001	0	
F3-251-082	4,594.99	0.002	0.015					0.003	0	
F3-252-001	4,608.13	0.002						0.001	0	
F3-252-003	4,605.73	0.002	0.021					0.001	0	
F3-262-038	4,659.25	0.004						0.008	0	
F3-262-052	4,662.53	0.002	0.007					0.004	0	
F3-262-057	4,667.06	0.005	0.039					0.007	0.001	
F3-262-063	4,675.61	0.004						0.005	0.001	
F3-262-074	4,679.91	0.002				0.02		0.009	0.002	
F3-271-152	4,680.45	0.002						0.009	0.002	
F3-271-153	4,679.84	0.001						0.004	0.001	
F4-0232-BV	4,566.57	0						0.009	0.007	
F4-211-002	4,569.32	0.001						0.002	0	
F4-211-003	4,560.88	0						0.001	0	
F4-211-004	4,557.38	0						0.002	0	
F4-211-005	4,545.39	0.002						0.001	0	
F4-211-006	4,534.99	0.001						0.001	0	
F4-211-007	4,531.09	0.002						0.001	0	
F4-211-013	4,540.04	0.004						0.004	0	
F4-211-014	4,538.11	0.001						0.001	0	
F4-211-015	4,560.77	0						0.001	0	
F4-221-022	4,534.01									
F4-222-003	4,533.85									
F4-222-013	4,534.75					0.021				
F4-232-004	4,562.39	0						0.006	0.004	
F4-232-005	4,561.05	0						0.003	0.001	
F4-232-006	4,559.91	0						0.003	0.002	
F4-241-002	4,566.47	0						0.001	0.001	
F4-241-003	4,566.62	0						0.004	0.002	
F4-241-004	4,567.97	0						0.003	0.002	
F4-241-005	4,570.14	0.002	0.02					0.005	0	
F4-241-006	4,571.84	0.004						0.024	0	
F4-241-007	4,573.09	0.003						0.062	0.001	
F4-241-008	4,575.11	0						0.062	0.001	
F4-241-009	4,573.70	0.001						0.026	0	
F4-241-010	4,573.80	0						0.029	0	
F4-241-011	4,575.00	0						0.055	0	
F4-251-016	4,622.17	0.003						0.021	0	
F4-251-022	4,619.81	0.002						0.001	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F4-251-023	4,616.20	0.002	0.006					0	0	
F4-252-003	4,613.52	0.002						0.001	0	
F4-252-005	4,617.73	0.002	0.009					0.004	0	
F4-271-034	4,703.96	0.001						0.002	0	
F4-271-069	4,699.58	0.004						0.006	0.002	
F4-271-070	4,684.67	0.005	0.008					0.005	0.001	
F4-271-072	4,689.09	0.008						0.012	0.002	
F4-271-073	4,694.83	0.007						0.007	0.002	
F4-271-075	4,702.43	0.002						0.003	0.001	
G1-211-003	4,525.00		0.105					0.003	0	0.012
G1-221-001	4,528.35									
G1-221-005	4,528.52									
G1-221-010	4,529.55					0.015				0.176
G1-221-029	4,527.64									
G1-232-012	4,566.84	0						0.029	0.021	
G1-241-001	4,566.56	0								
G1-241-002	4,573.55	0.004								
G1-242-001	4,578.93	0.002						0.004	0	
G1-242-006	4,580.63	0.002						0.004	0	
G1-242-014	4,582.77	0.002								
G1-242-025	4,584.18	0.001	0.022							
G1-242-028	4,584.54	0.001								
G1-242-038	4,586.47	0.002								
G1-242-045	4,587.72	0.004	0.011					0.008	0	
G1-252-004	4,629.56	0.001						0.002	0	
G1-252-005	4,623.68	0.003	0.012					0.008	0	
G1-252-006	4,630.58	0.001						0.01	0	
G1-252-007	4,632.94	0.001						0.019	0	
G1-252-008	4,634.84	0.001						0.001	0	
G1-252-009	4,637.04	0.001						0.002	0	
G1-252-011	4,638.26	0.001	0.011					0.001	0	
G1-271-007	4,705.24	0.001	0.004					0	0	
G1-271-013	4,705.17	0.001						0	0	
G1-271-030	4,706.39	0.004						0	0	
G1-271-041	4,709.41	0.003	0.01			0.056				
G1-271-042	4,709.44	0.001								
G1-271-047	4,710.78	0.004						0	0	
G1-272-045	4,715.12	0.01				0.026		0	0	
G1-272-065	4,718.95	0.006	0.007					0	0.001	
G1-272-066	4,719.38	0.001						0	0	
G2-212-001	4,523.96									
G2-212-002	4,524.99									
G2-212-003	4,526.68	0.001						0	0.003	
G2-212-014	4,529.91	0.001						0	0.02	
G2-212-015	4,525.62									
G2-212-032	4,527.22									
G2-212-035	4,526.27									
G2-212-038	4,526.47									
G2-212-041	4,528.13		0.051							0.044
G2-212-047	4,522.78									
G2-252-043	4,631.26	0.001						0.001	0	
G2-252-044	4,633.64	0.001						0.003	0	
G2-252-045	4,639.87	0.001						0.026	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G2-252-046	4,637.78	0.002						0.004	0	
G2-252-047	4,649.25	0.001						0.001	0	
G2-272-001	4,719.61	0.003						0.001	0	
G2-272-014	4,721.87	0.007						0.005	0.002	
G2-272-036	4,724.33	0.005						0.011	0.005	
G2-272-049	4,727.32	0.001						0.02	0.01	
G2-272-055	4,730.67	0.001	0.049			0.031		0.007	0.004	
G2-272-068	4,732.77	0.002						0.018	0.012	
G2-272-080	4,738.67	0.008	0.027			0.045		0.277	0.187	
G3-211-015	4,522.45		0.013							
G3-211-017	5,000.00									
G3-211-018	5,000.00							0.011	0	
G3-212-006	4,521.80	0.001						0	0.002	
G3-212-007	4,522.94									
G3-252-026	4,654.93	0						0	0	
G3-252-027	4,659.06	0						0	0	
G3-252-028	4,656.53	0.001						0	0	
G3-252-029	4,656.26	0.004						0.025	0.003	
G3-252-030	4,670.54	0						0.002	0	
G3-252-031	4,675.63	0.002						0.006	0	
G3-252-032	4,676.72	0.001						0.001	0	
G4-252-008	4,676.64		0.038					0.005	0	
G4-261-001	4,672.72	0.001						0	0	
G4-261-008	4,685.23	0.001						0	0	
G4-261-015	4,682.77	0						0.002	0	
G4-261-016	4,680.50	0.001						0	0	
G4-261-017	4,680.57	0.002						0	0	
G4-261-018	4,683.13	0.002						0.004	0	
G4-261-020	4,681.65	0.002						0	0	
G4-261-021	4,680.57	0.002						0.001	0	
G4-261-029	4,680.57	0.003						0.001	0	
H1-261-006	4,708.26	0.001						0.009	0	
H1-261-008	4,704.71	0						0.011	0	
H1-261-009	4,704.78	0						0.003	0	
H1-261-010	4,699.17	0.001						0.007	0	
H1-261-011	4,695.36	0.004						0.008	0	
H1-261-012	4,689.20	0.001						0.006	0	
H1-261-015	4,689.98	0						0.01	0	
H1-261-025	4,708.22	0						0.004	0	
H1-262-023	4,717.08	0.016	0.11					0.053	0	
SS_1_A	4,580.72							0	0.001	
SS_3	4,582.40							0	0	0.016
SS_4	4,583.40							0	0	
SS_5	4,583.90	0.001		0.13				0	0.014	
SS_6	4,585.50	0.001						0	0.003	
SS_7	4,588.00	0.001						0	0.003	
SS_8	4,591.00	0.001						0	0.001	

Notes:

1) For the Wet Weather Scenario, all demands had the "PWWF" Pattern.

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
0C2-261-013	4,556.99	4,556.74	204.399	21	RCP		River Trunk	Existing
0G1-271-041	4,703.98	4,703.94	8.167	15	RCP		Horizon Drive	Existing
1003	4,694.00	4,688.91	1,273.23	10			C Road	FUTURE
1005	4,688.91	4,683.54	1,341.70	10			C Road	FUTURE
1007	4,670.39	4,679.67	2,630.55	8				FUTURE
1009	4,531.04	4,527.29	232	12			Ridges Connector	FUTURE
101	4,643.41	4,643.05	144.8	8			Redlands	Existing
1011	4,533.18	4,531.04	536	12			Ridges Connector	FUTURE
1013	4,535.69	4,533.18	629	12			Ridges Connector	FUTURE
1015	4,537.20	4,535.69	379	12			Ridges Connector	FUTURE
1017	4,538.58	4,537.20	345	12			Ridges Connector	FUTURE
1019	4,539.90	4,538.58	329	12			Ridges Connector	FUTURE
1021	4,540.86	4,539.90	240	12			Ridges Connector	FUTURE
1023	4,542.02	4,540.86	289	12			Ridges Connector	FUTURE
1025	4,543.54	4,542.02	382	12			Ridges Connector	FUTURE
1027	4,545.14	4,543.54	399	12			Ridges Connector	FUTURE
1029	4,548.85	4,545.14	530	12			Ridges Connector	FUTURE
103	4,642.86	4,641.41	303.78	8			Redlands	Existing
1031	4,558.12	4,548.85	309	8			Ridges Connector	FUTURE
1033	4,569.61	4,558.12	383	8			Ridges Connector	FUTURE
1035	4,574.80	4,569.61	173	8			Ridges Connector	FUTURE
1037	4,583.54	4,574.80	437	8			Ridges Connector	FUTURE
1039	4,590.66	4,583.54	356	8			Ridges Connector	FUTURE
1041	4,597.92	4,590.66	363	8			Ridges Connector	FUTURE
1043	4,604.20	4,597.92	314	8			Ridges Connector	FUTURE
1045	4,612.75	4,604.20	285	8			Ridges Connector	FUTURE
1047	4,618.21	4,612.75	156	8			Ridges Connector	FUTURE
1049	4,623.67	4,618.21	156	8			Ridges Connector	FUTURE
105	4,641.21	4,639.76	346.62	8			Redlands	Existing
1051	4,516.58	4,513.57	1,543.17	21				FUTURE
1053	4,683.54	4,678.39	1,286.48	10			C Road	FUTURE
1057	4,596.51	4,511.56	5,986.47	8				FUTURE
1061	4,633.12	4,523.59	4,056.57	8				FUTURE
1063	4,673.86	4,523.46	7,540.55	10				FUTURE
1065	4,744.98	4,551.00	6,085.72	10				FUTURE
1069	4,642.98	4,551.00	3,944.87	8				FUTURE
107	4,639.49	4,623.63	270	8			Redlands	Existing
1071	4,559.67	4,551.00	4,360.58	8				FUTURE
1073	4,594.55	4,577.61	8,861.37	24				FUTURE
1075	4,714.77	4,579.82	21,706.66	15				FUTURE
1077	4,584.61	4,519.71	15,199.69	15				FUTURE
1087	4,513.20	4,212.85	664.462	36		Parallel		FUTURE_REC
1093	4,601.28	4,594.10	7,911.69	21		Parallel		FUTURE_REC
1097	4,576.75	4,565.04	3,663.57	15		Parallel		FUTURE_REC
1105	4,933.00	4,623.67	16,667.16	10				FUTURE
1107	4,626.78	4,623.67	3.654	8				FUTURE
1109	4,819.00	4,770.00	966.573	12				FUTURE
111	4,623.36	4,616.80	123	8			Redlands	Existing
1111	4,770.00	4,735.00	1,033.62	12				FUTURE
1113	4,735.00	4,725.00	910.037	12				FUTURE
1115	4,725.00	4,667.00	659.264	12				FUTURE
1117	4,667.00	4,660.00	1,314.56	12				FUTURE
1119	4,660.00	4,646.95	1,864.76	12				FUTURE
1121	4,646.95	4,580.93	2,590.11	12				FUTURE
1123	4,660.00	4,601.78	13,592.32	15				FUTURE
1125	4,589.29	4,580.04	3,093.95	12			24 1/2 Rd	FUTURE
113	4,616.40	4,610.10	74.11	8			Redlands	Existing
1131	4,675.00	4,670.00	1009.254	8			Lime Kiln	FUTURE
1133	4,670.00	4,660.00	617.395	8			Lime Kiln	FUTURE
1135	4,660.00	4,648.00	1171.199	8			Lime Kiln	FUTURE
1137	4,648.00	4,630.00	1271.107	8			Lime Kiln	FUTURE
1139	4,630.00	4,620.00	1264.866	8			Lime Kiln	FUTURE

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
1141	4,620.00	4,600.00	891.294	8			Lime Kiln	FUTURE
1143	4,570.00	4,523.59	2586	8				FUTURE
1145	4,590.00	4,570.00	1200	8				FUTURE
115	4,609.90	4,589.98	213.82	8			Redlands	Existing
117	4,589.88	4,586.26	38.47	8			Redlands	Existing
119	4,586.16	4,573.55	134.02	8			Redlands	Existing
121	4,554.58	4,550.81	38.8	8	PVC		Ridges	Existing
123	4,550.52	4,529.41	87.67	8	PVC		Ridges	Existing
125	4,529.21	4,526.59	59.29	8	PVC		Ridges	Existing
127	4,523.59	4,521.66	215.16	8	PVC		Ridges	Existing
135	4,563.21	4,654.16	4,837.11	8	PVC			Existing
137	4,653.88	4,652.58	142.739	8	PVC		Redlands	Existing
139	4,600.86	4,600.67	69.73	24			Orchard Mesa	Existing
141	4,600.67	4,599.47	378.78	24			Orchard Mesa	Existing
143	4,599.47	4,598.75	362.65	24			Orchard Mesa	Existing
145	4,598.75	4,598.15	392.08	24			Orchard Mesa	Existing
147	4,598.15	4,597.06	426.27	24			Orchard Mesa	Existing
153	4,597.06	4,596.34	397.67	24			Orchard Mesa	Existing
155	4,596.34	4,596.31	21.25	24			Orchard Mesa	Existing
157	4,596.31	4,562.75	1,004.50	12			Orchard Mesa	Existing
161	4,523.46	4,521.29	511.1	12			Scenic School	Existing
163	4,577.14	4,576.70	340	30		Upsize Diameter	South Side	Existing
165	4,574.96	4,573.97	303.73	30	RCP	Upsize Diameter	South Side	Existing
167	4,577.61	4,577.24	289	30	PVC	Upsize Diameter	South Side	Existing
169	4,577.71	4,577.61	75	30	PVC	Upsize Diameter	South Side	Existing
171	4,578.21	4,577.81	308	24	PVC		South Side	Existing
173	4,579.82	4,579.23	457	24	PVC		South Side	Existing
175	4,579.23	4,578.73	387	24	PVC		South Side	Existing
177	4,578.73	4,578.21	402	24	PVC		South Side	Existing
181	4,543.00	4,537.25	2,052.73	12			G Road	FUTURE
183	4,537.25	4,533.34	1,398.72	12			G Road	FUTURE
185	4,529.86	4,528.15	534.626	12			G Road	FUTURE
483	4,693.91	4,692.10	626.246	12			E 1/2 road	FUTURE
485	4,692.10	4,689.93	747.576	12			E 1/2 road	FUTURE
487	4,658.76	4,657.82	236.609	8			Greenwood Drive	FUTURE
489	4,657.82	4,645.81	632.008	8			Greenwood Drive	FUTURE
491	4,645.81	4,643.95	123.804	8			Greenwood Drive	FUTURE
493	4,643.95	4,636.04	527.482	8			Greenwood Drive	FUTURE
495	4,636.04	4,633.12	194.46	8			Greenwood Drive	FUTURE
497	4,859.65	4,703.03	1,160.14	8			Easter Hill	FUTURE
499	4,703.03	4,645.81	706.83	8			Easter Hill	FUTURE
501	4,775.00	4,737.78	1,488.82	8			Alcove Drive	FUTURE
503	4,737.78	4,708.97	1,029.09	8			Alcove Drive	FUTURE
505	4,708.97	4,683.03	926.267	8			Alcove Drive	FUTURE
507	4,683.03	4,673.86	327.547	8			Alcove Drive	FUTURE
525	4,786.40	4,760.44	865.146	8			Broadway	FUTURE
527	4,760.44	4,733.64	893.316	8			Broadway	FUTURE
529	4,733.64	4,718.47	505.686	8			Broadway	FUTURE
531	4,718.47	4,667.50	1,699.01	8			Broadway	FUTURE
533	4,667.50	4,649.92	1,172.00	8			Broadway	FUTURE
535	4,649.92	4,631.04	1,258.46	8			Broadway	FUTURE
537	4,631.04	4,596.51	1,726.88	8			Broadway	FUTURE
567	4,570.00	4,556.77	2,645.94	8			21 Road	FUTURE
569	4,556.77	4,551.38	1,346.50	8			21 Road	FUTURE
57	4,705.13	4,702.55	262.09	10	PVC			Existing
571	4,551.38	4,544.89	1,299.01	8			21 Road	FUTURE
573	4,544.89	4,527.86	3,405.84	8			21 Road	FUTURE
575	4,527.86	4,517.25	2,122.20	10			21 Road	FUTURE
577	4,517.25	4,510.53	1,678.71	10			21 Road	FUTURE
581	4,599.12	4,586.12	1,299.01	8			22 Road	FUTURE
583	4,586.12	4,559.52	1,330.39	8			22 Road	FUTURE
585	4,559.52	4,554.25	1,316.09	8			22 Road	FUTURE

Pipe Input Data from Future Recommendation System								
ID	From Invert (feet)	To Invert (feet)	Length (feet)	Diameter (inches)	Pipe Material	Recommendation	Interceptor Name	Scenario
587	4,548.99	4,536.63	3,088.83	10			22 Road	FUTURE
589	4,536.63	4,534.30	582.245	12			22 Road	FUTURE
591	4,534.30	4,528.52	1,654.12	12			22 Road	FUTURE
595	4,533.31	4,526.54	2,258.82	18			23 Road	FUTURE
597	4,526.54	4,524.00	714.837	18			23 Road	FUTURE
599	4,634.94	4,586.97	2,998.22	8			23 Road	FUTURE
601	4,586.97	4,575.06	851.104	8			23 Road	FUTURE
603	4,575.06	4,569.59	1,367.51	10			23 Road	FUTURE
605	4,569.59	4,555.05	3,635.02	12			23 Road	FUTURE
607	4,555.05	4,547.61	1,652.12	15			23 Road	FUTURE
609	4,547.61	4,538.91	1,932.55	15			23 Road	FUTURE
613	4,528.52	4,524.00	1,240.00	12			22 Road	FUTURE
615	4,664.00	4,638.75	2,295.59	8			24 1/2 Rd	FUTURE
617	4,638.75	4,618.90	1,804.38	8			24 1/2 Rd	FUTURE
619	4,618.90	4,605.85	1,186.69	8			24 1/2 Rd	FUTURE
627	4,694.00	4,689.28	673.665	8			26 Road	FUTURE
629	4,689.28	4,680.30	1,282.87	8			26 Road	FUTURE
631	4,680.30	4,671.16	1,306.94	8			26 Road	FUTURE
633	4,671.16	4,656.61	2,077.28	8			26 Road	FUTURE
635	4,656.61	4,649.04	1,081.70	8			26 Road	FUTURE
637	4,649.04	4,629.16	1,529.81	8			26 Road	FUTURE
639	4,629.16	4,611.95	1,323.32	8			26 Road	FUTURE
641	4,611.95	4,589.29	1,888.57	12			26 Road	FUTURE
643	4,589.29	4,580.04	771.101	12			26 Road	FUTURE
645	4,580.04	4,575.66	1,151.73	15			26 Road	FUTURE
647	4,575.66	4,569.36	1,656.66	15			26 Road	FUTURE
649	4,655.00	4,618.28	1,836.09	8			25 Road	FUTURE
651	4,618.28	4,613.83	1,647.79	12			25 Road	FUTURE
653	4,613.83	4,611.95	711.137	12			25 Road	FUTURE
655	4,581.96	4,580.04	686.164	12			26 Road	FUTURE
657	4,533.34	4,529.86	1,242.83	12			G Road	FUTURE
673	4,701.12	4,691.93	1,880.30	8			Monument Drive	FUTURE
677	4,712.82	4,691.93	596.637	8			Monument Drive	FUTURE
679	4,691.93	4,669.68	1,391.13	8			Monument Drive	FUTURE
681	4,669.68	4,646.06	1,312.27	8			Monument Drive	FUTURE
683	4,637.60	4,744.98	932.306	4				FUTURE
685	4,831.01	4,749.28	996.645	8			Bella Pago	FUTURE
687	4,749.28	4,744.98	1,076.66	8			Bella Pago	FUTURE
689	4,732.00	4,682.31	1,242.15	8			Mira Monte	FUTURE
691	4,682.31	4,645.18	1,237.68	8			Mira Monte	FUTURE
693	4,645.18	4,642.98	550.801	8			Mira Monte	FUTURE
695	4,619.00	4,610.72	413.891	8			Rosevale	FUTURE
697	4,610.72	4,562.63	1,603.13	8			Rosevale	FUTURE
699	4,562.63	4,559.67	147.851	8			Rosevale	FUTURE
707	4,793.00	4,785.40	1,519.15	12			I-70 Interceptor	FUTURE
709	4,785.40	4,761.63	2,165.89	12			I-70 Interceptor	FUTURE
711	4,753.36	4,714.77	1,543.64	15			I-70 Interceptor	FUTURE
713	4,761.63	4,753.36	2,066.21	15			I-70 Interceptor	FUTURE
715	4,779.69	4,761.63	4,515.61	8			I-70 Interceptor	FUTURE
717	4,796.34	4,779.69	3,330.38	8			I-70 Interceptor	FUTURE
719	4,833.87	4,796.34	1,876.52	8			I-70 Interceptor	FUTURE
727	4,762.60	4,750.11	1,921.29	15			29 Road	FUTURE
733	4,657.67	4,650.64	1,171.15	8			US HWY 50	FUTURE
735	4,650.64	4,638.84	1,371.28	8			US HWY 50	FUTURE
749	4,689.93	4,689.06	300.636	12			E 1/2 road	FUTURE
751	4,689.06	4,688.78	95.714	12			E 1/2 road	FUTURE
753	4,688.78	4,687.93	290.211	12			E 1/2 road	FUTURE
757	4,547.55	4,546.92	334.196	10			Ridges	Existing
759	4,547.55	4,546.92	335.43	8			Ridges	Existing
761	4,546.92	4,546.82	9.951	8			Ridges	Existing
763	4,516.05	4,513.14	145.763	30	RCP		River Road	Existing
773	4,658.97	4,656.78	408	12	VCP		B 1/2 Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
775	4,656.75	4,656.20	123.2	12	VCP	Changed Inverts	B 1/2 Road	Existing
777	4,656.20	4,655.09	248.4	12	VCP	Changed Inverts	B 1/2 Road	Existing
779	4,655.09	4,653.77	333.6	12	VCP		B 1/2 Road	Existing
781	4,653.67	4,652.71	248.5	12	VCP		B 1/2 Road	Existing
785	4,652.64	4,651.67	251	12	VCP		B 1/2 Road	Existing
787	4,651.66	4,650.11	291.592	12	VCP		B 1/2 Road	Existing
789	4,650.44	4,650.15	65.206	12	VCP		B 1/2 Road	Existing
791	4,650.14	4,648.83	396.421	12	VCP		B 1/2 Road	Existing
793	4,648.80	4,647.45	379.463	12			B 1/2 Road	Existing
795	4,647.39	4,646.80	179.547	12			B 1/2 Road	Existing
797	4,646.80	4,646.21	201.687	12	VCP		B 1/2 Road	Existing
799	4,646.11	4,644.92	348	12	VCP	Changed Inverts	B 1/2 Road	Existing
801	4,644.92	4,644.80	37.1	12	VCP	Changed Inverts	B 1/2 Road	Existing
803	4,644.80	4,643.51	378.906	12	VCP	Changed Inverts	B 1/2 Road	Existing
805	4,643.51	4,642.41	324	12	VCP	Changed Inverts	B 1/2 Road	Existing
807	4,642.41	4,641.07	392	12	VCP	Changed Inverts	B 1/2 Road	Existing
809	4,641.07	4,639.71	399.077	12	VCP	Changed Inverts	B 1/2 Road	Existing
811	4,639.71	4,639.39	108.076	12	VCP		B 1/2 Road	Existing
813	4,639.39	4,638.24	293.59	12	VCP		B 1/2 Road	Existing
85	4,652.36	4,651.54	204.94	8	PVC		Redlands	Existing
87	4,651.52	4,650.96	218.91	8			Redlands	Existing
889	4,637.21	4,636.52	325	15			Frontage Rd	Existing
89	4,650.53	4,649.68	208.2	8			Redlands	Existing
891	4,636.45	4,635.40	338	15			Frontage Rd	Existing
893	4,635.26	4,634.52	345	15			Frontage Rd	Existing
895	4,634.45	4,633.58	145	15			Frontage Rd	Existing
897	4,633.58	4,633.24	12.52	15			Frontage Rd	Existing
91	4,649.48	4,648.80	161.6	8			Redlands	Existing
93	4,648.55	4,647.31	268.34	8			Redlands	Existing
939	4,503.19	4,513.80	666.64	6			21 Road	FUTURE
943	4,522.30	4,519.37	975.74	21			22 Road	FUTURE
945	4,519.37	4,518.94	171.855	21			22 Road	FUTURE
947	4,518.94	4,517.29	660.428	21			22 Road	FUTURE
949	4,517.29	4,516.58	283.874	21			22 Road	FUTURE
95	4,647.13	4,645.76	272.44	8			Redlands	Existing
951	4,524.00	4,522.30	666.531	21			22 Road	FUTURE
953	4,538.91	4,537.65	315.643	15			23 Road	FUTURE
955	4,537.65	4,536.15	375.976	15			23 Road	FUTURE
957	4,536.15	4,533.31	944.567	15			23 Road	FUTURE
959	4,554.25	4,548.99	1,315.88	8			22 Road	FUTURE
961	4,569.36	4,568.73	167.92	15			26 Road	FUTURE
963	4,775.78	4,762.60	2,028.59	15			29 Road	FUTURE
965	4,750.11	4,742.91	359.96	15			29 Road	FUTURE
967	4,742.91	4,708.77	2,276.14	15			29 Road	FUTURE
969	4,708.77	4,694.18	1,325.86	15			29 Road	FUTURE
97	4,645.57	4,644.67	196.21	8			Redlands	Existing
971	4,694.18	4,679.67	1,318.98	15			29 Road	FUTURE
973	4,679.67	4,673.05	1,325.26	18			29 Road	FUTURE
975	4,673.05	4,666.46	1,316.49	18			29 Road	FUTURE
977	4,666.46	4,661.84	925.484	18			29 Road	FUTURE
979	4,661.84	4,653.48	1,670.87	18			29 Road	FUTURE
981	4,653.48	4,647.09	1,279.28	18			29 Road	FUTURE
987	4,647.09	4,594.55	5,253.59	18			29 Road	FUTURE
99	4,644.46	4,643.51	254.49	8	PVC		Redlands	Existing
B1-272-001	4,646.75	4,646.04	245	12			B Road	Existing
B1-272-002	4,647.88	4,646.82	254	10			B Road	Existing
B1-272-003	4,648.97	4,647.96	271	10			B Road	Existing
B1-272-005	4,650.32	4,649.13	277	10			B Road	Existing
B1-272-007	4,651.33	4,650.34	336	10			B Road	Existing
B1-272-010	4,645.97	4,645.09	235	12			B Road	Existing
B1-281-001	4,652.64	4,651.37	337	10			B Road	Existing
B1-281-002	4,654.03	4,652.72	338	10			B Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
B1-281-004	4,656.80	4,654.09	450	10			B Road	Existing
B1-281-005	4,658.25	4,656.82	253	10			B Road	Existing
B1-281-006	4,659.90	4,658.31	300	10			B Road	Existing
B1-281-007	4,661.06	4,659.92	105	10			B Road	Existing
B1-281-009	4,664.19	4,661.02	301	10			B Road	Existing
B1-281-010	4,667.56	4,664.70	280	10			B Road	Existing
B1-292-001	4,710.24	4,709.43	401	10			Chipeta	Existing
B1-292-002	4,709.41	4,708.82	396	10			Chipeta	Existing
B1-292-003	4,708.82	4,707.80	401	10			Chipeta	Existing
B1-292-004	4,707.70	4,705.49	218	10			Chipeta	Existing
B1-292-010	4,705.49	4,702.44	293	10			Chipeta	Existing
B1-292-011	4,702.28	4,693.49	291	10			Chipeta	Existing
B1-292-012	4,674.06	4,673.62	302	10			Chipeta	Existing
B1-292-013	4,691.01	4,690.47	87	8			Chipeta	Existing
B1-292-014	4,690.47	4,689.38	266	10			Chipeta	Existing
B1-292-015	4,689.36	4,688.51	106	10			Chipeta	Existing
B1-292-016	4,688.51	4,685.74	145	8			Chipeta	Existing
B2-271-019	4,633.24	4,632.55	252.002	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B2-272-004	4,634.19	4,633.34	302.842	15	VCP		B 1/2 Road	Existing
B2-272-007	4,634.99	4,634.19	289.23	15	VCP		B 1/2 Road	Existing
B2-272-009	4,635.13	4,634.99	49.889	15	VCP		B 1/2 Road	Existing
B2-272-012	4,645.09	4,643.48	430	15			B Road	Existing
B2-272-013	4,643.33	4,642.53	186	15			B Road	Existing
B2-272-014	4,635.43	4,635.13	177.973	15	VCP		B 1/2 Road	Existing
B2-272-015	4,642.50	4,641.11	463	15			B Road	Existing
B2-272-016	4,639.99	4,638.97	440	15			B Road	Existing
B2-272-017	4,638.03	4,637.27	325	15			Frontage Rd	Existing
B2-272-021	4,638.84	4,638.08	316	15			Frontage Rd	Existing
B2-272-027	4,638.22	4,636.76	430	12	VCP		B 1/2 Road	Existing
B2-272-033	4,636.69	4,635.49	208	12	VCP		B 1/2 Road	Existing
B2-282-048	4,660.36	4,658.98	353	12			B 1/2 Road	Existing
B2-282-051	4,661.76	4,660.36	329	12	VCP		B 1/2 Road	Existing
B2-282-054	4,663.80	4,661.80	450	12	VCP		B 1/2 Road	Existing
B2-291-024	4,671.85	4,670.65	135	12	VCP		B 1/2 Road	Existing
B2-291-025	4,670.56	4,667.90	528	12	VCP		B 1/2 Road	Existing
B2-291-026	4,667.87	4,667.72	413	12	VCP		B 1/2 Road	Existing
B2-291-027	4,667.71	4,666.81	443.2	12	VCP		B 1/2 Road	Existing
B2-291-028	4,666.77	4,666.62	78.1	12	VCP		B 1/2 Road	Existing
B2-291-029	4,666.60	4,665.18	299	12	VCP		B 1/2 Road	Existing
B2-291-030	4,665.03	4,663.80	465	12	VCP		B 1/2 Road	Existing
B2-291-045	4,670.65	4,670.57	248	12	VCP		B 1/2 Road	Existing
B2-292-001	4,681.06	4,679.10	400.9	10			B 1/2 Road	Existing
B2-292-002	4,679.00	4,676.86	400.4	10			B 1/2 Road	Existing
B2-292-003	4,676.86	4,676.36	200.7	10			B 1/2 Road	Existing
B2-292-004	4,676.23	4,675.08	95.7	12			B 1/2 Road	Existing
B2-292-008	4,674.06	4,673.62	501	12			B 1/2 Road	Existing
B2-292-009	4,673.56	4,671.86	503.5	12			B 1/2 Road	Existing
B2-292-010	4,675.08	4,674.72	150.5	12			B 1/2 Road	Existing
B2-292-011	4,676.30	4,675.48	145	8			Chipeta	Existing
B2-292-012	4,677.97	4,676.80	285	8			Chipeta	Existing
B2-292-017	4,680.45	4,679.15	163	8			Chipeta	Existing
B2-292-018	4,682.29	4,680.21	255	8			Chipeta	Existing
B2-292-022	4,684.69	4,682.13	220	8			Chipeta	Existing
B2-292-023	4,685.95	4,684.47	85	8			Chipeta	Existing
B2-292-026	4,674.71	4,674.07	222.8	12			B 1/2 Road	Existing
B2-301-001	4,682.29	4,681.46	213	10			B 1/2 Road	Existing
B3-262-023	4,621.17	4,620.66	319.833	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-262-027	4,621.81	4,621.17	404.358	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-262-031	4,622.41	4,621.81	407.081	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-003	4,623.79	4,623.13	234.126	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-006	4,624.41	4,623.79	220.318	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-018	4,625.47	4,624.41	378.578	18	VCP	Upsize Diameter	Orchard Mesa	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
B3-271-026	4,627.09	4,626.58	149.6	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-032	4,627.95	4,627.09	304.646	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-039	4,628.92	4,627.95	346.729	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-042	4,629.70	4,628.92	278.734	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-045	4,630.11	4,629.70	143.795	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-054	4,630.84	4,630.11	225.041	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-058	4,631.39	4,630.84	158.555	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-058A	4,632.02	4,631.39	225.434	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-063	4,632.55	4,632.02	188.895	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-261-014	4,608.87	4,607.44	237.8	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-001	4,611.26	4,608.87	398.782	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-011	4,615.11	4,612.98	355.552	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-016	4,617.18	4,615.11	344.761	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-022	4,619.06	4,617.18	313.273	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-024	4,619.39	4,619.06	208.903	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-028	4,619.87	4,619.39	301.71	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-030	4,620.18	4,619.87	192.158	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-031	4,620.66	4,620.51	94.76	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-036	4,625.37	4,625.13	110.831	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-262-037	4,625.13	4,624.18	428.532	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-262-038	4,624.18	4,623.16	460.25	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-262-043	4,612.98	4,611.26	288.279	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-114	4,620.51	4,620.18	209.8	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-271-001	4,625.44	4,625.37	28.798	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-271-011	4,626.58	4,625.47	396.1	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-271-028	4,632.08	4,631.64	157.309	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-033	4,633.06	4,632.08	348.762	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-128	4,626.11	4,625.44	304.942	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-271-135	4,627.28	4,626.11	415.674	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-138	4,628.38	4,627.28	392.386	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-143	4,629.27	4,628.38	315.864	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-145	4,629.82	4,629.27	195.586	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-146	4,630.72	4,629.82	318.521	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-147	4,631.64	4,630.72	325.212	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-148	4,633.50	4,633.06	154.783	15	PVC		Unaweep Road	Existing
B4-272-004	4,635.36	4,634.33	366	12	PVC		Unaweep Road	Existing
B4-272-039	4,639.40	4,639.08	125.854	12	PVC		Unaweep Road	Existing
B4-272-040	4,639.58	4,639.40	72.652	12	PVC		Unaweep Road	Existing
B4-272-044	4,640.18	4,639.58	241.31	12	PVC		Unaweep Road	Existing
B4-272-048	4,640.59	4,640.18	193.848	12	PVC		Unaweep Road	Existing
B4-272-086	4,636.41	4,635.36	372.542	12	PVC		Unaweep Road	Existing
B4-272-091	4,638.20	4,637.73	167.7	12	PVC		Unaweep Road	Existing
B4-272-092	4,639.08	4,638.49	237.1	12	PVC		Unaweep Road	Existing
B4-272-093	4,634.28	4,633.50	276.7	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-272-094	4,634.33	4,634.28	18.6	12	PVC		Unaweep Road	Existing
B4-272-095	4,638.49	4,638.20	104.5	12	PVC		Unaweep Road	Existing
B4-272-096	4,637.73	4,636.41	468.3	12	PVC		Unaweep Road	Existing
B4-281-054	4,641.06	4,640.59	189.453	12	PVC		Unaweep Road	Existing
B4-281-057	4,641.94	4,641.06	320.62	12	PVC		Unaweep Road	Existing
BV-100	4,540.00	4,549.55	1,147.16	12			Scenic	Existing
BV-105	4,546.92	4,546.82	9.951	10			Ridges	Existing
BV-292-013	4,678.94	4,678.13	158	8			Chipeta	Existing
C1-221-018	4,846.93	4,846.06	249.9	12	PVC		South Camp	Existing
C1-221-019	4,847.43	4,846.93	124.148	12	PVC		South Camp	Existing
C1-261-028	4,603.26	4,600.82	408.196	24	VCP		Orchard Mesa	Existing
C1-261-030	4,604.33	4,603.26	178.662	24	VCP	Upsize Diameter	Orchard Mesa	Existing
C1-261-058	4,607.44	4,606.78	110.175	24		Upsize Diameter	Orchard Mesa	Existing
C1-261-060	4,605.22	4,604.33	149.994	24	VCP	Upsize Diameter	Orchard Mesa	Existing
C1-261-062	4,606.78	4,605.22	260.432	24		Upsize Diameter	Orchard Mesa	Existing
C1-281-035	4,642.19	4,641.94	101.155	10	PVC		Unaweep Road	Existing
C2-221-030	4,846.06	4,844.64	479.4	12	PVC		South Camp	Existing
C2-221-031	4,836.04	4,821.72	162.9	12	PVC		South Camp	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
C2-221-032	4,840.59	4,839.55	170.7	12	PVC		South Camp	Existing
C2-221-033	4,841.58	4,840.59	368.7	12	PVC		South Camp	Existing
C2-221-034	4,842.57	4,841.58	361.7	12	PVC		South Camp	Existing
C2-221-035	4,843.98	4,842.57	172.1	12	PVC		South Camp	Existing
C2-221-037	4,844.64	4,843.98	502.3	12	PVC		South Camp	Existing
C2-221-065	4,839.55	4,836.04	164.7	12	PVC		South Camp	Existing
C2-261-001A	4,596.31	4,562.75	1,005.71	14	DIP		Orchard Mesa	Existing
C2-261-024	4,557.05	4,556.99	49.5	27	VCP		River Trunk	Existing
C3-212-031	4,796.10	4,792.35	273.3	12	PVC		South Camp	Existing
C3-221-003	4,821.72	4,819.43	114.997	12	PVC		South Camp	Existing
C3-221-004	4,819.43	4,813.83	280.4	12	PVC		South Camp	Existing
C3-221-005	4,811.89	4,801.75	492.3	12	PVC		South Camp	Existing
C3-221-006	4,801.75	4,796.10	342	12	PVC		South Camp	Existing
C3-221-030	4,813.83	4,811.89	97.3	12	PVC		South Camp	Existing
C3-252-002	4,556.31	4,555.59	479.142	36	RCP	Upsize Diameter	South Side	Existing
C3-261-001	4,554.75	4,553.86	725.733	21	CONCRETE		River Trunk	Existing
C3-261-002	4,557.21	4,556.31	471.205	36	polyvinyl chloride	Upsize Diameter	South Side	Existing
C3-261-004	4,555.11	4,554.75	299.7	21	CONCRETE		River Trunk	Existing
C3-261-005	4,558.11	4,557.21	303.203	36	PVC	Upsize Diameter	South Side	Existing
C3-261-007	4,555.56	4,555.11	363.588	21	RCP		River Trunk	Existing
C3-261-008	4,558.49	4,558.11	365.753	36	PVC	Upsize Diameter	South Side	Existing
C3-261-009	4,558.78	4,558.49	280.834	36	PVC	Upsize Diameter	South Side	Existing
C3-261-010	4,559.00	4,558.78	76.621	36	PVC	Upsize Diameter	South Side	Existing
C3-261-011	4,555.94	4,555.56	310.78	21	RCP		River Trunk	Existing
C3-261-012	4,559.50	4,559.00	17.843	36	RCP	Upsize Diameter	South Side	Existing
C3-261-012A	4,559.63	4,555.94	46.018	21	PVC			Existing
C3-261-013	4,560.78	4,560.00	92.693	30	RCP	Upsize Diameter	South Side	Existing
C3-261-015	4,556.22	4,555.94	227.894	21	RCP		River Trunk	Existing
C3-261-019	4,556.59	4,556.22	309.3	21	RCP		River Trunk	Existing
C3-261-021	4,556.74	4,556.59	123.197	21	RCP		River Trunk	Existing
C3-261-031	4,561.71	4,560.78	518.568	30	RCP	Upsize Diameter	South Side	Existing
C3-261-035	4,557.14	4,557.05	74.4	27	VCP		River Trunk	Existing
C3-261-040	4,561.85	4,561.71	77.933	30	RCP	Upsize Diameter	South Side	Existing
C3-261-043	4,557.18	4,557.14	31.718	27	VCP		River Trunk	Existing
C3-261-050	4,557.37	4,557.34	28	10	VCP		River Trunk	Existing
C3-261-056	4,557.50	4,557.37	80.918	10	VCP		River Trunk	Existing
C3-261-062	4,562.74	4,561.85	490.491	30	RCP	Upsize Diameter	South Side	Existing
C3-261-075	4,557.34	4,557.24	13	12	PVC		River Trunk	Existing
C3-261-076	4,557.24	4,557.18	44.4	10	VCP		River Trunk	Existing
C3-262-007	4,563.98	4,563.70	154.554	30	RCP	Upsize Diameter	South Side	Existing
C3-262-009	4,563.60	4,562.74	478.88	30	RCP	Upsize Diameter	South Side	Existing
C3-262-033	4,564.91	4,564.08	463.661	30	RCP	Upsize Diameter	South Side	Existing
C3-262-041	4,565.58	4,564.91	154.9	30	RCP	Upsize Diameter	South Side	Existing
C3-262-046	4,566.92	4,565.58	319.406	30	RCP	Upsize Diameter	South Side	Existing
C3-262-051	4,567.21	4,566.92	61.434	30	RCP	Upsize Diameter	South Side	Existing
C3-262-061	4,568.19	4,567.21	206.673	30	RCP	Upsize Diameter	South Side	Existing
C3-262-070	4,570.48	4,570.07	158.03	30	RCP	Upsize Diameter	South Side	Existing
C3-262-071	4,570.07	4,568.19	373.756	30	RCP	Upsize Diameter	South Side	Existing
C3-262-074	4,571.47	4,570.48	500.889	30	RCP	Upsize Diameter	South Side	Existing
C3-271-001	4,572.32	4,571.47	421.48	30	RCP	Upsize Diameter	South Side	Existing
C3-271-003	4,572.91	4,572.32	295.102	30	RCP	Upsize Diameter	South Side	Existing
C3-271-004	4,573.07	4,572.91	77.966	30	RCP	Upsize Diameter	South Side	Existing
C3-271-007	4,573.87	4,573.07	401.374	30	RCP	Upsize Diameter	South Side	Existing
C3-271-010	4,575.40	4,575.16	28	30	RCP	Upsize Diameter	South Side	Existing
C3-271-012	4,576.65	4,575.60	111	30	RCP	Upsize Diameter	South Side	Existing
C4-212-059	4,792.35	4,780.23	489.901	12	PVC		South Camp	Existing
C4-212-060	4,776.84	4,772.96	226	12	PVC		South Camp	Existing
C4-212-061	4,770.23	4,764.84	299.9	12	PVC		South Camp	Existing
C4-221-001	4,764.84	4,751.11	391.4	12	PVC		South Camp	Existing
C4-221-011	4,772.96	4,770.23	159.3	12	PVC		South Camp	Existing
C4-252-001	4,552.80	4,552.03	536.838	36	RCP	Upsize Diameter	South Side	Existing
C4-252-002	4,552.35	4,551.70	533.459	21	RCP		River Trunk	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
C4-252-003	4,555.59	4,554.87	297.594	36	RCP	Upsize Diameter	South Side	Existing
C4-252-004	4,552.79	4,552.35	360.57	21	RCP		River Trunk	Existing
C4-252-005	4,554.19	4,553.57	346.893	36	RCP	Upsize Diameter	South Side	Existing
C4-252-006	4,553.57	4,552.80	311.862	36	RCP	Upsize Diameter	South Side	Existing
C4-252-007	4,553.86	4,553.32	441.554	21	RCP		River Trunk	Existing
C4-252-007A	4,553.32	4,552.79	436.699	21	RCP		River Trunk	Existing
C4-252-008	4,554.87	4,554.19	377.462	36	RCP	Upsize Diameter	South Side	Existing
D1-212-011	4,745.82	4,738.58	284	12	PVC		South Camp	Existing
D1-212-012	4,738.58	4,733.37	274.602	12	PVC		South Camp	Existing
D1-212-032	4,751.11	4,745.82	500.7	12	PVC		South Camp	Existing
D1-242-011	4,625.05	4,620.05	124.968	10	PVC		Ridges	Existing
D1-242-017	4,635.90	4,625.71	275	10	PVC		Ridges	Existing
D1-242-018	4,648.75	4,636.15	294.478	10	PVC		Ridges	Existing
D1-242-019	4,652.05	4,648.85	199.457	12	PVC		Ridges	Existing
D1-242-030	4,619.95	4,600.75	399.963	10	PVC		Ridges	Existing
D1-242-031	4,600.00	4,586.00	293.724	10	PVC		Ridges	Existing
D1-242-031A	4,598.00	4,586.00	295.397	8	PVC		Ridges	Existing
D1-251-001	4,582.38	4,581.56	267.2	21			South Avenue	Existing
D1-251-005	4,586.00	4,556.00	1,267.13	10	PVC		Ridges	Existing
D1-251-005A	4,586.00	4,556.00	1,268.05	8	PVC		Ridges	Existing
D1-251-005B	4,556.00	4,551.00	343.186	10	PVC		Ridges	Existing
D1-252-001	4,549.53	4,548.08	371.427	36	RCP	Upsize Diameter	South Side	Existing
D1-252-004	4,550.10	4,549.53	309.337	36	RCP	Upsize Diameter	South Side	Existing
D1-252-005	4,548.94	4,548.69	201.72	24	VCP		River Trunk	Existing
D1-252-008	4,549.09	4,548.94	126.018	24	VCP		River Trunk	Existing
D1-252-008A	4,549.28	4,549.09	158.194	24	VCP		River Trunk	Existing
D1-252-009	4,550.62	4,550.10	292.478	36	RCP	Upsize Diameter	South Side	Existing
D1-252-010	4,549.50	4,549.28	173.25	21	VCP		River Trunk	Existing
D1-252-011	4,549.87	4,549.50	310.091	21	VCP		River Trunk	Existing
D1-252-015	4,550.86	4,550.62	133.43	36	RCP	Upsize Diameter	South Side	Existing
D1-252-018	4,551.45	4,550.86	398.159	36	RCP	Upsize Diameter	South Side	Existing
D1-252-019	4,552.03	4,551.45	260.038	36	RCP	Upsize Diameter	South Side	Existing
D1-252-023	4,550.29	4,549.87	343.449	21	VCP		River Trunk	Existing
D1-252-031	4,550.50	4,550.29	167.247	21	VCP		River Trunk	Existing
D1-252-036	4,550.70	4,550.50	164.131	21	VCP		River Trunk	Existing
D1-252-041	4,550.89	4,550.70	161.278	21	VCP		River Trunk	Existing
D1-252-042	4,551.70	4,550.89	662.626	21	VCP		River Trunk	Existing
D1-252-050	4,572.48	4,572.14	176.234	27	VCP		South Avenue	Existing
D1-252-053	4,564.58	4,564.29	272	24	RCP	Parallel	Colorado Avenue	Existing
D1-252-056	4,564.84	4,564.67	83	24	RCP	Parallel	Colorado Avenue	Existing
D1-252-057	4,565.78	4,564.84	223.762	24	RCP	Parallel	Colorado Avenue	Existing
D1-252-059	4,565.89	4,565.78	27.158	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-001	4,566.50	4,566.09	77.506	24	PVC	Parallel	Colorado Avenue	Existing
D1-261-003	4,573.60	4,572.48	723.306	27	VCP		South Avenue	Existing
D1-261-006	4,567.95	4,566.50	51.594	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-008	4,569.50	4,567.95	302.547	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-020	4,574.54	4,573.60	606.866	27	VCP		South Avenue	Existing
D1-261-021	4,570.00	4,569.50	99.515	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-023	4,577.36	4,577.02	233.241	27	VCP		South Avenue	Existing
D1-261-036	4,571.70	4,570.00	422.792	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-037	4,577.85	4,577.36	301.563	27	VCP		South Avenue	Existing
D1-261-052	4,572.10	4,571.70	440.734	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-059	4,578.49	4,577.85	481.274	27	VCP		South Avenue	Existing
D1-261-061	4,578.59	4,578.49	9.6	27	VCP		South Avenue	Existing
D1-261-075	4,573.00	4,572.10	445.227	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-084	4,579.30	4,578.59	471.5	27	VCP		South Avenue	Existing
D1-261-103	4,575.00	4,573.00	515.7	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-116	4,580.97	4,580.52	312.518	21	VCP		South Avenue	Existing
D1-261-116A	4,580.52	4,579.80	482.521	21	VCP		South Avenue	Existing
D1-261-117	4,575.50	4,575.00	54.284	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-128	4,575.80	4,575.50	267.746	24	RCP	Parallel	Colorado Avenue	Existing
D1-262-025	4,576.00	4,575.80	380	24	RCP	Parallel	Colorado Avenue	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
D1-262-030	4,581.56	4,580.97	380.677	21	VCP		South Avenue	Existing
D1-262-040	4,576.50	4,576.00	264.434	24	RCP		Colorado Avenue	Existing
D1-262-067	4,578.20	4,576.50	502.758	24	RCP		Colorado Avenue	Existing
D1-262-079	4,583.87	4,582.38	495.739	21	VCP		South Avenue	Existing
D1-262-088	4,579.00	4,578.20	461.496	24	RCP		Colorado Avenue	Existing
D1-262-100	4,580.00	4,579.00	489.507	24	RCP		Colorado Avenue	Existing
D1-271-018	4,581.55	4,580.67	455.198	24	RCP		Colorado Avenue	Existing
D1-271-051	4,585.43	4,585.36	8.462	21	PVC		Colorado Avenue	Existing
D1-271-054	4,585.36	4,581.71	457.7	24	RCP		Colorado Avenue	Existing
D1-271-055	4,580.63	4,580.00	537.1	24	RCP		Colorado Avenue	Existing
D1-271-092	4,581.71	4,581.55	19.4	24	RCP		Colorado Avenue	Existing
D2-212-001	4,731.19	4,729.46	91.02	12	PVC		South Camp	Existing
D2-212-002	4,729.46	4,729.13	21.7	12	PVC		South Camp	Existing
D2-212-003	4,722.94	4,714.33	363.5	12	PVC		South Camp	Existing
D2-212-011	4,733.37	4,731.40	104.468	12	PVC		South Camp	Existing
D2-212-012	4,731.40	4,731.19	11.086	12	PVC		South Camp	Existing
D2-212-013	4,726.69	4,722.94	249.903	12	PVC		South Camp	Existing
D2-212-014	4,714.33	4,706.40	496.1	12	PVC		South Camp	Existing
D2-212-025	4,729.13	4,726.69	163	8	PVC		South Camp	Existing
D2-241-006	4,648.54	4,645.54	239.276	8	PVC		Scenic School	Existing
D2-241-007	4,645.54	4,641.85	302.842	8	PVC		Scenic School	Existing
D2-251-004	4,544.90	4,544.75	72.455	48	RCP		River Road	Existing
D2-251-005	4,545.26	4,544.90	17.81	48	RCP		River Road	Existing
D2-251-008	4,550.50	4,545.06	380	12			Ridges	Existing
D2-251-014	4,556.00	4,551.00	344.531	8	PVC		Ridges	Existing
D2-251-014A	4,551.00	4,550.50	3.246	12			Ridges	Existing
D2-252-002	4,548.08	4,547.05	523.849	36	RCP	Upsize Diameter	South Side	Existing
D2-252-004	4,547.05	4,545.56	310.878	36	RCP	Upsize Diameter	South Side	Existing
D2-252-005	4,545.56	4,545.26	318.46	48	RCP		River Road	Existing
D2-252-006	4,546.44	4,545.56	128.248	24	VCP		River Trunk	Existing
D2-252-008	4,546.82	4,546.44	330.165	24	VCP		River Trunk	Existing
D2-252-010	4,548.43	4,546.82	327.541	24	VCP		River Trunk	Existing
D2-252-011	4,549.30	4,547.05	433.714	27	PVC		Grand Avenue	Existing
D2-252-012	4,548.67	4,548.43	179.711	24	VCP		River Trunk	Existing
D2-252-014	4,548.69	4,548.67	180.728	24	VCP		River Trunk	Existing
D2-252-015	4,550.85	4,550.25	11.283	27	PVC		Grand Avenue	Existing
D2-252-026	4,551.69	4,550.85	423.546	30	VCP		Grand Avenue	Existing
D2-252-033	4,551.00	4,547.10	912.627	24	PVC		Colorado Avenue	Existing
D2-252-039	4,552.50	4,551.00	395.765	24	PVC		Colorado Avenue	Existing
D2-252-049	4,556.50	4,552.50	402.686	24	PVC		Colorado Avenue	Existing
D2-252-050	4,569.00	4,563.00	1,108.44	24	VCP		South Avenue	Existing
D2-252-052	4,569.41	4,569.00	206.443	27	VCP		South Avenue	Existing
D2-252-056	4,571.64	4,569.41	22.862	27	VCP		South Avenue	Existing
D2-252-057	4,559.50	4,556.50	278.866	24	PVC		Colorado Avenue	Existing
D2-252-062	4,559.77	4,559.50	68.9	24	PVC		Colorado Avenue	Existing
D2-252-067	4,572.14	4,571.64	400.1	27	VCP		South Avenue	Existing
D2-252-069	4,562.72	4,559.87	278.964	24	RCP		Colorado Avenue	Existing
D2-252-071	4,572.57	4,562.82	298.414	27	VCP		Grand Avenue	Existing
D2-252-085	4,564.19	4,562.81	299.202	24	RCP		Colorado Avenue	Existing
D2-252-105	4,553.17	4,551.69	749.5	24	VCP		Grand Avenue	Existing
D2-271-017	4,590.64	4,588.08	351.518	15	PVC		15th Street	Existing
D2-271-019	4,588.08	4,586.34	238.423	15	PVC		15th Street	Existing
D2-271-022	4,586.34	4,585.45	122.114	15	PVC		15th Street	Existing
D2-271-023	4,585.45	4,583.64	247.8	15	PVC		15th Street	Existing
D2-271-039	4,591.68	4,589.83	154.586	18	PVC		Colorado Avenue	Existing
D2-271-042	4,589.83	4,588.61	153.504	21	RCP		Colorado Avenue	Existing
D2-271-043	4,588.61	4,586.86	218.809	21	RCP		Colorado Avenue	Existing
D2-271-045	4,586.86	4,585.43	179.022	21	PVC		Colorado Avenue	Existing
D2-271-048	4,594.65	4,594.60	30.635	15	VCP	Parallel	Rood Avenue	Existing
D2-271-052	4,595.09	4,594.65	298.414	15	VCP	Parallel	Rood Avenue	Existing
D2-271-063	4,595.66	4,595.09	375.396	15	VCP	Parallel	Rood Avenue	Existing
D2-271-067	4,596.06	4,595.66	330.821	15	VCP	Parallel	Rood Avenue	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
D2-271-075	4,596.17	4,596.06	88.527	15	VCP	Parallel	Rood Avenue	Existing
D2-271-109	4,583.64	4,582.30	183.2	15	PVC		15th Street	Existing
D2-272-011	4,597.00	4,596.17	678.337	15	VCP	Parallel	Rood Avenue	Existing
D2-272-023	4,598.93	4,598.42	331.313	15	VCP	Parallel	Rood Avenue	Existing
D2-272-025	4,598.42	4,597.89	368.902	15	VCP	Parallel	Rood Avenue	Existing
D2-272-029	4,597.89	4,597.00	602.667	15	VCP	Parallel	Rood Avenue	Existing
D2-272-052	4,600.00	4,598.93	778.278	15	VCP	Parallel	Rood Avenue	Existing
D2-272-070	4,600.60	4,600.00	403.899	15	VCP	Parallel	Rood Avenue	Existing
D2-272-072	4,601.12	4,600.60	346.401	15	VCP	Parallel	Rood Avenue	Existing
D2-272-074	4,601.53	4,601.12	322.916	15	VCP	Parallel	Rood Avenue	Existing
D2-272-075	4,601.57	4,601.53	26.502	15	VCP	Parallel	Rood Avenue	Existing
D2-281-002	4,601.72	4,601.57	100.171	15	VCP	Parallel	Rood Avenue	Existing
D3-212-001	4,702.89	4,702.53	126.57	8	PVC		Goat Wash	Existing
D3-212-002	4,702.47	4,698.00	354.55	8	PVC		Goat Wash	Existing
D3-212-003	4,697.82	4,691.93	351.26	8	PVC		Goat Wash	Existing
D3-212-004	4,691.93	4,689.60	184.762	8	PVC		Goat Wash	Existing
D3-212-012	4,689.60	4,687.50	166.263	8	PVC		Goat Wash	Existing
D3-212-013	4,687.50	4,684.81	212.938	8	PVC		Goat Wash	Existing
D3-212-017	4,689.93	4,684.20	66.8	12	PVC		South Camp	Existing
D3-212-018	4,690.94	4,689.93	120.6	12	PVC		South Camp	Existing
D3-212-022	4,706.40	4,690.94	499.2	12	PVC		South Camp	Existing
D3-212-023	4,703.43	4,702.89	186.9	8	PVC		Goat Wash	Existing
D3-221-016	4,684.72	4,680.30	311.272	12	PVC		Goat Wash	Existing
D3-221-021	4,663.43	4,658.80	353.85	12	PVC		Goat Wash	Existing
D3-221-022	4,672.04	4,669.22	271.125	12	PVC		Goat Wash	Existing
D3-221-023	4,677.90	4,672.08	271.37	12	PVC		Goat Wash	Existing
D3-221-024	4,680.25	4,678.00	266.008	12	PVC		Goat Wash	Existing
D3-232-001	4,621.48	4,620.08	114.767	8	PVC		Scenic School	Existing
D3-232-001A	4,620.28	4,620.08	16.5	8	PVC		Scenic School	Existing
D3-232-009	4,622.35	4,621.48	71.045	8	PVC		Scenic School	Existing
D3-232-017	4,608.64	4,593.30	184.5	8	PVC		Scenic School	Existing
D3-232-018	4,620.08	4,610.69	88.61	8	PVC		Scenic School	Existing
D3-241-001	4,641.85	4,640.95	73.702	8	PVC		Scenic School	Existing
D3-241-002	4,640.95	4,638.42	207.066	8	PVC		Scenic School	Existing
D3-241-003	4,638.42	4,636.83	130.642	8	PVC		Scenic School	Existing
D3-241-004	4,636.83	4,634.94	154.75	8	PVC		Scenic School	Existing
D3-241-005	4,633.39	4,629.78	296.578	8	PVC		Scenic School	Existing
D3-241-005A	4,629.78	4,629.64	11.185	8	PVC		Scenic School	Existing
D3-241-006	4,629.64	4,625.45	343.711	8	PVC		Scenic School	Existing
D3-241-007	4,625.45	4,622.35	254.233	8	PVC		Scenic School	Existing
D3-241-009	4,634.94	4,633.39	126.674	8	PVC		Scenic School	Existing
D3-251-001	4,542.85	4,542.41	454.116	54	RCP		River Road	Existing
D3-251-002	4,543.23	4,542.85	414.428	54	RCP		River Road	Existing
D3-251-004	4,544.59	4,543.96	394	48	RCP		River Road	Existing
D3-251-008	4,543.80	4,543.63	234.094	48	RCP		River Road	Existing
D3-251-011	4,544.75	4,544.65	13.054	48	RCP		River Road	Existing
D3-251-012	4,543.63	4,543.62	24.764	48	RCP		River Road	Existing
D3-251-013	4,543.62	4,543.23	340.89	54	RCP		River Road	Existing
D3-251-014	4,545.76	4,545.63	145.304	27	PVC	Upsize Diameter	Colorado Avenue	Existing
D3-251-015	4,544.65	4,544.59	38.1	48	RCP		River Road	Existing
D3-251-016	4,543.96	4,543.80	48.1	48	RCP		River Road	Existing
D3-252-008	4,546.00	4,545.76	218.35	27	PVC	Upsize Diameter	Colorado Avenue	Existing
D3-252-012	4,547.10	4,546.00	303.63	24	PVC		Colorado Avenue	Existing
D3-252-045	4,562.82	4,560.20	113.75	24	PVC		Grand Avenue	Existing
D3-252-045A	4,560.14	4,553.17	411.8	24	PVC		Grand Avenue	Existing
D3-252-057	4,577.57	4,572.57	153.11	27	VCP		Grand Avenue	Existing
D3-261-010	4,584.00	4,577.57	196.964	27	VCP		Grand Avenue	Existing
D3-261-014	4,585.03	4,585.00	7.905	27	VCP		Grand Avenue	Existing
D3-261-025	4,586.31	4,585.03	345.646	27	VCP		Grand Avenue	Existing
D3-261-045	4,588.09	4,586.31	479.864	27	VCP		Grand Avenue	Existing
D3-261-075	4,590.00	4,588.09	504.234	27	VCP		Grand Avenue	Existing
D3-261-086	4,593.11	4,592.00	286.508	24	VCP		Grand Avenue	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
D3-261-117	4,595.78	4,593.11	681.486	24	VCP		Grand Avenue	Existing
D3-261-130	4,596.52	4,595.78	297.66	24	VCP		Grand Avenue	Existing
D3-262-017	4,597.50	4,596.52	391.37	24	VCP		Grand Avenue	Existing
D3-262-018	4,598.50	4,597.50	273.749	24	VCP		Grand Avenue	Existing
D3-262-042	4,599.50	4,598.50	468.023	24	VCP		Grand Avenue	Existing
D3-262-065	4,600.39	4,599.54	472	18	VCP		Grand Avenue	Existing
D3-262-083	4,601.61	4,600.39	482.816	18	VCP		Grand Avenue	Existing
D3-262-122	4,599.54	4,599.50	22.8	18	DIP		Grand Avenue	Existing
D3-271-013	4,603.00	4,601.61	542.184	18	VCP		Grand Avenue	Existing
D3-271-019	4,595.79	4,593.35	334.757	15	PVC		15th Street	Existing
D3-271-024	4,593.35	4,590.64	371.362	15	PVC		15th Street	Existing
D3-271-029	4,604.18	4,603.00	464.186	18	VCP		Grand Avenue	Existing
D3-271-038	4,599.05	4,595.79	445.686	15	PVC		15th Street	Existing
D3-271-055	4,601.95	4,599.05	397.208	15	PVC		15th Street	Existing
D3-271-059	4,602.09	4,601.95	19.942	15	PVC		15th Street	Existing
D3-271-068	4,610.32	4,609.63	95.022	15	PVC		15th Street	Existing
D3-271-069	4,609.63	4,607.45	298.119	15	PVC		15th Street	Existing
D3-271-070	4,607.45	4,604.42	415.97	15	PVC		15th Street	Existing
D3-271-072	4,604.42	4,602.09	318.094	15	PVC		15th Street	Existing
D3-271-075	4,610.76	4,610.32	59.991	15	PVC		15th Street	Existing
D3-271-111	4,605.40	4,604.18	441.6	18	VCP		Grand Avenue	Existing
D3-281-006	4,601.78	4,601.72	37.589	15	VCP	Parallel	Rood Avenue	Existing
D4-221-004	4,658.76	4,654.62	251.838	12	PVC		Goat Wash	Existing
D4-221-005	4,654.52	4,650.54	350.65	12	PVC		Goat Wash	Existing
D4-221-008	4,650.44	4,645.81	300.612	12	PVC		Goat Wash	Existing
D4-221-009	4,640.75	4,637.90	198.99	15	PVC		Goat Wash	Existing
D4-221-010	4,637.77	4,631.55	298.775	15	PVC		Goat Wash	Existing
D4-221-011	4,631.45	4,630.16	300.24	15	PVC		Goat Wash	Existing
D4-232-001	4,593.08	4,572.75	126.5	8	PVC		Scenic School	Existing
D4-232-002	4,572.53	4,554.95	141.3	8	PVC		Scenic School	Existing
D4-232-003	4,554.74	4,551.59	111.5	8	PVC		Scenic School	Existing
D4-232-004	4,551.41	4,549.55	131.2	8	PVC		Scenic School	Existing
D4-232-005	4,547.40	4,543.02	294.03	8	PVC		Scenic School	Existing
D4-232-006	4,542.82	4,533.87	422.7	8	PVC		Scenic School	Existing
D4-232-007	4,533.69	4,533.27	71.2	12	PVC	Upsize Diameter	Scenic School	Existing
D4-232-008	4,526.81	4,524.29	205.6	12	PVC	Upsize Diameter	Scenic School	Existing
D4-251-001	4,541.56	4,541.03	564.16	54	RCP		River Road	Existing
D4-251-005	4,541.81	4,541.60	480.618	54	RCP		River Road	Existing
D4-251-008	4,542.29	4,541.81	571.671	54	RCP		River Road	Existing
D4-251-018	4,542.41	4,542.29	125.788	54	RCP		River Road	Existing
D4-251-019	4,541.60	4,541.56	91.184	54	RCP		River Road	Existing
D4-271-014	4,620.92	4,619.45	201.031	15	PVC		15th Street	Existing
D4-271-015	4,619.45	4,616.97	339.939	15	PVC		15th Street	Existing
D4-271-018	4,616.97	4,614.52	335.413	15	PVC		15th Street	Existing
D4-271-021	4,614.52	4,610.76	515.485	15	PVC		15th Street	Existing
E1-221-001	4,630.05	4,629.03	200.12	15	PVC		Goat Wash	Existing
E1-221-001A	4,628.98	4,626.63	403.702	15	PVC		Goat Wash	Existing
E1-222-004	4,626.53	4,616.86	202.35	14	DIP		Goat Wash	Existing
E1-222-005	4,616.76	4,611.53	275.05	15	PVC		Goat Wash	Existing
E1-222-006	4,611.53	4,609.83	157.276	15	PVC		Goat Wash	Existing
E1-222-007	4,609.72	4,606.39	307.041	15	PVC		Goat Wash	Existing
E1-222-011	4,606.39	4,599.71	311.698	18	PVC		Goat Wash	Existing
E1-222-012	4,599.62	4,597.21	392.36	18	PVC		Goat Wash	Existing
E1-231-012	4,627.63	4,623.16	231.896	12	PVC	Upsize Diameter	Connected Lakes	Existing
E1-232-001	4,524.29	4,527.07	982.8	8	PVC		Connected Lakes	Existing
E1-232-025	4,527.07	4,532.08	1,164.80	8	PVC		Connected Lakes	Existing
E1-242-001	4,538.07	4,537.93	164.394	54	RCP		River Road	Existing
E1-242-002	4,539.59	4,539.31	123.689	24			Horizon Drive	Existing
E1-251-001	4,540.69	4,538.07	625.102	54	RCP		River Road	Existing
E1-251-002	4,541.03	4,540.69	421.218	54	RCP		River Road	Existing
E1-251-003	4,540.76	4,539.90	516.239	24			Horizon Drive	Existing
E1-251-004	4,541.65	4,540.89	508.531	24			Horizon Drive	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
E1-251-007	4,543.10	4,542.09	361.751	24	CONCRETE		Horizon Drive	Existing
E1-251-018	4,544.60	4,543.17	379.857	24	CONCRETE		Horizon Drive	Existing
E1-251-019	4,545.14	4,544.64	131.2	24	CONCRETE		Horizon Drive	Existing
E1-251-020	4,545.20	4,545.14	21.386	24	CONCRETE		Horizon Drive	Existing
E1-251-021	4,545.79	4,545.20	200.146	24	CONCRETE		Horizon Drive	Existing
E1-251-023	4,546.77	4,545.79	326.95	24	CONCRETE		Horizon Drive	Existing
E1-251-025	4,539.90	4,539.74	99.122	24			Horizon Drive	Existing
E1-271-068	4,628.02	4,625.04	408.4	15	PVC		15th Street	Existing
E1-271-072	4,625.04	4,621.79	444.9	15	PVC		15th Street	Existing
E1-271-076	4,621.79	4,620.92	119.097	15	PVC		15th Street	Existing
E2-202-016	4,711.65	4,705.93	307.8	8	PVC			Existing
E2-222-015	4,567.50	4,559.61	337.25	18	PVC		Goat Wash	Existing
E2-222-016	4,570.44	4,567.89	9.98	12			Goat Wash	Existing
E2-222-017	4,579.68	4,572.72	83.02	18	PVC		Goat Wash	Existing
E2-222-028	4,593.04	4,591.61	73.964	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-028A	4,596.12	4,593.14	154.521	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-029	4,591.51	4,587.75	194.799	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-030	4,587.65	4,586.97	35.03	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-031	4,586.87	4,581.37	285.36	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-036	4,559.30	4,555.83	176.628	18	PVC		Goat Wash	Existing
E2-222-037	4,555.76	4,548.93	333.084	18	PVC		Goat Wash	Existing
E2-222-040	4,571.36	4,567.89	163.213	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-044	4,590.76	4,588.22	496.38	18	PVC		Goat Wash	Existing
E2-222-048	4,581.27	4,578.95	120.146	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-050	4,578.85	4,571.46	129.166	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-067	4,595.73	4,590.82	434.11	18	PVC		Goat Wash	Existing
E2-222-075	4,597.10	4,596.10	86.953	18	PVC		Goat Wash	Existing
E2-231-002	4,603.37	4,596.22	370.312	12			Connected Lakes	Existing
E2-231-005	4,610.62	4,603.47	373.362	12			Connected Lakes	Existing
E2-231-006	4,615.27	4,610.72	235.57	12			Connected Lakes	Existing
E2-231-013	4,618.13	4,615.37	143.27	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-021	4,623.06	4,618.23	249.903	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-028	4,641.17	4,639.85	122.9	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-029	4,639.69	4,638.76	95.054	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-030	4,638.52	4,637.71	107.945	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-031	4,637.60	4,632.91	315.864	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-035	4,632.81	4,630.49	120.573	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-037	4,630.39	4,627.73	137.563	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-232-013	4,532.08	4,533.39	305.8	8	PVC		Connected Lakes	Existing
E2-232-014	4,533.39	4,643.59	1,085.30	8	PVC		Connected Lakes	Existing
E2-242-004	4,536.23	4,535.65	633.926	54	RCP		River Road	Existing
E2-242-011	4,536.71	4,536.23	604.045	54	RCP		River Road	Existing
E2-242-017	4,537.01	4,536.71	596.271	54	RCP		River Road	Existing
E2-242-024	4,537.65	4,537.01	552.418	54	RCP		River Road	Existing
E2-242-034	4,537.93	4,537.65	346.991	54	RCP		River Road	Existing
E2-251-027	4,542.09	4,541.72	192.634	24			Horizon Drive	Existing
E2-251-058	4,547.27	4,547.03	36.867	24	CONCRETE		Horizon Drive	Existing
E2-252-192	4,557.18	4,548.58	654	18	PVC		Horizon Drive	Existing
E2-252-193	4,565.18	4,557.37	475.1	18	PVC		Horizon Drive	Existing
E2-252-194	4,567.93	4,565.18	167.9	18	PVC		Horizon Drive	Existing
E2-252-196	4,557.37	4,557.18	11.8	18	PVC		Horizon Drive	Existing
E2-271-073	4,640.61	4,637.43	435.912	15	PVC		15th Street	Existing
E2-271-077	4,637.43	4,634.50	401.8	15	PVC		15th Street	Existing
E2-271-081	4,634.50	4,631.30	437.4	15	PVC		15th Street	Existing
E2-271-086	4,631.30	4,628.02	450.2	15	PVC		15th Street	Existing
E3-202-008	4,702.45	4,700.84	163.377	10	PVC			Existing
E3-202-008A	4,700.74	4,699.77	98.498	10	PVC			Existing
E3-202-009	4,705.83	4,705.23	61.23	10	PVC			Existing
E3-202-011	4,699.64	4,696.85	263.614	10	PVC			Existing
E3-202-012	4,696.79	4,687.93	301.465	10	PVC			Existing
E3-222-051	4,546.11	4,544.70	465.366	18	PVC		Goat Wash	Existing
E3-222-051A	4,547.31	4,546.11	274.16	18	PVC		Goat Wash	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
E3-222-065	4,548.83	4,547.41	187.682	18	PVC		Goat Wash	Existing
E3-231-006	4,544.56	4,542.00	900.02	21			Goat Wash	Existing
E3-241-015	4,533.01	4,531.11	896.457	54	RCP		River Road	Existing
E3-241-022	4,534.22	4,533.01	657.05	54	RCP		River Road	Existing
E3-241-028	4,534.67	4,534.22	444.899	54	RCP		River Road	Existing
E3-241-034	4,537.66	4,536.64	203.95	18	DI		24 1/2 Road	Existing
E3-241-036	4,539.03	4,537.66	247.017	18	PVC		24 1/2 Road	Existing
E3-241-048	4,541.05	4,540.95	36.539	18	PVC		24 1/2 Road	Existing
E3-241-049	4,540.95	4,539.03	252.56	18			24 1/2 Road	Existing
E3-242-002	4,535.29	4,534.67	508.006	54	RCP		River Road	Existing
E3-242-012	4,535.65	4,535.29	210.281	54	RCP		River Road	Existing
E3-252-001	4,576.93	4,575.97	435.978	18	CIP		Horizon Drive	Existing
E3-252-003	4,575.97	4,575.03	422.07	18	CIP		Horizon Drive	Existing
E3-252-004	4,575.03	4,574.81	13.5	18	PVC		Horizon Drive	Existing
E3-252-084	4,574.81	4,567.93	418.9	18	PVC		Horizon Drive	Existing
E3-252-085	4,577.07	4,576.93	62.9	18	PVC		Horizon Drive	Existing
E3-271-068	4,645.72	4,643.65	282.3	15	PVC		15th Street	Existing
E3-271-072	4,643.65	4,641.84	247.2	15	PVC		15th Street	Existing
E3-271-074	4,641.84	4,640.61	168.9	15	PVC		15th Street	Existing
E3-271-121	4,649.80	4,647.68	289.8	15	PVC		15th Street	Existing
E3-271-122	4,649.90	4,649.80	21	15	PVC		15th Street	Existing
E3-271-123	4,647.68	4,645.72	268.5	15	PVC		15th Street	Existing
E4-202-001	4,687.84	4,682.01	194.078	12	PVC			Existing
E4-202-002	4,681.87	4,674.32	398.454	12	PVC			Existing
E4-202-003	4,674.21	4,671.73	131.626	12	PVC			Existing
E4-202-007	4,667.94	4,664.29	186.042	12	PVC			Existing
E4-202-009	4,671.73	4,668.17	189.387	12	PVC			Existing
E4-202-013	4,664.14	4,658.33	295.528	12	PVC			Existing
E4-202-014	4,656.10	4,646.58	340.628	12	PVC			Existing
E4-231-005	4,542.00	4,539.69	145.009	21	DIP		Goat Wash	Existing
E4-231-006	4,539.27	4,532.41	428.663	21	DIP		Goat Wash	Existing
E4-231-007	4,531.58	4,530.60	501.23	20	DIP		Goat Wash	Existing
E4-231-008	4,532.18	4,531.58	197.882	20	DIP		Goat Wash	Existing
E4-232-016	4,529.10	4,528.53	572.95	54	RCP		River Road	Existing
E4-241-005	4,529.85	4,529.10	673.974	54	RCP		River Road	Existing
E4-241-016	4,531.11	4,529.85	543.693	54	RCP		River Road	Existing
E4-241-075	4,547.08	4,544.15	241.703	18	PVC		24 1/2 Road	Existing
E4-241-077	4,544.15	4,543.11	355.847	18	PVC		24 1/2 Road	Existing
E4-241-078	4,543.11	4,541.95	306.418	18	PVC		24 1/2 Road	Existing
E4-241-079	4,541.95	4,541.82	54.874	18	PVC		24 1/2 Road	Existing
E4-241-080	4,541.82	4,541.05	326.852	18	PVC		24 1/2 Road	Existing
E4-241-081	4,547.62	4,547.08	97.941	18			24 1/2 Road	Existing
E4-242-014	4,549.43	4,547.75	383.727	18	PVC		Paradise Hills	Existing
E4-242-029	4,550.42	4,549.43	380.382	18	PVC		Paradise Hills	Existing
E4-242-034	4,550.83	4,550.42	114.866	18	PVC		Paradise Hills	Existing
E4-242-036	4,550.91	4,550.83	20.664	18	PVC		Paradise Hills	Existing
E4-242-045	4,551.79	4,550.91	246.164	18	PVC		Paradise Hills	Existing
E4-242-057	4,552.92	4,551.79	378.446	18	PVC		Paradise Hills	Existing
E4-242-062	4,554.02	4,552.92	380.218	18	PVC		Paradise Hills	Existing
E4-242-069	4,554.85	4,554.02	378.84	18	PVC		Paradise Hills	Existing
E4-242-078	4,555.69	4,554.85	339.382	18	PVC		Paradise Hills	Existing
E4-251-001	4,555.79	4,555.69	38.606	18	PVC		Paradise Hills	Existing
E4-252-009	4,577.14	4,577.07	32.4	18	PVC		Horizon Drive	Existing
E4-252-010	4,577.18	4,577.14	21.09	18	PVC		Horizon Drive	Existing
E4-252-011	4,577.52	4,577.18	153.865	18	PVC		Horizon Drive	Existing
E4-252-013	4,581.79	4,581.35	74.39	18	RCP		Horizon Drive	Existing
E4-252-014	4,581.34	4,581.22	21.484	18	PVC		Horizon Drive	Existing
E4-252-019	4,581.14	4,580.06	386.843	18	PVC		Horizon Drive	Existing
E4-252-021	4,579.99	4,578.73	440.93	18	PVC		Horizon Drive	Existing
E4-252-023	4,578.66	4,577.52	502.758	18	PVC		Horizon Drive	Existing
E4-252-033	4,583.11	4,581.79	328.689	18	RCP		Horizon Drive	Existing
E4-252-035	4,587.99	4,583.11	328.853	18	RCP		Horizon Drive	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
E4-252-037	4,590.20	4,587.99	339.546	18	RCP		Horizon Drive	Existing
E4-271-058	4,665.16	4,664.59	291.395	15	PVC		15th Street	Existing
E4-271-060	4,664.59	4,662.15	295.725	15	PVC		15th Street	Existing
E4-271-062	4,662.15	4,659.19	261.908	15	PVC		15th Street	Existing
E4-271-063	4,659.19	4,656.13	209.297	15	PVC		15th Street	Existing
E4-271-064	4,651.17	4,649.90	227.6	15	PVC		15th Street	Existing
F1-202-005	4,624.27	4,622.35	106.797	15	PVC			Existing
F1-202-006	4,626.01	4,624.39	79.966	14	DIP			Existing
F1-202-007	4,622.23	4,616.37	206.542	15	PVC			Existing
F1-202-008	4,628.00	4,626.13	224.057	15	PVC			Existing
F1-202-009	4,636.50	4,628.11	399.701	12	PVC			Existing
F1-202-010	4,646.50	4,636.58	400.455	12	PVC			Existing
F1-231-001	4,528.61	4,527.96	499.675	21	PVC		Goat Wash	Existing
F1-231-001A	4,529.72	4,528.61	499.05	20	DIP		Goat Wash	Existing
F1-231-002	4,530.60	4,529.72	500.42	20	DIP		Goat Wash	Existing
F1-232-001	4,526.89	4,526.32	528.047	54	RCP		River Road	Existing
F1-232-002	4,527.37	4,526.89	536.214	54	RCP		River Road	Existing
F1-232-008	4,530.29	4,530.09	24.2	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-012	4,527.92	4,527.77	152.5	54	RCP		River Road	Existing
F1-232-013	4,531.41	4,530.37	346.368	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-014	4,533.42	4,533.25	29.454	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-017	4,533.11	4,531.82	401.242	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-019	4,531.76	4,531.43	108.699	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-033	4,528.53	4,527.92	581.216	54	RCP		River Road	Existing
F1-232-066	4,527.77	4,527.37	421.9	54	RCP		River Road	Existing
F1-241-050	4,552.55	4,549.66	223.434	15	PVC		24 1/2 Road	Existing
F1-241-109	4,553.53	4,552.55	465	15	PVC		24 1/2 Road	Existing
F1-241-110	4,554.75	4,553.71	470.8	15	PVC		24 1/2 Road	Existing
F1-242-001	4,549.66	4,547.62	158.293	15	PVC		24 1/2 Road	Existing
F1-251-003	4,555.90	4,555.79	45.953	18	PVC		Paradise Hills	Existing
F1-251-015	4,557.63	4,555.90	358.012	15	PVC		Paradise Hills	Existing
F1-251-023	4,559.69	4,557.63	391.271	15	PVC		Paradise Hills	Existing
F1-251-031	4,561.00	4,559.69	158.358	15	PVC		Paradise Hills	Existing
F1-251-033	4,561.58	4,561.00	121.7	15	VCP		Paradise Hills	Existing
F1-251-034	4,562.43	4,561.89	139.3	15	VCP		Paradise Hills	Existing
F1-251-039	4,564.24	4,562.43	344.859	15	VCP		Paradise Hills	Existing
F1-251-040	4,565.92	4,564.24	346.106	15	VCP		Paradise Hills	Existing
F1-251-041	4,566.47	4,565.92	108.666	15	VCP		Paradise Hills	Existing
F1-251-044	4,567.63	4,566.47	228.911	15	VCP		Paradise Hills	Existing
F1-251-047	4,569.24	4,567.63	339.218	15	VCP		Paradise Hills	Existing
F1-251-048	4,571.12	4,570.21	156.948	15	VCP		Paradise Hills	Existing
F1-251-049	4,572.58	4,571.60	219.6	15	VCP		Paradise Hills	Existing
F1-251-050	4,574.53	4,572.58	329.017	15	PVC		Paradise Hills	Existing
F1-251-068	4,570.21	4,569.24	168.1	15	VCP		Paradise Hills	Existing
F1-251-106	4,561.89	4,561.58	79.3	15	VCP		Paradise Hills	Existing
F1-251-108	4,571.60	4,571.12	107.6	12			Paradise Hills	Existing
F1-252-017	4,592.37	4,590.20	209.067	18	RCP		Horizon Drive	Existing
F1-252-033	4,593.99	4,592.37	156.1	18	RCP		Horizon Drive	Existing
F1-252-039	4,598.44	4,593.99	545.1	18	RCP		Horizon Drive	Existing
F1-261-003	4,601.05	4,600.19	48.5	15	RCP		Horizon Drive	Existing
F1-261-004	4,600.19	4,598.44	112.8	18	RCP		Horizon Drive	Existing
F1-261-009	4,602.40	4,601.34	152.586	15	RCP		Horizon Drive	Existing
F1-261-026	4,603.63	4,602.40	176.4	15	RCP		Horizon Drive	Existing
F1-261-040	4,605.33	4,603.63	245	15	RCP		Horizon Drive	Existing
F1-261-048	4,607.00	4,605.33	241.9	15	RCP		Horizon Drive	Existing
F1-261-058	4,610.87	4,607.30	309.206	15	RCP		Horizon Drive	Existing
F1-261-064	4,613.31	4,610.91	239.998	15	RCP		Horizon Drive	Existing
F1-261-070	4,615.23	4,613.31	191.814	15	RCP		Horizon Drive	Existing
F1-261-075	4,615.99	4,615.23	100.106	15	RCP		Horizon Drive	Existing
F1-261-078	4,618.31	4,615.99	304.515	15	RCP		Horizon Drive	Existing
F1-261-081	4,620.40	4,619.21	215.201	15	RCP		Horizon Drive	Existing
F1-261-089	4,621.95	4,620.40	281.654	15	RCP		Horizon Drive	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
F1-261-095	4,624.44	4,623.16	229.141	15	RCP		Horizon Drive	Existing
F1-261-097	4,624.85	4,624.44	73.767	15	RCP		Horizon Drive	Existing
F1-261-106	4,625.38	4,624.85	96.038	15	RCP		Horizon Drive	Existing
F1-271-101	4,666.06	4,665.41	331.4	15	VCP		15th Street	Existing
F1-271-103	4,665.41	4,665.16	83.7	15	PVC		15th Street	Existing
F2-202-001	4,616.31	4,613.21	209.986	15	PVC			Existing
F2-202-002	4,604.15	4,599.43	331.51	15	PVC			Existing
F2-202-003	4,610.41	4,607.10	214.118	15	PVC			Existing
F2-202-004	4,597.01	4,593.69	252.855	15	PVC			Existing
F2-202-005	4,606.99	4,604.26	165.148	15	PVC			Existing
F2-202-006	4,593.41	4,585.36	264.204	15	PVC			Existing
F2-202-007	4,599.29	4,597.14	129.593	15	PVC			Existing
F2-202-023	4,613.03	4,610.44	218.907	15	PVC			Existing
F2-202-024	4,585.27	4,578.45	354.306	15	PVC			Existing
F2-231-004	4,524.32	4,523.89	701.526	54	RCP		River Road	Existing
F2-231-010	4,525.21	4,524.32	831.316	54	RCP		River Road	Existing
F2-231-016	4,525.73	4,525.21	492.361	54	RCP		River Road	Existing
F2-231-023	4,526.32	4,525.73	610.769	54	RCP		River Road	Existing
F2-231-024	4,527.82	4,527.40	464.874	21	PVC		Goat Wash	Existing
F2-232-002	4,537.77	4,536.80	323.736	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-003	4,536.76	4,535.92	287.951	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-004	4,535.89	4,535.82	24.042	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-005	4,535.76	4,534.87	326.196	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-006	4,534.71	4,533.58	344.695	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-007	4,538.55	4,538.01	257.185	18	PVC	Upsize Diameter	24 Road	Existing
F2-242-055	4,555.85	4,554.92	455	15	PVC		24 1/2 Road	Existing
F2-242-056	4,557.08	4,556.03	434.7	15	PVC		24 1/2 Road	Existing
F2-251-012	4,583.65	4,583.39	37.851	15	PVC		Paradise Hills	Existing
F2-251-016	4,581.40	4,579.28	324.064	15	PVC		Paradise Hills	Existing
F2-251-017	4,579.28	4,577.52	248.854	15	PVC		Paradise Hills	Existing
F2-251-018	4,576.98	4,574.53	320.095	15	PVC		Paradise Hills	Existing
F2-251-028	4,583.39	4,581.40	285.885	15	PVC		Paradise Hills	Existing
F2-252-027	4,577.52	4,576.98	76.522	15	PVC		Paradise Hills	Existing
F2-261-053	4,635.22	4,630.88	317.242	15	RCP		Horizon Drive	Existing
F2-262-011	4,640.09	4,635.32	502.594	15	RCP		Horizon Drive	Existing
F2-262-017	4,644.05	4,640.09	263.515	15	RCP		Horizon Drive	Existing
F2-262-020	4,646.00	4,644.05	130.282	15	RCP		Horizon Drive	Existing
F2-262-029	4,650.32	4,646.00	408.262	15	RCP		Horizon Drive	Existing
F2-262-032	4,651.58	4,650.32	299.694	15	RCP		Horizon Drive	Existing
F2-262-038	4,655.55	4,653.48	291.494	15	RCP		Horizon Drive	Existing
F3-202-006	4,578.39	4,577.44	64.452	15	PVC			Existing
F3-202-007	4,577.44	4,573.23	286.902	15	PVC			Existing
F3-211-010	4,573.13	4,568.35	259.579	15	PVC			Existing
F3-211-011	4,567.19	4,563.42	253.38	15	PVC			Existing
F3-211-012	4,563.08	4,561.63	90.79	15	PVC			Existing
F3-211-013	4,561.45	4,557.41	280.014	15	PVC			Existing
F3-222-007	4,522.40	4,521.71	701.166	54	RCP		River Road	Existing
F3-222-008	4,523.05	4,522.40	694.179	54	RCP		River Road	Existing
F3-222-008A	4,523.59	4,523.05	478.3	54	RCP		River Road	Existing
F3-222-019	4,521.71	4,521.18	595.681	54	RCP		River Road	Existing
F3-231-015	4,523.89	4,523.59	478.3	54	RCP		River Road	Existing
F3-232-001	4,538.86	4,538.60	76.227	18	PVC	Upsize Diameter	24 Road	Existing
F3-232-002	4,539.70	4,538.93	323.998	18	PVC	Upsize Diameter	24 Road	Existing
F3-232-003	4,540.54	4,539.72	319.242	18	PVC	Upsize Diameter	24 Road	Existing
F3-232-004	4,548.18	4,546.81	339	18	HDPE	Upsize Diameter	24 Road	Existing
F3-232-005	4,546.75	4,545.78	342.7	18	HDPE	Upsize Diameter	24 Road	Existing
F3-232-006	4,545.74	4,544.53	294.9	18	HDPE	Upsize Diameter	24 Road	Existing
F3-232-007	4,544.53	4,540.56	330.3	18	PVC	Upsize Diameter	24 Road	Existing
F3-241-004	4,559.45	4,559.19	27.9	15	PVC		24 1/2 Road	Existing
F3-241-005	4,560.25	4,559.60	309	15	PVC		24 1/2 Road	Existing
F3-241-006	4,561.28	4,560.44	339.5	15	PVC		24 1/2 Road	Existing
F3-242-010	4,558.20	4,557.28	444.8	15	PVC		24 1/2 Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
F3-242-011	4,559.03	4,558.38	304.6	15	PVC		24 1/2 Road	Existing
F3-251-023	4,590.13	4,587.17	444.571	15	PVC		Paradise Hills	Existing
F3-251-024	4,585.33	4,583.65	324.392	15	PVC		Paradise Hills	Existing
F3-251-082	4,587.17	4,585.33	130.938	15	PVC		Paradise Hills	Existing
F3-252-001	4,593.68	4,592.21	150.027	15	PVC		Paradise Hills	Existing
F3-252-003	4,592.21	4,590.13	212.839	15	PVC		Paradise Hills	Existing
F3-262-038	4,659.00	4,655.55	301.662	15	RCP		Horizon Drive	Existing
F3-262-052	4,660.53	4,659.00	369.623	15	RCP		Horizon Drive	Existing
F3-262-057	4,664.20	4,660.53	327.869	15	RCP		Horizon Drive	Existing
F3-262-063	4,672.06	4,665.70	301.202	15	RCP		Horizon Drive	Existing
F3-271-152	4,675.11	4,673.60	300.514	15	RCP		Horizon Drive	Existing
F3-271-152A	4,673.60	4,672.36	293.2	15	RCP		Horizon Drive	Existing
F3-271-153	4,675.60	4,675.26	20.2	15	PVC		Horizon Drive	Existing
F4-0232-BV	4,552.06	4,551.69	317.28	18		Upsize Diameter	24 Road	Existing
F4-211-002	4,556.72	4,551.06	252.56	15	PVC			Existing
F4-211-003	4,544.08	4,543.65	21.976	15	PVC			Existing
F4-211-004	4,538.94	4,527.02	159.9	15	PVC			Existing
F4-211-005	4,526.75	4,523.36	133.463	15	PVC			Existing
F4-211-006	4,517.22	4,516.63	93.04	15	PVC			Existing
F4-211-007	4,516.33	4,511.16	344.892	15	PVC			Existing
F4-211-013	4,523.75	4,519.02	99.45	15	PVC			Existing
F4-211-014	4,518.73	4,517.70	106.895	15	PVC			Existing
F4-211-015	4,543.65	4,541.94	87.543	15	PVC			Existing
F4-221-022	4,519.88	4,519.04	670.202	54	RCP		River Road	Existing
F4-222-003	4,520.51	4,519.88	671.416	54	RCP		River Road	Existing
F4-222-013	4,521.18	4,520.51	603.094	54	RCP		River Road	Existing
F4-232-004	4,551.59	4,551.15	352.6	18	PVC	Upsize Diameter	24 Road	Existing
F4-232-005	4,551.10	4,549.36	308	18	HDPE	Upsize Diameter	24 Road	Existing
F4-232-006	4,549.28	4,548.22	336.6	18	HDPE	Upsize Diameter	24 Road	Existing
F4-241-002	4,558.40	4,557.49	81.5	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-003	4,560.16	4,558.53	405.014	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-004	4,561.33	4,560.16	394.781	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-005	4,562.70	4,561.33	399.963	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-006	4,565.23	4,562.70	400.357	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-007	4,566.91	4,565.23	399.734	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-008	4,568.35	4,566.91	387.401	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-009	4,562.23	4,561.47	351.5	15	PVC		24 1/2 Road	Existing
F4-241-010	4,563.15	4,562.45	300	15	PVC		24 1/2 Road	Existing
F4-241-011	4,564.41	4,563.36	350	15	PVC		24 1/2 Road	Existing
F4-251-016	4,605.10	4,601.99	346.138	15	PVC		Paradise Hills	Existing
F4-251-022	4,601.99	4,599.02	349.287	15	PVC		Paradise Hills	Existing
F4-251-023	4,599.02	4,596.44	347.188	15	PVC		Paradise Hills	Existing
F4-252-003	4,596.44	4,593.68	367.786	15	PVC		Paradise Hills	Existing
F4-252-005	4,608.55	4,605.10	352.928	15	PVC		Paradise Hills	Existing
F4-271-034	4,700.50	4,699.60	93.054	15	RCP		Horizon Drive	Existing
F4-271-034A	4,699.51	4,698.60	104.1	15	RCP		Horizon Drive	Existing
F4-271-069	4,696.03	4,692.78	410	15	PVC		Horizon Drive	Existing
F4-271-070	4,680.25	4,675.60	487.7	15	PVC		Horizon Drive	Existing
F4-271-072	4,684.12	4,681.27	601.5	15	PVC		Horizon Drive	Existing
F4-271-073	4,691.57	4,685.07	573.1	15	PVC		Horizon Drive	Existing
F4-271-075	4,698.60	4,696.09	288.8	15	RCP		Horizon Drive	Existing
G1-211-001	4,507.06	4,515.66	3,785.00	12	DIP			Existing
G1-211-003	4,504.06	4,503.70	286.8	15	PVC			Existing
G1-221-001	4,516.73	4,516.37	663.61	54	RCP		River Road	Existing
G1-221-005	4,517.71	4,516.73	679.583	54	RCP		River Road	Existing
G1-221-010	4,518.56	4,517.71	678.534	54	RCP		River Road	Existing
G1-221-029	4,519.04	4,518.56	656.197	54	RCP		River Road	Existing
G1-232-012	4,552.92	4,552.15	388.96	18		Upsize Diameter	24 Road	Existing
G1-241-001	4,557.49	4,554.47	74.11	18	PVC	Upsize Diameter	24 Road	Existing
G1-241-002	4,568.73	4,568.45	59.204	18	PVC	Upsize Diameter	24 Road	Existing
G1-242-001	4,570.26	4,568.83	502.365	10	PVC		24 Road	Existing
G1-242-006	4,571.33	4,570.26	338.988	10	PVC		24 Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
G1-242-014	4,572.57	4,571.33	324.818	10	PVC		24 Road	Existing
G1-242-025	4,573.81	4,572.57	303.367	10	PVC		24 Road	Existing
G1-242-028	4,573.88	4,573.81	17.876	10	PVC		24 Road	Existing
G1-242-038	4,574.89	4,573.88	340.89	10	PVC		24 Road	Existing
G1-242-045	4,575.95	4,574.89	334.396	10	PVC		24 Road	Existing
G1-252-004	4,614.01	4,610.79	319.997	12	PVC		Paradise Hills	Existing
G1-252-005	4,610.79	4,608.55	354.666	15	PVC		Paradise Hills	Existing
G1-252-006	4,615.08	4,614.01	165.574	12	PVC		Paradise Hills	Existing
G1-252-007	4,616.78	4,615.08	299.53	12	PVC		Paradise Hills	Existing
G1-252-008	4,617.98	4,616.78	170.134	12	PVC		Paradise Hills	Existing
G1-252-009	4,620.11	4,617.98	310.157	12	PVC		Paradise Hills	Existing
G1-252-011	4,621.45	4,620.11	231.896	12	PVC		Paradise Hills	Existing
G1-271-007	4,700.96	4,700.50	47.954	15	RCP		Horizon Drive	Existing
G1-271-013	4,702.45	4,700.96	155.242	15	RCP		Horizon Drive	Existing
G1-271-030	4,703.94	4,702.45	263.253	15	RCP		Horizon Drive	Existing
G1-271-042	4,704.45	4,703.98	92.726	15	RCP		Horizon Drive	Existing
G1-271-047	4,710.11	4,705.74	312.814	15	RCP		Horizon Drive	Existing
G1-272-045	4,713.46	4,710.19	588.76	15	RCP		Horizon Drive	Existing
G1-272-065	4,713.80	4,713.46	61.828	15	RCP		Horizon Drive	Existing
G1-272-066	4,713.99	4,713.80	34.243	15	RCP		Horizon Drive	Existing
G2-212-001	4,511.84	4,511.66	433.386	54	RCP	Parallel	River Road	Existing
G2-212-002	4,512.35	4,512.14	80.065	54	RCP		River Road	Existing
G2-212-002A	4,512.14	4,511.84	445.326	54	RCP		River Road	Existing
G2-212-014A	4,513.89	4,512.64	145.763	18	RCP		River Road	Existing
G2-212-015	4,515.25	4,515.05	87.97	54	RCP		River Road	Existing
G2-212-032	4,515.90	4,515.45	384.9	54	RCP		River Road	Existing
G2-212-035	4,516.04	4,515.90	143.992	54	RCP		River Road	Existing
G2-212-038	4,516.31	4,516.04	241.638	54	RCP		River Road	Existing
G2-212-041	4,516.37	4,516.31	85.641	54	RCP		River Road	Existing
G2-212-047	4,515.45	4,515.25	293.6	54	RCP		River Road	Existing
G2-252-043	4,624.69	4,623.00	234.356	12	PVC		Paradise Hills	Existing
G2-252-044	4,626.85	4,624.69	348.074	12	PVC		Paradise Hills	Existing
G2-252-045	4,623.00	4,621.45	231.404	12	PVC		Paradise Hills	Existing
G2-252-046	4,629.20	4,626.85	356.962	12	PVC		Paradise Hills	Existing
G2-252-047	4,636.54	4,629.20	355.814	12	PVC		Paradise Hills	Existing
G2-272-014	4,715.85	4,713.99	357.684	15	RCP		Horizon Drive	Existing
G2-272-036	4,720.62	4,718.80	363.686	15	RCP		Horizon Drive	Existing
G2-272-049	4,721.87	4,720.62	247.902	15	RCP		Horizon Drive	Existing
G2-272-055	4,724.49	4,724.00	123.886	15	RCP		Horizon Drive	Existing
G2-272-068	4,724.93	4,724.49	111.717	15	RCP		Horizon Drive	Existing
G2-272-080	4,731.50	4,727.50	342	15	RCP		Horizon Drive	Existing
G3-211-015	4,511.57	4,511.17	336.364	54	RCP		River Road	Existing
G3-211-018	4,511.17	4,510.87	256.89	54	RCP		River Road	Existing
G3-212-006	4,515.66	4,514.91	32.997	15	PVC			Existing
G3-212-007	4,511.66	4,511.57	231.076	54	RCP	Parallel	River Road	Existing
G3-252-026	4,642.80	4,639.47	305.106	12	PVC		Paradise Hills	Existing
G3-252-027	4,650.29	4,642.80	189.617	12	PVC		Paradise Hills	Existing
G3-252-028	4,639.47	4,638.48	164.295	12	PVC		Paradise Hills	Existing
G3-252-029	4,638.48	4,636.54	299.53	12	PVC		Paradise Hills	Existing
G3-252-030	4,657.84	4,650.29	240.621	12	PVC		Paradise Hills	Existing
G3-252-031	4,659.59	4,657.84	252.101	12	PVC		Paradise Hills	Existing
G3-252-032	4,661.34	4,659.59	313.765	12	PVC		Paradise Hills	Existing
G4-252-008	4,662.47	4,661.34	158.588	12	PVC		Paradise Hills	Existing
G4-252-008A	4,663.19	4,662.47	102.303	12	PVC		Paradise Hills	Existing
G4-261-008	4,679.32	4,677.37	178.662	10	PVC	Upsize Diameter	Paradise Hills	Existing
G4-261-015	4,677.17	4,676.45	180.334	12	PVC	Upsize Diameter	Paradise Hills	Existing
G4-261-016	4,676.25	4,675.92	121.524	12	PVC	Upsize Diameter	Paradise Hills	Existing
G4-261-017	4,675.82	4,669.37	214.2	12	PVC		Paradise Hills	Existing
G4-261-018	4,667.52	4,666.30	195.652	12	PVC		Paradise Hills	Existing
G4-261-020	4,666.30	4,664.93	200.736	12	PVC		Paradise Hills	Existing
G4-261-021	4,664.93	4,663.19	228.485	12	PVC		Paradise Hills	Existing
G4-261-029	4,669.37	4,667.52	313.8	12	PVC		Paradise Hills	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
H1-261-006	4,701.96	4,701.33	74.3	10	PVC		Paradise Hills	Existing
H1-261-008	4,697.93	4,697.73	6	10	PVC		Paradise Hills	Existing
H1-261-009	4,697.63	4,692.71	360.308	8	PVC		Paradise Hills	Existing
H1-261-010	4,692.71	4,689.30	350.074	8	PVC		Paradise Hills	Existing
H1-261-011	4,688.00	4,682.72	388.483	8	PVC		Paradise Hills	Existing
H1-261-012	4,682.52	4,680.37	208.5	8	PVC		Paradise Hills	Existing
H1-261-015	4,680.17	4,679.52	66.3	10	PVC	Upsize Diameter	Paradise Hills	Existing
H1-261-025	4,701.02	4,698.18	225.5	10	PVC		Paradise Hills	Existing
H1-262-023	4,705.38	4,701.96	335.675	10	PVC		Paradise Hills	Existing

Notes:

1) All gravity lines have an "n-value" of 0.013

2) All force mains have a "C-value" of 110

Wet Well Input Information Future Recommendaion PWWF System Scenarios							
ID	Description	Type	Bottom Elevation	Minimum Level	Maximum Level	Initial Level	Diameter
			(feet)	(feet)	(feet)	(feet)	(feet)
9000	Connected Lakes LS	0: Cylindrical	4,518.81	0	18	0.5	6
9006	Lime Kiln Gulch LS	0: Cylindrical	4,516.82	0	15.5	0.5	6
9008	Rosevale LS	0: Cylindrical	4,530.00	0	15	3	6
9010	Tiara Rado LS	0: Cylindrical	4,487.25	1	24	1	8
9014	21 Road LS	0: Cylindrical	4,509.19	1	10	1	6
9016	Monument Road LS	0: Cylindrical	4,636.26	1	15	1	6
9018	C Road LS	0: Cylindrical	4,668.39	1	10	1	6

Pump Input Information Future RecommendationPWWF System Scenarios			
ID	Description	Pump Type	Capacity
			(mgd)
5016	Redlands Village Pump #1	0: Constant Capacity	0.279
5018	Redlands Village Pump #2	0: Constant Capacity	0.279
5020	Rosevale Pump #1	0: Constant Capacity	0.684
5022	Rosevale Pump #2	0: Constant Capacity	0.684
5024	Tiara Rado Pump #1	0: Constant Capacity	3.272
5026	Tiara Rado Pump #2	0: Constant Capacity	3.272
5038	Connected Lakes Pump #1	0: Constant Capacity	0.212
5040	Connected Lakes Pump #2	0: Constant Capacity	0.212
5046	21 Road Pump #1	0: Constant Capacity	0.35
5048	21 Road Pump #2	0: Constant Capacity	0.35
5050	Monument Road Pump #1	0: Constant Capacity	0.1
5052	Monument Road Pump #2	0: Constant Capacity	0.1
5054	C Road Pump#1	0: Constant Capacity	0.35
5056	C Road Pump#2	0: Constant Capacity	0.35
5058	Connected Lakes Pump #4	0: Constant Capacity	0.75
5060	Connected Lakes Pump #3	0: Constant Capacity	0.75

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.302	32:30 hr	1.402	0.344	0.196	0.084
0G1-271-041	G1-271-042	G1-271-041	2.769	32:30 hr	4.249	0.957	0.766	0.934
1003	1612	1614	0.339	32:30 hr	2.369	0.355	0.426	0.378
1005	1614	1660	0.494	32:45 hr	2.608	0.441	0.529	0.55
1009	1620	D4-232-007	0.831	33:15 hr	4.974	0.364	0.364	0.283
101	64	66	0.586	32:47 hr	2.596	0.667	1	1.5
1011	1622	1620	0.831	33:14 hr	2.967	0.541	0.541	0.57
1013	1624	1622	0.848	33:05 hr	2.981	0.548	0.548	0.582
1015	1626	1624	0.857	33:02 hr	2.986	0.551	0.551	0.588
1017	1628	1626	0.86	33:01 hr	2.994	0.552	0.552	0.589
1019	1630	1628	0.865	32:48 hr	3.001	0.553	0.553	0.591
1021	1632	1630	0.869	32:47 hr	3.001	0.555	0.555	0.595
1023	1634	1632	0.882	32:47 hr	3.015	0.56	0.56	0.603
1025	1636	1634	0.896	32:48 hr	3.016	0.567	0.567	0.615
1027	1638	1636	0.902	32:47 hr	3.03	0.568	0.568	0.617
1029	1640	1638	0.922	32:33 hr	3.762	0.487	0.487	0.478
103	66	68	0.577	32:48 hr	2.559	0.667	1	1.067
1031	1642	1640	0.937	32:31 hr	6.487	0.407	0.611	0.691
1033	1644	1642	0.954	32:31 hr	6.512	0.412	0.619	0.704
1035	1646	1644	0.962	32:30 hr	6.523	0.415	0.622	0.709
1037	1648	1646	0.982	32:32 hr	5.545	0.488	0.733	0.887
1039	1650	1648	0.996	32:31 hr	5.555	0.494	0.741	0.899
1041	1652	1650	1.006	32:31 hr	5.561	0.498	0.747	0.908
1043	1654	1652	1.009	32:31 hr	5.563	0.5	0.749	0.911
1045	1656	1654	1.006	32:31 hr	6.583	0.427	0.641	0.742
1047	1658	1656	0.997	32:29 hr	6.984	0.403	0.605	0.681
1049	1676	1658	1.003	32:15 hr	6.992	0.405	0.607	0.684
105	68	70	0.569	33:03 hr	2.521	0.667	1	1.123
1051	1566	G3-211-015	2.686	34:13 hr	3.04	0.969	0.554	0.592
1053	1660	9018	0.662	32:58 hr	2.787	0.532	0.638	0.737
1057	1190	G1-211-003	0.101	33:11 hr	2.703	0.148	0.222	0.108
1061	1144	140	0.11	32:49 hr	3.486	0.132	0.198	0.086
1063	1158	802	0.404	33:08 hr	4.452	0.254	0.305	0.202
1065	1344	D2-251-014	0.163	32:53 hr	4.042	0.143	0.172	0.064
1069	1356	D2-251-014	0.076	32:49 hr	2.967	0.114	0.171	0.064
107	70	74	0.576	33:00 hr	7.378	0.252	0.378	0.304
1071	1364	D2-251-014	0.121	33:44 hr	1.408	0.271	0.407	0.348
1073	1596	SS_5	6.243	33:43 hr	3.597	1.594	0.797	0.974
1075	1378	804	2.545	34:56 hr	4.592	0.824	0.659	0.771
1077	916	G1-221-010	1.085	34:25 hr	3.249	0.547	0.438	0.397
1087	G2-212-001	G3-211-015	22.827	37:44 hr	37.89	0.569	0.19	0.079
1093	D3-281-006	D2-271-039	2.28	34:16 hr	2.176	1.117	0.638	0.737
1097	D1-262-025	D2-252-085	1.508	35:05 hr	3.162	0.725	0.58	0.637
1105	1668	1676	0.229	33:43 hr	3.685	0.194	0.232	0.118
1107	14	1676	0.469	32:14 hr	18.027	0.115	0.173	0.065
1109	1688	1686	0.145	32:17 hr	4.481	0.115	0.115	0.028
111	74	76	0.577	32:59 hr	7.125	0.259	0.388	0.319
1111	1686	1684	0.264	32:32 hr	4.653	0.169	0.169	0.062
1113	1684	1682	0.346	32:35 hr	3.382	0.255	0.255	0.143
1115	1682	1680	0.539	32:30 hr	8.042	0.19	0.19	0.079
1117	1680	1678	0.725	32:40 hr	3.194	0.458	0.458	0.43
1119	1678	1700	0.758	32:44 hr	3.575	0.435	0.435	0.392
1121	1700	E2-222-050	0.765	32:54 hr	5.729	0.309	0.309	0.208
1123	1672	D3-281-006	0.559	34:10 hr	2.713	0.383	0.307	0.204
1125	1278	1302	1.092	33:07 hr	2.799	0.718	0.718	0.865

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
113	76	78	0.59	32:59 hr	8.488	0.231	0.347	0.258
1131	1118	1730	0.069	32:27 hr	1.668	0.159	0.239	0.125
1133	1730	1732	0.069	32:33 hr	2.535	0.119	0.178	0.069
1135	1732	1734	0.065	32:48 hr	2.115	0.129	0.193	0.081
1137	1734	1736	0.064	32:53 hr	2.365	0.118	0.177	0.069
1139	1736	1738	0.062	33:09 hr	1.904	0.134	0.201	0.088
1141	1738	1740	0.059	33:12 hr	2.718	0.102	0.153	0.051
1143	1742	140	0.147	33:14 hr	3.276	0.168	0.252	0.14
1145	1740	1742	0.059	33:21 hr	2.448	0.11	0.164	0.059
115	78	80	0.591	32:59 hr	8.779	0.226	0.339	0.247
117	80	82	0.591	32:59 hr	8.812	0.225	0.338	0.246
119	82	E2-222-016	0.592	33:00 hr	8.816	0.226	0.338	0.247
121	132	134	0.27	32:15 hr	7.124	0.15	0.225	0.111
123	134	136	0.27	32:15 hr	9.814	0.12	0.179	0.07
125	136	9006	0.291	32:15 hr	5.501	0.19	0.285	0.177
127	140	9006	0.243	32:31 hr	2.942	0.262	0.394	0.327
137	150	48	0.592	32:31 hr	3.674	0.448	0.672	0.793
139	C1-261-020	770	5.451	33:45 hr	4.11	1.089	0.435	0.393
141	770	772	5.453	33:46 hr	4.345	1.044	0.418	0.365
143	772	774	5.45	33:47 hr	3.656	1.191	0.476	0.46
145	774	776	5.448	33:48 hr	3.316	1.285	0.514	0.524
147	776	778	5.46	33:59 hr	4.017	1.109	0.444	0.406
153	778	780	5.459	34:02 hr	3.534	1.224	0.49	0.483
155	780	C2-261-001	5.454	33:59 hr	3.217	1.317	0.527	0.546
157	C2-261-001	C3-261-013	2.519	34:02 hr	8.679	0.556	0.556	0.597
161	802	9000	0.452	33:18 hr	2.591	0.376	0.376	0.3
163	SS_3	C3-271-012	9.848	35:32 hr	3.104	2.5	1	1.03
165	SS_1_A	C3-271-007	9.805	35:31 hr	5.085	1.463	0.585	0.646
167	SS_4	SS_3	9.859	35:32 hr	3.108	2.5	1	1.037
169	SS_5	SS_4	9.871	35:30 hr	3.111	2.5	1	1.017
171	SS_6	SS_5	3.819	35:18 hr	2.834	1.26	0.63	0.723
173	804	SS_8	3.926	35:02 hr	2.844	1.287	0.643	0.745
175	SS_8	SS_7	3.87	35:04 hr	2.836	1.274	0.637	0.734
177	SS_7	SS_6	3.822	35:17 hr	2.83	1.262	0.631	0.725
181	810	812	0.293	32:42 hr	1.977	0.333	0.333	0.239
183	812	1316	0.317	33:01 hr	2.02	0.348	0.348	0.26
185	814	F2-231-004	0.455	33:20 hr	2.342	0.408	0.408	0.349
483	1130	1132	0.141	32:21 hr	1.623	0.227	0.227	0.113
485	1132	1422	0.144	32:38 hr	1.634	0.23	0.23	0.116
487	1134	1136	0.019	32:16 hr	1.059	0.09	0.135	0.039
489	1136	1138	0.023	32:32 hr	1.929	0.067	0.101	0.021
491	1138	1140	0.052	32:27 hr	2.265	0.105	0.157	0.054
493	1140	1142	0.075	32:30 hr	2.524	0.126	0.189	0.078
495	1142	1144	0.087	32:30 hr	2.639	0.135	0.203	0.09
497	1146	1148	0.179	32:17 hr	7.088	0.113	0.169	0.062
499	1148	D4-221-009	0.245	32:30 hr	6.494	0.149	0.224	0.11
501	1150	1152	0.13	32:22 hr	3.557	0.146	0.219	0.105
503	1152	1154	0.243	32:34 hr	4.439	0.194	0.292	0.185
505	1154	1156	0.337	32:34 hr	4.867	0.231	0.346	0.257
507	1156	1158	0.381	32:31 hr	5.032	0.246	0.369	0.29
525	1176	1178	0.008	32:18 hr	1.619	0.036	0.054	0.006
527	1178	1180	0.009	32:26 hr	1.711	0.039	0.059	0.007
529	1180	1182	0.011	32:27 hr	1.82	0.043	0.064	0.008
531	1182	1184	0.062	32:30 hr	3.053	0.097	0.146	0.046
533	1184	1186	0.068	32:36 hr	2.455	0.12	0.18	0.071

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
535	1186	1188	0.067	32:53 hr	2.445	0.119	0.179	0.07
537	1188	1190	0.068	32:53 hr	2.717	0.112	0.168	0.061
567	1220	1222	0	00:00 hr	0	0	0	0
569	1222	1224	0.059	32:32 hr	1.48	0.156	0.234	0.12
57	E3-202-BV	E3-202-010	0.41	32:30 hr	3.463	0.308	0.37	0.291
571	1224	1226	0.096	32:45 hr	1.842	0.188	0.283	0.174
573	1226	1228	0.42	33:05 hr	2.7	0.434	0.651	0.759
575	1228	1230	0.525	33:20 hr	2.879	0.428	0.513	0.523
577	1230	9014	0.556	33:44 hr	2.683	0.474	0.569	0.619
581	1236	1238	0.016	32:24 hr	1.374	0.065	0.098	0.02
583	1238	1240	0.052	32:35 hr	2.508	0.098	0.147	0.047
585	1240	1572	0.099	32:45 hr	1.713	0.202	0.303	0.199
587	1242	1244	0.488	33:03 hr	2.6	0.438	0.525	0.543
589	1244	1246	0.762	33:03 hr	2.908	0.513	0.513	0.522
591	1246	1248	0.882	32:47 hr	2.858	0.585	0.585	0.646
595	1252	1254	1.719	34:01 hr	3.197	0.716	0.477	0.461
597	1254	1250	1.768	34:03 hr	3.43	0.693	0.462	0.436
599	1256	1258	0.072	32:35 hr	2.553	0.121	0.182	0.072
601	1258	1260	0.196	32:35 hr	3.255	0.208	0.312	0.211
603	1260	1262	0.44	32:44 hr	2.534	0.412	0.494	0.49
605	1262	1264	1.07	33:05 hr	3.142	0.636	0.636	0.733
607	1264	1266	1.331	33:13 hr	3.494	0.606	0.484	0.474
609	1266	1268	1.627	33:29 hr	3.67	0.683	0.546	0.579
613	1248	1250	0.979	32:57 hr	2.973	0.618	0.618	0.702
615	1272	1274	0.396	32:33 hr	3.608	0.327	0.49	0.483
617	1274	1276	0.462	32:55 hr	3.748	0.358	0.537	0.563
619	1276	1278	0.688	32:53 hr	4.076	0.467	0.7	0.838
627	1284	1286	0.251	32:21 hr	2.711	0.286	0.429	0.382
629	1286	1288	0.254	32:42 hr	2.72	0.288	0.432	0.388
631	1288	1290	0.259	32:56 hr	2.732	0.291	0.437	0.395
633	1290	1292	0.276	33:18 hr	2.781	0.302	0.453	0.421
635	1292	1294	0.284	33:24 hr	2.8	0.307	0.46	0.434
637	1294	1296	0.284	33:37 hr	3.514	0.258	0.388	0.318
639	1296	1298	0.3	33:38 hr	3.567	0.266	0.399	0.336
641	1298	1300	0.387	33:58 hr	3.704	0.314	0.471	0.451
643	1300	1302	0.453	34:04 hr	3.853	0.344	0.516	0.528
645	1302	1304	1.539	33:10 hr	3.397	0.695	0.556	0.596
647	1304	1306	1.541	33:29 hr	3.398	0.696	0.557	0.597
649	1308	1310	0.018	32:24 hr	1.838	0.06	0.09	0.017
651	1310	1312	0.036	32:47 hr	1.061	0.12	0.12	0.03
653	1312	1298	0.082	32:37 hr	1.341	0.178	0.178	0.069
655	1314	1302	0.066	32:24 hr	1.281	0.158	0.158	0.054
657	1316	814	0.341	33:13 hr	2.063	0.361	0.361	0.279
673	1332	1334	0.103	32:37 hr	1.861	0.196	0.294	0.188
677	1338	1334	0.004	32:11 hr	1.355	0.024	0.036	0.002
679	1334	1340	0.11	32:53 hr	2.896	0.15	0.225	0.111
681	1340	9016	0.108	33:00 hr	3.001	0.144	0.216	0.103
685	1346	1348	0.043	32:17 hr	3.893	0.064	0.096	0.019
687	1348	1344	0.058	32:42 hr	1.471	0.155	0.232	0.118
689	1350	1352	0.013	32:18 hr	2.123	0.044	0.065	0.009
691	1352	1354	0.043	32:28 hr	2.738	0.082	0.122	0.032
693	1354	1356	0.054	32:34 hr	1.435	0.148	0.222	0.108
695	1358	1360	0	00:00 hr	0	0	0	0
697	1360	1362	0.061	32:21 hr	3.032	0.096	0.144	0.045
699	1362	1364	0.091	32:29 hr	2.965	0.129	0.194	0.082

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
707	1372	1374	0.679	32:30 hr	3.068	0.449	0.449	0.416
709	1374	1376	1.477	32:42 hr	5	0.564	0.564	0.611
711	1380	1378	1.52	33:05 hr	6.774	0.407	0.326	0.23
713	1376	1380	1.538	33:01 hr	3.463	0.684	0.547	0.581
715	1382	1376	0.203	33:25 hr	2.086	0.297	0.446	0.409
717	1384	1382	0.109	33:05 hr	1.909	0.201	0.301	0.197
719	1386	1384	0.031	32:25 hr	2.153	0.077	0.115	0.028
727	1396	1398	2.764	32:43 hr	4.747	0.86	0.688	0.819
733	1404	1406	0.095	32:27 hr	1.956	0.178	0.267	0.156
735	1406	B2-272-021	0.267	32:41 hr	2.974	0.28	0.42	0.368
749	1422	1424	0.145	32:47 hr	1.635	0.23	0.23	0.116
751	1424	1426	0.144	32:43 hr	1.639	0.229	0.229	0.115
753	1426	E4-202-001	0.144	32:46 hr	1.64	0.229	0.229	0.115
757	1428	BV-105	0.389	09:39 hr	1.849	0.48	0.576	0.631
759	1428	1430	0.294	09:37 hr	1.694	0.48	0.719	0.867
761	1430	D2-252-004	0.294	09:44 hr	3.229	0.283	0.424	0.374
763	G2-212-014	G2-212-003	26.443	37:44 hr	12.824	1.547	0.619	0.704
773	B2-282-047	B2-282-046	1.081	32:33 hr	3.534	0.581	0.581	0.639
775	B2-282-046	B2-282-041	1.068	32:45 hr	3.281	0.612	0.612	0.693
777	B2-282-041	B2-282-037	1.069	32:46 hr	3.282	0.612	0.612	0.692
779	B2-282-037	B2-282-036	1.066	32:47 hr	3.126	0.637	0.637	0.734
781	B2-282-036	B2-282-003	1.064	32:46 hr	3.095	0.641	0.641	0.741
785	B2-282-003	B2-281-013	1.059	32:47 hr	3.093	0.639	0.639	0.738
787	B2-281-013	B2-281-027	1.047	32:47 hr	3.495	0.571	0.571	0.622
789	B2-281-027	B2-281-006	1.041	32:58 hr	3.257	0.602	0.602	0.676
791	B2-281-006	B2-281-005	1.041	33:02 hr	2.894	0.667	0.667	0.784
793	B2-281-005	B2-281-004	1.038	33:03 hr	2.98	0.648	0.648	0.753
795	B2-281-004	B2-281-003	1.028	33:01 hr	2.881	0.662	0.662	0.777
797	B2-281-003	B2-281-002	1.265	33:00 hr	2.492	1	1	1.013
799	B2-281-002	B2-281-029	1.271	33:02 hr	3.021	0.772	0.772	0.942
801	B2-281-029	B2-281-001	1.273	33:00 hr	2.947	0.793	0.793	0.969
803	B2-281-001	B2-281-022	1.277	33:02 hr	3.022	0.776	0.776	0.947
805	B2-281-022	B2-281-020	1.278	33:03 hr	3.022	0.776	0.776	0.948
807	B2-281-020	B2-272-030	1.278	33:03 hr	3.022	0.777	0.777	0.948
809	B2-272-030	B2-272-029	1.286	33:15 hr	3.021	0.781	0.781	0.954
811	B2-272-029	B2-272-028	1.29	33:15 hr	2.541	1	1	1.027
813	B2-272-028	B2-272-027	1.383	33:15 hr	3.241	0.783	0.783	0.957
85	48	50	0.662	32:32 hr	2.935	0.667	1	1.337
87	50	52	0.639	32:46 hr	2.833	0.667	1	1.614
889	B2-272-008	B2-272-005	1.174	33:01 hr	2.55	0.704	0.563	0.608
89	52	54	0.638	32:47 hr	2.83	0.667	1	1.276
891	B2-272-005	B2-271-022	1.178	33:02 hr	2.949	0.629	0.503	0.505
893	B2-271-022	B2-271-031	1.265	33:02 hr	2.604	0.736	0.589	0.652
895	B2-271-031	B2-271-020	1.264	33:00 hr	3.834	0.542	0.433	0.39
897	B2-271-020	B2-271-019	1.261	32:59 hr	6.62	0.362	0.29	0.183
91	54	56	0.632	32:46 hr	2.802	0.667	1	1.244
93	56	58	0.627	32:47 hr	2.777	0.667	1	1.177
943	1558	1560	2.652	33:51 hr	3.566	0.845	0.483	0.471
945	1560	1562	2.651	33:45 hr	3.33	0.892	0.509	0.516
947	1562	1564	2.654	33:50 hr	3.33	0.893	0.51	0.517
949	1564	1566	2.653	34:00 hr	3.33	0.892	0.51	0.517
95	58	60	0.614	32:47 hr	2.723	0.667	1	1.106
951	1250	1558	2.651	33:35 hr	3.354	0.887	0.507	0.511
953	1268	1568	1.654	33:31 hr	3.519	0.716	0.573	0.625
955	1568	1570	1.705	33:32 hr	3.543	0.73	0.584	0.645

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
957	1570	1252	1.708	33:38 hr	3.171	0.803	0.643	0.744
959	1572	1242	0.198	32:46 hr	2.072	0.293	0.44	0.4
961	1306	G1-241-002	1.548	33:31 hr	3.384	0.701	0.56	0.604
963	1574	1396	1.758	32:30 hr	4.298	0.64	0.512	0.521
965	1398	1576	2.912	32:46 hr	7.434	0.619	0.495	0.492
967	1576	1578	3.023	32:55 hr	6.729	0.69	0.552	0.59
969	1578	1580	3	33:06 hr	5.959	0.758	0.607	0.683
97	60	62	0.603	32:47 hr	2.672	0.667	1	1.137
971	1580	1394	3.061	33:06 hr	5.984	0.768	0.615	0.697
973	1394	1582	3.657	33:22 hr	4.635	0.978	0.652	0.76
975	1582	1584	3.647	33:24 hr	4.637	0.976	0.651	0.757
977	1584	1586	3.599	33:35 hr	4.62	0.968	0.645	0.748
979	1586	1588	3.531	33:41 hr	4.606	0.954	0.636	0.733
981	1588	1590	3.508	33:53 hr	4.596	0.951	0.634	0.729
987	1590	1596	3.451	34:23 hr	5.981	0.756	0.504	0.507
99	62	64	0.594	32:48 hr	2.635	0.667	1	1.242
B1-272-001	B1-272-001	B1-272-010	0.757	32:46 hr	2.568	0.563	0.563	0.609
B1-272-002	B1-272-002	B1-272-001	0.674	32:47 hr	2.844	0.531	0.637	0.734
B1-272-003	B1-272-003	B1-272-002	0.675	32:46 hr	2.718	0.553	0.663	0.779
B1-272-005	B1-272-005	B1-272-003	0.669	32:46 hr	2.872	0.523	0.628	0.719
B1-272-007	B1-272-007	B1-272-005	0.665	32:34 hr	2.46	0.597	0.716	0.863
B1-272-010	B1-272-010	B1-272-012	0.762	32:46 hr	2.836	0.523	0.523	0.539
B1-281-001	B1-281-001	B1-272-007	0.648	32:33 hr	2.709	0.535	0.642	0.744
B1-281-002	B1-281-002	B1-281-001	0.646	32:33 hr	2.737	0.529	0.635	0.731
B1-281-004	B1-281-004	B1-281-002	0.646	32:33 hr	3.25	0.459	0.55	0.586
B1-281-005	B1-281-005	B1-281-004	0.414	32:31 hr	2.836	0.36	0.432	0.388
B1-281-006	B1-281-006	B1-281-005	0.408	32:31 hr	2.76	0.364	0.437	0.395
B1-281-007	B1-281-007	B1-281-006	0.402	32:30 hr	3.57	0.297	0.356	0.272
B1-281-009	B1-281-009	B1-281-007	0.396	32:31 hr	3.516	0.297	0.356	0.272
B1-281-010	B1-281-010	B1-281-009	0.384	32:16 hr	3.448	0.294	0.353	0.268
B1-292-001	B1-292-001	B1-292-002	0.034	32:20 hr	0.964	0.131	0.157	0.054
B1-292-002	B1-292-002	B1-292-003	0.035	32:33 hr	0.873	0.143	0.172	0.064
B1-292-003	B1-292-003	B1-292-004	0.065	32:34 hr	1.262	0.17	0.203	0.091
B1-292-004	B1-292-004	B1-292-010	0.175	32:29 hr	2.752	0.197	0.237	0.123
B1-292-010	B1-292-010	B1-292-011	0.187	32:31 hr	2.828	0.202	0.242	0.129
B1-292-011	B1-292-011	B1-292-012	0.201	32:30 hr	4.213	0.161	0.193	0.081
B1-292-012	B1-292-012	B1-292-013	0.211	32:33 hr	1.441	0.361	0.433	0.389
B1-292-013	B1-292-013	B1-292-014	0.226	32:30 hr	2.521	0.279	0.418	0.366
B1-292-014	B1-292-014	B1-292-015	0.227	32:32 hr	2.143	0.284	0.341	0.25
B1-292-015	B1-292-015	B1-292-016	0.224	32:30 hr	2.717	0.237	0.284	0.176
B1-292-016	B1-292-016	B2-292-023	0.224	32:30 hr	3.782	0.206	0.309	0.207
B2-271-019	B2-271-019	B3-271-059	3.151	33:01 hr	3.592	0.893	0.446	0.411
B2-272-004	B2-272-004	B2-271-019	1.734	33:01 hr	3.093	0.832	0.665	0.782
B2-272-007	B2-272-007	B2-272-004	1.723	33:00 hr	3.075	0.832	0.665	0.782
B2-272-009	B2-272-009	B2-272-007	1.714	32:59 hr	3.087	0.825	0.66	0.773
B2-272-012	B1-272-012	B1-272-013	0.793	32:48 hr	2.847	0.477	0.382	0.31
B2-272-013	B1-272-013	B1-272-015	0.821	32:45 hr	3.023	0.469	0.375	0.299
B2-272-014	B2-272-014	B2-272-009	1.708	33:00 hr	2.462	1.021	0.817	0.997
B2-272-015	B1-272-015	B1-272-016	0.894	32:49 hr	2.712	0.542	0.433	0.39
B2-272-016	B1-272-016	B2-272-021	0.925	32:50 hr	2.487	0.595	0.476	0.459
B2-272-017	B2-272-017	B2-272-008	1.178	32:48 hr	2.649	0.685	0.548	0.582
B2-272-021	B2-272-021	B2-272-017	1.188	32:47 hr	2.683	0.682	0.546	0.579
B2-272-027	B2-272-027	B2-272-033	1.617	33:02 hr	3.185	1	1	1.202
B2-272-033	B2-272-033	B2-272-014	1.636	33:00 hr	3.925	0.765	0.765	0.933
B2-282-048	B2-282-048	B2-282-047	1.112	32:33 hr	3.137	0.658	0.658	0.77

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B2-282-051	B2-282-051	B2-282-048	1.132	32:32 hr	3.258	0.647	0.647	0.752
B2-282-054	B2-282-054	B2-282-051	1.127	32:32 hr	3.312	0.635	0.635	0.732
B2-291-024	B2-291-024	B2-291-045	0.408	32:59 hr	3.287	0.293	0.293	0.187
B2-291-025	B2-291-025	B2-291-026	0.416	33:03 hr	2.694	0.343	0.343	0.254
B2-291-026	B2-291-026	B2-291-027	0.414	33:18 hr	0.985	0.771	0.771	0.94
B2-291-027	B2-291-027	B2-291-028	0.426	33:20 hr	1.948	0.446	0.446	0.41
B2-291-028	B2-291-028	B2-291-029	0.434	33:28 hr	1.916	0.457	0.457	0.429
B2-291-029	B2-291-029	B2-291-030	0.439	33:30 hr	2.678	0.359	0.359	0.276
B2-291-030	B2-291-030	B2-282-054	0.45	33:34 hr	2.178	0.427	0.427	0.379
B2-291-045	B2-291-045	B2-291-025	0.407	33:03 hr	0.931	0.803	0.803	0.981
B2-292-001	B2-292-001	B2-292-002	0.154	32:31 hr	2.046	0.222	0.266	0.155
B2-292-002	B2-292-002	B2-292-003	0.167	32:32 hr	2.162	0.226	0.272	0.161
B2-292-003	B2-292-003	B2-292-004	0.172	32:32 hr	1.658	0.28	0.336	0.243
B2-292-004	B2-292-004	B2-292-010	0.169	32:30 hr	2.832	0.175	0.175	0.067
B2-292-008	B2-292-008	B2-292-009	0.387	32:53 hr	1.389	0.538	0.538	0.565
B2-292-009	B2-292-009	B2-291-024	0.404	32:50 hr	2.313	0.376	0.376	0.301
B2-292-010	B2-292-010	B2-292-026	0.382	32:43 hr	2.009	0.401	0.401	0.338
B2-292-011	B2-292-011	B2-292-010	0.227	32:45 hr	2.442	0.287	0.431	0.386
B2-292-012	B2-292-012	B2-292-011	0.229	32:47 hr	2.174	0.316	0.474	0.457
B2-292-017	B2-292-017	BV-292-013	0.225	32:42 hr	2.762	0.26	0.39	0.322
B2-292-018	B2-292-018	B2-292-017	0.224	32:31 hr	2.782	0.258	0.387	0.317
B2-292-022	B2-292-022	B2-292-018	0.225	32:31 hr	3.168	0.235	0.353	0.267
B2-292-023	B2-292-023	B2-292-022	0.223	32:30 hr	3.651	0.21	0.315	0.215
B2-292-026	B2-292-026	B2-292-008	0.382	32:46 hr	2.148	0.381	0.381	0.309
B2-301-001	B2-301-001	B2-292-001	0.144	32:17 hr	1.852	0.228	0.273	0.163
B3-262-023	B3-262-023	B4-262-031	5.139	33:31 hr	3.316	1.227	0.491	0.485
B3-262-027	B3-262-027	B3-262-023	5.087	33:18 hr	3.307	1.22	0.488	0.48
B3-262-031	B3-262-031	B3-262-027	5.07	33:18 hr	3.205	1.247	0.499	0.498
B3-271-003	B3-271-003	B3-262-031	3.317	33:16 hr	3.674	0.913	0.456	0.427
B3-271-006	B3-271-006	B3-271-003	3.314	33:16 hr	3.673	0.913	0.456	0.427
B3-271-018	B3-271-018	B3-271-006	3.302	33:16 hr	3.671	0.91	0.455	0.425
B3-271-026	B3-271-026	B4-271-011	3.269	33:15 hr	3.932	0.857	0.429	0.382
B3-271-032	B3-271-032	B3-271-026	3.217	33:16 hr	3.653	0.896	0.448	0.413
B3-271-039	B3-271-039	B3-271-032	3.194	33:02 hr	3.634	0.894	0.447	0.412
B3-271-042	B3-271-042	B3-271-039	3.178	33:01 hr	3.63	0.892	0.446	0.41
B3-271-045	B3-271-045	B3-271-042	3.171	33:00 hr	3.653	0.886	0.443	0.405
B3-271-054	B3-271-054	B3-271-045	3.17	33:01 hr	3.83	0.854	0.427	0.38
B3-271-058	B3-271-058	B3-271-054	3.168	33:00 hr	3.925	0.838	0.419	0.367
B3-271-058A	B3-271-063	B3-271-058	3.154	33:01 hr	3.621	0.888	0.444	0.407
B3-271-063	B3-271-059	B3-271-063	3.153	33:00 hr	3.626	0.887	0.444	0.406
B4-261-014	B4-261-014	C1-261-058	5.327	33:45 hr	5.442	0.868	0.347	0.259
B4-262-001	B4-262-001	B4-261-014	5.314	33:43 hr	5.44	0.867	0.347	0.258
B4-262-011	B4-262-011	B4-262-044	5.253	33:31 hr	5.422	0.862	0.345	0.255
B4-262-016	B4-262-016	B4-262-011	5.202	33:31 hr	5.411	0.857	0.343	0.253
B4-262-022	B4-262-022	B4-262-016	5.2	33:31 hr	5.407	0.857	0.343	0.253
B4-262-024	B4-262-024	B4-262-022	5.158	33:31 hr	3.318	1.23	0.492	0.487
B4-262-028	B4-262-028	B4-262-024	5.143	33:31 hr	3.316	1.228	0.491	0.485
B4-262-030	B4-262-030	B4-262-028	5.146	33:30 hr	3.318	1.228	0.491	0.485
B4-262-031	B4-262-031	B4-262-114	5.141	33:30 hr	3.31	1.23	0.492	0.486
B4-262-036	B4-262-036	B4-262-037	1.575	33:01 hr	2.757	0.846	0.677	0.8
B4-262-037	B4-262-037	B4-262-038	1.591	33:05 hr	2.763	0.852	0.682	0.808
B4-262-038	B4-262-038	B3-262-031	1.592	33:18 hr	2.763	0.853	0.682	0.809
B4-262-043	B4-262-044	B4-262-001	5.256	33:31 hr	5.423	0.862	0.345	0.255
B4-262-114	B4-262-114	B4-262-030	5.141	33:30 hr	3.313	1.229	0.491	0.485
B4-271-001	B4-271-001	B4-262-036	1.572	33:00 hr	2.762	0.843	0.674	0.796

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B4-271-011	B4-271-011	B3-271-018	3.284	33:17 hr	3.665	0.908	0.454	0.423
B4-271-028	B4-271-028	B4-271-147	1.424	32:46 hr	2.973	0.728	0.582	0.641
B4-271-033	B4-271-033	B4-271-028	1.416	32:47 hr	2.969	0.725	0.58	0.638
B4-271-128	B4-271-128	B4-271-001	1.581	33:02 hr	2.76	0.848	0.678	0.803
B4-271-135	B4-271-135	B4-271-128	1.579	33:03 hr	3.039	0.779	0.623	0.711
B4-271-138	B4-271-138	B4-271-135	1.539	33:02 hr	3.024	0.765	0.612	0.693
B4-271-143	B4-271-143	B4-271-138	1.517	32:58 hr	3.014	0.758	0.607	0.683
B4-271-145	B4-271-145	B4-271-143	1.507	32:46 hr	3.011	0.755	0.604	0.678
B4-271-146	B4-271-146	B4-271-145	1.511	32:47 hr	3.012	0.756	0.605	0.68
B4-271-147	B4-271-147	B4-271-146	1.506	32:47 hr	3.008	0.755	0.604	0.678
B4-271-148	B4-271-148	B4-271-033	1.399	32:45 hr	2.961	0.719	0.576	0.63
B4-272-004	B4-272-004	B4-272-094	1.351	32:42 hr	2.936	0.704	0.563	0.608
B4-272-039	B4-272-039	B4-272-092	1.05	32:30 hr	2.582	0.747	0.747	0.907
B4-272-040	B4-272-040	B4-272-039	0.985	32:30 hr	2.527	0.718	0.718	0.864
B4-272-044	B4-272-044	B4-272-040	0.979	32:32 hr	2.551	0.707	0.707	0.848
B4-272-048	B4-272-048	B4-272-044	0.947	32:31 hr	2.354	0.739	0.739	0.896
B4-272-086	B4-272-086	B4-272-004	1.14	32:48 hr	2.743	0.763	0.763	0.93
B4-272-091	B4-272-091	B4-272-096	1.064	32:31 hr	2.717	0.721	0.721	0.869
B4-272-092	B4-272-092	B4-272-095	1.062	32:32 hr	2.583	0.755	0.755	0.919
B4-272-093	B4-272-093	B4-271-148	1.383	32:46 hr	2.953	0.714	0.571	0.623
B4-272-094	B4-272-094	B4-272-093	1.37	32:44 hr	2.938	0.712	0.569	0.619
B4-272-095	B4-272-095	B4-272-091	1.059	32:31 hr	2.707	0.72	0.72	0.868
B4-272-096	B4-272-096	B4-272-086	1.087	32:35 hr	2.726	0.733	0.733	0.887
B4-281-054	B4-281-054	B4-272-048	0.919	32:31 hr	2.525	0.674	0.674	0.796
B4-281-057	B4-281-057	B4-281-054	0.871	32:31 hr	2.594	0.628	0.628	0.72
BV-105	BV-105	D2-252-004	0.389	09:45 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.227	32:43 hr	2.355	0.296	0.443	0.406
C1-221-018	C1-221-018	C2-221-030	0.32	32:31 hr	2.192	0.33	0.33	0.235
C1-221-019	C1-221-019	C1-221-018	0.322	32:16 hr	2.315	0.319	0.319	0.22
C1-261-028	C1-261-028	C1-261-020	5.428	33:46 hr	5.471	0.877	0.351	0.264
C1-261-030	C1-261-030	C1-261-028	5.422	33:45 hr	5.466	0.877	0.351	0.264
C1-261-058	C1-261-058	C1-261-062	5.338	33:45 hr	5.446	0.869	0.348	0.259
C1-261-060	C1-261-060	C1-261-030	5.406	33:45 hr	5.455	0.876	0.35	0.263
C1-261-062	C1-261-062	C1-261-060	5.34	33:45 hr	5.447	0.869	0.348	0.26
C1-281-035	C1-281-035	B4-281-057	0.805	32:16 hr	2.283	0.833	1	1.133
C2-221-030	C2-221-030	C2-221-037	0.325	32:34 hr	2.078	0.347	0.347	0.259
C2-221-031	C2-221-031	C3-221-003	0.331	32:45 hr	6.956	0.15	0.15	0.048
C2-221-032	C2-221-032	C2-221-065	0.322	32:45 hr	2.685	0.286	0.286	0.179
C2-221-033	C2-221-033	C2-221-032	0.326	32:48 hr	2.006	0.356	0.356	0.272
C2-221-034	C2-221-034	C2-221-033	0.324	32:46 hr	2.016	0.354	0.354	0.268
C2-221-035	C2-221-035	C2-221-034	0.319	32:40 hr	2.976	0.264	0.264	0.153
C2-221-037	C2-221-037	C2-221-035	0.32	32:37 hr	1.539	0.429	0.429	0.383
C2-221-065	C2-221-065	C2-221-031	0.328	32:45 hr	4.213	0.211	0.211	0.097
C2-261-001A	C2-261-001	C3-261-013	2.935	34:02 hr	9.022	0.557	0.477	0.461
C2-261-024	C2-261-024	C2-261-013	0.195	32:29 hr	1.191	0.259	0.115	0.028
C3-212-031	C3-212-031	C4-212-059	0.414	32:45 hr	3.853	0.264	0.264	0.153
C3-221-003	C3-221-003	C3-221-004	0.389	32:44 hr	4.324	0.233	0.233	0.119
C3-221-004	C3-221-004	C3-221-030	0.391	32:45 hr	4.331	0.234	0.234	0.12
C3-221-005	C3-221-005	C3-221-006	0.411	32:43 hr	4.445	0.238	0.238	0.124
C3-221-006	C3-221-006	C3-212-031	0.415	32:45 hr	4.12	0.253	0.253	0.14
C3-221-030	C3-221-030	C3-221-005	0.407	32:43 hr	4.383	0.239	0.239	0.125
C3-252-002	C3-252-002	C4-252-003	12.353	36:18 hr	4.011	1.916	0.639	0.737
C3-261-001	C3-261-001	C3-252-001	1.636	32:53 hr	2.254	0.83	0.474	0.456
C3-261-002	C3-261-002	C3-252-002	12.367	36:17 hr	4.409	1.77	0.59	0.655
C3-261-004	C3-261-004	C3-261-001	1.665	32:47 hr	2.265	0.838	0.479	0.464

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C3-261-005	C3-261-005	C3-261-002	12.37	36:15 hr	5.218	1.544	0.515	0.525
C3-261-007	C3-261-007	C3-261-004	1.672	32:46 hr	2.271	0.839	0.479	0.465
C3-261-008	C3-261-008	C3-261-005	12.371	36:15 hr	3.445	2.2	0.733	0.888
C3-261-009	C3-261-009	C3-261-008	12.388	36:02 hr	3.447	2.202	0.734	0.889
C3-261-010	C3-261-010	C3-261-009	12.393	36:00 hr	5.138	1.566	0.522	0.538
C3-261-011	C3-261-011	C3-261-007	1.729	32:33 hr	2.286	0.857	0.49	0.482
C3-261-012	C3-261-012	C3-261-010	12.393	35:59 hr	11.833	0.84	0.28	0.171
C3-261-012A	C3-261-012	C3-261-011	1.376	35:59 hr	9.59	0.259	0.148	0.047
C3-261-013	C3-261-013	C3-261-012	13.772	36:00 hr	7.894	1.22	0.407	0.347
C3-261-015	C3-261-015	C3-261-011	1.078	32:32 hr	2.018	0.658	0.376	0.301
C3-261-019	C3-261-019	C3-261-015	1.097	32:32 hr	2.026	0.664	0.38	0.306
C3-261-021	C3-261-021	C3-261-019	1.103	32:30 hr	2.029	0.667	0.381	0.308
C3-261-031	C3-261-031	C3-261-013	9.594	36:03 hr	4.054	1.542	0.514	0.524
C3-261-035	C3-261-035	C2-261-024	0.196	32:29 hr	1.196	0.258	0.115	0.028
C3-261-040	C3-261-040	C3-261-031	9.598	36:00 hr	4.057	1.542	0.514	0.524
C3-261-043	C3-261-043	C3-261-035	0.196	32:29 hr	1.198	0.258	0.115	0.028
C3-261-050	C3-261-050	C3-261-075	0.197	32:29 hr	1.323	0.365	0.439	0.398
C3-261-056	C3-261-056	C3-261-050	0.2	32:16 hr	1.47	0.342	0.411	0.353
C3-261-062	C3-261-062	C3-261-040	9.634	36:03 hr	4.076	1.541	0.514	0.523
C3-261-075	C3-261-075	C3-261-076	0.196	32:28 hr	2.528	0.21	0.21	0.097
C3-261-076	C3-261-076	C3-261-043	0.197	32:30 hr	1.324	0.365	0.438	0.397
C3-262-007	C3-262-007	C3-262-009	9.66	36:00 hr	4.076	1.544	0.515	0.525
C3-262-009	C3-262-009	C3-261-062	9.656	36:03 hr	4.062	1.548	0.516	0.527
C3-262-033	C3-262-033	C3-262-007	9.664	36:02 hr	4.058	1.55	0.517	0.528
C3-262-041	C3-262-041	C3-262-033	9.665	36:00 hr	5.648	1.327	0.531	0.553
C3-262-046	C3-262-046	C3-262-041	9.662	35:59 hr	5.583	1.339	0.536	0.561
C3-262-051	C3-262-051	C3-262-046	9.66	35:57 hr	5.838	1.292	0.517	0.529
C3-262-061	C3-262-061	C3-262-051	9.672	35:45 hr	5.849	1.292	0.517	0.528
C3-262-070	C3-262-070	C3-262-071	9.706	35:45 hr	4.627	1.57	0.628	0.72
C3-262-071	C3-262-071	C3-262-061	9.694	35:46 hr	5.984	1.271	0.508	0.514
C3-262-074	C3-262-074	C3-262-070	9.745	35:48 hr	4.16	1.73	0.692	0.825
C3-271-001	C3-271-001	C3-262-074	9.769	35:47 hr	4.197	1.72	0.688	0.818
C3-271-003	C3-271-003	C3-271-001	9.776	35:46 hr	4.191	1.723	0.689	0.82
C3-271-004	C3-271-004	C3-271-003	9.764	35:45 hr	4.194	1.72	0.688	0.819
C3-271-007	C3-271-007	C3-271-004	9.772	35:33 hr	4.177	1.728	0.691	0.823
C3-271-010	C3-271-010	SS_1_A	9.805	35:30 hr	7.317	1.097	0.439	0.398
C3-271-012	C3-271-012	C3-271-010	9.81	35:30 hr	7.588	1.068	0.427	0.379
C4-212-059	C4-212-059	C4-212-060	0.415	32:46 hr	4.757	0.228	0.228	0.114
C4-212-060	C4-212-060	D4-232-020	0.44	32:45 hr	4.247	0.258	0.258	0.145
C4-212-061	C4-212-061	C4-221-001	0.47	32:44 hr	4.4	0.263	0.263	0.152
C4-221-001	C4-221-001	D1-212-032	0.476	32:45 hr	5.603	0.224	0.224	0.11
C4-221-011	D4-232-020	C4-212-061	0.467	32:43 hr	4.319	0.266	0.266	0.154
C4-252-001	C4-252-001	D1-252-019	12.294	36:33 hr	3.934	1.94	0.647	0.751
C4-252-002	C4-252-002	D1-252-042	1.569	36:47 hr	2.23	0.81	0.463	0.437
C4-252-003	C4-252-003	C4-252-008	12.335	36:16 hr	4.826	1.64	0.547	0.58
C4-252-004	C4-252-004	C4-252-002	1.571	36:33 hr	2.229	0.811	0.463	0.439
C4-252-005	C4-252-005	C4-252-006	12.3	36:17 hr	4.291	1.802	0.601	0.673
C4-252-006	C4-252-006	C4-252-001	12.298	36:31 hr	4.86	1.627	0.542	0.573
C4-252-007	C3-252-001	C4-252-007	1.611	33:04 hr	2.246	0.822	0.47	0.449
C4-252-007A	C4-252-007	C4-252-004	1.584	33:05 hr	2.236	0.814	0.465	0.442
C4-252-008	C4-252-008	C4-252-005	12.32	36:17 hr	4.306	1.8	0.6	0.672
D1-212-011	D1-212-011	D1-212-012	0.512	32:45 hr	5.108	0.252	0.252	0.139
D1-212-012	D1-212-012	D2-212-011	0.519	32:45 hr	4.615	0.273	0.273	0.163
D1-212-032	D1-212-032	D1-212-011	0.5	32:46 hr	3.705	0.312	0.312	0.211
D1-242-011	D1-242-011	D1-242-030	0.04	32:28 hr	2.865	0.069	0.083	0.014

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-242-017	D1-242-017	D1-242-011	0.036	32:21 hr	2.709	0.067	0.08	0.013
D1-242-018	D1-242-018	D1-242-017	0.032	32:15 hr	2.736	0.061	0.073	0.011
D1-242-019	D1-242-019	D1-242-018	0.024	32:15 hr	1.74	0.064	0.064	0.008
D1-242-030	D1-242-030	D1-242-031	0.044	32:30 hr	3.154	0.07	0.083	0.014
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.049	32:26 hr	3.17	0.081	0.121	0.031
D1-251-001	D1-262-049	D1-262-030	0.459	32:31 hr	2.197	0.336	0.192	0.081
D1-251-005	D1-251-023	D1-251-005	0.042	32:28 hr	2.432	0.08	0.097	0.019
D1-251-005A	D1-251-023	D1-251-005	0.038	32:35 hr	2.424	0.081	0.122	0.032
D1-251-005B	D1-251-005	D2-251-014	0.071	32:30 hr	2.399	0.116	0.139	0.042
D1-252-001	D1-252-001	D2-252-002	12.231	36:31 hr	5.765	1.416	0.472	0.453
D1-252-004	D1-252-004	D1-252-001	12.245	36:31 hr	4.338	1.779	0.593	0.66
D1-252-005	D1-252-005	D2-252-014	1.604	37:00 hr	2.233	0.768	0.384	0.313
D1-252-008	D1-252-008	D1-252-005	1.605	37:00 hr	2.232	0.769	0.384	0.313
D1-252-008A	D1-252-010	D1-252-008	1.602	36:59 hr	2.23	0.768	0.384	0.313
D1-252-009	D1-252-009	D1-252-004	12.258	36:31 hr	4.279	1.801	0.6	0.673
D1-252-010	D1-252-011	D1-252-010	1.596	37:01 hr	2.238	0.818	0.467	0.445
D1-252-011	D1-252-016	D1-252-011	1.597	37:02 hr	2.239	0.818	0.468	0.445
D1-252-015	D1-252-015	D1-252-009	12.263	36:30 hr	4.299	1.795	0.598	0.669
D1-252-018	D1-252-018	D1-252-015	12.278	36:32 hr	3.984	1.917	0.639	0.738
D1-252-019	D1-252-019	D1-252-018	12.285	36:31 hr	4.674	1.678	0.559	0.602
D1-252-023	D1-252-023	D1-252-016	1.595	36:58 hr	2.239	0.817	0.467	0.445
D1-252-031	D1-252-031	D1-252-023	1.593	36:50 hr	2.239	0.817	0.467	0.444
D1-252-036	D1-252-036	D1-252-031	1.593	36:46 hr	2.238	0.817	0.467	0.444
D1-252-041	D1-252-041	D1-252-036	1.588	36:45 hr	2.238	0.815	0.466	0.443
D1-252-042	D1-252-042	D1-252-041	1.584	36:51 hr	2.235	0.814	0.465	0.442
D1-252-050	D1-252-050	D2-252-067	0.86	32:45 hr	2.178	0.475	0.211	0.098
D1-252-053	D1-252-053	D2-252-085	3.339	35:01 hr	2.549	1.23	0.615	0.698
D1-252-056	D1-252-056	D1-252-053	3.337	34:59 hr	3.273	1.004	0.502	0.503
D1-252-057	D1-252-057	D1-252-056	3.336	35:00 hr	4.268	0.818	0.409	0.351
D1-252-059	D1-252-059	D1-252-057	3.314	35:00 hr	4.205	0.823	0.412	0.355
D1-261-001	D1-261-001	D1-252-059	3.313	34:59 hr	4.635	0.765	0.383	0.311
D1-261-003	D1-261-003	D1-252-050	0.865	32:49 hr	2.018	0.503	0.223	0.109
D1-261-006	D1-261-006	D1-261-001	3.206	34:58 hr	8.362	0.488	0.244	0.13
D1-261-008	D1-261-008	D1-261-006	3.198	34:59 hr	4.537	0.757	0.379	0.305
D1-261-020	D1-261-020	D1-261-003	0.707	32:50 hr	1.903	0.455	0.202	0.089
D1-261-021	D1-261-021	D1-261-008	3.176	34:57 hr	4.496	0.759	0.379	0.306
D1-261-023	D1-261-023	D1-261-020	0.668	32:46 hr	1.831	0.449	0.2	0.087
D1-261-036	D1-261-036	D1-261-021	3.153	34:47 hr	4.137	0.803	0.401	0.339
D1-261-037	D1-261-037	D1-261-023	0.649	32:46 hr	1.887	0.431	0.192	0.08
D1-261-052	D1-261-052	D1-261-036	3.119	34:48 hr	2.358	1.24	0.62	0.706
D1-261-059	D1-261-059	D1-261-037	0.64	32:35 hr	1.751	0.45	0.2	0.088
D1-261-061	D1-261-061	D1-261-059	0.637	32:43 hr	3.604	0.272	0.121	0.031
D1-261-075	D1-261-075	D1-261-052	3.092	34:47 hr	3.195	0.963	0.482	0.469
D1-261-084	D1-261-084	D1-261-061	0.63	32:34 hr	1.821	0.433	0.192	0.081
D1-261-103	D1-261-103	D1-261-075	3.074	34:35 hr	4.055	0.8	0.4	0.337
D1-261-116	D1-262-001	D1-261-116	0.516	32:32 hr	1.739	0.43	0.246	0.132
D1-261-116A	D1-261-116	D1-261-084	0.592	32:34 hr	1.832	0.457	0.261	0.149
D1-261-117	D1-261-117	D1-261-103	3.061	34:31 hr	5.54	0.634	0.317	0.218
D1-261-128	D1-261-128	D1-261-117	3.043	34:32 hr	2.545	1.14	0.57	0.62
D1-262-025	D1-262-025	D1-261-128	2.994	34:32 hr	1.872	1.47	0.735	0.89
D1-262-030	D1-262-030	D1-262-001	0.469	32:32 hr	1.736	0.402	0.23	0.116
D1-262-040	D1-262-040	D1-262-025	4.465	34:31 hr	3.398	1.233	0.617	0.7
D1-262-067	D1-262-067	D1-262-040	4.444	34:32 hr	4.243	1.025	0.513	0.521
D1-262-079	D1-262-079	D1-262-049	0.424	32:18 hr	2.131	0.325	0.186	0.075

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-262-088	D1-262-088	D1-262-067	4.434	34:31 hr	3.278	1.264	0.632	0.726
D1-262-100	D1-262-100	D1-262-088	4.445	34:18 hr	3.499	1.199	0.599	0.671
D1-271-018	D1-271-017	D1-271-055	4.452	34:17 hr	3.425	1.222	0.611	0.691
D1-271-051	D1-271-051	D1-271-054	3.613	34:14 hr	5.533	0.765	0.437	0.395
D1-271-054	D1-271-054	D1-271-092	3.641	34:16 hr	5.524	0.721	0.36	0.278
D1-271-055	D1-271-055	D1-262-100	4.456	34:19 hr	2.794	1.466	0.733	0.887
D1-271-092	D1-271-092	D1-271-017	3.626	34:15 hr	5.517	0.719	0.36	0.277
D2-212-001	D2-212-001	D2-212-002	0.533	32:44 hr	4.649	0.277	0.277	0.168
D2-212-002	D2-212-002	D2-212-025	0.533	32:44 hr	4.278	0.294	0.294	0.188
D2-212-003	D2-212-003	D2-212-014	0.552	32:45 hr	5.086	0.267	0.267	0.155
D2-212-011	D2-212-011	D2-212-012	0.532	32:45 hr	4.646	0.277	0.277	0.167
D2-212-012	D2-212-012	D2-212-001	0.531	32:44 hr	4.645	0.277	0.277	0.167
D2-212-013	D2-212-013	D2-212-003	0.549	32:45 hr	4.313	0.299	0.299	0.194
D2-212-014	D2-212-014	D3-212-022	0.557	32:46 hr	4.43	0.296	0.296	0.191
D2-212-025	D2-212-025	D2-212-013	0.533	32:45 hr	4.364	0.355	0.533	0.556
D2-241-006	D2-241-006	D2-241-007	0.037	32:16 hr	1.925	0.093	0.14	0.042
D2-241-007	D2-241-007	D3-241-001	0.04	32:24 hr	1.959	0.098	0.147	0.047
D2-251-004	D2-251-004	D3-251-011	16.517	36:45 hr	4.892	1.734	0.434	0.39
D2-251-005	D2-251-005	D2-251-004	14.215	36:44 hr	10.639	0.885	0.221	0.107
D2-251-008	D2-251-008	9008	0.471	33:01 hr	4.059	0.279	0.279	0.17
D2-251-014	D1-251-005	D2-251-014	0.063	32:31 hr	2.369	0.116	0.174	0.066
D2-251-014A	D2-251-014	D2-251-008	0.385	32:59 hr	8.859	0.14	0.14	0.042
D2-252-002	D2-252-002	D2-252-004	12.231	36:46 hr	4.448	1.741	0.58	0.638
D2-252-004	D2-252-004	D2-252-005	12.682	36:46 hr	6.279	1.363	0.454	0.424
D2-252-005	D2-252-005	D2-251-005	14.243	36:46 hr	3.515	1.996	0.499	0.498
D2-252-006	D2-252-006	D2-252-005	1.606	37:13 hr	4.148	0.491	0.246	0.132
D2-252-008	D2-252-008	D2-252-006	1.604	37:03 hr	2.184	0.781	0.391	0.323
D2-252-010	D2-252-010	D2-252-008	1.603	37:01 hr	3.682	0.534	0.267	0.156
D2-252-011	D2-252-011	D2-251-004	7.777	32:46 hr	5.728	1.175	0.522	0.538
D2-252-012	D2-252-012	D2-252-010	1.604	37:01 hr	2.305	0.75	0.375	0.299
D2-252-014	D2-252-014	D2-252-012	1.602	37:01 hr	0.789	2	1	1.039
D2-252-015	D2-252-015	D2-252-011	7.787	32:45 hr	13.387	0.624	0.277	0.168
D2-252-026	D2-252-026	D2-252-015	7.908	32:47 hr	3.993	1.496	0.598	0.669
D2-252-033	D2-252-033	D3-252-012	4.928	35:05 hr	4.753	1.017	0.508	0.514
D2-252-039	D2-252-039	D2-252-033	4.944	35:02 hr	4.546	1.056	0.528	0.548
D2-252-049	D2-252-049	D2-252-039	4.955	35:01 hr	6.503	0.803	0.401	0.339
D2-252-050	D2-252-050	D2-252-026	0.843	33:05 hr	3.16	0.378	0.189	0.078
D2-252-052	D2-252-052	D2-252-050	0.842	32:58 hr	2.187	0.467	0.207	0.094
D2-252-056	D2-252-056	D2-252-052	0.843	32:57 hr	8.567	0.183	0.081	0.013
D2-252-057	D2-252-057	D2-252-049	4.961	35:00 hr	6.697	0.786	0.393	0.326
D2-252-062	D2-252-062	D2-252-057	4.853	35:00 hr	4.583	1.034	0.517	0.529
D2-252-067	D2-252-067	D2-252-056	0.855	32:48 hr	1.864	0.527	0.234	0.12
D2-252-069	D2-252-069	D2-252-062	4.858	35:00 hr	6.535	0.788	0.394	0.328
D2-252-071	D3-252-054	D2-252-071	7.475	32:30 hr	11.114	0.693	0.308	0.206
D2-252-085	D2-252-085	D2-252-069	4.862	35:01 hr	4.874	0.986	0.493	0.488
D2-252-105	D2-252-105	D2-252-026	7.246	32:37 hr	3.569	2	1	1.112
D2-271-017	D2-271-017	D2-271-019	1.1	33:17 hr	3.968	0.476	0.381	0.307
D2-271-019	D2-271-019	D2-271-022	1.093	33:16 hr	3.961	0.474	0.379	0.306
D2-271-022	D2-271-022	D2-271-023	1.089	33:15 hr	3.957	0.473	0.379	0.305
D2-271-023	D2-271-023	D2-271-109	1.087	33:16 hr	3.956	0.473	0.378	0.304
D2-271-039	D2-271-039	D2-271-042	3.516	34:15 hr	6.423	0.726	0.484	0.473
D2-271-042	D2-271-042	D2-271-043	3.513	34:15 hr	5.51	0.751	0.429	0.383
D2-271-043	D2-271-043	D2-271-045	3.511	34:15 hr	5.51	0.751	0.429	0.383
D2-271-045	D2-271-045	D1-271-051	3.611	34:15 hr	5.551	0.763	0.436	0.393
D2-271-048	D2-271-048	D2-271-039	0.924	33:30 hr	2.111	0.676	0.541	0.569

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-271-052	D2-271-052	D2-271-048	0.924	33:32 hr	2.104	0.678	0.542	0.572
D2-271-063	D2-271-063	D2-271-052	0.938	33:20 hr	2.128	0.68	0.544	0.575
D2-271-067	D2-271-067	D2-271-063	0.938	33:18 hr	1.95	0.73	0.584	0.644
D2-271-075	D2-271-075	D2-271-067	0.933	33:15 hr	1.968	0.721	0.577	0.632
D2-271-109	D2-271-109	D1-271-017	1.09	33:15 hr	3.96	0.473	0.379	0.305
D2-272-011	D2-272-011	D2-271-075	0.904	33:10 hr	1.943	0.711	0.568	0.617
D2-272-023	D2-272-023	D2-272-025	0.947	32:49 hr	2.144	0.681	0.545	0.577
D2-272-025	D2-272-025	D2-272-029	0.91	32:51 hr	2.069	0.679	0.543	0.574
D2-272-029	D2-272-029	D2-272-011	0.908	33:06 hr	2.09	0.672	0.538	0.565
D2-272-052	D2-272-052	D2-272-023	0.912	32:43 hr	2.035	0.689	0.551	0.587
D2-272-070	D2-272-070	D2-272-052	0.961	32:35 hr	2.122	0.695	0.556	0.595
D2-272-072	D2-272-072	D2-272-070	0.989	32:34 hr	2.145	0.705	0.564	0.609
D2-272-074	D2-272-074	D2-272-072	0.96	32:32 hr	1.998	0.73	0.584	0.644
D2-272-075	D2-272-075	D2-272-074	0.924	32:30 hr	2.116	0.675	0.54	0.568
D2-281-002	D2-281-002	D2-272-075	0.928	32:16 hr	2.112	0.678	0.543	0.573
D3-212-001	D3-212-001	D3-212-002	0.022	32:17 hr	0.982	0.104	0.155	0.052
D3-212-002	D3-212-002	D3-212-003	0.023	32:25 hr	1.67	0.074	0.111	0.026
D3-212-003	D3-212-003	D3-212-004	0.024	32:28 hr	1.869	0.071	0.106	0.024
D3-212-004	D3-212-004	D3-212-012	0.025	32:30 hr	1.723	0.078	0.117	0.029
D3-212-012	D3-212-012	D3-212-013	0.025	32:28 hr	1.713	0.077	0.116	0.028
D3-212-013	D3-212-013	D3-221-016	0.026	32:29 hr	1.733	0.078	0.118	0.029
D3-212-017	D3-212-017	D3-221-016	0.565	32:45 hr	8.079	0.195	0.195	0.084
D3-212-018	D3-212-018	D3-212-017	0.567	32:45 hr	3.528	0.354	0.354	0.268
D3-212-022	D3-212-022	D3-212-018	0.568	32:46 hr	5.642	0.253	0.253	0.14
D3-212-023	D3-212-023	D3-212-001	0.012	32:15 hr	0.827	0.079	0.118	0.029
D3-221-016	D3-221-016	D3-221-024	0.588	32:46 hr	4.312	0.314	0.314	0.214
D3-221-021	D3-221-021	D4-221-004	0.583	32:46 hr	4.177	0.319	0.319	0.221
D3-221-022	D3-221-022	D3-221-021	0.583	32:46 hr	3.846	0.339	0.339	0.248
D3-221-023	D3-221-023	D3-221-022	0.584	32:46 hr	4.988	0.281	0.281	0.173
D3-221-024	D3-221-024	D3-221-023	0.586	32:46 hr	3.574	0.359	0.359	0.276
D3-232-001	D3-232-015	D3-232-001	0.082	32:30 hr	2.414	0.139	0.208	0.095
D3-232-001A	D3-232-001	D3-232-018	0.247	32:29 hr	3.299	0.244	0.366	0.286
D3-232-009	D3-232-009	D3-232-015	0.083	32:30 hr	2.425	0.14	0.21	0.096
D3-232-017	D3-232-017	D4-232-001	0.274	32:29 hr	6.77	0.157	0.235	0.121
D3-232-018	D3-232-018	D3-232-017	0.254	32:29 hr	7.219	0.142	0.213	0.1
D3-241-001	D3-241-001	D3-241-002	0.042	32:27 hr	1.986	0.1	0.151	0.049
D3-241-002	D3-241-002	D3-241-003	0.047	32:28 hr	2.049	0.106	0.158	0.054
D3-241-003	D3-241-003	D3-241-004	0.054	32:29 hr	2.13	0.113	0.169	0.062
D3-241-004	D3-241-004	D3-241-008	0.056	32:30 hr	2.158	0.115	0.173	0.065
D3-241-005	D3-241-009	D3-241-005	0.069	32:30 hr	2.289	0.127	0.19	0.079
D3-241-005A	D3-241-005	D3-241-006	0.07	32:29 hr	2.299	0.128	0.192	0.081
D3-241-006	D3-241-006	D3-241-007	0.08	32:31 hr	2.395	0.137	0.205	0.092
D3-241-007	D3-241-007	D3-232-009	0.083	32:31 hr	2.426	0.14	0.21	0.096
D3-241-009	D3-241-008	D3-241-009	0.061	32:30 hr	2.212	0.12	0.18	0.071
D3-251-001	D3-251-001	D4-251-018	20.929	35:19 hr	3.908	2.324	0.517	0.528
D3-251-002	D3-251-002	D3-251-001	20.989	35:18 hr	3.833	2.366	0.526	0.544
D3-251-004	D3-251-004	D3-251-016	16.52	36:46 hr	4.452	1.865	0.466	0.443
D3-251-008	D3-251-008	D3-251-012	16.489	36:46 hr	3.297	2.366	0.591	0.657
D3-251-011	D3-251-011	D3-251-015	16.527	36:44 hr	7.779	1.232	0.308	0.206
D3-251-012	D3-251-012	D3-251-013	20.995	35:15 hr	2.585	4	1	1.122
D3-251-013	D3-251-013	D3-251-002	21.035	35:16 hr	4.168	2.218	0.493	0.488
D3-251-014	D3-251-014	D3-251-012	4.946	35:15 hr	2.566	1.579	0.702	0.84
D3-251-015	D3-251-015	D3-251-004	16.527	36:45 hr	4.449	1.866	0.466	0.444
D3-251-016	D3-251-016	D3-251-008	16.498	36:45 hr	5.816	1.522	0.38	0.307
D3-252-008	D3-252-008	D3-251-014	4.952	35:16 hr	2.861	1.436	0.638	0.737

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-252-012	D3-252-012	D3-252-008	4.937	35:16 hr	4.468	1.069	0.535	0.559
D3-252-045	D2-252-071	D3-252-045	7.41	32:30 hr	9.854	0.795	0.397	0.333
D3-252-045A	D3-252-045	D2-252-105	7.432	32:31 hr	8.809	0.867	0.433	0.39
D3-252-057	D3-252-057	D3-252-054	7.461	32:30 hr	11.108	0.692	0.308	0.206
D3-261-010	D3-261-010	D3-252-057	7.352	32:30 hr	11.063	0.687	0.305	0.203
D3-261-014	D3-261-014	D3-261-010	6.021	32:30 hr	4.719	1.119	0.497	0.495
D3-261-025	D3-261-025	D3-261-014	5.223	32:46 hr	4.57	1.027	0.457	0.427
D3-261-045	D3-261-045	D3-261-025	5.233	32:33 hr	4.572	1.028	0.457	0.428
D3-261-075	D3-261-075	D3-261-045	5.503	32:33 hr	4.667	1.052	0.468	0.446
D3-261-086	D3-261-086	D3-261-075	5.005	32:31 hr	4.601	1.056	0.528	0.548
D3-261-117	D3-261-117	D3-261-086	5.266	32:34 hr	4.673	1.086	0.543	0.574
D3-261-130	D3-261-130	D3-261-117	5.348	32:31 hr	3.938	1.269	0.634	0.73
D3-262-017	D3-262-017	D3-261-130	5.399	32:32 hr	3.945	1.277	0.638	0.737
D3-262-018	D3-262-018	D3-262-017	3.456	32:31 hr	4.093	0.867	0.434	0.39
D3-262-042	D3-262-042	D3-262-018	1.431	32:34 hr	2.646	0.624	0.312	0.211
D3-262-065	D3-262-065	D3-262-122	1.399	32:34 hr	2.508	0.736	0.491	0.485
D3-262-083	D3-262-083	D3-262-065	1.426	32:34 hr	2.859	0.675	0.45	0.417
D3-262-122	D3-262-122	D3-262-042	1.309	32:30 hr	2.466	0.709	0.472	0.454
D3-271-013	D3-271-013	D3-262-083	1.378	32:22 hr	2.849	0.66	0.44	0.4
D3-271-019	D3-271-019	D3-271-024	1.108	33:16 hr	3.974	0.478	0.382	0.31
D3-271-024	D3-271-024	D2-271-017	1.104	33:16 hr	3.973	0.477	0.381	0.309
D3-271-029	D3-271-029	D3-271-013	0.026	32:29 hr	0.885	0.093	0.062	0.008
D3-271-038	D3-271-038	D3-271-019	1.108	33:17 hr	3.976	0.478	0.382	0.31
D3-271-055	D3-271-055	D3-271-038	1.113	33:02 hr	3.982	0.479	0.383	0.311
D3-271-059	D3-271-059	D3-271-055	1.109	33:00 hr	3.982	0.478	0.382	0.31
D3-271-068	D3-271-068	D3-271-069	1.138	33:00 hr	4.004	0.485	0.388	0.318
D3-271-069	D3-271-069	D3-271-070	1.136	33:01 hr	4.004	0.484	0.387	0.318
D3-271-070	D3-271-070	D3-271-072	1.132	33:02 hr	3.999	0.483	0.387	0.316
D3-271-072	D3-271-072	D3-271-059	1.12	33:01 hr	3.988	0.48	0.384	0.313
D3-271-075	D3-271-075	D3-271-068	1.139	33:00 hr	4.006	0.485	0.388	0.318
D3-271-111	D3-271-111	D3-271-029	0.014	32:19 hr	0.756	0.068	0.045	0.004
D3-281-006	D3-281-006	D2-281-002	0.936	32:15 hr	2.168	0.669	0.535	0.56
D4-221-004	D4-221-004	D4-221-005	0.583	32:59 hr	4.533	0.301	0.301	0.197
D4-221-005	D4-221-005	D4-221-008	0.586	33:00 hr	3.974	0.332	0.332	0.238
D4-221-008	D4-221-008	D4-221-009	0.589	33:01 hr	4.442	0.308	0.308	0.206
D4-221-009	D4-221-009	D4-221-010	0.766	32:45 hr	4.568	0.33	0.264	0.153
D4-221-010	D4-221-010	D4-221-011	0.77	32:46 hr	5.225	0.301	0.241	0.127
D4-221-011	D4-221-011	D4-221-015	0.787	32:46 hr	2.987	0.458	0.366	0.287
D4-232-001	D4-232-001	D4-232-002	0.278	32:30 hr	8.583	0.134	0.201	0.088
D4-232-002	D4-232-002	D4-232-003	0.281	32:29 hr	7.871	0.144	0.216	0.102
D4-232-003	D4-232-003	D4-232-004	0.281	32:29 hr	4.642	0.209	0.314	0.214
D4-232-004	D4-232-004	D4-232-005	0.29	32:30 hr	3.649	0.255	0.383	0.311
D4-232-005	D4-232-005	D4-232-006	0.288	32:31 hr	3.707	0.251	0.376	0.301
D4-232-006	D4-232-006	D4-232-007	0.288	32:32 hr	4.212	0.229	0.343	0.253
D4-232-007	D4-232-007	D4-232-008	0.974	33:00 hr	3.575	0.529	0.529	0.549
D4-232-008	D4-232-008	9000	0.973	33:00 hr	4.693	0.428	0.428	0.381
D4-251-001	D4-251-001	E1-251-002	21.438	35:47 hr	3.888	2.379	0.529	0.549
D4-251-005	D4-251-005	D4-251-019	21.466	35:35 hr	2.883	3.061	0.68	0.806
D4-251-008	D4-251-008	D4-251-005	20.917	35:33 hr	3.704	2.425	0.539	0.566
D4-251-018	D4-251-018	D4-251-008	20.923	35:30 hr	3.9	2.327	0.517	0.529
D4-251-019	D4-251-019	D4-251-001	21.439	35:43 hr	2.887	3.054	0.679	0.803
D4-271-014	D4-271-014	D4-271-015	1.154	32:46 hr	4.021	0.488	0.391	0.323
D4-271-015	D4-271-015	D4-271-018	1.151	33:00 hr	4.017	0.488	0.39	0.322
D4-271-018	D4-271-018	D4-271-021	1.15	33:01 hr	4.017	0.487	0.39	0.322
D4-271-021	D4-271-021	D3-271-075	1.147	33:02 hr	4.013	0.487	0.389	0.321

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-221-001	D4-221-015	E1-221-001	0.79	32:46 hr	3.181	0.439	0.351	0.264
E1-221-001A	E1-221-001	E1-222-004	0.8	32:47 hr	3.349	0.426	0.341	0.25
E1-222-004	E1-222-004	E1-222-005	0.8	32:45 hr	7.147	0.255	0.219	0.105
E1-222-005	E1-222-005	E1-222-006	0.807	32:45 hr	5.13	0.316	0.253	0.14
E1-222-006	E1-222-006	E1-222-007	0.813	32:45 hr	4.203	0.366	0.293	0.187
E1-222-007	E1-222-007	E1-222-011	0.821	32:46 hr	4.22	0.368	0.294	0.188
E1-222-011	E1-222-011	E1-222-012	0.825	32:58 hr	5.278	0.292	0.194	0.083
E1-222-012	E1-222-012	E2-222-075	0.83	33:00 hr	3.394	0.4	0.267	0.155
E1-231-012	E1-231-012	E2-231-021	1.794	32:16 hr	6.496	0.535	0.535	0.559
E1-242-001	E1-242-001	E2-242-034	24.072	35:31 hr	3.848	2.636	0.586	0.647
E1-242-002	E1-242-002	E1-242-001	3.794	34:07 hr	3.507	1.051	0.526	0.544
E1-251-001	E1-251-001	E1-242-001	21.419	35:47 hr	6.742	1.564	0.348	0.26
E1-251-002	E1-251-002	E1-251-001	21.43	35:47 hr	3.67	2.491	0.554	0.592
E1-251-003	E1-251-003	E1-251-025	3.813	34:04 hr	3.118	1.161	0.581	0.639
E1-251-004	E1-251-004	E1-251-003	3.812	34:03 hr	2.994	1.201	0.6	0.673
E1-251-007	E1-251-007	E2-251-027	3.775	34:00 hr	3.791	0.985	0.492	0.487
E1-251-018	E1-251-018	E1-251-007	3.782	33:47 hr	4.238	0.905	0.452	0.42
E1-251-019	E1-251-019	E1-251-018	3.781	33:45 hr	4.257	0.901	0.451	0.418
E1-251-020	E1-251-020	E1-251-019	3.771	33:45 hr	3.866	0.969	0.485	0.474
E1-251-021	E1-251-021	E1-251-020	3.779	33:46 hr	3.862	0.972	0.486	0.476
E1-251-023	E1-251-023	E1-251-021	3.786	33:46 hr	3.895	0.967	0.483	0.472
E1-251-025	E1-251-025	E1-242-002	3.797	34:00 hr	3.112	1.159	0.58	0.637
E1-271-068	E1-271-068	E1-271-072	1.173	32:47 hr	4.039	0.493	0.394	0.328
E1-271-072	E1-271-072	E1-271-076	1.158	32:47 hr	4.025	0.489	0.391	0.324
E1-271-076	E1-271-076	D4-271-014	1.147	32:45 hr	4.014	0.487	0.389	0.321
E2-202-016	E2-202-016	E3-202-009	0.404	32:16 hr	4.403	0.284	0.426	0.378
E2-222-015	E2-222-015	E2-222-036	3.625	33:15 hr	8.297	0.611	0.407	0.348
E2-222-016	E2-222-016	E2-222-015	1.437	33:00 hr	15.621	0.237	0.237	0.123
E2-222-017	E2-222-017	E2-222-016	0.845	32:59 hr	8.589	0.212	0.141	0.043
E2-222-028	E2-222-028	E2-222-029	1.677	36:45 hr	6.389	0.513	0.513	0.523
E2-222-028A	E2-222-007	E2-222-028	1.682	36:45 hr	6.393	0.514	0.514	0.524
E2-222-029	E2-222-029	E2-222-030	1.675	36:45 hr	6.388	0.513	0.513	0.522
E2-222-030	E2-222-030	E2-222-031	1.668	36:45 hr	6.38	0.512	0.512	0.52
E2-222-031	E2-222-031	E2-222-048	1.667	36:46 hr	6.38	0.512	0.512	0.52
E2-222-036	E2-222-036	E2-222-037	3.622	33:15 hr	7.78	0.641	0.427	0.38
E2-222-037	E2-222-037	E3-222-065	3.621	33:15 hr	7.903	0.633	0.422	0.371
E2-222-040	E2-222-040	E2-222-015	2.286	33:15 hr	7.129	0.604	0.604	0.679
E2-222-044	E2-222-044	E2-222-017	0.847	33:02 hr	3.199	0.423	0.282	0.174
E2-222-048	E2-222-048	E2-222-050	1.657	36:45 hr	6.369	0.51	0.51	0.517
E2-222-050	E2-222-050	E2-222-040	2.289	33:15 hr	10.368	0.449	0.449	0.414
E2-222-067	E2-222-067	E2-222-044	0.843	32:59 hr	4.237	0.346	0.23	0.116
E2-222-075	E2-222-075	E2-222-067	0.839	32:58 hr	4.256	0.343	0.229	0.115
E2-231-002	E2-231-002	E2-222-007	1.698	36:46 hr	6.409	0.517	0.517	0.529
E2-231-005	E2-231-005	E2-231-002	1.723	36:46 hr	6.414	0.523	0.523	0.539
E2-231-006	E2-231-006	E2-231-005	1.739	36:46 hr	6.447	0.525	0.525	0.542
E2-231-013	E2-231-013	E2-231-006	1.748	36:45 hr	6.455	0.526	0.526	0.545
E2-231-021	E2-231-021	E2-231-013	1.767	36:16 hr	6.472	0.53	0.53	0.551
E2-231-028	E2-231-028	E2-231-029	1.953	32:15 hr	5.256	0.687	0.687	0.816
E2-231-029	E2-231-029	E2-231-030	1.921	32:15 hr	5.041	0.702	0.702	0.841
E2-231-030	E2-231-030	E2-231-031	1.903	32:15 hr	4.484	0.779	0.779	0.952
E2-231-031	E2-231-031	E2-231-035	1.871	32:16 hr	5.929	0.596	0.596	0.665
E2-231-035	E2-231-035	E2-231-037	1.808	36:15 hr	6.508	0.537	0.537	0.564
E2-231-037	E2-231-037	E1-231-012	1.797	36:15 hr	6.498	0.535	0.535	0.56
E2-242-004	E2-242-004	E3-242-012	24.019	36:01 hr	3.954	2.572	0.572	0.623
E2-242-011	E2-242-011	E2-242-004	24.037	35:49 hr	3.745	2.693	0.598	0.669

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E2-242-017	E2-242-017	E2-242-011	24.051	35:49 hr	3.117	3.162	0.703	0.841
E2-242-024	E2-242-024	E2-242-017	24.059	35:47 hr	4.329	2.394	0.532	0.555
E2-242-034	E2-242-034	E2-242-024	24.064	35:33 hr	3.768	2.681	0.596	0.665
E2-251-027	E2-251-027	E1-251-004	3.808	34:00 hr	3.298	1.108	0.554	0.593
E2-251-058	E2-251-058	E1-251-023	3.777	33:45 hr	5.179	0.777	0.388	0.319
E2-252-192	E2-252-192	E2-251-058	3.789	33:47 hr	6.784	0.737	0.491	0.485
E2-252-193	E2-252-193	E2-252-196	3.789	33:46 hr	7.369	0.691	0.461	0.434
E2-252-194	E2-252-194	E2-252-193	3.78	33:45 hr	7.364	0.69	0.46	0.433
E2-252-196	E2-252-196	E2-252-192	3.789	33:45 hr	7.372	0.691	0.461	0.434
E2-271-073	E2-271-076	E2-271-078	1.212	32:32 hr	4.074	0.502	0.401	0.339
E2-271-077	E2-271-078	E2-271-081	1.194	32:46 hr	4.057	0.497	0.398	0.334
E2-271-081	E2-271-081	E2-271-086	1.193	32:47 hr	4.057	0.497	0.398	0.333
E2-271-086	E2-271-086	E1-271-068	1.185	32:47 hr	4.049	0.495	0.396	0.331
E3-202-008	E3-202-010	E3-202-008	0.412	32:30 hr	3.468	0.309	0.37	0.292
E3-202-008A	E3-202-008	E3-202-011	0.419	32:30 hr	3.483	0.311	0.374	0.297
E3-202-009	E3-202-009	E3-202-BV	0.406	32:29 hr	3.459	0.306	0.367	0.288
E3-202-011	E3-202-011	E3-202-012	0.423	32:31 hr	3.587	0.307	0.368	0.29
E3-202-012	E3-202-012	E4-202-001	0.424	32:30 hr	5.185	0.235	0.283	0.174
E3-222-051	E3-222-051	E3-231-006	3.618	33:17 hr	3.737	1.185	0.79	0.966
E3-222-051A	E3-222-064	E3-222-051	3.622	33:16 hr	4.385	1.019	0.679	0.804
E3-222-065	E3-222-065	E3-222-064	3.618	33:15 hr	5.442	0.847	0.565	0.611
E3-231-006	E3-231-006	E4-231-005	3.622	33:21 hr	3.765	1.039	0.594	0.661
E3-241-015	E3-241-015	E4-241-016	26.766	36:04 hr	5.577	2.133	0.474	0.456
E3-241-022	E3-241-022	E3-241-015	26.724	36:02 hr	5.29	2.22	0.493	0.489
E3-241-028	E3-241-028	E3-241-022	26.726	36:01 hr	4.211	2.667	0.593	0.659
E3-241-034	E3-241-034	E3-241-028	4.141	33:15 hr	4.74	1.072	0.715	0.86
E3-241-036	E3-241-036	E3-241-034	4.104	33:15 hr	4.942	1.024	0.682	0.81
E3-241-048	E3-241-048	E3-241-049	4.062	33:12 hr	3.556	1.5	1	1.141
E3-241-049	E3-241-049	E3-241-036	4.096	33:01 hr	5.606	0.916	0.611	0.69
E3-242-002	E3-242-002	E3-241-028	24.014	36:02 hr	4.413	2.354	0.523	0.539
E3-242-012	E3-242-012	E3-242-002	24.017	36:00 hr	5.01	2.131	0.474	0.455
E3-252-001	E3-252-001	E3-252-003	3.792	33:34 hr	3.32	1.5	1	1.188
E3-252-003	E3-252-003	E3-252-004	3.765	33:34 hr	3.296	1.5	1	1.173
E3-252-004	E3-252-004	E3-252-084	3.771	33:44 hr	7.339	0.691	0.461	0.434
E3-252-084	E3-252-084	E2-252-194	3.773	33:46 hr	7.36	0.69	0.46	0.433
E3-252-085	E3-252-085	E3-252-001	3.793	33:30 hr	3.321	1.5	1	1.19
E3-271-068	E3-271-068	E3-271-072	1.145	32:31 hr	4.019	0.486	0.388	0.319
E3-271-072	E3-271-072	E3-271-074	1.146	32:31 hr	4.013	0.486	0.389	0.32
E3-271-074	E3-271-074	E2-271-076	1.205	32:30 hr	4.068	0.5	0.4	0.337
E3-271-121	E3-271-121	E3-271-123	1.14	32:31 hr	4.011	0.485	0.388	0.318
E3-271-122	E3-271-122	E3-271-121	1.13	32:30 hr	3.419	0.543	0.434	0.391
E3-271-123	E3-271-123	E3-271-068	1.133	32:31 hr	4	0.483	0.387	0.317
E4-202-001	E4-202-001	E4-202-002	0.553	32:30 hr	5.537	0.251	0.251	0.138
E4-202-002	E4-202-002	E4-202-003	0.551	32:31 hr	4.693	0.282	0.282	0.173
E4-202-003	E4-202-003	E4-202-009	0.542	32:30 hr	4.661	0.28	0.28	0.171
E4-202-007	E4-202-007	E4-202-013	0.547	32:30 hr	4.742	0.278	0.278	0.169
E4-202-009	E4-202-009	E4-202-007	0.544	32:30 hr	4.664	0.28	0.28	0.172
E4-202-013	E4-202-013	E4-202-014	0.544	32:31 hr	4.738	0.277	0.277	0.168
E4-202-014	E4-202-014	F1-202-010	0.538	32:31 hr	5.355	0.252	0.252	0.139
E4-231-005	E4-231-005	E4-231-006	3.606	33:15 hr	7.138	0.631	0.361	0.278
E4-231-006	E4-231-006	E4-231-008	3.605	33:16 hr	7.15	0.63	0.36	0.278
E4-231-007	E4-231-007	F1-231-002	3.599	33:19 hr	3.201	1.239	0.744	0.903
E4-231-008	E4-231-008	E4-231-007	3.599	33:15 hr	3.838	1.052	0.631	0.725
E4-232-016	E4-232-016	F1-232-033	26.815	36:17 hr	4.187	2.688	0.597	0.667
E4-241-005	E4-241-005	E4-232-016	26.819	36:16 hr	4.373	2.593	0.576	0.631

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E4-241-016	E4-241-016	E4-241-005	26.752	36:02 hr	5.764	2.078	0.462	0.436
E4-241-075	E4-241-075	E4-241-077	3.905	33:00 hr	6.629	0.769	0.512	0.521
E4-241-077	E4-241-077	E4-241-078	3.901	33:03 hr	3.416	1.5	1	1.06
E4-241-078	E4-241-078	E4-241-079	3.878	33:02 hr	4.163	1.14	0.76	0.926
E4-241-079	E4-241-079	E4-241-080	4.027	33:00 hr	3.525	1.5	1	1.22
E4-241-080	E4-241-080	E3-241-048	4.041	33:03 hr	3.538	1.5	1	1.222
E4-241-081	E4-241-081	E4-241-075	3.909	33:00 hr	4.886	0.99	0.66	0.773
E4-242-014	E4-242-014	E4-241-081	3.038	33:02 hr	4.233	0.902	0.602	0.674
E4-242-029	E4-242-029	E4-242-014	3.043	33:03 hr	3.429	1.088	0.726	0.876
E4-242-034	E4-242-034	E4-242-029	3.027	33:00 hr	3.909	0.963	0.642	0.743
E4-242-036	E4-242-036	E4-242-034	3.023	33:00 hr	3.906	0.962	0.641	0.742
E4-242-045	E4-242-045	E4-242-036	3.01	33:01 hr	3.907	0.958	0.639	0.738
E4-242-057	E4-242-057	E4-242-045	2.96	33:01 hr	3.615	1.011	0.674	0.796
E4-242-062	E4-242-062	E4-242-057	2.907	33:00 hr	3.557	1.009	0.673	0.794
E4-242-069	E4-242-069	E4-242-062	2.847	32:49 hr	3.154	1.106	0.737	0.893
E4-242-078	E4-242-078	E4-242-069	2.799	32:48 hr	3.313	1.04	0.693	0.826
E4-251-001	E4-251-001	E4-242-078	2.78	32:45 hr	3.372	1.017	0.678	0.802
E4-252-009	E4-252-009	E3-252-085	3.794	33:30 hr	3.322	1.5	1	1.191
E4-252-010	E4-252-010	E4-252-009	3.796	33:30 hr	3.323	1.5	1	1.194
E4-252-011	E4-252-011	E4-252-010	3.801	33:30 hr	3.328	1.5	1	1.19
E4-252-013	E4-252-013	E4-252-014	3.816	33:15 hr	5.001	0.95	0.634	0.729
E4-252-014	E4-252-014	E4-252-019	3.814	33:15 hr	4.888	0.969	0.646	0.75
E4-252-019	E4-252-019	E4-252-021	3.811	33:17 hr	3.337	1.5	1	1.06
E4-252-021	E4-252-021	E4-252-023	3.792	33:18 hr	3.32	1.5	1	1.042
E4-252-023	E4-252-023	E4-252-011	3.811	33:33 hr	3.337	1.5	1	1.177
E4-252-033	E4-252-033	E4-252-013	3.829	33:17 hr	4.267	1.1	0.733	0.888
E4-252-035	E4-252-035	E4-252-033	3.833	33:15 hr	7.118	0.716	0.478	0.462
E4-252-037	E4-252-037	E4-252-035	3.834	33:16 hr	5.199	0.923	0.615	0.698
E4-271-058	E4-271-058	E4-271-060	1.084	32:32 hr	2.426	0.687	0.55	0.586
E4-271-060	E4-271-060	E4-271-062	1.099	32:31 hr	4.148	0.46	0.368	0.289
E4-271-062	E4-271-062	E4-271-063	1.108	32:31 hr	4.659	0.425	0.34	0.249
E4-271-063	E4-271-063	E4-271-064	1.114	32:30 hr	5.119	0.399	0.319	0.22
E4-271-064	E4-271-064	E3-271-122	1.139	32:31 hr	3.631	0.522	0.417	0.364
F1-202-005	F1-202-005	F1-202-007	0.56	32:44 hr	4.521	0.267	0.213	0.1
F1-202-006	F1-202-006	F1-202-005	0.558	32:45 hr	4.75	0.264	0.227	0.113
F1-202-007	F1-202-007	F2-202-001	0.578	32:45 hr	5.363	0.242	0.194	0.082
F1-202-008	F1-202-008	F1-202-006	0.555	32:44 hr	3.435	0.322	0.257	0.145
F1-202-009	F1-202-009	F1-202-008	0.548	32:41 hr	4.86	0.274	0.274	0.164
F1-202-010	F1-202-010	F1-202-009	0.532	32:31 hr	5.113	0.259	0.259	0.146
F1-231-001	F1-231-001	F2-231-024	3.583	33:35 hr	2.714	1.386	0.792	0.967
F1-231-001A	F1-231-003	F1-231-001	3.587	33:33 hr	3.381	1.174	0.704	0.844
F1-231-002	F1-231-002	F1-231-003	3.581	33:20 hr	3.05	1.293	0.776	0.947
F1-232-001	F1-232-001	F2-231-023	29.292	36:18 hr	4.407	2.773	0.616	0.7
F1-232-002	F1-232-002	F1-232-001	29.299	36:18 hr	4.09	2.958	0.657	0.768
F1-232-008	F1-232-008	F1-232-066	3.352	32:30 hr	5.526	0.787	0.524	0.542
F1-232-012	F1-232-012	F1-232-066	26.796	36:16 hr	4.124	2.72	0.604	0.68
F1-232-013	F1-232-013	F1-232-008	3.433	32:33 hr	3.706	1.134	0.756	0.92
F1-232-014	F1-232-014	F1-232-017	2.81	33:56 hr	4.622	0.788	0.525	0.543
F1-232-017	F1-232-017	F1-232-019	2.827	34:01 hr	3.691	0.953	0.636	0.732
F1-232-019	F1-232-019	F1-232-013	3.433	32:30 hr	3.724	1.129	0.752	0.915
F1-232-033	F1-232-033	F1-232-012	26.808	36:18 hr	4.275	2.641	0.587	0.649
F1-232-066	F1-232-066	F1-232-002	29.305	36:17 hr	4.203	2.889	0.642	0.743
F1-241-050	F1-241-050	F1-242-001	0.891	32:45 hr	4.597	0.367	0.293	0.187
F1-241-109	F1-241-109	F1-241-050	0.894	32:49 hr	2.38	0.599	0.48	0.465
F1-241-110	F1-241-110	F1-241-109	0.867	32:48 hr	2.402	0.581	0.465	0.44

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-242-001	F1-242-001	E4-241-081	0.902	32:45 hr	4.613	0.369	0.295	0.19
F1-251-003	F1-251-003	E4-251-001	2.74	32:45 hr	3.256	1.036	0.691	0.823
F1-251-015	F1-251-015	F1-251-003	2.524	33:01 hr	4.131	0.9	0.72	0.867
F1-251-023	F1-251-023	F1-251-015	2.495	33:02 hr	4.275	0.862	0.69	0.821
F1-251-031	F1-251-031	F1-251-023	2.407	33:00 hr	5.079	0.721	0.577	0.632
F1-251-033	F1-251-033	F1-251-031	2.393	33:00 hr	4.073	0.868	0.694	0.828
F1-251-034	F1-251-034	F1-251-106	2.375	33:00 hr	3.731	0.935	0.748	0.91
F1-251-039	F1-251-039	F1-251-034	2.345	32:47 hr	4.221	0.825	0.66	0.773
F1-251-040	F1-251-040	F1-251-039	2.293	32:47 hr	4.072	0.835	0.668	0.786
F1-251-041	F1-251-041	F1-251-040	2.258	32:45 hr	4.13	0.814	0.651	0.758
F1-251-044	F1-251-044	F1-251-041	2.222	32:46 hr	4.119	0.805	0.644	0.746
F1-251-047	F1-251-047	F1-251-044	2.196	32:47 hr	4.002	0.816	0.653	0.761
F1-251-048	F1-251-048	F1-251-068	2.159	32:45 hr	4.314	0.754	0.604	0.678
F1-251-049	F1-251-049	F1-251-108	2.095	32:46 hr	3.869	0.807	0.646	0.749
F1-251-050	F1-251-050	F1-251-049	2.083	32:46 hr	4.32	0.731	0.585	0.646
F1-251-068	F1-251-068	F1-251-047	2.173	32:45 hr	4.319	0.758	0.606	0.683
F1-251-106	F1-251-106	F1-251-033	2.385	32:59 hr	3.729	0.94	0.752	0.914
F1-251-108	F1-251-108	F1-251-048	2.15	32:45 hr	3.888	0.822	0.658	0.769
F1-252-017	F1-252-017	E4-252-037	3.837	33:15 hr	6.225	0.797	0.531	0.553
F1-252-033	F1-252-033	F1-252-017	3.839	33:15 hr	6.226	0.797	0.531	0.554
F1-252-039	F1-252-039	F1-252-033	3.839	33:15 hr	5.68	0.858	0.572	0.624
F1-261-003	F1-261-003	F1-261-004	3.822	33:14 hr	7.57	0.76	0.608	0.686
F1-261-004	F1-261-004	F1-252-039	3.823	33:13 hr	7.232	0.706	0.471	0.451
F1-261-009	F1-261-009	F1-261-003	3.825	33:00 hr	4.823	1.25	1	1.095
F1-261-026	F1-261-026	F1-261-009	3.834	33:00 hr	4.834	1.25	1	1.098
F1-261-040	F1-261-040	F1-261-026	3.839	33:01 hr	4.84	1.25	1	1.102
F1-261-048	F1-261-048	F1-261-040	3.829	33:01 hr	4.827	1.25	1	1.099
F1-261-058	F1-261-058	F1-261-048	3.834	33:01 hr	6.368	0.887	0.71	0.852
F1-261-064	F1-261-064	F1-261-058	3.834	33:01 hr	5.987	0.941	0.753	0.916
F1-261-070	F1-261-070	F1-261-064	3.81	33:00 hr	5.982	0.936	0.749	0.91
F1-261-075	F1-261-075	F1-261-070	3.802	33:00 hr	4.793	1.25	1	1.041
F1-261-078	F1-261-078	F1-261-075	3.735	33:01 hr	4.71	1.25	1	1.023
F1-261-081	F1-261-081	F1-261-078	3.719	33:01 hr	4.689	1.25	1	1.196
F1-261-089	F1-261-089	F1-261-081	3.712	33:01 hr	4.68	1.25	1	1.194
F1-261-095	F1-261-095	F1-261-089	3.69	33:01 hr	4.652	1.25	1	1.182
F1-261-097	F1-261-097	F1-261-095	3.691	33:00 hr	4.654	1.25	1	1.183
F1-261-106	F1-261-106	F1-261-097	3.688	33:00 hr	4.65	1.25	1	1.181
F1-271-101	F1-271-101	F1-271-103	0.893	32:21 hr	2.313	0.612	0.489	0.482
F1-271-103	F1-271-103	E4-271-058	1.029	32:30 hr	2.808	0.588	0.47	0.45
F2-202-001	F2-202-001	F2-202-023	0.585	32:45 hr	4.271	0.286	0.229	0.115
F2-202-002	F2-202-002	F2-202-007	0.624	32:45 hr	4.297	0.298	0.239	0.125
F2-202-003	F2-202-003	F2-202-005	0.6	32:45 hr	4.373	0.287	0.229	0.115
F2-202-004	F2-202-004	F2-202-006	0.642	32:45 hr	4.209	0.309	0.247	0.134
F2-202-005	F2-202-005	F2-202-002	0.607	32:45 hr	4.494	0.283	0.227	0.113
F2-202-006	F2-202-006	F2-202-024	0.649	32:45 hr	5.69	0.252	0.201	0.089
F2-202-007	F2-202-007	F2-202-004	0.64	32:44 hr	4.57	0.291	0.233	0.119
F2-202-023	F2-202-023	F2-202-003	0.591	32:45 hr	3.961	0.304	0.243	0.13
F2-202-024	F2-202-024	F3-202-006	0.652	32:45 hr	4.844	0.283	0.226	0.112
F2-231-004	F2-231-004	F3-231-015	32.039	37:05 hr	3.117	4.5	1	1.011
F2-231-010	F2-231-010	F2-231-004	31.791	37:04 hr	4.458	2.946	0.655	0.764
F2-231-016	F2-231-016	F2-231-010	29.285	36:31 hr	4.382	2.786	0.619	0.704
F2-231-023	F2-231-023	F2-231-016	29.287	36:30 hr	4.217	2.879	0.64	0.739
F2-231-024	F2-231-024	F2-231-010	3.575	33:37 hr	2.3	1.75	1	1.158
F2-232-002	F2-232-002	F2-232-003	2.652	33:44 hr	3.542	0.935	0.623	0.712
F2-232-003	F2-232-003	F2-232-004	2.691	33:44 hr	3.516	0.953	0.635	0.732

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F2-232-004	F2-232-004	F2-232-005	2.723	33:43 hr	3.522	0.961	0.641	0.741
F2-232-005	F2-232-005	F2-232-006	2.747	33:46 hr	3.436	0.99	0.66	0.773
F2-232-006	F2-232-006	F1-232-014	2.795	33:46 hr	3.711	0.94	0.627	0.717
F2-232-007	F2-232-007	F2-232-002	2.635	33:32 hr	3.063	1.057	0.705	0.845
F2-242-055	F2-242-055	F1-241-110	0.828	32:36 hr	2.306	0.578	0.463	0.437
F2-242-056	F2-242-056	F2-242-055	0.792	32:34 hr	2.425	0.538	0.431	0.385
F2-251-012	F2-251-012	F2-251-028	1.929	32:30 hr	4.509	0.664	0.531	0.553
F2-251-016	F2-251-016	F2-251-017	1.945	32:46 hr	4.417	0.679	0.544	0.575
F2-251-017	F2-251-017	F2-252-027	1.957	32:45 hr	4.555	0.666	0.533	0.556
F2-251-018	F2-251-018	F1-251-050	2.053	32:46 hr	4.749	0.669	0.535	0.56
F2-251-028	F2-251-028	F2-251-016	1.94	32:31 hr	4.516	0.666	0.533	0.556
F2-252-027	F2-252-027	F2-251-018	2.036	32:45 hr	4.595	0.683	0.546	0.579
F2-261-053	F2-261-053	F1-261-106	3.412	33:01 hr	6.673	0.768	0.615	0.697
F2-262-011	F2-262-011	F2-261-053	3.416	33:02 hr	5.758	0.875	0.7	0.838
F2-262-017	F2-262-017	F2-262-011	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-020	F2-262-020	F2-262-017	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-029	F2-262-029	F2-262-020	3.385	33:01 hr	6.012	0.835	0.668	0.786
F2-262-032	F2-262-032	F2-262-029	3.387	33:01 hr	4.271	1.25	1	1.248
F2-262-038	F2-262-038	F2-262-032	3.335	33:01 hr	5.06	0.968	0.775	0.945
F3-202-006	F3-202-006	F3-202-007	0.664	32:44 hr	4.421	0.305	0.244	0.131
F3-202-007	F3-202-007	F3-211-010	0.688	32:45 hr	4.469	0.311	0.249	0.136
F3-211-010	F3-211-010	F3-211-011	0.726	32:45 hr	4.917	0.302	0.241	0.128
F3-211-011	F3-211-011	F3-211-012	0.729	32:45 hr	4.565	0.319	0.255	0.143
F3-211-012	F3-211-012	F3-211-013	0.78	32:44 hr	4.773	0.324	0.259	0.147
F3-211-013	F3-211-013	F4-211-002	0.785	32:44 hr	4.612	0.334	0.267	0.156
F3-222-007	F3-222-007	F3-222-019	32.015	37:19 hr	4.321	3.047	0.677	0.801
F3-222-008	F3-222-008	F3-222-007	32.022	37:18 hr	4.234	3.104	0.69	0.821
F3-222-008A	F3-222-020	F3-222-008	32.024	37:16 hr	4.569	2.902	0.645	0.748
F3-222-019	F3-222-019	F4-222-013	32.003	37:18 hr	4.145	3.164	0.703	0.842
F3-231-015	F3-231-015	F3-222-020	32.024	37:04 hr	3.115	4.5	1	1.01
F3-232-001	F3-232-001	F2-232-007	2.617	33:44 hr	3.716	0.888	0.592	0.658
F3-232-002	F3-232-002	F3-232-001	2.588	33:32 hr	3.213	0.996	0.664	0.78
F3-232-003	F3-232-003	F3-232-002	2.587	33:32 hr	3.315	0.969	0.646	0.75
F3-232-004	F3-232-004	F3-232-005	2.19	33:45 hr	3.8	0.755	0.504	0.506
F3-232-005	F3-232-005	F3-232-006	2.252	33:42 hr	3.342	0.856	0.571	0.622
F3-232-006	F3-232-006	F3-232-007	2.33	33:31 hr	3.881	0.78	0.52	0.534
F3-232-007	F3-232-007	F3-232-003	2.58	33:30 hr	5.935	0.608	0.406	0.346
F3-241-004	F3-241-004	F3-242-011	0.544	32:30 hr	3.551	0.31	0.248	0.134
F3-241-005	F3-241-005	F3-241-004	0.551	32:32 hr	2.09	0.458	0.367	0.287
F3-241-006	F3-241-006	F3-241-005	0.465	32:32 hr	2.114	0.401	0.321	0.223
F3-242-010	F3-242-010	F2-242-056	0.731	32:34 hr	2.242	0.537	0.43	0.384
F3-242-011	F3-242-011	F3-242-010	0.644	32:33 hr	2.193	0.497	0.397	0.333
F3-251-023	F3-251-023	F3-251-082	1.531	33:02 hr	4.189	0.587	0.469	0.448
F3-251-024	F3-251-024	F2-251-012	1.956	32:32 hr	4.042	0.733	0.587	0.649
F3-251-082	F3-251-082	F3-251-024	1.569	33:00 hr	5.548	0.483	0.386	0.316
F3-252-001	F3-252-001	F3-252-003	1.47	33:00 hr	4.777	0.515	0.412	0.355
F3-252-003	F3-252-003	F3-251-023	1.523	33:00 hr	4.822	0.525	0.42	0.368
F3-262-038	F3-262-038	F2-262-038	3.317	33:00 hr	6.179	0.801	0.641	0.741
F3-262-052	F3-262-052	F3-262-038	3.329	32:48 hr	4.197	1.25	1	1.236
F3-262-057	F3-262-057	F3-262-052	3.323	32:46 hr	6.129	0.808	0.646	0.75
F3-262-063	F3-262-063	F3-262-057	3.183	32:46 hr	7.756	0.642	0.514	0.523
F3-271-152	F3-271-152	F3-262-074	3.142	32:46 hr	3.961	1.25	1	1.059
F3-271-152A	F3-262-074	F3-262-063	3.197	32:47 hr	4.031	1.25	1	1.174
F3-271-153	F3-271-153	F3-271-152	3.115	32:45 hr	7.081	0.679	0.543	0.574
F4-0232-BV	F4-0232-BV	F4-232-004	2.119	33:45 hr	2.307	1.124	0.75	0.911

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F4-211-002	F4-211-002	F4-211-003	0.791	32:44 hr	5.407	0.3	0.24	0.126
F4-211-003	F4-211-003	F4-211-015	0.793	32:44 hr	5.152	0.311	0.249	0.136
F4-211-004	F4-211-004	F4-211-005	0.801	32:44 hr	8.299	0.224	0.179	0.07
F4-211-005	F4-211-005	F4-211-013	0.807	32:44 hr	5.684	0.293	0.235	0.121
F4-211-006	F4-211-006	F4-211-007	0.837	32:45 hr	3.497	0.427	0.341	0.251
F4-211-007	F4-211-007	G1-211-003	0.843	32:45 hr	4.773	0.343	0.274	0.165
F4-211-013	F4-211-013	F4-211-014	0.827	32:44 hr	7.15	0.254	0.203	0.091
F4-211-014	F4-211-014	F4-211-006	0.833	32:45 hr	4.061	0.382	0.305	0.203
F4-211-015	F4-211-015	F4-211-004	0.796	32:44 hr	5.159	0.311	0.249	0.136
F4-221-022	F4-221-022	G1-221-029	32.007	37:33 hr	4.763	2.799	0.622	0.709
F4-222-003	F4-222-003	F4-221-022	32.012	37:33 hr	4.238	3.101	0.689	0.82
F4-222-013	F4-222-013	F4-222-003	32.015	37:18 hr	4.539	2.918	0.648	0.754
F4-232-004	F4-232-004	F4-232-005	2.134	33:46 hr	2.378	1.1	0.733	0.888
F4-232-005	F4-232-005	F4-232-006	2.14	33:45 hr	4.28	0.676	0.451	0.418
F4-232-006	F4-232-006	F3-232-004	2.148	33:46 hr	3.442	0.805	0.536	0.562
F4-241-002	F4-241-002	G1-241-001	2.013	33:41 hr	5.401	0.543	0.362	0.28
F4-241-003	F4-241-003	F4-241-002	2.012	33:32 hr	3.714	0.72	0.48	0.466
F4-241-004	F4-241-004	F4-241-003	2.008	33:33 hr	3.31	0.787	0.525	0.542
F4-241-005	F4-241-005	F4-241-004	2.007	33:32 hr	3.494	0.753	0.502	0.504
F4-241-006	F4-241-006	F4-241-005	1.963	33:32 hr	4.359	0.625	0.417	0.363
F4-241-007	F4-241-007	F4-241-006	1.92	33:32 hr	3.729	0.692	0.461	0.435
F4-241-008	F4-241-008	F4-241-007	1.815	33:32 hr	3.512	0.694	0.463	0.437
F4-241-009	F4-241-009	F3-241-006	0.379	32:32 hr	1.902	0.374	0.299	0.195
F4-241-010	F4-241-010	F4-241-009	0.289	32:31 hr	1.809	0.32	0.256	0.143
F4-241-011	F4-241-011	F4-241-010	0.191	32:18 hr	1.753	0.244	0.195	0.083
F4-251-016	F4-251-016	F4-251-022	1.451	33:01 hr	4.613	0.523	0.418	0.366
F4-251-022	F4-251-022	F4-251-023	1.454	33:01 hr	4.523	0.532	0.425	0.377
F4-251-023	F4-251-023	F4-252-003	1.468	33:01 hr	4.315	0.555	0.444	0.407
F4-252-003	F4-252-003	F3-252-001	1.47	33:02 hr	4.333	0.554	0.443	0.405
F4-252-005	F4-252-005	F4-251-016	1.405	33:01 hr	4.717	0.502	0.402	0.339
F4-271-034	G1-271-007	F4-271-034	3.073	32:30 hr	5.678	0.807	0.645	0.748
F4-271-034A	F4-271-034	F4-271-075	3.077	32:30 hr	5.455	0.836	0.669	0.788
F4-271-069	F4-271-069	F4-271-073	3.066	32:32 hr	5.246	0.863	0.691	0.823
F4-271-070	F4-271-070	F3-271-153	3.142	32:47 hr	5.683	0.822	0.657	0.769
F4-271-072	F4-271-072	F4-271-070	3.12	32:48 hr	3.933	1.25	1	1.083
F4-271-073	F4-271-073	F4-271-072	3.072	32:47 hr	6.061	0.763	0.61	0.689
F4-271-075	F4-271-075	F4-271-069	3.081	32:31 hr	5.457	0.837	0.67	0.789
G1-211-003	G1-211-003	9010	1.262	32:33 hr	2.099	0.886	0.709	0.851
G1-221-001	G1-221-001	G2-212-041	32.642	37:35 hr	3.176	4.5	1	1.1
G1-221-005	G1-221-005	G1-221-001	32.646	37:33 hr	5.054	2.707	0.602	0.675
G1-221-010	G1-221-010	G1-221-005	32.648	37:32 hr	4.781	2.837	0.63	0.724
G1-221-029	G1-221-029	G1-221-010	31.999	37:34 hr	3.808	3.428	0.762	0.928
G1-232-012	G1-232-012	F4-0232-BV	2.094	33:34 hr	2.862	0.917	0.611	0.691
G1-241-001	G1-241-001	G1-232-012	2.013	33:43 hr	8.595	0.388	0.259	0.147
G1-241-002	G1-241-002	F4-241-008	1.71	33:30 hr	3.779	0.627	0.418	0.365
G1-242-001	G1-242-001	G1-241-002	0.51	32:36 hr	2.306	0.501	0.601	0.673
G1-242-006	G1-242-006	G1-242-001	0.506	32:33 hr	2.396	0.482	0.578	0.635
G1-242-014	G1-242-014	G1-242-006	0.494	32:33 hr	2.562	0.447	0.537	0.563
G1-242-025	G1-242-025	G1-242-014	0.485	32:32 hr	2.615	0.434	0.52	0.535
G1-242-028	G1-242-028	G1-242-025	0.225	32:29 hr	2.134	0.282	0.339	0.247
G1-242-038	G1-242-038	G1-242-028	0.222	32:33 hr	1.893	0.305	0.367	0.287
G1-242-045	G1-242-045	G1-242-038	0.203	32:19 hr	1.894	0.286	0.344	0.254
G1-252-004	G1-252-004	G1-252-005	1.33	33:01 hr	4.72	0.543	0.543	0.574
G1-252-005	G1-252-005	F4-252-005	1.376	33:02 hr	3.996	0.56	0.448	0.414
G1-252-006	G1-252-006	G1-252-004	1.326	33:00 hr	3.973	0.625	0.625	0.714

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G1-252-007	G1-252-007	G1-252-006	1.305	33:01 hr	3.761	0.646	0.646	0.75
G1-252-008	G1-252-008	G1-252-007	1.266	33:00 hr	4.071	0.589	0.589	0.653
G1-252-009	G1-252-009	G1-252-008	1.263	32:58 hr	4.027	0.593	0.593	0.66
G1-252-011	G1-252-011	G1-252-009	1.265	32:46 hr	3.764	0.629	0.629	0.721
G1-271-007	G1-271-013	G1-271-007	3.05	32:30 hr	5.668	0.803	0.642	0.743
G1-271-013	G1-271-030	G1-271-013	3.069	32:30 hr	5.678	0.806	0.645	0.747
G1-271-030	G1-271-041	G1-271-030	3.109	32:31 hr	4.527	1.01	0.808	0.987
G1-271-042	G1-271-047	G1-271-042	2.777	32:30 hr	4.265	0.956	0.765	0.933
G1-271-047	G1-272-045	G1-271-047	2.803	32:31 hr	6.432	0.674	0.539	0.567
G1-272-045	G1-272-065	G1-272-045	2.742	32:33 hr	4.435	0.909	0.728	0.879
G1-272-065	G1-272-066	G1-272-065	2.687	32:30 hr	4.422	0.895	0.716	0.862
G1-272-066	G2-272-001	G1-272-066	2.687	32:30 hr	4.422	0.895	0.716	0.862
G2-212-001	G2-212-001	G3-212-007	9.918	37:43 hr	2.357	1.929	0.429	0.382
G2-212-002	G2-212-003	G2-212-002	32.751	37:44 hr	6.355	2.255	0.501	0.502
G2-212-002A	G2-212-002	G2-212-001	32.75	37:47 hr	3.668	3.649	0.811	0.99
G2-212-014A	G2-212-014	G2-212-003	6.304	05:30 hr	5.519	1.5	1	1
G2-212-015	G2-212-015	G2-212-014	32.727	37:44 hr	6.021	2.352	0.523	0.539
G2-212-032	G2-212-032	G2-212-047	32.73	37:45 hr	4.653	2.911	0.647	0.751
G2-212-035	G2-212-035	G2-212-032	32.731	37:45 hr	4.317	3.111	0.691	0.824
G2-212-038	G2-212-038	G2-212-035	32.732	37:45 hr	4.57	2.958	0.657	0.768
G2-212-041	G2-212-041	G2-212-038	32.733	37:45 hr	3.739	3.574	0.794	0.97
G2-212-047	G2-212-047	G2-212-015	32.728	37:45 hr	3.689	3.624	0.805	0.984
G2-252-043	G2-252-043	G2-252-045	1.183	32:46 hr	4.042	0.56	0.56	0.603
G2-252-044	G2-252-044	G2-252-043	1.197	32:47 hr	3.825	0.592	0.592	0.658
G2-252-045	G2-252-045	G1-252-011	1.235	32:46 hr	3.968	0.589	0.589	0.654
G2-252-046	G2-252-046	G2-252-044	1.202	32:47 hr	3.917	0.582	0.582	0.641
G2-252-047	G2-252-047	G2-252-046	1.193	32:46 hr	5.998	0.415	0.415	0.36
G2-272-014	G2-272-014	G2-272-001	2.722	32:32 hr	4.309	0.929	0.743	0.902
G2-272-036	G2-272-036	G2-272-014	2.705	32:31 hr	4.233	0.939	0.751	0.913
G2-272-049	G2-272-049	G2-272-036	2.644	32:31 hr	4.235	0.918	0.734	0.889
G2-272-055	G2-272-055	G2-272-049	2.543	32:30 hr	3.778	0.989	0.791	0.967
G2-272-068	G2-272-068	G2-272-055	2.103	32:30 hr	3.684	0.845	0.676	0.8
G2-272-080	G2-272-080	G2-272-068	2.016	32:16 hr	5.542	0.584	0.467	0.445
G3-211-015	G3-211-015	G3-211-018	38.138	37:47 hr	4.814	3.239	0.72	0.868
G3-211-018	G3-211-018	G3-211-017	38.044	37:46 hr	4.81	3.235	0.719	0.866
G3-212-006	G3-212-006	G3-212-007	3.279	32:15 hr	8.033	0.639	0.512	0.52
G3-212-007	G3-212-007	G3-211-015	13.192	37:47 hr	2.476	2.315	0.514	0.525
G3-252-026	G3-252-026	G3-252-028	1.119	32:46 hr	4.663	0.479	0.479	0.464
G3-252-027	G3-252-027	G3-252-026	1.121	32:45 hr	7.465	0.337	0.337	0.244
G3-252-028	G3-252-028	G3-252-029	1.117	32:45 hr	3.723	0.572	0.572	0.623
G3-252-029	G3-252-029	G2-252-047	1.196	32:46 hr	3.888	0.584	0.584	0.644
G3-252-030	G3-252-030	G3-252-027	1.123	32:45 hr	6.873	0.358	0.358	0.274
G3-252-031	G3-252-031	G3-252-030	1.12	32:46 hr	3.933	0.548	0.548	0.582
G3-252-032	G3-252-032	G3-252-031	1.105	32:32 hr	3.604	0.582	0.582	0.641
G4-252-008	G4-252-008	G3-252-032	1.11	32:30 hr	3.957	0.541	0.541	0.571
G4-252-008A	G4-261-001	G4-252-008	0.954	32:45 hr	3.811	0.495	0.495	0.491
G4-261-008	G4-261-008	G4-261-015	0.973	32:31 hr	4.488	0.492	0.591	0.656
G4-261-015	G4-261-015	G4-261-016	0.968	32:31 hr	3.074	0.595	0.595	0.663
G4-261-016	G4-261-016	G4-261-017	0.954	32:31 hr	2.629	0.672	0.672	0.793
G4-261-017	G4-261-017	G4-261-029	0.949	32:30 hr	6.463	0.331	0.331	0.237
G4-261-018	G4-261-018	G4-261-020	0.946	32:31 hr	3.625	0.511	0.511	0.519
G4-261-020	G4-261-020	G4-261-021	0.946	32:45 hr	3.75	0.498	0.498	0.496
G4-261-021	G4-261-021	G4-261-001	0.954	32:45 hr	3.915	0.484	0.484	0.473
G4-261-029	G4-261-029	G4-261-018	0.956	32:32 hr	3.558	0.523	0.523	0.539
H1-261-006	H1-261-006	H1-261-025	0.85	32:30 hr	3.948	0.489	0.587	0.65

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
H1-261-008	H1-261-008	H1-261-009	0.896	32:29 hr	6.679	0.338	0.405	0.345
H1-261-009	H1-261-009	H1-261-010	0.904	32:31 hr	4.808	0.439	0.526	0.545
H1-261-010	H1-261-010	H1-261-011	0.919	32:32 hr	4.241	0.492	0.591	0.656
H1-261-011	H1-261-011	H1-261-012	0.948	32:31 hr	4.854	0.452	0.542	0.573
H1-261-012	H1-261-012	H1-261-015	0.948	32:31 hr	4.365	0.493	0.592	0.658
H1-261-015	H1-261-015	G4-261-008	0.971	32:30 hr	4.302	0.509	0.611	0.69
H1-261-025	H1-261-025	H1-261-008	0.861	32:30 hr	4.61	0.436	0.524	0.54
H1-262-023	H1-262-023	H1-261-006	0.825	32:17 hr	4.209	0.454	0.544	0.576

Appendix 6A

Capital Cost Detail

Appendix TM6-A
Capital Cost Detail

Trunk Extensions (updated by KCB on 07/25/09)

Name	Diameter	Length	Unit Cost ($/in-dia/ft)	Total Cost ($)	Comment
22 Road	8	5,300	18	763,200	
	10	3,100	18	558,000	
	12	3,500	18	756,000	
	21	2,800	18	1,058,400	
23 Road	8	3,850	18	554,400	
	10	1,350	18	243,000	
	12	3,650	18	788,400	
	15	5,200	18	1,404,000	
	18	2,950	18	955,800	
241/2 Road	8	4,100	18	590,400	
	10	1,200	18	216,000	
	12	2,300	18	496,800	
29 Road	15	9,250	18	2,497,500	
	18	11,750	18	3,807,000	
	24	8,900	18	3,844,800	
G Road	12	5,200	18	1,123,200	
I-70	8	9,700	18	1,396,800	
	12	3,700	18	799,200	
	15	3,600	18	972,000	
				22,824,900	

Improvement Lines (updated by KCB on 08/02/09)

Name	Diameter	Length	Unit Cost ($/in-dia/ft)	Total Cost ($)	Comment
Rood Ave	21	7,900	18	2,986,200	Parallel line
Colorado Ave	15	3,650	18	985,500	Parallel line
Connected Lakes	12	3,000	18	648,000	Replace with larger diameter
	8	3,550	18	511,200	Force Main
			LS	350,000	Replace with 1300 gpm LS
Crosby Ave	27	400	18	194,400	Replace with larger diameter
Orchard Mesa	15	4,600	18	1,242,000	Replace with larger diameter
	24	3,500	18	1,512,000	Replace with larger diameter
	30	7,250	18	3,915,000	Replace with larger diameter
Southside	30	6,400	18	3,456,000	Replace with larger diameter
	36	6,500	18	4,212,000	Replace with larger diameter
Paradise Hills	10	1,550	18	279,000	Replace with larger diameter
	12	300	18	64,800	Replace with larger diameter
24 Road	18	8,800	18	2,851,200	Replace with larger diameter
Ridges LS Abandonment	8	2,900	18	417,600	New line
and pipeline reroute	12	4,300	18	928,800	New line
River Rd	36	650	18	421,200	Parallel line
Total		65,250		**24,974,900**	

CITY OF Grand Junction COLORADO

Purchasing Division

ADDENDUM NO. 1

DATE: **November 26, 2019**
FROM: **City of Grand Junction Purchasing Division**
TO: **All Offerors**
RE: **2020 Persigo WWTP Master Plan Development Project SOQ-4728-19-DH**

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. **The Responses Due Date and Time for submittals has been changed/modified to December 16, 2019 prior to 3:30pm.**

2. The Anticipated Schedule of Activities has been changed/modified as follows:

ANTICIPATED SCHEDULE OF ACTIVITIES

• Statement of Qualifications Available	November 15, 2019
• Non-Mandatory Pre-Proposal/Site Visit Meeting	November 25, 2019
• Inquiry Deadline (no questions after this date)	December 6, 2019
• Addendum Posted	December 9, 2019
• Due Date for Submittals	December 16, 2019
• Owner Evaluations and Review	December 17-20, 2019
• Interviews (if required)	January 3, 2020
• Negotiations (if required)	January 6-10, 2020
• City Council Approval	February 5, 2019
• Contract Execution	February 6, 2019
• Contract Services Begin	Upon Contract Execution

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

CITY OF Grand Junction COLORADO

Purchasing Division

ADDENDUM NO. 2

DATE: **November 27, 2019**
FROM: **City of Grand Junction Purchasing Division**
TO: **All Offerors**
RE: **2020 Persigo WWTP Master Plan Development Project SOQ-4728-19-DH**

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Addendum 2 is being issued due to error made while posting Addendum 1 to the Rocky Mountain E-Purchasing System.

2. **The Responses Due Date and Time for submittals has been changed/modified to December 16, 2019 prior to 3:30pm.**

3. The Anticipated Schedule of Activities has been changed/modified as follows:

ANTICIPATED SCHEDULE OF ACTIVITIES

• Statement of Qualifications Available	November 15, 2019
• Non-Mandatory Pre-Proposal/Site Visit Meeting	November 25, 2019
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The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

EXHIBIT A - SCOPE OF WORK

CITY OF GRAND JUNCTION (CITY) - PERSIGO MASTER PLAN
AND
CAROLLO ENGINEERS, INC. (CONSULTANT)

February 9, 2020

CONSULTANT'S SERVICES

TASK 0 – PROJECT MANAGEMENT AND COORDINATION

0.1 – Project Quick Reference and File Sharing Site

CONSULTANT will develop and submit a Project Quick Reference (PQR) summarizing the project goals and objectives; key project contacts; project budget, schedule, and work breakdown structure; document control system; and scope change management process. CONSULTANT will set up and maintain a OneNote site for file sharing and develop file structure for all project files.

0.2 – Project Coordination and Progress Reporting.

CONSULTANT will monitor project progress and budget and coordinate project staffing, prepare and submit monthly progress reports with invoices for the work completed in the last monthly period. Identify key issues requiring CITY action or direction will also be included.

0.3 – Biweekly Coordination Calls

CONSULTANT will hold biweekly coordination calls (26 total each 1 hour in duration) with CITY to keep the CITY informed of project progress, and to provide the CONSULTANT timely and important feedback. Meetings will typically be held by phone, but may be held at the CITY's Persigo WWTP in conjunction with other project activities.

0.4 – Kickoff Meeting

CONSULTANT will Review relevant reports, plant design criteria, drawings, historical process performance and operations data as requested by the CONSULTANT and provided by the CITY in advance of the Kickoff Meeting.

CONSULTANT will prepare for and facilitate a four-hour project kickoff meeting with the Project Team to discuss project scope, schedule, budget, roles, and responsibilities, lines of communication, and document management. In addition, the Project Team will conduct the following activities at the Kickoff Meeting:

- Discuss planning goals and strategic vision for the facilities.
- Discuss regulatory drivers and scenarios for this project.
- Discuss preliminary findings and information gaps related to project to collection system hydraulic model and process modeling.
- Discuss data and information gaps.

- Review financial and planning assumptions
- Develop business case evaluation criteria
- Preliminary Flows and Loads
- Service Area Boundary Maps

0.5 – Project Workshops

CONSULTANT will facilitate project workshops as listed in the scope of work below. CONSULTANT will prepare agendas and associated meeting materials and provide to the CITY 5 calendar days prior to the scheduled Workshop. Each workshop will be schedule for a 4-hour period and conducted at the CITY's facilities. Some members of CONSULTANT team will participate on web-ex or conference call. Following the workshop, the CONSULTANT shall document meeting summaries and provide to the CITY within 7 calendar days. Final meeting summaries and meeting materials will be maintained on the Projects document sharing site.

0.6 – Technical Memorandum

CONSULTANT will prepare technical memorandum (TM) throughout the project as identified below. The Technical Memorandum will be organized and submitted as draft Report Chapters. The CITY will be provided 14 calendar days to provide comments on the TMs. Consolidated comments will be provided by the CITY and posted to the Project's document sharing site.

The CONSULTANT will not issue a revised TM's as written but will revise the content and issue updated draft Chapters pertaining to the content provided. CONSULTANT will tailor each report chapter to the relevant information provided in the TM and documented during Workshops. TMs will be reviewed during a collaborative Workshop to be schedule at a minimum of 5 calendar days after the CITY receives the TM.

0.7 – Draft and Final Reports

CONSULTANT will maintain up to date outlines and draft Report Chapters on the Projects' document collaboration site. Following receipt of the draft Report, the CITY will have 28 calendar days to review the content and provide consolidated comments. The CONSULTANT will facilitate and schedule a workshop during these review period.

The draft reports provided will not include the executive summary or the final appendices. Those documents will be provided with the final report. The draft reports will be provided in electronic (PDF enabled) format with hyperlinked chapters and appendices.

CONSULTANT will provide 1 hard copy of the final reports with all appendices and four (4) copies of the report and will provide electronic files in a PDF compatible format.

<u>Deliverables:</u>

1 Project Quick Reference (submitted electronically)
2 Project OneNote site
3 Monthly progress reports (12)
4 Kickoff meeting materials and minutes

Assumptions:
12 months active project management

TASK 1 – PLANNING BASIS

1.1. – Existing Document and Facilities Review

The CONSULTANT will review information and data for the existing facilities and operating conditions. This analysis will include a general review of historical population data, collection system information, plant data, pertinent facility design criteria, drawings and reports, power consumption and energy bills, and pertinent regulations. CONSULTANT will provide a data and information request for additional sampling or data needs to support facilities evaluations.

1.2. – Regulatory Requirements and Planning Scenarios, Business Case Evaluation Criteria

The CONSULTANT will facilitate an interactive discussion to establish project objectives and develop boundary conditions and business case evaluation criteria. CITY will provide input and assistance on development of planning boundary conditions and regulatory criteria. These elements and discussions from the kickoff workshop, will be summarized in *TM1 – Planning Boundary Conditions.*

- Summarize and define the current liquids, solids, and biosolids regulations and proposed future regulations that may affect the CITY's treatment and collection system operations.
- Provide a summary of existing regulatory requirements.
- Provide a summary of future regulations and the potential impact on CITY's planning efforts. Updated forecasts and timing of regulations with the timeline for stream standards development, permit limit integration, and compliance schedules. The CITY has enrolled in the voluntary incentive program with CDPHE.
- Provide narrative on the impacts of capacity staging and how the CITY can participate or encourage future rule making efforts to be aligned with phasing of improvements to meet future capacity requirements.
- Document the financial assumptions including operating expenses to be used for estimating capital improvement projects and completing the business case evaluations as part of alternative analysis.
- Document the CITY's 2019 Strategic Plan, 2040 Comprehensive Plan, and Persigo WWTP IGA strategic direction as they impact the wastewater operations, collections and City-wide Sustainability goals.
- Develop the non-economic criteria and strategic considerations to be used in the business case evaluation process and develop preliminary weightings for each of the criteria.

1.3 – Flow and Loading Projections and Service Area Boundaries

CONSULTANT will update flow and load projections for the Persigo WWTP existing service area through the year 2040 using the population and employment projections provided by the CITY. CONSULTANT will evaluate with CITY's collection system staff and the CITY's 2040 Comprehensive plan to identify growth areas and impacts of inflow and infill on the collection system.

CONSULTANT will develop updated total flow calculations in five-year increments to 2040 for 20 of the wastewater basins based on current and future population projections as provided in the CITY's transportation analysis zoning (TAZ) mapping data. The CITY will provide CONSULTANT with current Comprehensive Planning mapping showing areas of future growth and potential service area expansion.

CONSULTANT will develop updated unit flow and loading rates per capita (gallons BOD, TKN, and TP) based on a review of historical influent flow and load data from 2015 to 2020 as provided by the CITY. CONSULTANT will use updated population projections (provided by the CITY) and updated unit flow and loading rates per capita to determine projected influent WWTP flow and loading conditions to 2040.

CONSULTANT will develop a projected build-out flow conditions for the WWTP using the available land-use data and industry standard wastewater criteria based on future land-use criteria and GIS mapping provided as part of the CITY's 2040 Comprehensive Plan.

CONSULTANT will document the findings and results in *TM1 – Planning Boundary Conditions.* CITY will provide written approval of the flow and loading conditions and associated financial assumptions.

Task 1 – Workshops and Deliverables:

- *Workshop 1 – Kick-off and Boundary Conditions*

TM 1 – Planning Boundary Conditions

TASK 2 – ASSET MANAGEMENT APPROACH

CONSULTANT shall review the CITY's existing asset management practices, conduct a 2-hour phone call with the CITY's asset management staff, provide recommendations on industry best management practices, and review renewal and replacement budgeting approach and condition assessment program. CONSULTANT will provide brief summary of asset management program recommendations for the CITY.

Task 2 – Workshops and Deliverables:

- Brief summary of asset management recommendations

TASK 3 – WASTEWATER BASIN EVALUATIONS

3.1 – Hydraulic Model Review, Software Selection, and Model Construction

CONSULTANT recommends using Infoworks hydraulic modeling software as the modeling tool for the CITY's wastewater collection system. The hydraulic model will be updated using the CITY's existing sanitary sewer GIS mapping and attributes. Generally, the model will include pipelines 10-inches in diameter and larger (i.e., a "skeletonized" model). As part of this task, CONSULTANT will review the CITY's GIS database against the existing hydraulic model to identify new 10-inch and larger pipelines that have been installed since the model was last updated, as well as any other changes that have been made to the trunk sewer system, such as adding new lift stations (up to 25 lift stations) with available data and connected 10-inch or larger pipelines. The CITY will provide existing lift station operational performance data and pumping characteristics.

CONSULTANT will review 2008 Collection System Master Plan and use this as the basis for future model development and infrastructure planning. CONSULTANT will develop a listing of missing attribute data needed for the modelling software and will request the CITY obtain the requested data within a period of 28 calendar days. CITY will provide existing infrastructure GIS files and previous model source files from previous projects. CONSULTANT will coordinate with the CITY to update and connect all existing service areas to ensure continuity in the collection system.

CONSULTANT will used previously developed CITY boundary mapping for each of the existing and future sewer basins used for monitoring hydraulic capacity using the hydraulic model.

3.2 – Flow Allocation and Future Flow Analysis

CONSULTANT will allocate wastewater loads into the model using the CITY's provided population data developed under Task 1.3. Dry weather flows will be re-allocated using land-use based wastewater flow factors (depending on the type of data available). Loading polygons will be developed for the wastewater collection system to allocate flows from specific areas in the CITY to the appropriate modeled manhole.

CONSULTANT will evaluate the available flow data, as well as influent flow data at the treatment plant, and any other available sewer flow data to develop estimates over the past 5-years. Using this data, the CITY's Average Dry Weather Flow (ADWF), Peak Dry Weather Flow (PDWF), and Peak Wet Weather Flow (PWWF) will be estimated.

3.3 – Flow Monitoring Program

CONSULTANT will work closely with the CITY to develop and conduct a temporary flow monitoring program. The monitoring program will consist of 10 temporary flow monitoring sites and 2 rain gauges for 60 days of data collection during months of March and April for purposes of initial model calibration.

The flow monitoring and analysis will include the development of the flow monitoring plan, the implementation of the flow monitoring program, schedule, flow data analysis, and the development of a flow monitoring report.

CONSULANT will work closely with the CITY to develop a plan and approach for installation of permanent flow monitoring projects based on hydraulic capacities.

3.4 – Model Calibration

CONSULTANT will calibrate the model flows to match flow data provided by the CITY and additional data as collected during the flow monitoring program, within a reasonable margin of error. CONSULTANT will calibrate dry and wet weather flow conditions based on calibration to flow, velocities, and levels.

Wet weather flows will be calibrated against data from the most significant events captured during the flow monitoring efforts. CONSULTANT will also calibrate the model to flows measured at the wastewater treatment plant. CONSULTANT will conduct a model calibration workshop to summarize the model calibration effort, flow monitoring results, calibration results, areas of concern, or operational discussion items.

CONSULTANT will evaluate the impacts of I/I (wet weather flows) in the Orchard Mesa and University Area sewer basins based on the collecting flow monitoring data.

CONSULTANT will document flow monitoring and modelling calibration results in *TM2 – Collection System Model Calibration.*

3.5 – Rehabilitation and Replacement Planning

The objective of this task is to use the CITY's existing collection system asset management information to identify and prioritize recommended sewer collection system rehabilitation and replacement (R&R) projects. This task will also develop the associated implementation costs. CONSULTANT will develop near-term, mid-term, and long-term R&R project recommendations with Class V planning level opinions of probable costs over the CITY's 20-year planning horizon.

Information provided by the CITY will be used to review or develop timing for each improvement of the gravity sewers, force mains, pump stations, and associated assets. This includes considering the estimated remaining useful life from the perspective of current condition, current and future capacity needs, maintenance requirements and operational impacts. The risk-based rankings for collection system assets, which include the probability of failure and consequence of failure criteria will be provided by the CITY. Development of risk-based criteria and scoring of assets is not included.

Physical inspection of lift stations, force mains, siphons, and manholes are not included.

3.6 – System Evaluation and Alternatives Development

CONSULTANT will work closely with the CITY to develop planning and analysis criteria that will form the basis for which improvements are triggered. The criteria will include minimum slopes, maximum depth of flow over pipeline diameter (d/D) ratios, pumping capacity, and wastewater generation rates. Criteria in this section will also include I/I peak and volume parameters, flow per land use types, and other parameters. CONSULTANT will develop criteria summary tables for review and comment by the CITY.

CONSULTANT will also work with the CITY to examine the 5-year design flow event used for the model calibration and determine if it is still applicable as a design event. If this flow event needs to be modified, CONSULTANT will discuss the options with the CITY and settle on a preferred outcome.

CONSULTANT will use the calibrated hydraulic model, in conjunction with the criteria developed to evaluate the capacity of the existing wastewater collection system. Deficiencies in the existing system will be identified. The future system scenarios will be developed. Future system analysis will be conducted, and the existing system deficiencies will be sized to accommodate future system flows. Improvements needed to serve Service Area expansions will also be identified. Service to existing septic systems will be evaluated and extended. CONSULTANT will develop mapping showing available capacity per wastewater collection basin for 2020, 2030, and 2040 conditions with an approximation of how much additional growth would be allowed prior to reaching conveyance capacity.

CONSULTANT will document modeling results for 2020, 2030, and 2040 and recommended improvements in *TM3 – Collection System Existing Conditions, Modeling Results, and R&R Improvements.*

CONSULTANT will conduct an analysis of the pumping capacity of the CITY's existing pump stations based on the firm capacity of the CITY's pump stations. CONSULTANT will incorporate findings from the Lift Station Elimination Study and 2008 Wastewater Basin System Study and confirm gravity conveyance is appropriate.

CONSULTANT will develop recommended improvement alternative concepts to mitigate capacity deficiencies and condition issues. Improvement alternatives will be developed for up to five (5) major capacity deficiencies identified as part of the collection system evaluation. For each major capacity deficiency, a single alternative will be developed. CONSULTANT will include the recommended alternative in the collection system capital improvements plan (CIP). In addition, improvement projects for the rest of the collection system deficiencies (non-major) will be developed as part of this task.

3.7 – Collection System Capital Improvement Plan

CONSULTANT will take the results from subtask above and combine recommended improvements into a Microsoft Excel spreadsheet for the collection system capital improvement recommendations. CONSULTANT will develop Class 5 planning level cost estimates for proposed existing and future projects. The American Association of Cost Estimating (AACE) defines cost estimates in accordance with understood accuracy. AACE Class 5 cost estimates are planning level cost estimates with an accuracy of -20 to -50%, and +30 to +100 percent. The costs will be broken down by baseline construction and total project costs. CONSULTANT will work with the CITY to identify required cost contingencies for unknown conditions, engineering, legal and administration or other factors as developed in TM1.

CONSULTANT will include capital improvement recommendations from other studies, such as Tiara Rado Forcemain Replacement Project, Lift Station Elimination Study, and Odor Control Study.

CONSULTANT will work closely with the CITY to review and develop criteria for project phasing. The phasing criteria could include severity of the deficiency, proximity to protected waterways, or other risk factors. CONSULTANT will establish a phasing plan based on the proposed criteria that will include single year breakdowns for the first five years and five-year increments to 2040.

CONSULTANT will document modeling results for 2020, 2030, and 2040 and recommended improvements in *TM4 – Collection System Evaluations and Capital Improvement Plan.*

Task 3 Workshops and Deliverables:
- *Workshop 2 – Collection System Collection System Alternatives and R&R Projects*
- *TM 2 – Collection System Model Calibration and Development*
- *TM 3 – Collection System Existing Conditions, Modeling Results, and R&R Improvements*
- *TM 4 – Collection System Evaluations and Capital Improvement Plan*

TASK 4 – PERSIGO WWTP FACILITIES EVALUATIONS

4.1 – Existing Facility Analysis and Capacity Evaluation

CONSULTANT shall review the previous five years of process performance at the WWTP using the regulatory and permitting requirements developed as part of TM1 to evaluate the process performance. State prescribed and site-specific design criteria and safety factors will be used based on process performance to identify the capacity of each unit process. Within this subtask, the CONSULTANT will work with the CITY and the Colorado Department of Public Health and Environment (CDPHE) to:

- Evaluate installed capacities for each process and evaluate the redundancy requirements to meet both permitted capacity and current and future flow and load conditions. Present information in tabular format.

- Review, as beneficial, sequenced staging and expansion plans with CDPHE based on maintaining the permitted capacity for future regulations, and
- Evaluate the qualitative and financial impacts for maintaining or modifying the permitted capacity rating.
- Evaluate the benefits of a paper re-rating based on current CDPHE evaluation criteria and performance data.

Chemical usages will be reviewed, and a system wide alkalinity balance and organic carbon balance will be established to identify possible optimization opportunities for reducing chemical and/or energy use and/or increasing biogas production.

4.2 – Develop Process and Hydraulic Model

CONSULTANT shall develop and calibrate a BioWin process model to evaluate process performance, treatment capacity, and/or alternatives evaluations based on current and future flows and loadings derived from a minimum of the most recent two years of available process data. The periods to be used for calibration from the existing data will be coordinated with the CITY. Calibration will be developed to an industry-accepted precision suitable for planning-level analyses. CONSULTANT to recommend modifications to existing routing sampling program as beneficial for improved process operation or anticipated future data needs. The CITY will support this task through specific sampling as needed to improve the quality of model calibration, as resource availability and capabilities allow.

CONSULTANT shall develop a complete spreadsheet-based hydraulic model of the liquid stream process to reflect current conditions and potential hydraulic limitations based on the flow projections developed under Task 1.

Findings from Subtasks 4.1 and 4.2 will be summarized in *TM 5 Existing WWTP Capacity Analysis and Model Calibration Approach*.

4.3 – Site Inspections and Single Point of Failure Analysis

CONSULTANT will conduct a one-day site inspection with lead civil, process, and mechanical engineers to identify asset replacement projects and identify potential single points of failure. During the site inspections, CONSULTANT will inspect all process treatment facilities with CITY staff and document projects identified. CONSULTANT shall identify safety and perimeter security improvements. Inspection of personnel facilities or non-process related facilities is not included.

CONSULTANT's electrical and controls engineers will conduct a two-day site inspection to evaluate the age, safety, and condition of existing electrical and controls assets. One day will overlap with the site visits by the other CONSULTANT's staff. During the site inspections, CONSULTANT will inspect primary electrical feed, switchgear, transformers and motor control centers and develop appropriate replacement projects.

CONSULTANT will use the information gathered during the site inspections in conjunction with process model and hydraulic model findings to identify single points of failure and develop potential alternatives to be further considered by CITY.

4.4 – Energy Baseline Evaluation and Renewable Energy
CONSULTANT shall use the existing energy baseline study completed by Johnson Controls and update based on existing process performance and monthly utility bills. CITY to provide 24 months of utility bills to the CONSULTANT and any available energy (gas and electric) use, listing of all equipment greater than 5HP, and energy metering data. CONSULTANT will recommend an approach for the CITY to implement submetering in the future.

CONSULTANT will use the energy baseline and other data listed above to evaluate comparative reductions in energy use as part of the alternatives evaluations (Task 4.5) and to estimate reductions in energy consumption (expressed in kWh and therms) as a result of decreasing energy uses.

CONSULTANT will assess the potential for expanding the photovoltaic system with lithium ion battery based on current utility-based tariffs.

4.5 – WWTP Evaluations and Alternatives

CONSULTANT will document the existing facilities expansion approach developed as part of the 2008 Comprehensive Wastewater Basin Study Update to illustrate site layouts and current capital cost estimate based on escalation factors.

CONSULTANT will evaluate plant-wide and unit process capacities needed for the 2040 growth projections. The CONSULTANT will develop two whole-plant implementation alternatives to meet the 2040 growth projections and projected regulatory discharge limits. These two alternatives will be developed with the CITY and may be identified as: maximize use of existing equipment, lowest energy use, lowest capital cost, or preserve maximum space. The plant-wide alternatives will be evaluated using the whole-plant process model developed under Task 4.2 and address holistic treatment considerations and unintended consequences for other processes or biosolids management.

As part of the whole-plant alternative evaluations, the CONSULTANT shall address impacts to the existing ancillary systems such as electrical, instrumentation, controls, plant water, and natural gas. Additionally, analysis should include a projection of future staffing levels.

Following the development of the whole-plant alternatives, CONSTULANT will evaluate specific unit process alternatives or approaches that could be implemented to improve the cost effectiveness, operational reliability and robustness. For each of the unit processes up to two alternatives will be evaluated and compared to the baseline approach to replicate existing facilities for future growth.

The anticipated areas to be specifically evaluated include: headworks (1 alternative), primary clarification and carbon management, secondary treatment aeration controls and blower technologies, ultraviolet disinfection (1 alternative), flow equalization (1 alternative), digestion, dewatering, and biogas generation. For individual unit process alternatives, CONSULTANT will develop comparative costs and evaluation criteria based on the baseline or most likely scenario (which could be the existing approach as documented in the 2008 Comprehensive Wastewater Collection Basin Study Update or another baseline agreed to with the CITY).

CONSULTANT will develop one alternative to address the future build-out condition and projected Regulation 31 criteria. A proposed site plan and cost estimate will be provided for this one alternative to ensure enough space and capital resources are being accounted for beyond the 20-year planning horizon.

CONSULTANT will evaluate three potential solutions to increase the biogas storage and optimize existing gas flow and usage to increase existing revenues.

For the whole-plant alternative analysis, CONSULTANT will develop schematic layouts, advantages and disadvantages, description of facility impacts, and Class 5 planning level cost estimates, following CONSULTANT's standard cost estimate approach and based on the AACE's cost estimate classification matrix. For each three whole-plant alternatives a 20-year life cycle costs will be provided as applicable. Each alternative will be evaluated using the proposed criteria and performance measures as documented in *TM 1*. The alternatives that meet the CITY's objectives will be prioritized for implementation.

4.6 – Biosolids Management Evaluations

Document the baseline of the current operations from business case evaluation perspective to demonstrate the benefits for change the biosolids management program. CONSULTANT will develop a single implementation pathway for the CITY to achieve a Class B biosolids program. CONSULTANT will perform an initial feasibility evaluation and work with CITY staff to identify outlets for Class B biosolids. CONSULTANT will develop schematic layouts and planning level cost estimates, following CONSULTANT's standard cost estimate approach and based on the AACE's cost estimate classification matrix, for each alternative. 20-year life cycle costs will be provided as applicable. The CONSULTANT will recommend potential partnerships with neighboring Utilities and potential outlets for one (1) option to have a long-term regional biosolids management solution for Mesa County.

Regulatory scan for the biosolids management program will be documented as part of TM1.0. The CITY will provide biosolids sampling data and composition showing the nutrient, metal, and other tested constituents. This information will be used to gauge the near-term and long-term regulatory impact on the Biosolids Management Program.

Findings from subtasks 4.3 through 4.6 will be summarized in *TM 6 – WWTP Site Inspections, Energy Baseline, and Renewable Energy, Alternative Analysis, and Biosolids Management.*

4.7 – EI&C Vision

CONSULTANT will facilitate a SCADA visioning workshop with the CITY to identify the ten (10)-year SCADA vision and migration capabilities for the WWTP and remote facilities. During the site inspections completed by IC engineers under subtask 4.3, CONSULTANT will identify opportunities to configure a SCADA network across the WWTP facilities in a sequenced approach. CONSULANT will identify other network improvements and develop a proposed network architecture schematic.

CONSULTANT will assist the CITY with developing a ten (10) year vision and approach for connecting the remote assets into a system-wide SCADA system. CONSULTANT will conduct an additional one-day site inspection with lead electrical and controls engineers to evaluate the remote assets and develop asset replacement projects and improvements based on the observations.

Based on the recommended approach, CONSULTANT will recommend a sequenced implementation plan for the next ten (10) years to integrate SCADA improvements. CONSULTANT will develop Class 5 cost estimates for the recommended improvements.

4.8 – Persigo WWTP Capital Improvement Plan

CONSULTANT will take the results from subtask 4.3 through 4.8 and combine recommended improvements into a Microsoft Excel spreadsheet for the WWTP facilities capital improvement recommendations. CONSULTANT will develop Class 5 planning level cost estimates for proposed existing and future projects. The American Association of Cost Estimating (AACE) defines cost estimates in accordance with understood accuracy. AACE Class 5 cost estimates are planning level cost estimates with an accuracy of -20 to -50%, and +30 to +100 percent. The costs will be broken down by baseline construction and total project costs. CONSULTANT will work with the CITY to identify required cost contingencies for unknown conditions, engineering, legal and administration or other factors as developed in TM1.

CONSULTANT will include capital improvement recommendations from other studies, such as Structural Assessment, Odor Control Study, and BioCNG storage project. CONSULTANT will work closely with the CITY to review and develop criteria for project phasing. CONSULTANT will establish a phasing plan based on the proposed criteria that will include single year breakdowns for the first five years and five-year increments to 2040.

CONSULTANT will document results from subtask 4.7 to 4.8 and recommended improvements in *TM8 EI&C Vision, and WWTP Capital Improvement Plan.*

4.10 – ArcFlash Evaluation
CONSULTANT will complete an electrical system study for the Persigo WWTP and document the findings in a final report. CONSULTANT will use the existing one-line drawing and confirm electrical infrastructure during the site visits scoped under Task 4.3. CONSULTANT will provide electric PDF of the electrical systems study and electronic source files. CONSULTANT will provide adhesive arc flash labels for CITY to install based on results of electrical system study.

Task 4 Workshops and Deliverables:
- *Workshop 3 – Existing Capacity and Model Calibration*
- *Workshop 4 – WWTP Alternatives Analysis and Biosolids Management*
- *TM 5 - Existing WWTP Capacity Analysis and Model Calibration Approach*
- *TM 6 – WWTP Site Inspections, Energy Baseline, and Renewable Energy*
- *TM 7 – WWTP Alternative Analysis, and Biosolids Management*
- TM 8 – *EIC Vision, and WWTP Capital Improvement Plan*
- Electrical system study files and arc flash labels.

TASK 5 – PRIORITIZED CIP and FINAL REPORTS

5.1 – Implementation Plan and Prioritized CIP

CONSULANT will combine the Collection System and WWTP Facilities capital improvement plans into a single file and compare the recommended improvements against the current 20-year capital improvement plan for the CITY. Using the business evaluation criteria, the CONSULTANT will prioritize all the projects based on current and future triggers to address the near-term and long-term planning drivers. As part of this analysis, will include cost estimates for discreet capital projects and potential packaging of projects for construction, independent of phasing and initial prioritization. Additionally, project procurement and delivery recommendations and potential financing options will be provided.

CONSULTANT will develop a prioritized comprehensive CIP for all recommended improvements and provide to the CITY for review.

5.2 – Interface with Financial Rate Consultant
CONSULTANT will share CIP information with the CITY's rate consultant and coordinate financial information for the rate consultant's evaluation of the plant investments fees.

5.3 – Draft and Final 2020 Comprehensive Wastewater Basin Study Update

CONSULTANT shall prepare a draft 2020 Comprehensive Wastewater Basin Study Update Report to compile the TMs developed for the collection system, including an executive summary. The report content will be presented to the CITY at a Workshop. The CITY will review the draft Report and provide comments within 28 calendar days. CONSULTANT will review the CITY's comments from the draft Report and will incorporate them into the final Report as appropriate.

5.4 – Draft and Final 2020 Wastewater Treatment Facilities Master Plan
CONSULTANT shall prepare a draft 2020 Wastewater Treatment Facilities Master Plan Report to compile the TMs developed for the collection system, including an executive summary. The report content will be presented to the CITY at a Workshop. The CITY will review the draft Report and provide comments within 28 calendar days. CONSULTANT will review the CITY's comments from the draft Report and will incorporate them into the final Report as appropriate.

5.5 – Final Presentations

CONSULTANT shall prepare one presentation for the CITY staff .

Task 5 Workshops and Deliverables

- *Workshop 5 – Compiled and Prioritized CIP*
- *Workshop 6 – Draft Report Review Meeting*
- *Compiled and Prioritized CIP for all Facilities*
- *Draft and Final 2020 Comprehensive Wastewater Basin Study Update*
- *Draft and Final 2020 Wastewater Treatment Facilities Master Plan*
- *All process and hydraulic modeling source files will be provided.*
- *Cost estimates and financial data in excel compatible format*

ADDITIONAL CONDITIONS

CITY-Provided Information and Services
The CITY shall furnish the CONSULTANT available studies, reports and other data pertinent to the CONSULTANT's services; obtain or authorize the CONSULTANT to obtain or provide additional reports and data as required; furnish to the CONSULTANT services of others required for the performance of the CONSULTANT's services hereunder, and the CONSULTANT shall be entitled to use and rely upon all such

information and services provided by the CITY or others in performing the CONSULTANT's services under this Contract.

Estimates and Projections
In providing opinions of cost, financial analyses, economic feasibility projections, and schedules for potential projects, the CONSULTANT has no control over cost or price of labor and material; unknown or latent conditions of existing equipment or structures that may affect operation and maintenance costs; competitive bidding procedures and market conditions; time or quality of performance of third parties; quality, type, management, or direction of operating personnel; and other economic and operational factors that may materially affect the ultimate project cost or schedule. Therefore, the CONSULTANT makes no warranty that the CITY's actual project costs, financial aspects, economic feasibility, or schedules will not vary from the CONSULTANT's opinions, analyses, projections, or estimates.

TIME OF PERFORMANCE

ENGINEER shall complete all services identified in this Scope of Work within 12 months of formal notice to proceed, or as mutually agreed to by the CITY and Consultant Project Manager. Dates below assume a 2/14/2020 Notice to Proceed.

Meetings / Milestones / Deliverable	**Target for Key Milestones**
Notice to Proceed	Feb 14, 2020
Project Quick Reference (PQR)	Feb 28, 2020
TM 1 – Planning Boundary Conditions	Mar 13, 2020
Workshop 1 – Kickoff Workshop	Mar 19, 2020
Conduct Flow Monitoring	Mar 25 – May 29, 2020
TM 2- Collection System Model Calibration	Jun 19, 2020
TM 3- Collection System Existing Conditions, Modeling Results, and RR	Jul 30, 2020
Workshop 2 – Collection System Alternatives and R&R Projects	Aug 6, 2020
TM4 – Collection System Evaluations and CIP	Aug 27, 2020
TM 5 – Existing WWTP Capacity Analysis and Model Calibration	Apr 14, 2020*
Workshop 3 and Site Visits	Apr 20-23, 2020*
TM 6 – WWTP Site Inspections, Energy Baseline, Alternatives and Biosolids Mgmt	Jun 30, 2020
Workshop 4 – WWTP Alternatives Analysis and Biosolids Mgmt	Jul 9, 2020
TM 7 – EIC Vision and WWTP CIP	Sep 10, 2020
Workshop 5 – Compiled and Prioritized CIP	Oct 8, 2020
Draft 2020 Comprehensive WW Basin Study Report	Oct 23, 2020
Draft 2020 Wastewater Treatment Facilities Master Plan Report	Nov 13, 2020
Workshop 6 – Draft Report Reviews	Dec 3, 2020
Final 2020 Comprehensive Wastewater Basin Study and 2020 Wastewater Treatment Facilities Master Plan Reports	Jan 22, 2020

'* need to confirm spring break schedules

CITY OF GRAND JUNCTION
2020 PERSIGO WWTP MASTER PLAN
LABOR HOURS AND ENGINEERING FEE

	CAROLLO LABOR												SUBCONSULTANTS				EXPENSES			
	Senior Professional Luna, Burdick, Readon, Loper, Rozgony,	Project Manager Pier	Lead Project Professional Rauch-Williams, Deslauriers, Heger	Project Professional Miller, Rossel,	Professional Coday, Ruppert	Assistant Professional II	Assistant Professional I	Senior Technician	Technician	Document Processing/Clerical	Total Direct Labor Hours	Total Carollo Labor Cost	Flow Monitoring	JVA	Markup on Subs	Total Subconsultant Cost	Project Communication and Equipment Expense	Travel, Mileage, Shipping, Misc.	Total Expenses	TOTAL BASE COST
Hourly Rate Schedule:	*$250*	*$230*	*$210*	*$185*	*$170*	*$150*	*$130*	*$180*	*$120*	*$102*					7.5%		$12.30			
Task 0 - Project Management and Coordination	**32**	**64**	**4**	**80**	**0**	**8**	**0**	**0**	**0**	**2**	**190**	**$39,800**	**$0**	**$2,500**	**$200**	**$2,700**	**$2,337**	**$0**	**$2,337**	**$44,789**
Task 0.1 Project Procedures Manual, Data Requisitions, Collection, and Review		2	4	4		8				2	20	$3,444		$0	$0	$0	$246		$246	$3,690
Task 0.2 Project Coordination and Progress Reporting (12 Months)		12		24							36	$7,200		$2,500	$188	$2,688	$443		$443	$10,331
Task 0.3 Biweekly Coordination Calls (26 Calls)		26		52							78	$15,600			$0	$0	$959		$959	$16,559
Task 0.4 Kickoff Meeting (budgeted below)											0	$0			$0	$0	$0		$0	$0
Task 0.5 Quality Control	32	24									56	$13,520		$0	$0	$0	$689		$689	$14,209
Task 1 - Planning and Boundary Conditions	**22**	**26**	**34**	**60**	**12**	**52**	**4**	**0**	**0**	**8**	**218**	**$40,896**	**$0**	**$5,500**	**$413**	**$5,913**	**$2,681**	**$2,000**	**$4,681**	**$51,490**
Task 1.1 Existing Document and Facilities Review	4	2	4	8							18	$3,780			$0	$0	$221		$221	$4,001
Task 1.2 Regulatory, Financial Assumptiosn and Business Case Evalaution Criteria	2	4	8	8	4	8	0				34	$6,460		$1,500	$113	$1,613	$418		$418	$8,491
Task 1.3 Flow and Loading Projections and Service Area Boundaries	4	4	6	8		16	4				42	$7,580		$2,500	$188	$2,688	$517		$517	$10,785
TM 1 (Draft) Planning Basis	4	8	8	20	8	28				8	84	$14,596			$0	$0	$1,033		$1,033	$15,629
Workshop 1 Kickoff and Boundary Conditions	8	8	8	16							40	$8,480		$1,500	$113	$1,613	$492	$2,000	$2,492	$12,585
Task 2 - Asset Management Program	**0**	**2**	**8**	**8**	**0**	**0**	**0**	**0**	**0**	**4**	**22**	**$4,000**	**$0**	**$0**	**$0**	**$0**	**$300**	**$0**	**$300**	**$4,300**
Task 2.1 Asset Management Program Assessment		2	8	8						4	22	$4,028		$0	$0	$0	$271		$271	$4,299
Task 3 - Wastewater Basin Evaluation	**36**	**32**	**38**	**160**	**0**	**44**	**88**	**0**	**4**	**18**	**420**	**$74,300**	**$75,000**	**$30,500**	**$7,900**	**$113,400**	**$5,200**	**$1,500**	**$6,700**	**$194,400**
Task 3.1 Hydraulic Model Review, Software Selection, and Model Construction	4	2	4	16		8	8				42	$7,500			$0	$0	$517		$517	$8,017
Task 3.2 Flow Allocation and Future Flow Analysis	2	2	4	8			24		4		44	$6,880			$0	$0	$541		$541	$7,421
Task 3.3 Flow Monitoring Program	2	2		16			24				44	$7,040	$75,000		$5,625	$80,625	$541		$541	$88,206
Task 3.4 Model Calibration	8	4	4	32			32				80	$13,840		$0	$0	$0	$984		$984	$14,824
TM 2 (Draft) Collection System Model Calibration and Development	4	2	4	16		8				6	40	$7,072		$0	$0	$0	$492		$492	$7,564
Task 3.5 Rehabilitation and Replacement Planning				4							4	$740		$10,000	$750	$10,750	$49		$49	$11,539
Task 3.6 System Evaluation and Alternatives Development	2	2	4	20							28	$5,500		$10,000	$750	$10,750	$344		$344	$16,594
TM 3 (Draft) Collection System Existing Conditions, Modeling Results, and R&R Improvements	4	2	4	8		16				6	40	$6,792		$4,000	$300	$4,300	$492		$492	$11,584
Workshop 2 Collection System Alternatives and R&R Projects	4	8	8	8							28	$6,000		$1,500	$113	$1,613	$344	$1,500	$1,844	$9,457
Task 3.7 Collection System Roadmap (CIP)	2	6	2	8		4					22	$4,380		$5,000	$375	$5,375	$271		$271	$10,026
TM 4 (Draft) Collection System Evaluations and CIP	4	2	4	24		8				6	48	$8,552			$0	$0	$590		$590	$9,142
Task 4 - WWTP Facility Evaluation	**108**	**40**	**148**	**72**	**312**	**176**	**160**	**0**	**6**	**24**	**1046**	**$184,000**		**$13,500**	**$1,000**	**$14,500**	**$12,900**	**$5,000**	**$17,900**	**$216,400**
Task 4.1 Existing WWTP Facility Analysis and Capacity Evaluation	2	2	4		16	8	8				40	$6,760			$0	$0	$492		$492	$7,252
Task 4.2 Develop Process and Hydraulic Model	4	2	16		24		24				70	$12,020		$0	$0	$0	$861		$861	$12,881
TM 5 (Draft) Existing WWTP Capacity Analysis and Model Calibration Approach	2	2	4		16	8				8	40	$6,536		$0	$0	$0	$492		$492	$7,028
Workshop 3 Existing Capacity and Model Calibration (workshop concurrent with Task 4.3 site inspections)											0	$0		$0	$0	$0	$0		$0	$0
Task 4.3 Site Inpsections and Single Point of Failure Analysis (1day, 2day)	24		16	16	8		8				72	$14,720		$2,500	$188	$2,688	$886	$2,500	$3,386	$20,794
Task 4.4 Energy Baseline Evaluation and Renewable Energy	2	4	4		16		16				42	$7,060		$0	$0	$0	$517		$517	$7,577
Task 4.5 WWTP Evaluations and Alternatives	16	8	24	24	60	60	60				252	$42,320		$0	$0	$0	$3,100		$3,100	$45,420
Task 4.6 Biosolids Management Evaluations	8	4	8		12						32	$6,640		$5,000	$375	$5,375	$394		$394	$12,409
TM 6 (Draft) Site Inspections, Energy Baseline, WWTP Alternative Analysis and Biosolids Management	4	4	8	12	8	8	20		4	10	78	$12,480		$2,500	$188	$2,688	$959		$959	$16,127
Workshop 4 WWTP Alternatives Analysis and Biosolids Management	8		8	8	8						32	$6,520			$0	$0	$394	$1,500	$1,894	$8,414
Task 4.7 SCADA Vision	8	4	8			8					28	$5,800		$0	$0	$0	$344		$344	$6,144
Task 4.8 Persigo WWTP Capital Improvement Plan	12	4		12	16		24				68	$11,980		$3,500	$263	$3,763	$836		$836	$16,579
TM 7 (Draft) EIC Vision and WWTP CIP	2	2	8		8	4			2	6	32	$5,452		$0	$0	$0	$394		$394	$5,846
Task 4.10 ArcFlash Evaluation	16	4	40		120	80					260	$45,720		$0	$0	$0	$3,198	$1,000	$4,198	$49,918
Task 5 - Prioritized CIP	**24**	**38**	**32**	**72**	**24**	**16**	**40**	**0**	**16**	**20**	**282**	**$50,400**		**$7,000**	**$500**	**$7,500**	**$3,500**	**$3,000**	**$6,500**	**$64,400**
Task 5.1 Implementation Plan and Prioritized CIP	4	4	8	12	8		16				52	$9,260		$0	$0	$0	$640		$640	$9,900
Workshop 5 Compiled and Prioritized CIP	4	8	8	8							28	$6,000		$0	$0	$0	$344	$1,500	$1,844	$7,844
Task 5.2 Rate Model Review	2	2		4							8	$1,700		$0	$0	$0	$98		$98	$1,798
Task 5.3 Develop Draft and Final 2020 Comprehensive Wastewater Basin Study Update	4	4		20		16			8	8	60	$9,796		$3,500	$263	$3,763	$738		$738	$14,297
Task 5.4 Develop Draft and Final 2020 Wastewater Treatment Facilities Master Plan	8	8	4	20	16		24		8	8	96	$15,996		$3,500	$263	$3,763	$1,181		$1,181	$20,940
Workshop 6 Draft Report Review Meeting		8	8	8							24	$5,000		$0	$0	$0	$295	$1,500	$1,795	$6,795
Task 5.5 Create City Concil Presentation and Fact Sheets	2	4	4							4	14	$2,668		$0	$0	$0	$172		$172	$2,840
PROJECT TOTALS	**222**	**202**	**264**	**452**	**348**	**296**	**292**	**0**	**26**	**76**	**2178**	**$393,396**	**$75,000**	**$59,000**	**$10,013**	**$144,013**	**$26,918**	**$11,500**	**$38,418**	**$575,778**
	10%	9%	12%	21%	16%	14%	13%	0%	1%	3%										
										Avg $/HR=	$180.62									

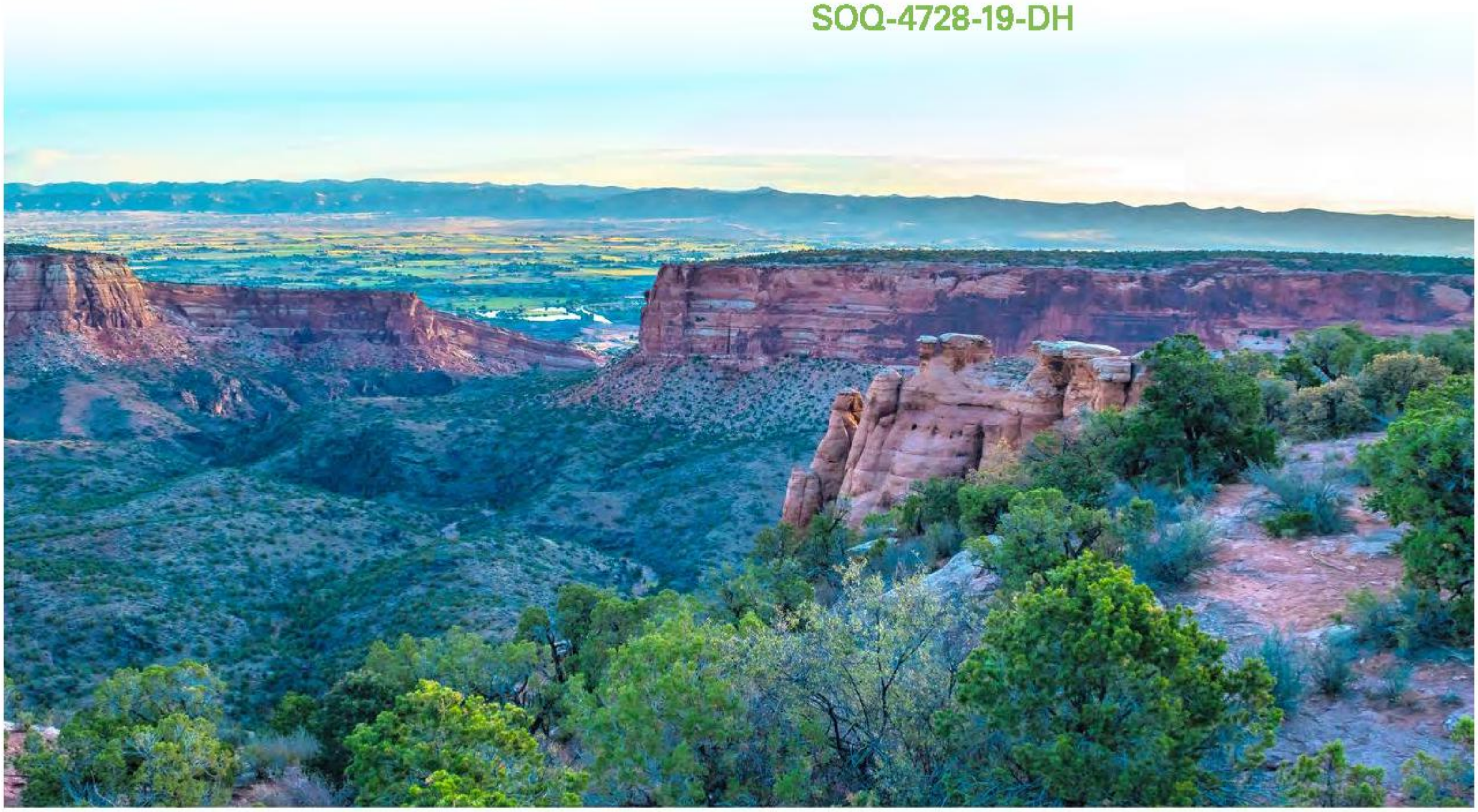
ASSUMPTIONS:

1. Project duration is 12 months from NTP to final close-out
2. Technical Memorandums will be issued as draft Chapters for the final report and only submitted as drafts. Final versions will be updated as part of the Draft Reports.
3. Mark-ups and expenses = 7.5% on subconsultants, $12.30/labor hour for Project communication and equipment expenses (PECE).

Prepared for the
CITY OF GRAND JUNCTION

2020 Persigo WWTP MASTER PLAN DEVELOPMENT PROJECT

SOQ-4728-19-DH



QUALIFICATIONS | DECEMBER 2019

carollo in association with JVA

Engineers...Working Wonders With Water®

CONSULTING ENGINEERS

carollo
Engineers...Working Wonders With Water®

390 Interlocken Crescent, Suite 800, Broomfield, Colorado 80021
P. 303.635.1220 F. 303.635.1373

December 16, 2019

Mr. Duane Hoff
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

Subject: 2020 Persigo WWTP Master Plan Development Project | SOQ-4728-19-DH

Dear Mr. Hoff and Members of the Selection Committee:

Regulatory, growth, and aging infrastructure are ongoing challenges for wastewater utilities. This has caused a paradigm shift for many utilities—what used to be a community obligation is now a resource recovery facility that generates revenue or decreases costs for the community. These changes require examining infrastructure and operations through a new lens. The 2020 Persigo Wastewater Treatment Plant (WWTP) Master Plan Development Project provides that opportunity for the City of Grand Junction.

Our work on similar operational and facility planning projects across Colorado demonstrates that successful collaboration and decision making are founded on a trusted partnership with face-to-face interactions. Carollo will collaboratively develop the 2020 Persigo WWTP Master Plan and the 2008 Wastewater Basin Study Update Report with you, by:

- Using a **local team** that knows your plant and people and provides **diverse experience** with wastewater planning in Colorado. Our project engineer can be on-site within an hour to investigate alternatives, collect data, and meet with your team.
- Leveraging **national expertise** in collection system evaluations, resource recovery, SCADA planning, and process innovation. Together, we'll evaluate innovative solutions being used by leading agencies across the country, tailored to your facility and your priorities. Additionally, we will bring new master planning tools and models used to streamline similar master planning efforts.
- Developing a **collaborative approach** to deliver the technical information needed to support your staff's buy-in and participation. This will be completed through a series of interactive workshops and interim deliverables.

Adopting a new philosophy is rarely easy, but the City is committed to leveraging innovation to support sustainability objectives and reducing capital and operating costs—all while improving overall treatment efficiencies. That's something Carollo has done for 86 years, and we look forward to partnering with you to usher in a new age as a model Utility of the Future by helping you develop the future vision and direction.

Sincerely,

CAROLLO ENGINEERS, INC.

Dave Pier, PE, PMP	Becky Luna, PE
Project Manager	Vice President

Table of CONTENTS

Qualifications/ Experience/Credentials

SECTION B

Qualifications/Experience/Credentials

WATER...IT'S ALL WE DO

At Carollo, our mission is simple: Provide creative, responsive, quality solutions to those we serve. We achieve this by focusing on only water-related engineering services. Since our founding in 1933, Carollo has been a leading expert in the planning, design, and construction management of water and wastewater projects for public agencies and municipalities. With more than 1,100 employees in 46 offices, Carollo is the largest water-focused engineering firm in the country. Our commitment to the water industry has been a company hallmark for 86 years. We strive to sustainably optimize the use and benefits of this precious resource with a single-minded focus that allows us to deliver innovative solutions, the best talent in the business, and exceptional, responsive client service. We have become a leader in the development of comprehensive master planning projects, asset management, reliability assessment, and financial plans for clients nationwide. Our history covers work on more than 25,000 projects, from small studies to large, complex design-builds.

Unparalleled Colorado Experience

This project will largely be performed in our Denver offices where we have more than 150 professionals dedicated to solving water and wastewater challenges for clients. We have provided engineering services for dozens of wastewater planning efforts throughout Colorado—many of which have had a similar intent as this project for Grand Junction and the Persigo Wastewater Treatment Plant (WWTP) and its collection system—develop an informed, holistic master plan that ultimately sets the stage for an informed near- and long-term CIP while coordinating with the City's ongoing Comprehensive Plan.

WATER
OUR FOCUS
OUR BUSINESS
OUR PASSION

Our strong, local team brings expertise in treatment and collection, enabling a smooth and coordinated project where you have accessibility to our project personnel. We have provided planning and design services for clients throughout the Western Slope, including, Clifton Water District, Eagle River Water and Sanitation District, City of Aspen, and the Town of Steamboat Springs. Because of our unwavering commitment to the water/wastewater industry, we have locally become known for our in-depth knowledge and expertise relative to Colorado regulatory requirements, biosolids management, and biogas and energy management—all crucial elements of this project. We are focused on client service, and value the interactive and collaborative relationships with the municipalities with which we work.

Local Partner that Knows Grand Junction

Carollo has partnered with JVA, Incorporated on this important project for Grand Junction. Since 1956, JVA has provided engineering services to municipalities, special districts, owners, and architects in Colorado and nationwide. They bring expertise in structural, civil, and environmental engineering, and have been providing quality engineering services to clients throughout Colorado since their inception. JVA has an office nearby in Glenwood Springs and has been working with Grand Junction on projects like the Raw Water Irrigation Pipeline Project, Water and Wastewater On-Call Services, and the Persigo WWTP Wet Well/Influent Channels and Rehabilitation Project.

CAROLLO/JVA TEAM RECENT WASTEWATER EXPERIENCE

1. **City of Grand Junction**
   - Tiara Rado Forcemain Feasibility Study
   - Lift Station and WWTP Influent Wetwell Lining Project
   - Raw Water Irrigation Pipeline Design
   - Whitewater Lift Station (Mesa County)
   - Gateway WWTP Evaluation (Mesa County)
2. **City of Ouray**
   - WWTP Master Plan
3. **Town of Meeker**
   - Wastewater Treatment and Collection System Master Plan
4. **Eagle River Water and Sanitation District**
   - 2018 Master Plan Update
   - Avon WWTF Nutrient Upgrades
   - Multiple Sole-Source WWTP Opportunities
5. **City of Fort Collins**
   - Master Plan Update
   - Drake WRF Carbon Addition Design
   - Drake WRF Cogeneration Design
   - Drake WRF Dewatering Improvements and Sludge Strain Press Design
   - Drake WRF Sidestream P Design
6. **City of Loveland**
   - BNR and Screening Design
7. **City of Greeley**
   - WPCF Treatment and Nutrient Master Plan
   - WPCF Nitrification Project Phase II
8. **City of Longmont**
   - Ammonia Treatment and Biosolids Dewatering Improvements Design
   - Biogas Treatment and Vehicle Fueling Station
   - WWTP Nutrient Removal Planning Study
   - WWTP Biosolids Facilities Planning Report
   - WWTP Digester Gas Utilization Alternatives Analysis
9. **City of Boulder**
   - 75th Street WWTP Nutrient Upgrades Project
10. **City of Northglenn**
    - Biosolids Management Plan
11. **Metro Wastewater Reclamation District**
    - North Secondary Improvements Project
    - South Secondary Improvements Project
    - Northern Treatment Plant (Owner's Advisor)
    - South Headworks and Grease Processing Improvements
    - Digester Complex Rehabilitation
12. **South Platte Water Renewal Partners**
    - Biogas Use Evaluation Project
    - 2019 Master Plan
    - Pipeline Injection Project
13. **City of Aurora**
    - Sand Creek WRF UV Replacement Design
14. **Dominion Water and Sanitation District**
    - Collection System Modeling and Master Plan
15. **Plum Creek Water Reclamation Authority**
    - Utility Plan Update and Preliminary Engineering Services
16. **Colorado Springs Utilities**
    - Las Vegas Street WRRF BNR Design

Carollo and JVA team members have become trusted advisors on wastewater planning and design efforts for utilities throughout Colorado.

PROPOSED PROJECT TEAM

The Right Team for Grand Junction

We have built our team around your needs for wastewater treatment and collection system master planning. Many of our core team members are already familiar with Grand Junction because of their direct experience working with you, and their industry contributions to challenges that you share with other utilities, such as optimizing operational reliability and infrastructure robustness. We know how to develop targeted investments through phased CIPs providing a list of needed projects, including cost estimates and implementation schedules. More important to you, each team member has demonstrated experience that comes only from years of excellence in their respective disciplines. Our team's organization corresponds to our project approach and the following pages detail our team member's qualifications.

City of Grand Junction, Colorado

QA/QC LEADS | ADVISORS
Rod Reardon, PE *(TREATMENT)*
Tim Loper, PE *(COLLECTION SYSTEM)*

PROJECT MANAGER
Dave Pier, PE, PMP

PROJECT ENGINEER
Leanne Miller, PE

BASIS OF PLANNING
- *FLOWS AND LOADING* – **Leanne Miller, PE**
- *REGULATORY PLANNING* – **Tanja Rauch-Williams PhD, PE**
- *LAND USE CLASSIFICATION AND GIS* – **Laurie Laos[1]**

COLLECTION SYSTEM TEAM
- *FLOW MONITORING* – **Cooper Best, PE[1]**
- *HYDRAULIC MODELING (COLLECTION SYSTEM)* – **Ryan Rossell, PE**
- *SEWER INFRASTRUCTURE IMPROVEMENTS* – **Cooper Best, PE[1]**

WASTEWATER TREATMENT TEAM
- *LIQUIDS STREAM* – **Tanja Rauch-Williams PhD, PE**
- *SOLIDS PROCESSING AND BIOGAS* – **Becky Luna, PE**
- *PROCESS MODELING* – **Bryan Coday, PhD, PE**
- *HYDRAULIC MODELING (TREATMENT PLANT)* – **Bryan Coday, PhD, PE**
- *BIOSOLIDS MANAGEMENT* – **John McGee, PE[1]**

IMPLEMENTATION PLAN
- *BUSINESS CASE EVALUATION* – **Dave Pier, PE, PMP**
- *CIP DEVELOPMENT* – **Leanne Miller, PE**
- *SUSTAINABILITY* – **Sarah Deslauriers PE, ENV SP**
- *ASSET MANAGEMENT* – **Ann Casey**

SUPPORTING TEAM MEMBERS
- *IT AND CONTROLS* – **Ron Burdick, PE**
- *ELECTRICAL* – **Chris Heger, PE**
- *COST ESTIMATING* – **Jason Rozgony, PE**
- *STAFFING ANALYSIS* – **Steve Walker, CWP**
- *OPERATIONAL BENCHMARKING* – **John McGee, PE[1]**
- *RENEWABLE ENERGY AND ENERGY STORAGE* – **Dave Pier, PE, PMP**
- *STRUCTURAL* – **Adam Teunissen[1]**
- *HVAC* – **Chad Green, PE**
- *FINANCIAL ANALYST* – **Cody Berg**
- *SAFETY* – **Greg Parana**

SUBCONSULTANTS
1. JVA

A FEW MINUTES WITH YOUR PROJECT MANAGER

Our Focus

We've listened to you, and your message about focusing on collaboration and developing a prioritized implementation road map. This road map will provide clarity in your decision making through the next 10 years and will offer flexibility to adjust the course to meet your longer term, 20-year, planning conditions. In doing this, our team will evaluate opportunities to optimize and reduce annual operating costs with a balanced capital investment.

To develop the prioritized 20-year implementation plans for collection and treatment facilities, it's critical that we collaborate with you and focus on:

- **Project Delivery Excellence.** We are committed to delivering the final report within your expectations and with high-quality workmanship. Our team has planned accordingly to meet this commitment in our detailed approach and schedule, provided herein.
- **Fiscal Excellence.** Our team will baseline all improvements against existing financial plans, and justify any major cost variations through a robust business case evaluation process. As we prioritize the financial plans, our team will evaluate cost implications and explore other opportunities to offset costs, such as grants or private-public partnerships.

I am proud that we have assembled a team that is focused on interacting with plant staff, with a hands-on, on-site approach to listen and problem-solve.

Achieving Your Goals

First, we need to take a step back and document where we are—with a solid understanding of the basis of planning and the conditions of your collection system and the Persigo WWTP. We will build from there to collaboratively prioritize capital projects to meet project drivers. Our customized approach will leverage innovative master planning and design tools to support your decision making for a justified, defensible, and comprehensive capital improvement plan.

Facilitating Buy-In

It really boils down to communication. As project manager, one of my roles is to make sure we have a consistent presence at your facilities and that we are bringing all the right perspectives into project workshops and deliverable reviews—both on our side and on yours. From my past role as Planning Director at Metro Wastewater Reclamation District (MWRD), and from managing similar facility planning projects for Carollo, I'll make sure we're asking the right questions and giving you the right opportunities to engage early and often in the process. These are big decisions with long-lasting implications, and it takes a lot of perspectives to get it right! In my experience, using interim deliverables and frequent workshops increases accountability and buy-in from all sides.

Our Team's Strengths

I'm fortunate to be supported by a team that has depth in all of the needed skill sets for this project, with a Western Slope presence and some of the industry's top experts in collection system planning and treatment facility analysis and design. Our collection system team will critically assess your system to provide a prioritized roadmap to provide reliable capacity in the future. On the treatment side, my teammates have helped utilities across the state understand and comply with evolving regulatory drivers. We have helped several Colorado plants optimize operations to get the most out of existing facilities, deferring the need for capital improvements. And we have designed two renewable natural gas facilities in the state—the most recent example is the South Platte Water Renewal Partners' biogas system that injects biogas into an Xcel Energy pipeline.

DAVE PIER, PE, PMP
Project Manager

Dave brings more than 22 years of experience in project management as both a consultant and utility owner. He brings an invaluable perspective for clients in that he understands and can relate to the challenges and decisions that utilities have to make relative to capital planning. Dave has managed a $1.5 billion capital plan which entailed integrating master plans for five separate facilities. For this project, Dave will be the project manager, responsible for project coordination and delivery. Dave will also lead the overall business case development and implementation. He will work closely with City staff and the Carollo/JVA team to develop a clear, justifiable facility plan so the City is set-up for success moving forward.

Relevant Project Experience

- Deputy project manager for South Platte Water Renewal Partner's (SPWRP) 2019 Master Plan, Colorado.
- Project manager for MWRD's 2013 Facility Plan, Colorado.
- Project manager for MWRD's Biosolids Optimization and Master Plan, Colorado.

ROD REARDON, PE
Quality Manager (Treatment)

Rod is an environmental engineer with 41 years of experience in the study, design, and operation of municipal wastewater facilities. Throughout his dedicated career, he has worked on numerous environmental engineering projects, including facility plans, water and wastewater transmission systems, and numerous wastewater treatment plants ranging in size from 0.1 to over 600 mgd. As Carollo's National Wastewater Technology Leader, Rod is responsible for a wastewater technology team that manages acquisition, compilation, transfer, and consistent application of wastewater processes and technology throughout the company.

Relevant Project Experience

- Project advisor for Contra Costa Sanitary District's Comprehensive Wastewater Master Plan, California.
- Senior process engineer for Orange County Utilities' Southwest Water Reclamation Facility Plan Update, Florida.

LEANNE MILLER, PE
Project Engineer/Flow and Loading/CIP Development

Leanne brings over 11 years of water and wastewater planning, design, and optimization experience for both treatment plants and linear infrastructure. She has authored multiple water and wastewater master plans for communities throughout Colorado such as Ouray, Meeker, Orchard City, Crested Butte, and East River Sanitation District. More importantly, Leanne has direct experience working with the Grand Junction, providing critical and unique knowledge relative to your standards and processes. Leanne holds key roles on the project; she will work closely with the WWTP and collection system team members while closely coordinating with Dave and the City to make sure that no stone goes unturned. She will lead the effort in data collection for flows and loads and will ultimately help lead the CIP development effort.

Relevant Project Experience

- Lead engineer for the City of Grand Junction's Raw Water Irrigation Pipeline Project, Colorado.
- Project manager for the City of Ouray's Wastewater Treatment Master Plan, Colorado.
- Senior project engineer for the Meeker Sanitation District's Wastewater Treatment and Collection System Master Plan, Colorado.

TIM LOPER, PE
Quality Manager (Collection System)

Tim is Carollo's technical lead for wastewater collection system modeling and master planning, bringing more than 18 years of experience. He has served as project manager and/or project engineer for more than 50 water, wastewater, stormwater and/or recycled water master plans and modeling projects. Tim has dedicated his career to helping clients develop flow monitoring and modeling projects that provide sound, quality data, as well as confidence in the results of capacity analyses.

Relevant Project Experience

- Technical advisor for Dominion Water and Sanitation District's Collection System Master Plan, Colorado.
- Project manager for the collection system for the City of Modesto's Wastewater Master Plan Update, California.
- Project engineer/modeling lead for the City of Chico's Sanitary Sewer Master Plan Update, California.

TANJA RAUCH-WILLIAMS, PHD, PE
Regulatory Planning/ Liquids Stream

Tanja has 19 years of experience dedicated to solving wastewater process challenges for clients. She is known for her commitment to innovative solutions that are tailored to each client's needs. Tanja brings relevant, state-of-the-industry process and operational knowledge to comply with stringent ammonia, nitrate, and phosphorus limits. She brings a hands-on approach to comprehensive process modeling with realized innovative cost-savings ideas for capacity and energy improvements and process stabilization at several facilities. In addition, Tanja is technical advisor for CDPHE new regulatory decision-making regarding nutrient regulations and design criteria development. Tanja is responsible for leading the WWTP liquids stream evaluation and coordinating regulatory/permitting approvals.

Relevant Project Experience

- Lead process engineer for Eagle River Water and Sanitation District's (ERWSD) Wastewater Planning Services, Colorado.
- Lead process engineer for the City of Greeley's Nutrient and Treatment Master Plan, Colorado.
- Lead process engineer for the City of Fort Collins' Master Plan Update, Colorado.

LAURIE LAOS
Land Use Classification and GIS

Laurie has 12 years of experience working with ESRI ArcGIS software for municipalities, districts, and institutions. She has used GIS, AutoCAD, and coordinated with clients to perform flow and loading projections using land use analysis, sanitary sewer collection system mapping, modeling, and analysis for asset management, inflow and infiltration investigation, and collection system master planning. Laurie has in-depth experience and expertise of sanitary sewer system design and modeling, and will be responsible for developing the GIS model for your collection system.

Relevant Project Experience

- Project engineer for Colorado State University's 2020 Sanitary Sewer Master Plan, Colorado.
- Project engineer for City of Fort Collins' Collection System Modeling and Planning Project, Colorado.
- Project engineer for the Town of Mead's Sanitary Sewer System GIS Database Project, Colorado.

COOPER BEST, PE
Flow Monitoring/Sewer Infrastructure Improvements

Cooper brings more than 18 years of engineering experience in wastewater collection system planning, wastewater collection system rehabilitation, water and wastewater treatment systems, lift stations, master plans, utility plans, and funding knowledge for capital projects. He is skilled in all facets of design, permitting, and construction management of municipal projects. Cooper is known for his strong communication skills and pays special attention to assisting western slope communities with making their projects a reality. He brings valuable knowledge about the Persigo WWTP having just served on a recent project for the City, and will be responsible for flow monitoring and overall infrastructure improvements.

Relevant Project Experience

- Project manager for the City of Grand Junction's WTP Improvements Project and Persigo WWTP Wet Well/Influent Channels and Rehabilitation Project, Colorado.
- Project manager for the City of Grand Junction's Water and Wastewater On-Call Services, Colorado.
- Project manager for the City of Salida's WWTP Expansion, Colorado.

RYAN ROSSELL, PE
Hydraulic Modeling (Collection System)

Ryan's seven years of experience includes water and wastewater master planning, hydraulic/hydrologic modeling, and collection system design. He has developed, calibrated, and implemented hydraulic models for design and master planning projects that includes sewers from 8- to 120-inches in diameter. His hydraulic and hydrologic modeling experience includes the use of Carollo's Hydraulix®, XPSWMM, InfoWorks ICM, QUAL2K, HEC-RAS, SMS/FESWMS, and AcrGIS. Ryan will lead the hydraulic modeling efforts for the collection system which will be crucial in understanding long-term project needs.

Relevant Project Experience

- Modeling lead for Dominion Water and Sanitation District's Collection System Modeling and Master Plan, Colorado.
- Modeler for the City of Omaha's Sanitary Interceptor Master Plan, Nebraska.
- Modeler for the City of Lincoln's Wastewater System Collection Master Plan Update, Nebraska.

BECKY LUNA, PE

Solids Processing and Biogas

Becky is respected throughout the industry for her expertise in solids handling and biogas processes, and for her unwavering commitment to delivering projects that are tailored to clients' specific needs. She brings 17 years of experience focused on wastewater planning, design and construction, and has been involved in multiple energy related projects. Just recently she completed two projects in Colorado to convert digester gas to renewable natural gas, thereby creating a new income source and sustainable practices for both utilities. Becky will be responsible for evaluating your solids processing and biogas systems to determine the best path forward to improve operability and increase revenues.

Relevant Project Experience

- Project manager for SPWRP's 2019 Master Plan, Biogas Project, and Pipeline Injection Project, Colorado.
- Project manager for the City of Longmont's Biosolids Planning Study and WWTP Biogas Treatment and Vehicle Fueling Station Project, Colorado.
- Project manager for MWRD's Digestion Improvements Project, Colorado.

JOHN MCGEE, PE

Biosolids Management and Operational Benchmarking

John has 30 years of experience in design and operations of water and wastewater treatment plants. He brings expertise in consulting, planning, design, troubleshooting, operations, and construction. John has worked on several projects in the Western Slope including Towns of Montrose, Telluride, and Crested Butte. Prior to joining JVA, John worked for eight years as Water Treatment Manager/ Capital Project Manager for the City of Loveland, Colorado. John's applicable experience and skill set for process design, troubleshooting, and operations will help the team provide holistic path forward for the City. He will be responsible for evaluating your biosolids management processes and how to make those processes more efficient.

Relevant Project Experience

- Project manager for the City of Northglenn's Biosolids Management Plan, Colorado.
- Technical lead for the Town of Nederland's Biosolids Improvement Project, Colorado.
- Project manager for the City of Montrose's WWTP Comprehensive Performance Evaluation, Colorado.

BRYAN CODAY, PHD, PE

Process Modeling/Treatment Plant Hydraulic Modeling

Since joining Carollo in 2015, Bryan has quickly become known and respected for his process modeling capabilities. He has developed advanced and dynamic Biowin models to assess nutrient removal improvements several Colorado utilities, and is trusted for his expertise in process and hydraulic modeling, data evaluations, condition assessments, design drawings, and report writing. Bryan will be responsible for developing process hydraulic models as part of the liquids stream alternative evaluation.

Relevant Project Experience

- Lead process engineer for SPWRP's 2019 Master Plan, Colorado.
- Process engineer for ERWSD's 2019 Master Plan Update and Avon WWTF Nutrient Upgrades Design, Colorado.
- Process engineer for the City of Greeley's Treatment and Nutrient Master Plan, Colorado.

ANN CASEY

Asset Management

Ann brings 27 years of experience working operational, managerial, and financial aspects of utilities and municipalities, much of which has focused on wastewater and water. She is an expert in prioritization of assets and leads the Asset Management Practice at Carollo. Ann has critical experience in developing prioritized near- and long-term CIPs based on facility and overall condition. Ann will lead the asset management/condition assessment elements of the project which will help provide a baseline for the efforts that follow and the master plan as a whole.

Relevant Project Experience

- Asset management lead for Aurora's Griswold Water Purification Facility's (WPF) Asset Management Plan, Colorado.
- Project manager for Coachella Valley Water District's Asset Management Implementation Plan, California.
- Asset management lead for Dallas Water Utilities Asset Management Plan, Texas.

SARAH DESLAURIERS, PE

Sustainability

Sarah has 16 years of experience in the area of climate change, resiliency, and sustainability. She has completed numerous greenhouse gas (GHG) emissions evaluations, life-cycle assessments, and other sustainability evaluations. She is also experienced in water and wastewater master planning, integrated water resources management, biosolids management and innovative technology assessment, and decision analysis. She currently serves as the California Association of Sanitation Agencies Climate Change Program Manager, Water Environment Federation Bioenergy Technology Subcommittee Vice-Chair, Central Valley Clean Water Agencies, and Air and Climate Change Committee Vice-Chair. Sarah is an industry-known expert in sustainability and will provide invaluable insight and recommendations relative to sustainable practices as it relates to the master plan and the City's Comprehensive Plan.

Relevant Project Experience

- Project engineer for MWRD's GHG Emissions Project, Colorado.
- Engineer for the City of Longmont's WWTP Digester Gas Utilization Alternatives Analysis, Colorado.
- Program manager for the Bay Area's Biosolids Coalition, California.

Resumes for all of our team members, including supporting roles are located in the "Resumes" section of this proposal.

Strategy and Implementation Plan

SECTION C

Strategy and Implementation Plan

Carollo's approach builds on systematic and fundamental basics of comprehensive, forward-looking master planning, and ends with a flexible, implementable roadmap for your facility and collection system. We have listened to your needs and staff's experience and expertise to build recommendations specific to your goals and unique processes.

PROJECT UNDERSTANDING

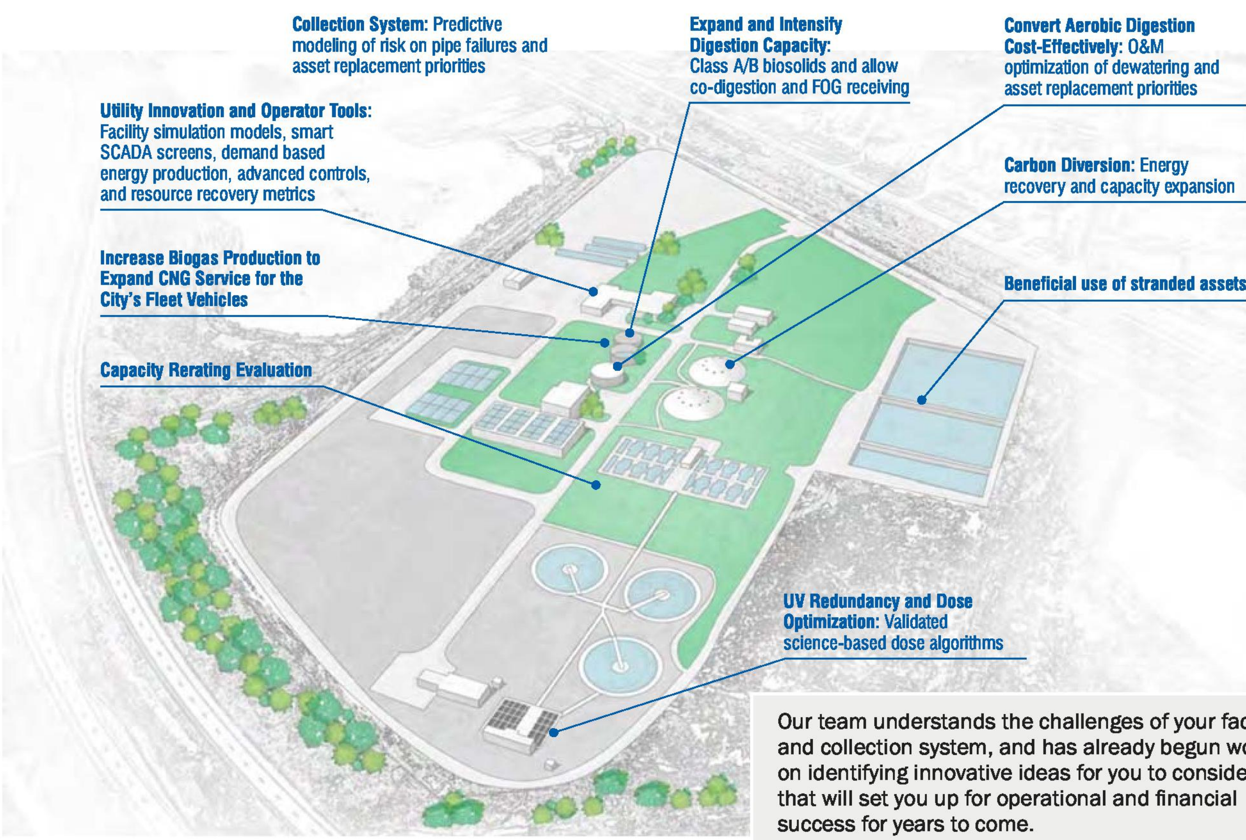
A lot has changed since the City of Grand Junction last completed Master Plans for the Persigo WWTP and Wastewater Collection Basins. As a result, several critical assets are reaching the end of their life; financial pressures and new community priorities require decisions on infrastructure investments; and, new, innovative technologies offer efficiency and cost savings to your future operation. We understand that you are looking for the 2020 Master Plans to address these changes in a comprehensive, holistic manner, positioning the Persigo WWTP and Collection System as a model Utility of the Future.

Your master plans serve vital roles in the future of your community. These plans will advance the goals and objectives established in the City's Comprehensive Plan, the 2019 Strategic Plan, and the region-wide sustainability goals.

Your Master Planning Efforts Come at an Opportune Time:

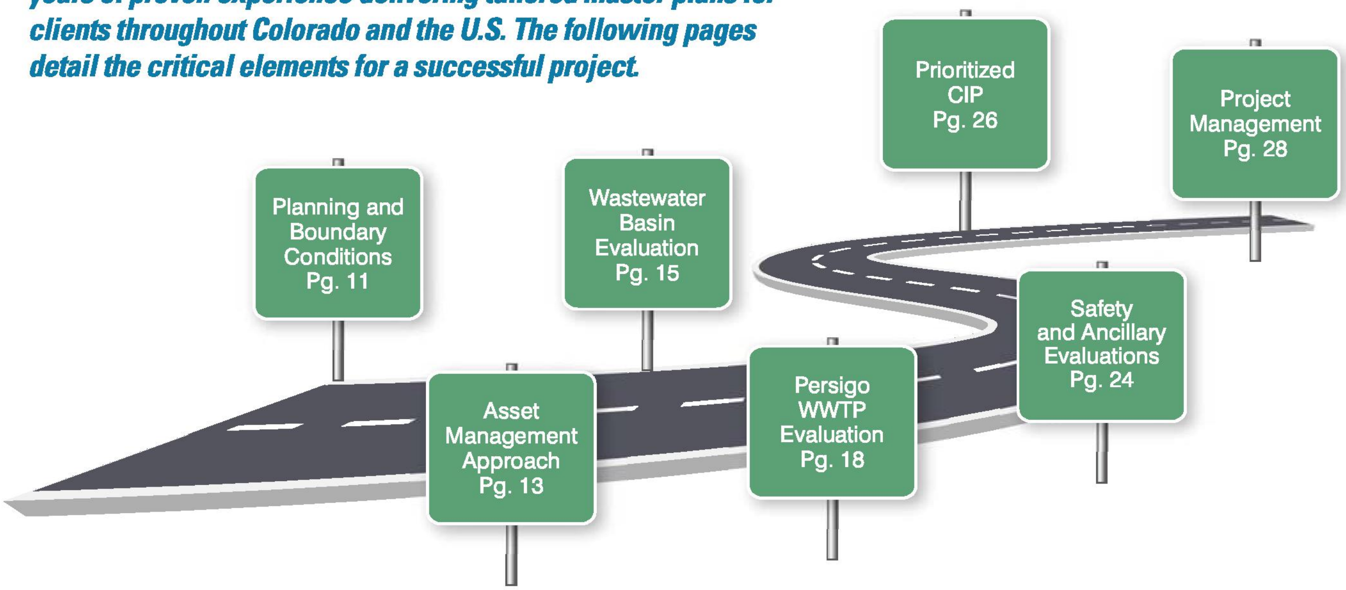
- Several of your long-time and experienced staff members can participate in shaping the future of your facility with their legacy of insights into challenges and opportunities.
- The regulatory pathway of your facility is well defined for the coming decade. This helps us focus on the definition of process opportunities specific to your facility.
- You are entering this process with strong regional partners who are actively participating in your planning process. This is a great basis for developing integrated, collaborative solutions for your rate payers!

OPPORTUNITIES FOR INNOVATION



Our team understands the challenges of your facility and collection system, and has already begun work on identifying innovative ideas for you to consider that will set you up for operational and financial success for years to come.

We have organized our approach around what we believe to be a fundamental roadmap for developing sound and holistic master plans for Grand Junction. Our thinking behind this comes from years of proven experience delivering tailored master plans for clients throughout Colorado and the U.S. The following pages detail the critical elements for a successful project.



PROJECT APPROACH

A successful partner for your planning process brings more than technical expertise. Our role is also to help you shape and build consensus around your utility's vision for the future. When we listen to your staff's goals, priorities, and concerns, we hear two themes that are of utmost priority for these master plans:

- Best value through operational reliability and infrastructure robustness.
- Embracing and investing in innovation to better serve your community.

Your staff is ready to collaborate and so are we. In the following pages, we have organized our approach and scope of work using 13 interim deliverables and 10 formal workshops as shown in the schedule. By using this approach, we prioritize your input and guidance, achieve consensus for future planning objectives, and obtain buy-in at every step in completing the 2020 master plans.

Times are Changing!

- Wastewater as a Resource
- Energy Management
- Smart Controls and Process Automation
- New opportunities for workforce skills and retention

Planning and Boundary Conditions

Defining accurate planning assumptions and their uncertainties for your collection system and treatment facility analyses are the pillars of this project. Any utility that has conducted master planning knows that setting planning projections can become a lengthy and tediously iterative process if not done right the first time. Quantifying uncertainties allows you planning flexibility and setting trigger points for timing future action, budget development, and planned responses. In establishing the project's planning and boundary conditions, our approach focuses on:

1. Establish Growth and Land Use and Planning Criteria.
2. Forecast Regulatory Drivers.
3. Document Financial and Planning Assumptions.
4. Create Business Case Evaluation Criteria.

Growth, Land Use, and Planning Criteria

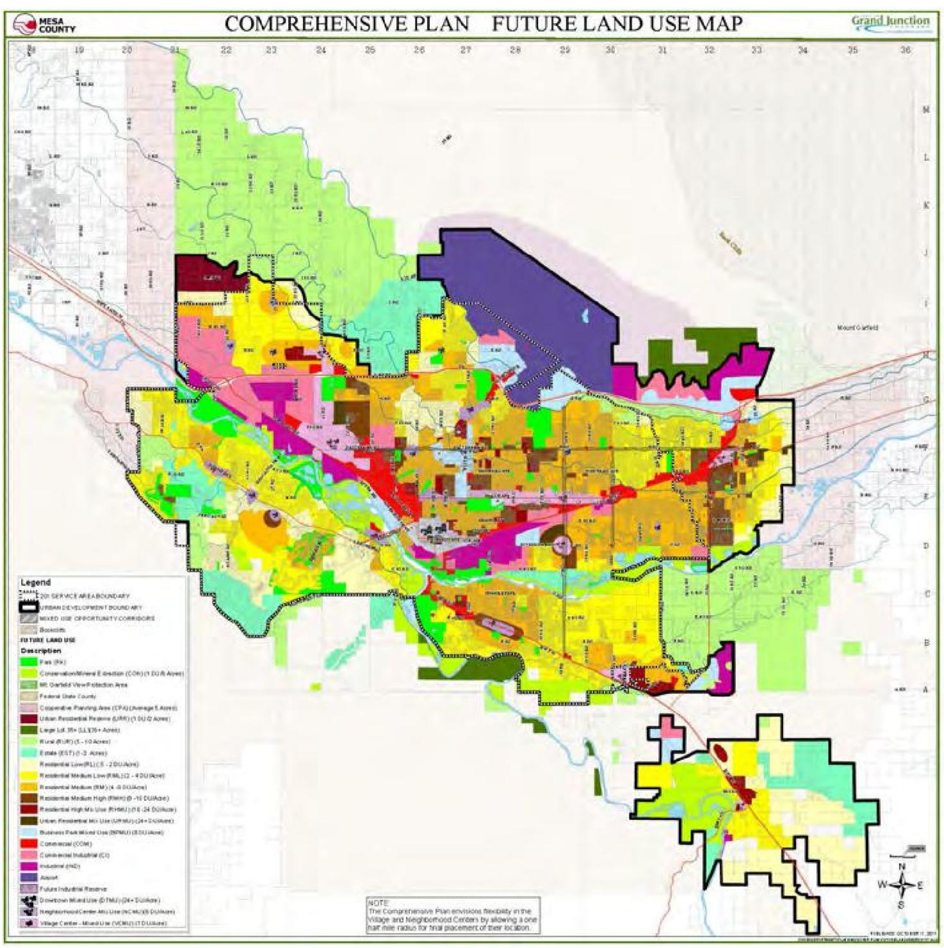
Our team will update the flow and loading projections from the 2008 Wastewater Basin Study for the collection system model and the projected Persigo WWTP influent flows and loads. This involves:

- Updating service area mapping and transportation analysis zones obtained from the City's web-based GIS mapping portal with population data developed by the City's Planning and Community Development Team.
- Integrating land-use and population criteria from the City's current Comprehensive Plan to forecast 2040 and build-out population conditions.
- Evaluating five years of historical flow and load influent data of the Persigo WWTP to develop design flow and loads and peaking factors for different seasonal and treatment conditions.
- Benchmarking criteria against industry standards and peer utilities to recommend strategies for lowering costs as applicable.
- Performing a sensitivity analysis to determine impacts of variability in growth patterns.
- Identifying and closing critical data gaps.

Regulatory Forecast

In 2018, CDPHE issued a roadmap that defines when specific water quality standards will be tightened over the coming 10 years for Colorado dischargers. We recommend a brief evaluation to verify that the following parameters will not become treatment drivers for you due to your high assimilative capacity in the Colorado River under any flow condition:

- Ammonia.
- Heavy metals (selenium, arsenic, and cadmium).
- Temperature.



The City's land use data will provide the basis for spatial distribution of flows as well as understanding of future development potential.

CDPHE's permitting division has more recently started to put forth Preliminary Effluent Limits (PELs) for some dischargers in Colorado that are "conservative [...] and, if possible, [...] account for potential changes to standards or regulations". Temporary variances will reportedly be phased out in the next few years. We have seen very unexpected compliance requirements for some dischargers as a result and would like to confirm that Grand Junction and Mesa County are prepared.

Furthermore, we recommend utilities prepare for future anticipated regulations, including contaminants of emerging concern. Imminently, CDPHE is developing water quality standards by 2020 for Per- and polyfluoroalkyl substances (PFAS). Typical sources for these persistent, toxic chemicals are certain industries, airports, and fire fighting training sites.

Holistic Water Quality Considerations

The City is exploring use of a secondary water source for drinking water from the Gunnison River, which may impact the salinity loading at the WWTP discharge. We have worked with WWTPs on salinity management requirements in other parts of the U.S., even if the sources are outside of the facilities' treatment control. We will work with the City and CDPHE to make sure that the use of this water source does not negatively impact the WWTP.

Tanja Rauch-Williams will develop the regulatory framework based on her experience leading CDPHE workgroups and performing regulatory forecasting for other wastewater utilities in Colorado and beyond. The regulatory framework will identify the anticipated regulatory timing and triggers for the next 20 years to inform future infrastructure decisions.

Financial and Other Planning Assumptions

Throughout the planning process, we will manage other planning assumptions that affect recommendations and outcomes. These entail the financial assumptions, cost of electricity and natural gas credits for renewable identification numbers (RINs), and metrics like your per capita water consumption. We will clearly document assumptions made based on current information and our understanding of industry trends and variability.

Business Case Evaluation Criteria

Developing the right framework for the business case evaluations means the right level of detail is developed to efficiently short-list and select recommended alternatives. During the kickoff meeting, we will review the specific economic and non-economic factors that are critical for your decision making as we work towards developing a prioritized CIP for the near- and long-term infrastructure improvements. The figure below illustrates the type and level of information proposed. We have found this approach creates collaboration, transparency, and provides justification for your discussions with City Council, management, and staff to support future implementation plans.

CAROLLO'S BUSINESS CASE EVALUATION PROCESS FLOW

DEFINE BASELINE

Develop business case evaluation criteria.
- 2019 Strategic Goals
- Mesa County Comprehensive Plans
- Baseline criteria
- Economic and non-economic planning assumptions and uncertainty ranges
- GHG assessment
- Risk and benefits

EVALUATE ALTERNATIVES

Use comparative criteria to conduct preliminary screening of options.
- Relative rankings
  - Economic
  - Non-economic
- Qualitative assessment
  - Risk, benefits
  - GHG impacts

Use quantifiable criteria to shortlist preferred projects for the CIP roadmap.
- Quantify financial info
  - Capital, O&M
  - Revenue
- Quantify GHG impacts
- Quantify secondary risks and benefits

PRIORITIZED CIP

Develop CIP roadmap.
- Assess staffing
- Evaluate delivery and financing approaches
- Identify risks and mitigation strategies

Carollo's business case evaluation process flow enables a collaborative and transparent project that is set up for success at project kickoff.

Asset Management Approach

Efficiently navigating condition assessment activities starts with a proven plan. Our approach is to develop consensus early through our Condition Assessment Plan (CAP) to define the final inputs and outputs of all asset information that your staff will need for consistency with your current system. We will document this framework in a technical memorandum.

The CAP will incorporate the existing asset management standards, the National Association of Sewer Service Companies (NASSCO) collection system criteria you have adopted, and results from the Persigo WWTP Structural Assessment. Additionally, we will assess any gaps in your standards and recommend improvements for future integration into your asset management program. Documenting standards and conducting necessary condition assessments for both the collection and treatment facilities are critical for development of comprehensive CIPs.

To develop a systematic approach for collection of asset information and other project information, Carollo has developed a powerful non-proprietary database-driven condition assessment tool. This tool is a web-based application that will be used on mobile devices during site visits.

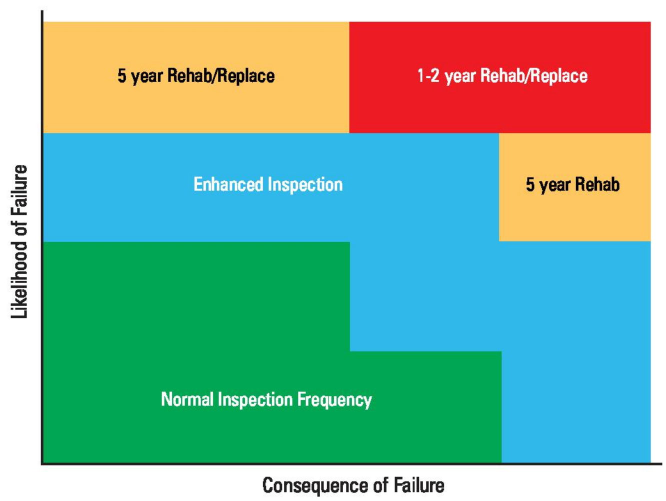
For Dallas Water Utilities, Carollo eliminated three budgeted site visits as efficiencies in data collection and cataloging pictures/notes were streamlined using a mobile device.

This data driven application provides consistency during inspections and comprehensive data collection to meet desired outputs. This tool saves time and money, results in more consistent documentation, and has been employed in our recent condition assessments for Cities of Aurora and Greeley.

Collectively with City staff, the CAP will be used to document existing assumptions:

- Level of asset definition ($), equipment, or system.
- Integration of probability and consequence of failure and financial information.
- Understanding data needs for other end-uses (e.g., P&IDs or electrical 1-lines).

In addition to asset specific information and condition scores, photographs and geospatial information can be captured, which greatly benefit your current and future staff. The output can then be used to refresh your Lucity CMMS system, GIS data, and other asset management applications.

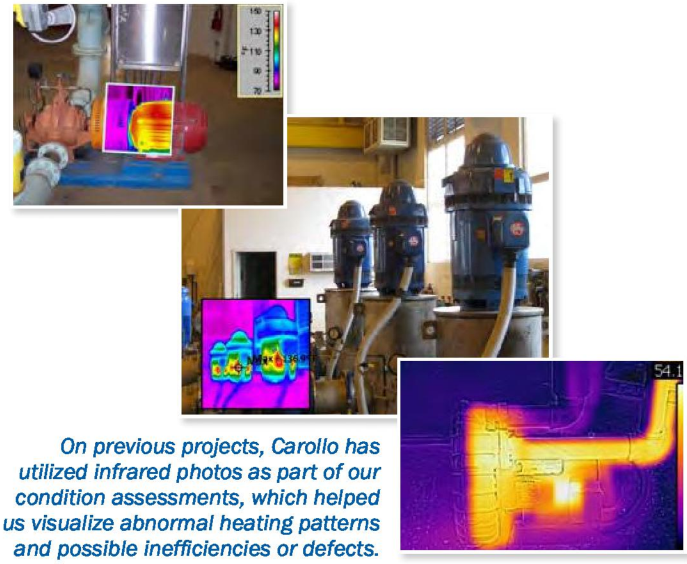


Documenting your assessment requirements (failure modes, consequences, visual ratings, and costs) using heat maps helps integrate your asset replacement needs into a prioritized capital and maintenance improvement plan.

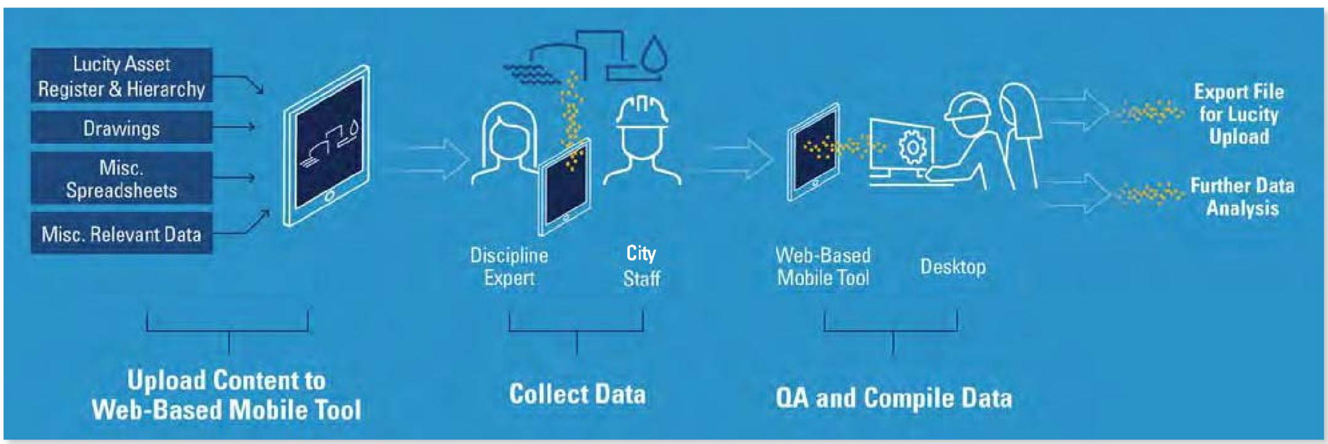
Our 2-day condition assessment site visits will be led by Ann Casey and include our team's subject matter experts from process, civil, structural, architectural, mechanical, electrical, and instrumentation and control. These team members are not only skilled in assessing the conditions of your current assets but will also start the process of identifying technology options and solutions where short-comings become apparent in the field. Our team will be equipped with mobile applications that are pre-loaded with existing City asset information and City-approved condition assessment forms. In our experience, this tool has greatly facilitated real-time buy-in on the subsequent condition assessment ranking.

After completing the site inspections, Carollo will:

- Provide a CSV file to import into and update your Lucity CMMS system.
- Provide preliminary findings in a workshop.
- Document condition assessment findings and develop asset replacement costs.
- Draft and submit technical memorandum for your review.

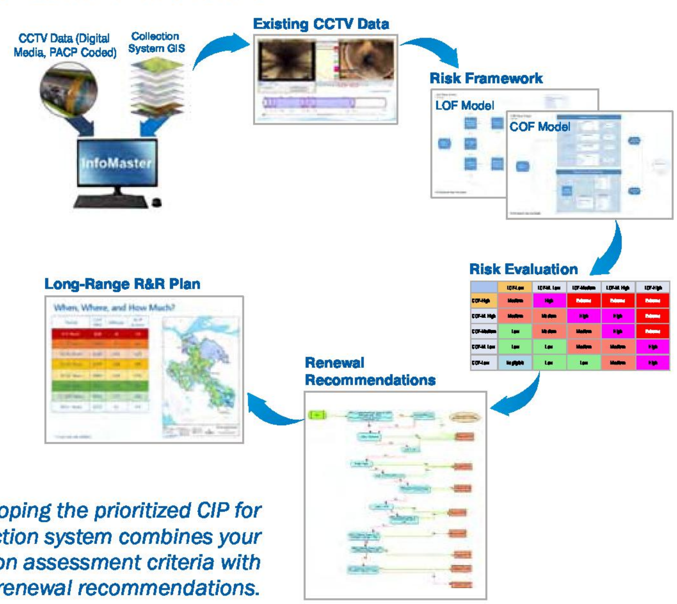


On previous projects, Carollo has utilized infrared photos as part of our condition assessments, which helped us visualize abnormal heating patterns and possible inefficiencies or defects.



For Clackamas County, Oregon, our asset evaluation workflow process integrated their Lucity information during inspections and updated asset information following our condition assessment evaluations.

For the collection system assets, our asset management team will asses the asset inventory, identify deficiencies, and review your existing condition assessment data. Using this data, we will identify and quantify the associated risks and renewal/replacement activities needed. These asset replacement projects will be combined with other infrastructure improvements to create a prioritized CIP for the collection system.



Developing the prioritized CIP for the collection system combines your condition assessment criteria with our renewal recommendations.

Wastewater Basin Evaluation

Since the 2008 Comprehensive Wastewater Basin Study Update (2008 Study), the collection system has added more than 300 miles of linear infrastructure and integrated the Orchard Mesa and Central Grand Valley Districts. Other changes include modifications to the City's planning and development requirements, and the elimination of the Ridges Lift Station. The 2008 study will be updated to reflect these changes, and will include detailed evaluations regarding asset condition assessment and replacement, pump station and collection system optimization, real-time data collection, controls, and alarms. We will work collaboratively with you and your staff to establish the planning framework for the future through buildout of the service area.

Modeling Software	Usability	Routing Engine	GIS Interface	Features	Costs
Hydra	Poor	Average	Poor	Poor	Excellent
XPSWMM	Average	Excellent	Poor	Poor	Excellent
Mike Urban	Good	Excellent	Good	Excellent	Poor
Sewer Gems	Good	Good	Excellent	Excellent	Average
Info Works	Excellent	Excellent	Good	Excellent	Poor
Info SWMM	Excellent	Excellent	Excellent	Excellent	Excellent

Poor · Average · Good · Excellent

Carollo has worked with and evaluated many software platforms on the market today. We will leverage our national experience to help you choose an appropriate modeling platform.

Our approach to developing the Update to the 2008 Study includes the following aspects:

1. Select and calibrate collection system model.
2. Update collection system evaluations.
3. Review condition assessments.
4. Develop collection system CIP roadmap.

Collection System Modeling

We understand the importance of regional collaboration and information sharing when updating a collection system model. These are critical in the continued development of your collection system model that covers Mesa County and the City of Grand Junction infrastructure. Our partner, JVA, brings first hand experience working with both entities in evaluating and designing water and wastewater infrastructure. Carollo brings local and national collection system modeling experience and industry best management practices for model calibration. Our approach will build off the existing data and models developed as part of the 2008 Study, and integrate flow monitoring data, updated infrastructure information, and build-out land-use projections provided by the City to develop a robust and accurate collection system model.

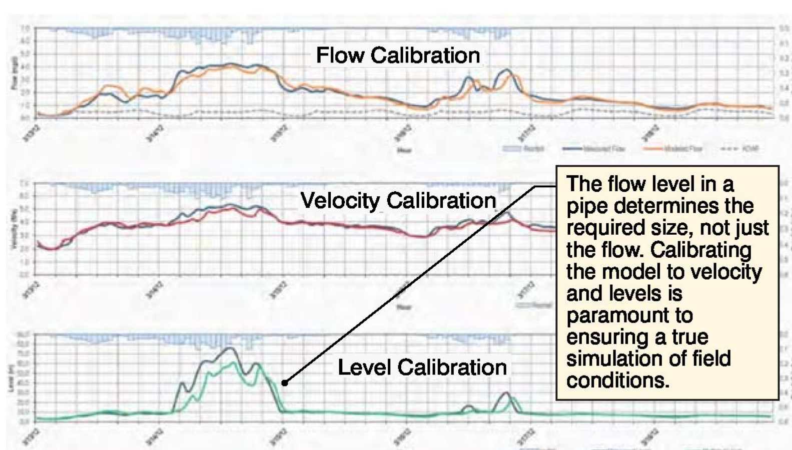
Model Selection

The first choice in the continued development of your hydraulic model is selecting what modeling platform to use moving forward. The model was previously constructed using H_2OMap Sewer which has been phased out by Innovyze®. The selection of a modeling platform is critical to allow continued use of the model after this project. We will advise on recommended options to help you make a decision that best supports your modeling objectives for this project and beyond.

Model Development and Calibration

Model development includes the layering of multiple data sources and establishing logical input parameters to create a useful tool for the planning process. The model refinement begins by updating the collection system within the model. We will start with City's GIS files, the existing H_2OMap Sewer model, and refine the model with updated record drawings (since 2008), and operator input to customize the system controls.

The next step includes establishing dry weather and wet weather flow parameters within the model. These parameters will be developed using the updated service area boundaries, population data, and water meter billing data; and will be calibrated/verified using flow monitoring data. Model calibration is one of the most critical aspects of model development. We follow industry standards (WaPUG (Wastewater Planning Users Group)), and leverage our modeling expertise to develop a model that accurately predicts dry and wet weather conditions.



By calibrating to level and velocity data, we will provide you with confidence in the model results. This will ultimately reduce cost by not over-sizing capital projects and will avoid potential low-velocity problems.

Our calibration process includes evaluating both level and velocity for the calibration events. Both are evaluated so the model accurately accounts for boundary conditions, lift station operations, and unique hydraulic characteristics of the collection system. Additionally, we verify performance of the models using validation events to confirm the model is accurate for a range of flow conditions.

Flow Monitoring Program

Flow monitoring data is a critical component of the model construction and calibration effort. We will evaluate the available flow monitoring data from the 14 existing sites to calculate the base system flows, distribute flows spatially throughout the system, and determine the contributions of infiltration and inflows (I/I). If additional flow monitoring data is needed in areas such as Orchard Mesa or other basins, our team will identify strategic locations to collect sufficient data to calibrate the model. We will solicit quotes from local flow monitoring companies such as Ted Miller and Associates or RJN Group.

Our schedule shows we plan to collect data for a minimum of eight weeks during the spring in order to capture representative information on dry weather and seasonal runoff flow events.

Collection System Evaluations

After model calibration/verification, the model will be updated and used to evaluate future flow conditions and identify future infrastructure limitations. Future flow rates will be projected based on the City's 2040 Land Use Plan and proposed 201 Service Area boundaries in conformance with the 2040 Comprehensive Plan. In coordination with the service area boundary analysis, we will use the calibrated model to assess the capacity of the existing infrastructure at current and buildout flows. Existing infrastructure segments will be evaluated based on a variety of metrics including:

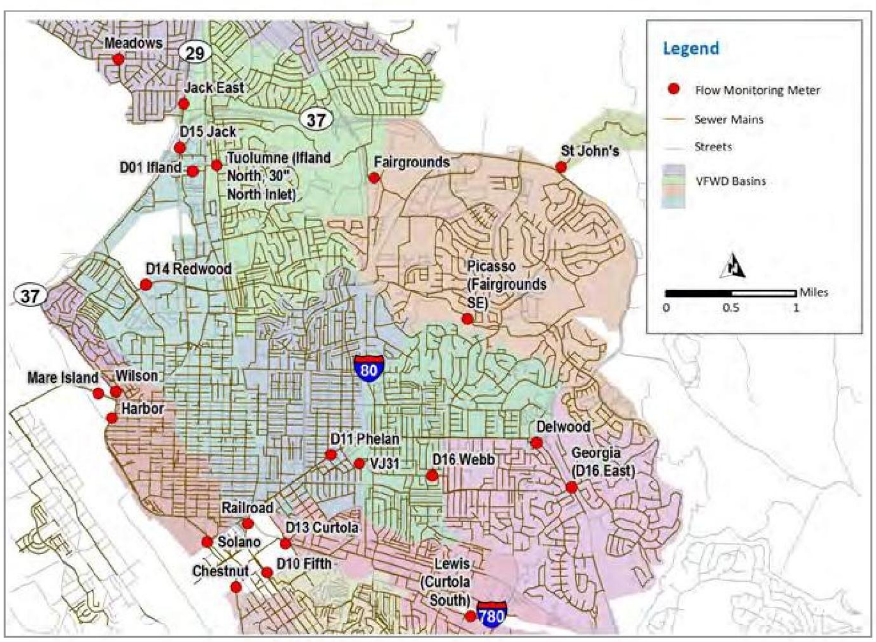
- Capacity and surcharging.
- Velocity.
- Pumping requirements.

In this analysis, we will consider your standards of acceptable levels of service and objectives for system operation to identify future infrastructure limitations.

To serve future community growth, we will also evaluate future sewer main extensions along relevant edges of the current service area. Prioritizing critical sewer main extensions allows capacity increases to accommodate projected growth. Additionally, we will incorporate results from the 2018 lift station elimination study and identify infrastructure to support the septic system elimination program.

Trunk extensions in the northwest and northeast corners of the service area as well as the 29 Road extension were identified in the 2008 Study. However, we believe you should consider alternatives to these recommendations particularly with regards the 29 Road option. Our local team is familiar with your linear infrastructure given our work on the Raw Water Irrigation Pipeline Project. Our understanding of the local infrastructure, as-built resources, and recent construction cost information gives our team a head start in the analysis of alternatives for the proposed trunk line extensions. Alternatives we would like to evaluate depending on the specific application include:

- Trenchless construction to increase capacity.
- Remove and replace existing infrastructure along the same alignment.
- Alternative alignments for critical extensions.
- Parallel alignments to increase capacity of existing infrastructure.



As we have done for other utilities, Carollo will work with you and your staff to develop a flow monitoring program to fill data gaps needed to calibrate your collection system model accurately to industry standards.

Condition Assessments

To support your asset management program, we will also perform condition assessments of your lift stations and other collection system assets. In documenting the findings and evaluating solutions, our team will:

- Evaluate COF based on updated hydraulic model.
- Prioritize rehabilitation or replacement needs to support the collection system CIP roadmap.
- Identify replacement, rehabilitation, and trigger strategies to aid the City in conducting condition assessment and rehabilitation in the future.

Additionally, while we are conducting site assessments, our team will identify other potential infrastructure improvements, such as:

- Remote communications and monitoring infrastructure. Reliable real-time tracking of collection system operation does not only allow optimizing flow management across the City and at Persigo WWTP. It is also a necessary for risk mitigation for example during electric outages.
- Streamlining the number of necessary existing and future pump stations.

Finally, we will evaluate your staffing levels and maintenance equipment, benchmark your resources against peer utilities, and provide recommendations pertaining to the overall operation and management of the collection system.

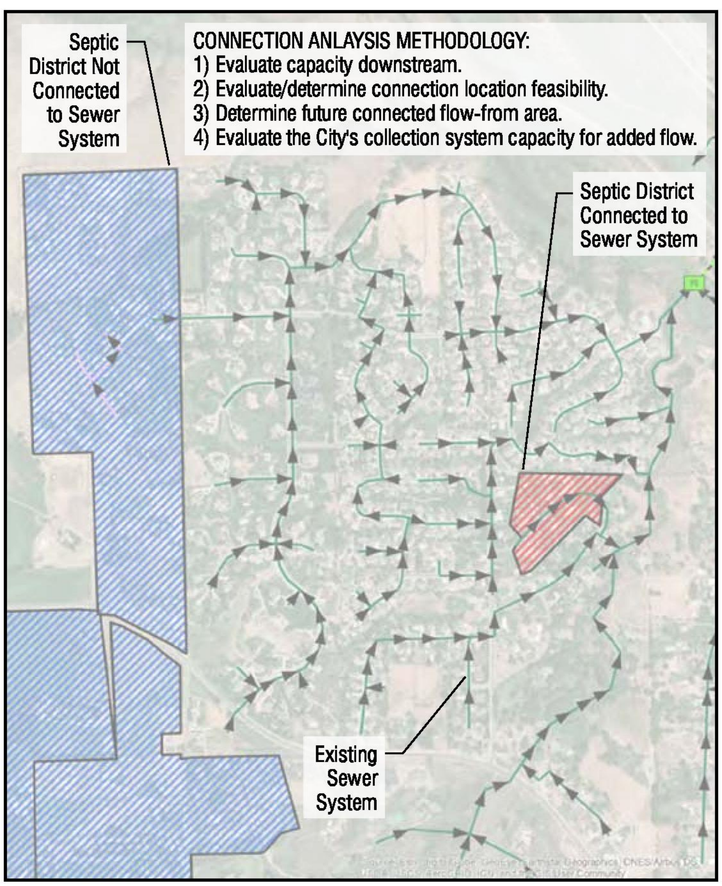
Collection System Roadmap

All of the work described previously will culminate in a comprehensive CIP road map for the collection system through build-out of the service area. This will include a logically phased infrastructure improvement plan based on the established planning criteria and project drivers. As part of the implementation roadmap, we will also evaluate potential cost-sharing opportunities and coordinate sequencing plans with the following infrastructure partners:

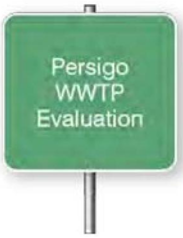
- Public Works.
- Electric, Communication, and Natural Gas Utilities.
- Colorado Department of Transportation.

Additionally we will identify growth and project-related triggers in developing a prioritized collection system CIP, which include:

- Collection system improvements.
- Rehabilitation and replacement plans.
- Odor Control Study.
- Lift Station Elimination Study.
- Tiara Rado Forcemain Replacement Study.
- Ridges Lift Station Replacement Project.



Analysis of connections and prioritization of septic sewer elimination districts will be one component of the Basin Evaluation.



Persigo WWTP Evaluation

The hydraulic, process, and energy models we develop and calibrate for your facilities provide decision tools to help you justify and prioritize improvements and investments over the coming years.

Our master plan evaluation of the Persigo WWTP will include the following elements:

1. Hydraulic and process modeling and evaluation.
2. Analysis of capacity paper rerating.
3. Identification of plant-wide critical points of failure.
4. Energy baseline and master planning.
5. Technology Evaluations.
   - Liquid stream.
   - Solids handling and biosolids management.

We have described each of these proposed elements further in the following sections.

Hydraulic and Process Modeling and Evaluation

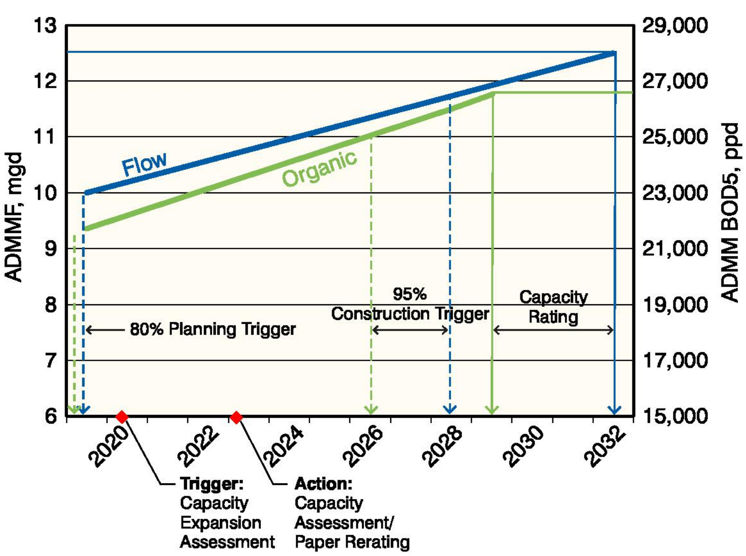
Your facility is currently at the hydraulic and organic loading rates that triggers the need for expansion planning. Current growth projections indicate that you could postpone design and construction until approximately 2026 (see figure below). However, because of the rapid growth Colorado has been experiencing in recent years, several WWTPs have been caught off-guard by sudden capacity shortages. In coordination with your Comprehensive Plan growth projections, we will help you define trigger markers to initiate design and construction in the coming years.

In establishing the baseline planning conditions for the Persigo WWTP, we propose to assess your hydraulic and treatment capacity by unit process and for your facility as a whole based on current flow peaking factors and influent loads.

We will help you select both hydraulic and process modeling software that best suits your needs today and in the future. Most utilities decide today on either BioWin or GPS-X for process simulations. We know that some of your staff have strong modeling expertise. This is critical and extremely beneficial when you take ownership of the process model and continue to use it in-house beyond this project. We will document the modeling approach and provide training to make the hand over easy and transparent for you. Following the model selections, we will complete hydraulic and process model calibrations and what-if simulations.

By using a calibrated model, we can:

- Identify and test no-cost capacity enhancing strategies (e.g., carbon diversion, peaking factor minimization and energy optimization through flow equalization) with your staff.
- Recommend low-cost means to increase capacity.
- Define capacity triggers by process that notify you when to initiate expansion planning.



Defining actions and capacity trigger indicators helps you schedule for expansion projects when they are really needed.

Operational Benchmarking

Our wastewater operations team, led by Steve Walker and John McGee will support you in identifying staffing resource gaps and establishing key performance indicators to gauge your operational performance and effectiveness. We will use data published by AWWA, WEF, and NACWA to create operational benchmarks that may support future hiring decisions and strategic operational planning.

Analysis of Capacity Paper ReRating

We will assess your plant-wide capacity to give a sound recommendation on wether to move forward with an official capacity paper re-rating with CDPHE. Based on your current operation, we believe that your liquid stream process may have up to 30 percent more capacity than currently rated. If we are able to verify this, it could postpone millions of investment dollars and a capacity expansion until after 2030. The process capacity findings need to be paired with the findings of our calibrated hydraulic plant model, which may identify hydraulic limitations and challenges with your solids handling capacity. We will assess how a paper rerating can be justified through smart use of all your assets (e.g., flow equalization volume, storage capacity, etc.).

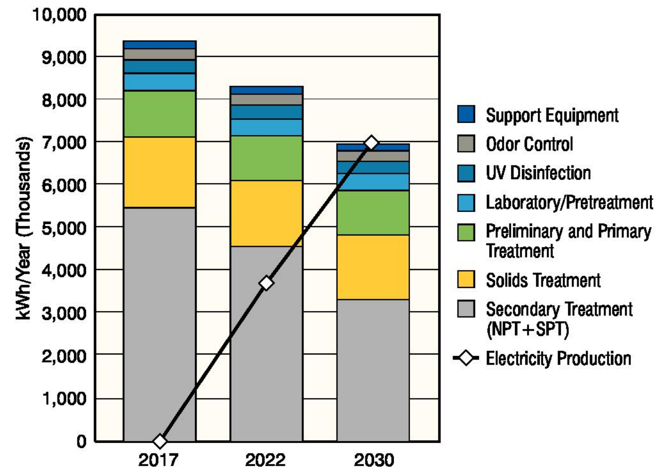
Not having to comply with Regulation 85 puts you in a unique position: Unlike other WWTPs, you do not need to reserve influent BOD for nutrient removal. Smart management of influent carbon can maximize treatment capacity and energy recovery through no-cost and low-cost opportunities. A few possibilities to evaluate include:

- Chemically enhanced primary clarification or thin sludge pumping.
- Primary carbon diversion processes.
- Step-feed operation (while balancing nitrification).
- Secondary clarifier blanket management.
- Digestion intensification processes.

Identification of Plant-Wide Critical Points of Failure

During the asset inspection and modeling evaluations, our team will identify and answer the following questions with your staff regarding assets that are critical for continuous operations:

- How do we decrease failure risk of the UV system by redistributing UV racks over both UV channels for redundancy?
- What process or equipment lacks reliability or redundancy?
- Do you have sufficient contingency measures for taking units out-of-service during maintenance or emergencies?
- How do we eliminate single-points of failure through infrastructure improvements or operational strategies?



In 2017, our team members prepared a master plan update for Fort Collins. Carollo and Fort Collins assessed how to achieve electric neutrality at the Drake Water Reclamation Facility by 2030. The action schedule integrated energy monitoring and optimization with asset replacement timing identified in the condition assessment of the larger master plan effort.

Developing Energy Baseline and Master Planning

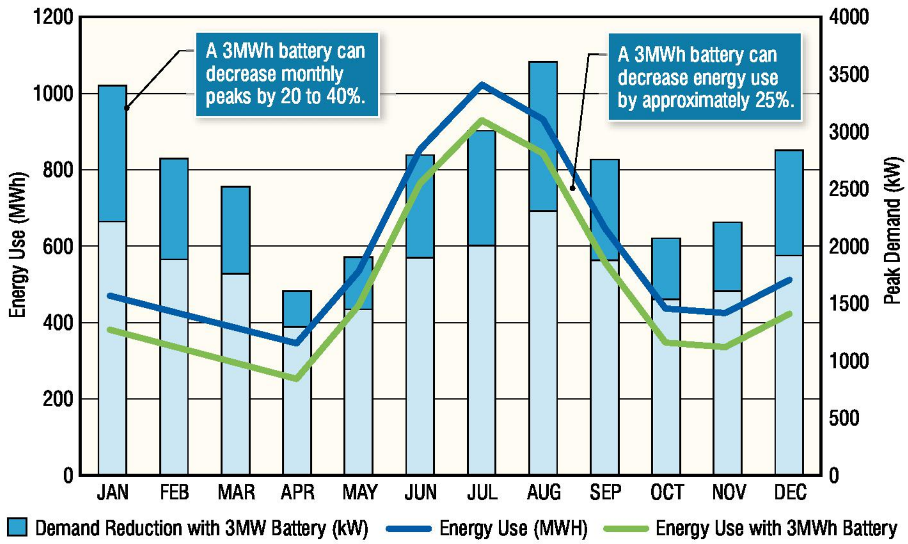
A growing number of facilities include plant-wide energy analyses in their master planning efforts, and we recommend this for you as well. Our team will update the energy model developed in 2013 to inform optimization opportunities for lowering costs—helping you stabilize process operation. If desired, our team could install power meters in strategic locations within the WWTP to quantify and benchmark current energy use patterns. Additionally, this analysis will reveal where we can reduce emissions—an explicit sustainability goal of the City.

As currently operated, the large energy consumers at the Persigo WWTP include pumping, the blowers for aerobic digestion and activated sludge treatment, and UV disinfection. By using the energy baseline model, we can incorporate solutions that yield a lower life-cycle cost by reducing energy use, which also decreases greenhouse gas emissions.

Additionally, our team proposes to review your electric utility tariffs and evaluate the efficacy of incorporating the following with you:

- Large-scale solar City-owned properties.
- Floating solar on adjacent reservoirs or lakes for potential algae control.
- Small-scale solar on WWTP structures.
- Energy storage systems such as lithium ion or flow batteries.

The capital investments for renewable energy solutions have decreased dramatically and these systems serve multiple benefits in reducing operating costs, enhancing supply reliability, and increasing organizational sustainability contributions.



Carollo can evaluate the City's water and electrical daily profiles to determine the efficacy of using battery storage to reduce energy use and demand charges.

Technology Evaluations

Our technology evaluations will focus on the issues identified in our earlier analyses of the collection system, and the liquid and solids treatment. This is at the heart of your master plan and our team brings you a combination of local presence and knowledge coupled with national and state-wide expertise in facilities master planning. We have identified a few preliminary ideas on the site plan, page 9. As part of the evaluation phase, your staff may want to pilot test certain technologies. In order to support your team, we have proposed innovation engineers, Tanja Rauch-Williams and Bryan Coday, who have demonstrated experience working with CDPHE regulators to get new technologies approved.

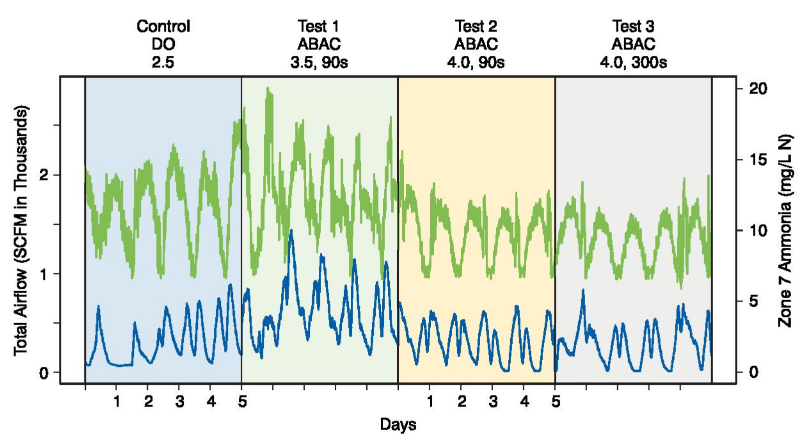
By pilot testing technologies, we can identify and solve facility challenges early and validate performance and financial criteria. Recent Carollo/JVA examples that provided innovative solutions for utilities include:

- Piloting new technologies for state approval (Examples: Nereda (AquaAerobics) – Idaho Springs, peracetic acid for filament control – Vail).
- Full-scale pilots to optimize carbon management, aeration, or inventory management (Examples: Cities of Boulder and Longmont, Fort Collins Utilities, Eagle River Water and Sanitation District).
- Collaborative testing of new technologies (Examples: 2019 WEF/LIFT Intelligent Water Systems Competition with Boulder and Colorado School of Mines).

Our team members are integral stakeholders to key regional and national wastewater innovation initiatives:

– 2018 WEF's Nutrient Energy Water (NEW) resource-recovery U.S. wide industry benchmarking study.
– Steering committee member of LIFT (The Leaders Innovation Forum for Technology).
– Chairs of the RMWEA Innovative Water Technology Committee (since 2016).
– Annual hosts of the Rocky Mountain Nutrient Summit since 2013.

We help connect our clients with these regional and national developments.



The City of Boulder, Colorado School of Mines, and Carollo won the 2019 LIFT Intelligent Water Systems Challenge at WEFTEC, which involved developing and piloting a soft sensor for ammonia based aeration control to save energy, protect mechanical equipment, and stabilize process operation.

Liquid Stream Evaluation

It is critical that our comprehensive and holistic implementation plan is supported with justified and defensible evaluations and criteria. Our liquids stream team led by Tanja Rauch-Williams will coalesce the condition assessment findings, capacity evaluations, and the technology evaluations and collaborate with your staff to identify treatment alternatives. As part of the alternative evaluation approach, our team will:

- Evaluate process performance using a calibrated model.
- Identify unintended consequences and impacts to downstream processes.
- Quantify impacts using business case evaluation criteria.
- Conduct workshops to review alternatives.
- Recommend and document preferred approach for integration into the prioritized CIP.

Two alternatives our team will evaluate with you include carbon management strategies and opportunities to increase operational efficiencies.

Carbon Management Strategies

In determining your best financial value for carbon present in your influent, we will identify solutions to maximize the diversion of carbon from the liquid stream to anaerobic digestion as nutrient removal is not currently required for permit compliance. However, the recommended path needs to be flexible in the future to meet longer term Regulation 31 nutrient limits. Using the plant-wide process model, our team will determine the minimum carbon needed for the secondary process to maximize secondary treatment capacity and alkalinity recovery for stable nitrification. By diverting carbon upstream of your secondary treatment to digestion, you can create a double benefit—reduce aeration requirements and increase biogas production.

We will conduct plant-wide sensitivity analyses on the life-cycle costs for carbon diversion, which will inform you on the financial and operational trade-offs.

Optimizing Operational Efficiencies

We know there are opportunities to reduce your energy and chemical costs using more efficient technologies, processes, and strategies. Our focus will be to balance the operational risks with anticipated cost savings.

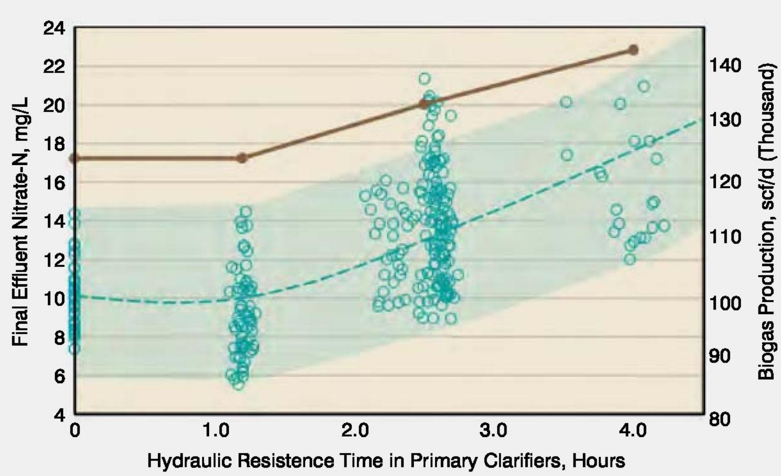
Before you decide on an in-kind replacement of your current blowers, we recommend reassessing your required design process air demand. Today's aeration control systems allow for reduced air demands, saving utilities large capital costs and electricity. Introducing blower technology alternatives to turbo blowers can provide larger turn-down capability and save additional energy while stabilizing process during low demand periods.

Additionally, Carollo's UV technology experts will advise you on the most cost-effective ways to gain disinfection redundancy and lower operational costs. Carollo's UV experts have advised CDPHE on redundancy policy requirements and have conducted numerous third-party validations for the majority of U.S. UV vendor systems. We will evaluate your UV performance and control strategies to optimize dosing algorithms. We will also consider alternatives to increase system redundancy for this critical process.

Other Areas and Ideas to be Evaluated Include:

- Ammonia-based aeration control.
- Predictive model control.
- Demand-based energy production.
- Intensification processes.

For the City of Longmont, Carollo evaluated how much carbon was needed to pass through the primary clarifiers allowing staff to optimally balance alkalinity recovery and biogas production.



Solids Handling and Biosolids Management Evaluation

The key to a successful solids handling and biosolids management evaluation is to focus on robust alternatives that provide sufficient flexibility to handle a variety of unanticipated conditions. Primary solids at the Persigo WWTP are currently anaerobically digested, dewatered using belt filter presses, and sent to the Mesa County Landfill. Secondary solids are aerobically digested, thickened, dewatered, and sent to landfill. Biogas is conditioned and beneficially used in the City of Grand Junction's transportation fleets. Our team will evaluate your existing solids handling system and provide recommendations to:

- Increase capacity.
- Achieve Class A or B biosolids.
- Improve dewatering.
- Diversify biosolids management.

As part of this evaluation, we will also consider improvements to your existing biogas conditioning system to improve beneficial use and storage.

Increase Capacity

Our team will use the flow and load projections developed during the baseline definition to inform our evaluation of options to increase capacity of the thickening, digestion, and dewatering systems. We will take into account the findings from the condition assessment to make recommendations that will improve reliability in your solids handling system long into the future.

Achieve Class A or B Biosolids

Conversion to full anaerobic treatment of primary and secondary solids would allow the City to produce Class B biosolids and would increase biogas production, allowing for an increased utilization of the BioCNG system (which is currently operating at 60 percent of its capacity). Another advantage of constructing additional anaerobic digesters is the ability to provide storage in the form of additional floating covers or membrane covers at a minimal cost and to increase gas production through a fats, oils, and grease (FOG) receiving station. Providing sufficient storage could eliminate the current practice of flaring 20 percent of your biogas.

Thermo-chemical and thermal hydrolysis can also be considered to produce Class A biosolids. Our team could also look into conversion to thermophilic digestion or auto thermophilic aerobic digestion (ATAD), potentially increasing your end-use options. However, conversion to ATAD would eliminate production of biogas that could be used for fueling, which has proven to be both financially beneficial and has reduced greenhouse gas emissions.

Improve Dewatering

The existing facility has no cake storage, limiting the City's ability to handle unexpected conditions, and requiring significant operator oversight. Your dewatering facility should be reliable, robust, and operator friendly.

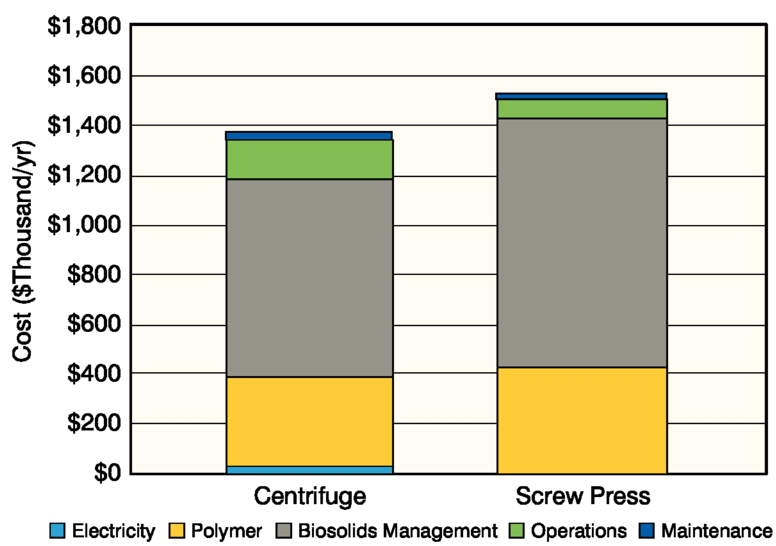
Our team will identify and evaluate alternatives to improve operations of the belt filter press in order to produce a higher quality cake with the lowest possible polymer demand. As part of our evaluation, we will prepare a life-cycle cost analysis to compare new belt filter presses verses installing new centrifuges or screw presses. Our evaluation will consider hauling costs, personnel requirements, electricity demand, and polymer demand for each piece of equipment.

We will also consider how the production of a dewatered cake from anaerobically digested primary and secondary solids (should you choose to go that route) might impact the liquid stream process. Carollo offers you a team that is experienced not just in the design of dewatering facilities, but who also has a whole-plant perspective to make sure our improvements don't result in unintended consequences.

Diversify Biosolids Management

Experience has taught us that it is important to have a flexible biosolids end use plan. While the City currently landfills the dewatered solids, one goal of this study is to modify existing operations to produce Class A or Class B biosolids for beneficial use.

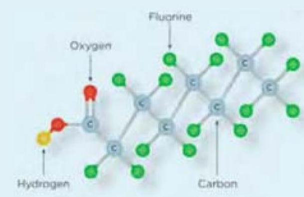
We will begin this analysis with a market assessment to determine the viability of finding end-users for Class A and B biosolids, respectively.



Our team considers the whole cost of dewatering to assist in equipment selection, allowing you to make an informed decision.

A study by the Colorado Department of Public Health and Environment found that 77 percent of the biosolids produced in Colorado are beneficially used. Of those, 76 percent are land-applied, with the remainder composted or used in reclamation applications.

Our team is tracking regulatory developments in biosolids disposal and understands the uncertainty around the potential for PFA substance limits to impact land application practices. While Colorado is in the process of developing water quality standards for PFAS at this time, CDPHE has indicated that biosolids regulations will be postponed as no data is yet available for making regulatory decisions. This could however change in the coming years. We will help the City assess these and other biosolids trends that you should be aware of when making long-term biosolids management decisions.



We will consider multiple biosolids management alternatives, including:

- Land application of Class B biosolids.
- Land application of Class A biosolids.
- On-site or off-site composting.
- Thermal process to achieve Class A biosolids.

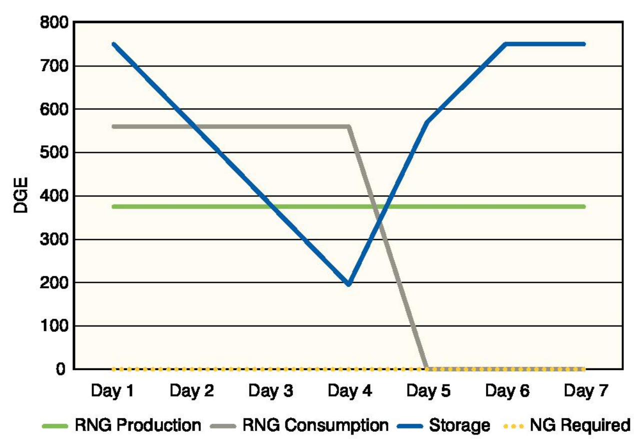
Where site conditions are favorable, land application of Class B biosolids is generally one of the most cost-effective disposal methods, especially in areas where the hauling distance has been minimized. That being said, diversification of disposal options is necessary. Our team has worked with several utilities to understand their needs and to develop the necessary biosolids management options that provide a flexible plan that can be implemented as regulator, site, and public perception conditions change.

Although Class B land application may be the most cost-effective disposal method, it is prudent to identify feasible Class A options that best fit the City's operation, and could be implemented if land application of Class B material is not viable due to public perception or other site-specific conditions. Our team will consider the use of multiple technologies, including thermal hydrolysis, advanced digestion, composting, and thermal processing to achieve Class A biosolids. With each of these technologies, our team will consider the impact to your current practice of beneficially using the biogas in the City's transportation fleet.

Our team has a long history with the Persigo WWTP. Members of our team assisted with the City's efforts with Mesa County to implement a composting program for beneficial reuse in 2005. In evaluating land application opportunities, the City owned land and irrigated land for application will be the first opportunity for future land application. A market survey will be completed to identify future land application locations and partnerships. Opportunities for biosolids application partnerships in the area may include vineyards, agricultural land, forest service, bureau of reclamation, and other regional agencies.

Beneficial Use of Biogas

Our team applauds the City for their forward thinking approach to beneficial use of biogas. The Persigo WWTP was the first utility in Colorado to convert biogas into renewable natural gas (RNG), and has been a model for several facilities along the Front Range. We understand your facility currently flares 20 percent of the biogas produced due to inadequate storage and issues with timing of supply and demand. Our team recently performed a similar analysis for the City of Longmont, who has undertaken a project to convert biogas to RNG for the City's sanitation vehicles. As part of that project, our team analyzed both low- and high-pressure storage. Design improvements were made to the operation of the existing floating cover and new high pressure storage was provided to effectively use all the biogas produced on-site.



Our team analyzed required RNG storage volumes for the City of Longmont to maximize their RNG use since the sanitation fleet only fuels 4 out of 7 evenings each week.

We understand that the Environmental Protection Agency (EPA) has recently expressed a willingness to allow the partitioning of D3 and D5 RINs for utilities who are interested in commingling food waste into municipal digesters to increase gas production for beneficial use. Our team will work with you to consider the economics of adding high strength waste, such as FOG, to your digesters to increase gas production.

Safety and Ancillary Evaluations

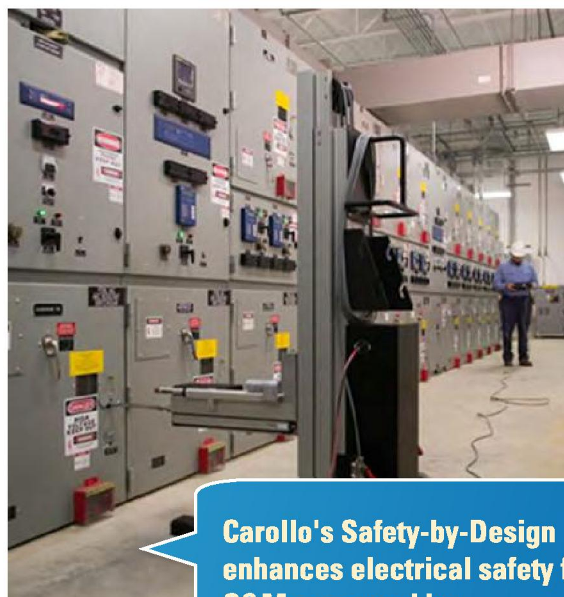
In developing recommendations for the collection system and treatment facilities, our approach will also prioritize safety considerations, and identify electrical and instrumentation improvements to create a comprehensive and holistic facility-wide CIP.

In evaluating safety improvements for the City of Greeley, our team assessed the perimeter security and identified access control deficiencies to be included in the CIP.

Safety Evaluations

Carollo places a priority on designing for safety that positively impacts the end user. At the master planning level, we will gather feedback from your staff and evaluate working conditions during our site walk-throughs and collection of asset information. Carollo's Corporate Health and Safety Manager, Greg Parana has been providing safety solutions to clients for more than 19 years. He has proven strategies for communicating risk and controlling hazards and will provide critical insight into safety considerations during this important planning phase for Grand Junction.

Our goal will be to identify unsafe working conditions and provide recommendations to reduce exposure levels for public roads, security, process emissions, confined spaces, access and fall protection measures, and electrical safety. Costs for these recommendations will be allocated as part of larger projects.



Electrical, Instrumentation and Controls

Like many other wastewater facilities, the Persigo WWTP faces significant investments in electrical, instrumentation and controls infrastructure. These investments remedy electrical safety concerns, improve real-time controls to optimize operations, and improve communication and data systems.

Electrical Safety Evaluations

Carollo embraces a Safety by Design philosophy in master planning for and designing of electrical systems. To understand the electrical safety risks and develop solutions, our EI&C team led by Ron Burdick will complete the following:

1. Evaluate existing Arc Flash studies.
2. Perform site visits, evaluate electrical assets (switchgear, transformers, panels, wire-ways, duct banks, etc.).
3. Document findings and recommend alternatives with safety by design principles.
4. Provide cost estimates for recommended alternatives.
5. Develop electrical safety vision and cost estimates for improvements.

Carollo's Safety-by-Design enhances electrical safety for O&M personnel by:

- Estimating arc-flash incident energy levels during design.
- Keeping O&M personnel out of the arc-flash approach boundary.
- Reducing arcing fault clearing times with fast-acting protection relaying.

SCADA and IT Evaluations

Evaluating the communications and operating systems (SCADA, IT Infrastructure, control systems, communication systems, physical, and cyber security requirements) are a critical component of this Master Plan. You are right to question the sense of continued significant investments into unreliable and obsolete communication technology. Three key elements in our assessment include:

1. Visioning with all stakeholders to understand the desired level of control and automation, remote access, and cyber security requirements.
2. Completing a site audit as part of the condition assessment of existing conditions including lift stations.
3. Developing recommendations to integrate an organizational-wide communication and SCADA platform with sequenced improvements and planning level cost estimates.

With the advancement of SCADA/Control Systems, the amount of information required to be processed and distributed among the various sites within the City infrastructure has increased. It is important that appropriate communication methods exist for both critical and non-critical components of the system. Without the appropriate communication infrastructure, continuity of data transmission may be compromised. We will evaluate secure means of communication for all components which provide essential service. We will also evaluate various ways to improve and enhance the communication systems currently installed and areas where we can provide new routes of secure communication within the system. In particular, we will address the City's remote facilities and the available options for reliable communication. Ron Burdick will be dedicated to this effort and brings extensive experience in evaluating, modeling, and designing wireless and fiber optic systems for large municipalities.

During the analysis, we will consider the City's staffing resources and level of expertise for integrating improvements.

EXISTING INFORMATION REVIEW

Historic Failure Data	Operation, Maintenance, and Repair Reports
Failure/Outage Information	Historical Information from City Records
Design Drawings/Specifications	Historical Information from Staff Interviews

EQUIPMENT EVALUATION

Develop Inspection Plan	Photographs
Visual Inspection	External/Remote Systems Inspection
Systems Condition	System Component Obsolescence
GPS Information	Voice Notes

IDENTIFIED ISSUES

Imminent Failure	Risk/Priority
Current System Failures	Prohibitive Cost to Repair
Internal System Deficiencies	Installation Issues
System Capacity Issues	Wear/Obsolete Materials
Software Issues	Programming Issues
External Equipment Deficiencies	Operational Issues
Communication Issues	Cybersecurity Issues
Public Involvement Issues	

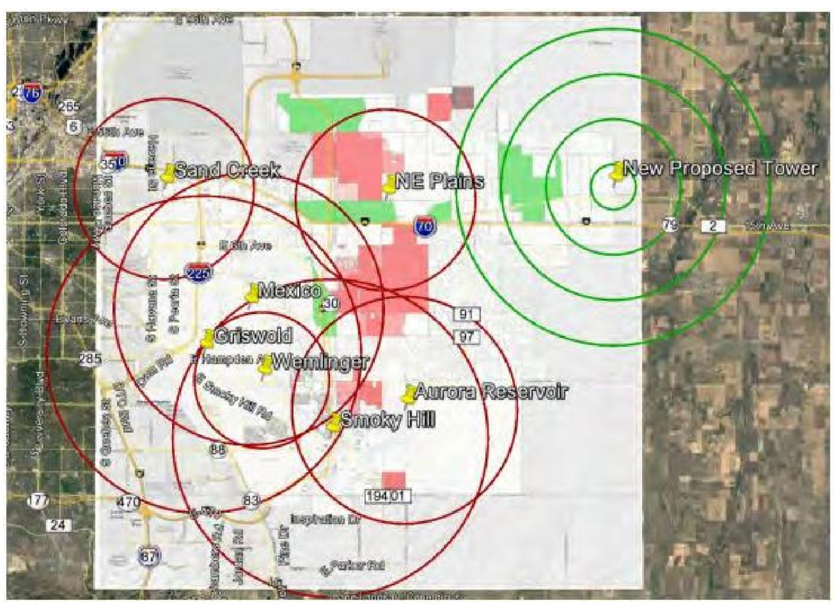
NON-TECHNICAL FACTORS

Cost to Mitigate	City and Public Impact
Life-Cycle Cost	Remaining Service Life
End-User Preference	Constructability
Reliability	Level of Maintenance
Meets City's Needs	Ease of Maintenance
Scalability	Staff Understanding & Training

RECOMMENDED ALTERNATIVES

Maintain System	System Replacement	System Upgrades

Carollo used this evaluation research and assessment model for the City of Aurora's SCADA Master Plan.



For the City of Aurora's SCADA Master Plan, Carollo evaluated the location of existing communication towers and assessed coverage to connect remote sites into the existing SCADA system.

Prioritized CIP

Our approach combines the Wastewater Basin CIP and Persigo WWTP CIP to create comprehensive system-wide CIP. In defining the CIP roadmap, we will:

1. Prioritize your system-wide projects.
2. Conduct business case evaluation.
3. Evaluate your financial approach.
4. Develop master plan reports.

Prioritizing System-Wide Projects

Critical to the Master Plan's success will be developing an implementation plan built on consensus that meets your budgetary objectives. Our approach to building this consensus centers on completing the business case evaluation process early to understand your intended results and promote team collaboration. Using the system-wide CIP development, we will conduct an interactive workshop to review the assumptions used for the near- and long-term CIP. With this workshop, the City can evaluate both the prioritization and timing for reasonableness, review various iterations and sensitivities, and determine the final plan.

We completed a pair-wise analysis for the City of Fresno, California, Biosolids Master Plan. The approach yielded defensible decision making where all stakeholders felt heard, resulting in true buy-in among all involved.

Carollo will work collaboratively with City staff to support the City's 2019 strategic infrastructure goals. We will conduct multiple workshops to:

- Refine cost estimates for capital improvements.
- Conduct a constructability/project delivery analysis.
- Evaluate impacts to existing rate structures.
- Develop a prioritized system-wide CIP schedule with initiation triggers.

Business Case Evaluation Process

The business case evaluation process, while used to evaluate alternatives, will also be used to assist with prioritizing the system-wide CIP for both the Wastewater Basin Study and the Persigo WWTP findings. By using the business case process, we can provide you the justification and transparency needed for management and City Council approvals. The key elements of a robust business case evaluation process include the following:

Financial Criteria: As part of the Financial Basis Technical Memorandum, we will document all capital and operating expenses, and revenue generating financial assumptions early in the project to obtain your acceptance and to maintain consistency between alternative comparisons.

Carollo's Cost Estimating System (CCES) is based on recommended practices for the Association of Advancement of Cost Engineering (AACE) and its water/wastewater database is updated monthly. The CCES includes adjustments to reflect current market condition information specific to Colorado and for different project delivery methods. Our proven cost-estimating approach and templates provide the detailed cost information in a clear format.

Non-Economic Criteria: The non-economic criteria will be identified as part of the Financial Basis Technical Memorandum. We have found that reassessing the non-economic factors again after specific alternatives have been developed creates buy-in and eliminates potential back tracking of decisions.

Greenhouse Gas (GHG) Analysis: GHG impacts will be identified and calculated using our industry-standard GHG methodologies and emissions factors. Calculating the GHG emissions provides you with the information to support the City's Sustainability and Resource Stewardship efforts relative to energy, fleet, and infrastructure.

	Fiscal Responsibility		Operational Risk AND Complexity			Flexibility / Adaptability for Future		Environmental Benefit		Health and Safety	
	Capital	Present Value	Ease of Operation	Process Reliability/ Resiliency	Proven Technology	Ability to Meet Future Regulations	Facility Footprint	Resource Recovery	Community Sustainability	Health and Safety Impacts	Weighted Score
	10%	10%	9%	17%	10%	13%	6%	8%	10%	7%	
Sidestream Biological Phosphorus Removal	10	6	10	10	10	5	8	3	4	2	7.1
Aerobic Granular Activated Sludge	4	7	9	7	1	9	9	6	10	9	7.0
Conventional Biological Nutrient Removal	1	5	5	10	10	8	1	7	6	8	6.6
Integrated Fixed Film Activated Sludge	3	5	8	7	8	7	7	6	6	6	6.3

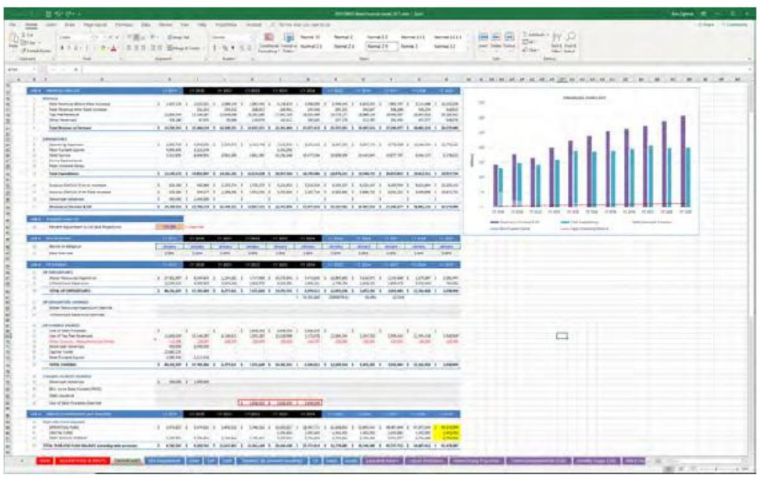
The non-economic criteria used for the South Platte River Water Renewal Partners' Master Plan provides a basis for this master plan.

We will review the non-economic criteria and weighting criteria using a pair-wise evaluation approach to obtain input from all stakeholders which promotes collaboration and builds consensus.

Financial Approach Evaluation

The next step in developing the system-wide CIP includes combining the Wastewater Basin Improvements and the Persigo WWTP improvements, and evaluating the financial impacts to your rate and fee structure. Our financial and rate evaluation is led by Cody Berg who will assess your plant investment and trunkline extension fees, recommend modifications to fees, and if needed, build a flexible model to evaluate rate impacts to assess changes to the prioritized CIP.

We have identified 13 interim technical memorandums in our proposed project schedule on page 29. To increase project delivery efficiencies, these TM's will be structured as draft report chapters. Additionally, we will maintain active copies of these report chapters on our document sharing site.



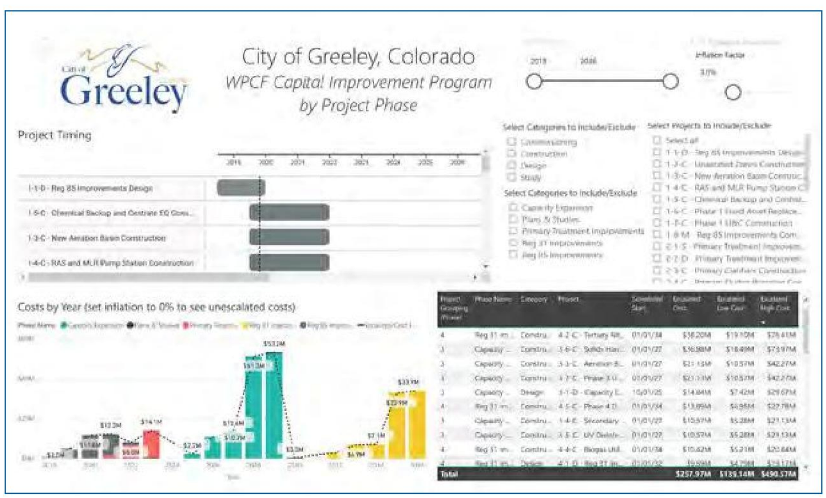
Carollo updated Dominion Water and Sanitation District's and their main retail customer, Sterling Ranch Community Authority Board's financial models to include components that were missing or incorrectly incorporated in previous models. For the financial plans, the options to override lot sale projections, CIP expenditures, and other funding sources, including the developer advances were incorporated into the dashboard so that DWSD can perform "what-if" scenarios.

Develop Master Plan Reports

To finalize and document all the findings, Carollo will develop a draft and final versions of the 2008 Comprehensive Wastewater Basin Study Update and 2020 Persigo WWTP Master Plan Reports, with a heavy emphasis on implementation timelines and action plans. We view the final report documentation as equal parts of the following:

- Documentation of the decisions made and the basis therefore.
- Robust guidance for implementation of the plan's recommendations.

We will conduct workshops to review the draft reports with your team and to create executive summaries and presentations for your use in presenting CIP information to City Council. During report development, our team can create a dynamic CIP dashboard customized to your projects and use.



Carollo created a dynamic CIP dashboard using standard Microsoft Power BI for the City of Greeley's four-phase WWTP CIP. The dashboard and associated attributes were customized to the City's capital requirements.

Project Management

Carollo's project management approach centers on a collaborative process by:

- Conducting structured workshops to obtain information and make decisions. Carollo will distribute comprehensive information in advance of workshops and meetings, facilitating interactive discussions, and tracking decisions and action items afterward.
- Using working sessions with on-site personnel and conference calls to review evaluations and information throughout the project.
- Using interim deliverables to obtain acceptance of planning criteria and thus reducing potential second-guessing and project scope changes.

In delivering the Master Plans, our Project Manager and Project Engineer, David Pier and Leanne Miller; respectively, will provide the hands-on management experience required for all Carollo projects. Dave is a technical expert who will be intimately involved with your staff and will facilitate the daily technical direction of the project with support from Leanne. In guiding the project to successful completion, Dave will use the project schedule to manage and communicate the work.

Dave's seven keys for effective project communication and coordination:

- Develop project management manual (PMM).
- Conduct bi-weekly internal project team calls.
- Conduct bi-weekly management calls with the City.
- Facilitate series of workshops to review, receive input, and make decisions on technical issues.
- Use document collaboration sites.
- Use decision logs to avoid back-tracking.
- Provide a concise monthly progress report.

Dave's four keys for delivering the project efficiently and on schedule:

- Maintain decision, action item, and risk logs.
- Review and validate project schedule during bi-weekly calls.
- Use schedule to allocate resources needed for deliverable production.
- Leverage deep pool of resources.

Planning the Work

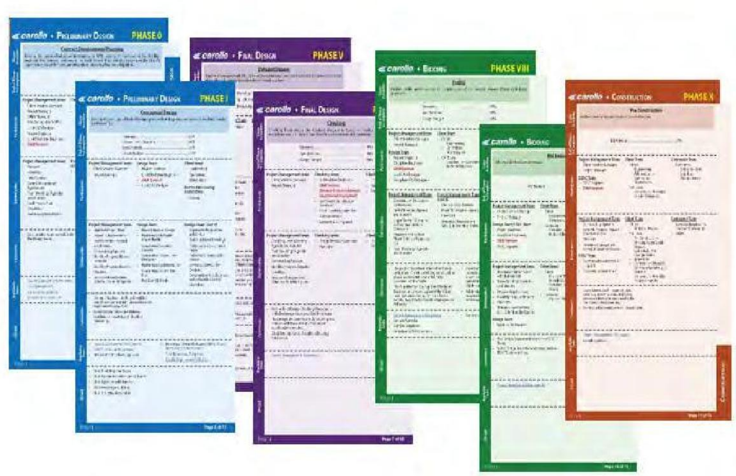
The following workflow diagram and schedule illustrate the three phases of work anticipated along with expected time frames for content development and City review periods. These figures illustrate the key project elements and define the meetings, workshops, key decision points, and deliverables anticipated during the development of the Master Plans.

The schedule will be updated and submitted to the City as part of the Project Management Manual (PMM). The PMM will be provided prior to the Kickoff workshop. The PMM defines the project team members, scope, schedule, budgets, communication procedures, decision making tools, field safety plans, quality management plans, and risk management plan. As part of the Kickoff workshop, we will review the materials with your staff.

QA/QC

Our company's core value is delivering quality products to our clients within the budget and schedule required. Our QA/QC program is straightforward. We use industry experts not fully engaged in the project who employ time-tested quality review procedures and checklists for each deliverable throughout the project to ensure we meet our company wide standards and your expectations. We have assigned three individuals as the QC, each with different expertise. These individuals will review deliverables prior to being submitted.

To manage the QA/QC program, Carollo uses a file management system (ProjectWise) to provide version control and access for all project participants. This allows our team and your staff access to previous versions and chronology of edits to the technical information.



Our QM tools include standard basis of planning checklists, independent process reviews, and cost reviews, which are integrated with our standard checking process from project start to finish.

Proposed Project Timeline

Notice to Proceed (February 6, 2019)
Project Management and Coordination
- Task 0.1 - Project Procedures Manual, Data Requisitions, Collection and Review
- Task 0.2 - Kickoff Meeting and Workshops

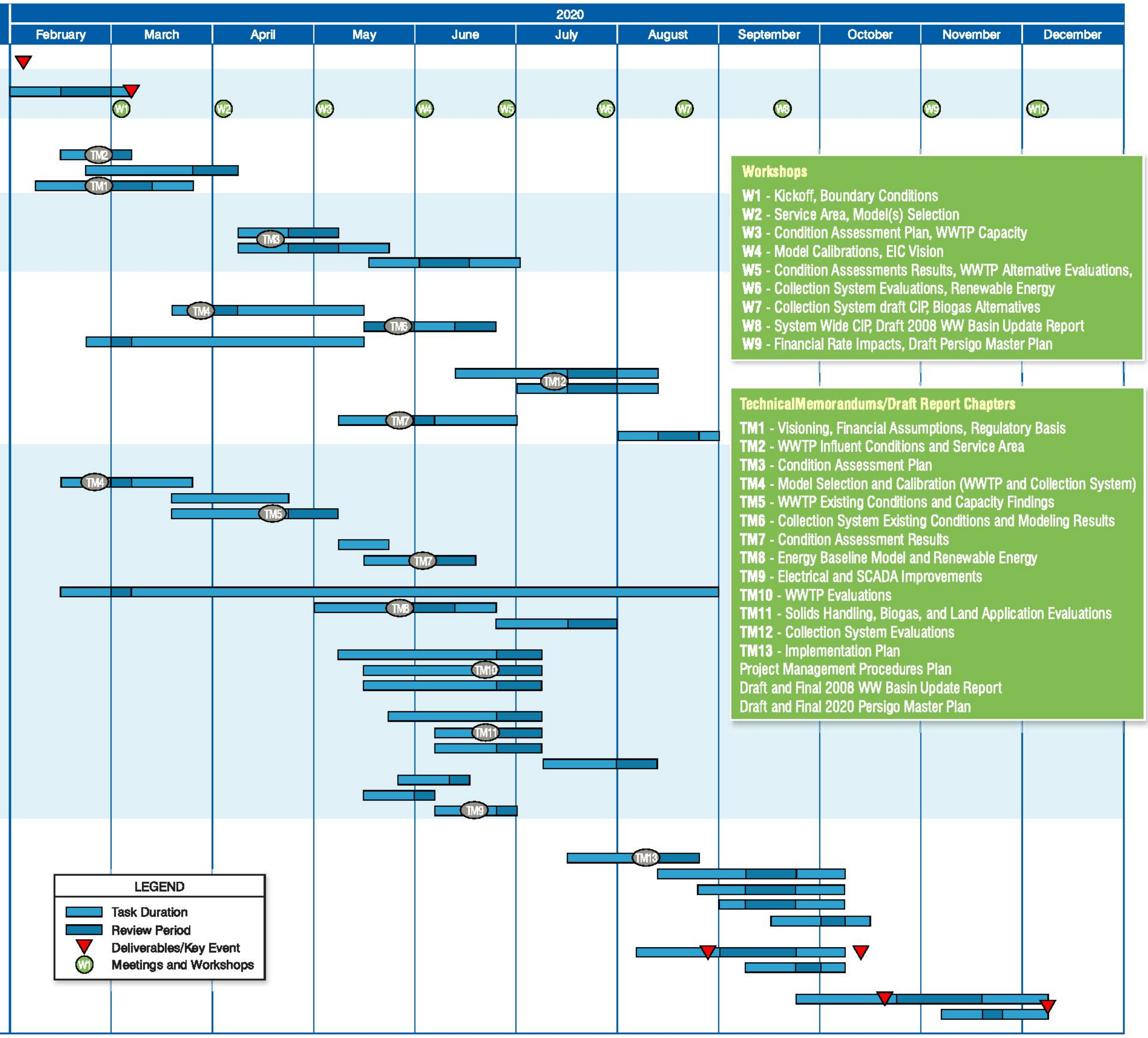
Planning and Boundary Conditions
- Task 1.1 - Flow and Loading Basis
  - Task 1.1.1 - Evaluate Population and Historical Flow and Loading Data
  - Task 1.1.2 - Develop Land-Use Criteria, Area Boundaries, Influent Conditions
  - Task 1.1.3 - Regulatory, Financial Assumptions, and Business Case Evaluation Criteria

Asset Management Approach
- Task 2.1 - Asset Management Basis
  - Task 2.1.1 - Develop Condition Assessment Plan
  - Task 2.1.2 - Customize mobile devices and database structure
  - Task 2.1.3 - Integrate Condition Assessment Data with Financial Forecasting

Wastewater Basin Evaluation
- Task 3.1 - Collection System Basis
  - Task 3.1.1 - Evaluate, Recommend, and Develop Hydraulic Models
  - Task 3.1.2 - Calibrate Hydraulic Model with Monitoring Data - Analyze Existing Operation
  - Task 3.1.3 - Establish Flow Monitoring and Conduct Monitoring
- Task 3.2 - Collection System Evaluations
  - Task 3.2.1 - Evaluate Alternatives for Optimization, Expansion, In-fill
  - Task 3.2.2 - Document Findings and Develop Implementation Schedule
- Task 3.3 - Condition Assessments
  - Task 3.3.1 - Conduct Condition Assessment on Lift Stations and Other Infrastructure
- Task 3.4 - Collection System Roadmap (CIP)

Persigo WWTP Facility Evaluation
- Task 4.1 - Existing WWTP Facility Analysis Basis
  - Task 4.1.1 - Evaluate, Recommend, and Develop Process and Hydraulic Models
  - Task 4.1.2 - Complete Process Modeling Calibration - Analyze Existing Operation
  - Task 4.1.3 - Evaluate Unit Processes Capacity and Paper Rerating
- Task 4.2 - WWTP Condition Assessment and Critical Points of Failure
  - Task 4.2.1 - Conduct WWTP Condition Assessment
  - Task 4.2.2 - Summarize Findings and Develop Asset Replacement Schedule
- Task 4.3 - Energy Management Basis
  - Task 4.3.1 - Evaluate Energy Use and Recommend Energy Metering
  - Task 4.3.2 - Develop and Calibrate Baseline Energy Model
  - Task 4.3.3 - Develop Alternatives for Renewable Energy and Energy Storage
- Task 4.4 - WWTP Liquid Stream Evaluations
  - Task 4.4.1 - Assessment of Hydraulic and Process Improvements
  - Task 4.4.2 - Assessment of Regulatory Improvements, Innovative Treatment Processes
  - Task 4.4.3 - Developing Asset Replacement Projects
- Task 4.5 - Solids Handling and Biosolids Management Evaluations
  - Task 4.5.1 - Evaluate Solids Handling Improvements (Capacity, Regulatory, Optimization)
  - Task 4.5.2 - Evaluate Opportunities and Alternatives for Biosolids Management
  - Task 4.5.3 - Alternatives to Increase Biogas Production and Storage
- Task 4.6 - Workforce Needs, Site Safety, and Security
- Task 4.7 - Electrical, Instrumentation and SCADA Recommendations
  - Task 4.7.1 - Develop Vision and Level of Automation and Controls for Facilities
  - Task 4.7.2 - Develop SCADA, IT, Electrical Alternatives and Recommendations

Prioritized CIP
- Task 5.1 - Prioritized System-Wide Projects
  - Task 5.1.1 - Combine CIP Information into 1 System-Wide CIP
  - Task 5.1.2 - Project Delivery and Financial Options
  - Task 5.1.3 - Use Business Case Evaluation to Refine Capital Improvement Plan (CIP)
  - Task 5.1.4 - Evaluate Financial Rate Models and Impacts from CIP
  - Task 5.1.5 - Develop Prioritization of Projects Based on Rate Model Review
- Task 5.2 - 2008 Comprehensive Wastewater Basin Study Update Report
  - Task 5.2.1 - Develop Draft and Final Report
  - Task 5.2.2 - Create City Council Presentation and Fact Sheets
- Task 5.3 - Persigo Master Plan Report
  - Task 5.3.1 - Draft and Final Report
  - Task 5.3.2 - Create City Council Presentation and Fact Sheets



References

SECTION D

References

RECENT SIMILAR EXPERIENCE

Our team is genuinely invested in developing a tailored master plan for the City's Persigo WWTP and Collection System. Our desire is for you to come away from this project with the keys to effectively manage your facilities and infrastructure, and have a plan in place that prioritizes immediate and future treatment, operational, and capital improvement projects. The following pages detail a sampling of our team's experience in wastewater and collection system planning throughout Colorado. As part of each description, we have supplied client references and invite you to contact these individuals to verify our responsiveness and quality of service.

The Carollo team's expertise combined with our knowledge of your facilities enables a project and final product that is built on innovative engineering principles, and is tailored to your needs.

Wastewater Treatment Planning Experience

2019 Master Plan

SOUTH PLATTE WATER RENEWAL PARTNERS, COLORADO

Carollo supported SPWRP with developing their 2019 Master Plan. The master plan serves as their integrated 10-year planning document which identifies capital improvements and necessary operational changes to meet Regulation 85 and maximize the benefit associated with the CDPHE Voluntary Incentive Program for effluent nutrients. SPWRP's capital spending plan was prioritized around rehabilitation and replacement projects, and regulatory-driven and operational optimization projects.

Our team conducted detailed alternatives analysis on main- and side-stream nutrient removal technologies, carbon management infrastructure, disinfection process, and advanced nitrogen removal. Alternatives were evaluated using a business case driven approach, which factored in all financial and environmental impacts along with other non-economic criteria.

As part of developing the asset replacement and rehabilitation needs, Carollo analyzed the remaining useful life calculations and recommended modifications to the financial calculations and the visual condition assessment process. This resulted in a more realistic schedule and budget for asset replacement needs over the next 10 years.

RELEVANCE TO GRAND JUNCTION

- Existing facility process evaluations.
- Process optimization.
- Asset replacement prioritization.
- Process modeling to assist in liquid stream alternatives evaluation.

REFERENCE INFORMATION

Chong Woo
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303.762.2655
2900 South Platte River Drive
Englewood, Colorado 80110
cwoo@englewoodgov.org

TEAM INVOLVEMENT

Dave Pier, Becky Luna, Bryan Coday, Tanja Rauch-Williams, Chris Heger, Steve Walker

ENGINEERING COSTS

$594K

DATES

2017 - 2019

Wastewater Master Plan Update

CITY OF FORT COLLINS, COLORADO

Carollo assisted Fort Collins Utilities (FCU) with their Wastewater Treatment Master Plan Update (Master Plan Update). The Master Plan Update served to develop a holistic, cost-effective, long-term CIP for handling and treating wastewater at their two water reclamation facilities (23-mgd Drake WRF and 6-mgd Mulberry WRF). The goals of the project were to meet future growth, regulatory requirements through 2035, as well as additional sustainability and customer service objectives of the City of Fort Collins. A systematic approach that considered the City's overall mission and goals, FCU's Levels of Service (LOS) criteria, and unique technical elements began with identifying clear objectives and establishing evaluation criteria for alternative comparisons with key stakeholder groups. This included a dedicated Visioning Summit conducted between the City, FCU, and Carollo at the onset of the project.

The project also included an extensive condition assessment of the existing facilities to identify the need and timing to replace aging equipment and infrastructure. Findings from this assessment were a main driver for projects in the CIP. By evaluating the remaining useful life of the heating, ventilation, and air conditioning (HVAC), electrical, and instrumentation and control (EI&C), process, mechanical, and structural systems, a holistic basis for the alternatives analysis of process upgrades was provided.

RELEVANCE TO GRAND JUNCTION

- Utilization of tactical documentation.
- Data quality control approach.
- Unit process descriptions, performance reports, and optimization approaches.
- Process modeling to assist in liquid stream alternative evaluations.

REFERENCE INFORMATION

Link Mueller
Engineering/Maintenance Division Manager
970.221.6920
3036 Environmental Drive
Fort Collins, Colorado 80525
lmueller@fcgov.com

TEAM INVOLVEMENT

Tanja Rauch-Williams, Bryan Coday, Chris Heger, Steve Walker

ENGINEERING COSTS

$440K

DATES

2017 - 2018

WPCF Treatment and Nutrient Master Plan

CITY OF GREELEY, COLORADO

Carollo developed the Treatment and Nutrient Master Plan for the City of Greeley's Water Pollution Control Facility (WPCF). The purpose of the project was to develop a holistic, cost-effective, long-term CIP for treating wastewater and reducing nutrient discharge at the WPCF to meet growth and regulatory requirements over a 20-year planning period. Greeley has invested a significant amount into the WPCF's solids handling treatment facilities, so the project focused on upcoming discharge permit limits. In addition, the project addressed workforce needs, data management and process automation, and site security. A multidiscipline condition assessment was conducted to document, rate, and prioritize facility improvements. These asset renewal improvements were a key part of the resultant phased CIP.

RELEVANCE TO GRAND JUNCTION

- Holistic master plan that provided an informed CIP.
- Focus on process automation and site security.
- Comprehensive condition assessment.

> "Carollo conducted a very comprehensive assessment of the facility, which gave us a clear understanding of where we were and what needed to be done. The asset ratings, criticality, and prioritization were valuable for planning and budgeting."
>
> **- Bob Neal, City of Greeley Former Operations Manager for Water and Sewer**

REFERENCE INFORMATION

Sean Cooney
Manager, Wastewater O&M
970.336.4248
1001 11th Street, 2nd Floor
Greeley, Colorado 80631
sean.cooney@greeleygov.com

TEAM INVOLVEMENT

Tanja Rauch-Williams, Chris Heger, Steve Walker, Bryan Coday, Jason Rozgony

ENGINEERING COSTS

$488K

DATES

2017 - 2018

Wastewater Planning, Regulatory Assistance, and Other Services

EAGLE RIVER WATER AND SANITATION DISTRICT, COLORADO

Carollo developed a master plan for three interconnected wastewater treatment plants that considered flow and nutrient trading to develop the best-value and lowest life-cycle cost approach for achieving Regulation 85 and 31 compliance. Carollo developed and calibrated BioWin models for all three plants and identified optimization opportunities at each facility with plant staff. We conducted field testing with operations for alternative process control strategies to provide recommendations that were effective and acceptable to treatment staff. A major element of the project was performing a condition assessment to evaluate remaining useful life of the process/mechanical, structural, electrical/instrumentation and control, and HVAC systems at the three plants. With the results from the condition assessment, Carollo identified a prioritized list of asset replacement projects.

RELEVANCE TO GRAND JUNCTION

- Detailed condition assessment of three wastewater treatment facilities to determine remaining useful life.
- Developed prioritized asset replacement projects.
- Performed collection system modeling to confirm capacity to allow for bypassing of flows between interconnected facilities.

REFERENCE INFORMATION

Siri Roman
Director of Operations
970.476.7480
846 Forest Road
Vail, Colorado 81657
sroman@erwsd.org

TEAM INVOLVEMENT

Becky Luna, Tanja Rauch-Williams, Bryan Coday, Steve Walker

ENGINEERING COSTS

$572K

DATES

2015 - 2017

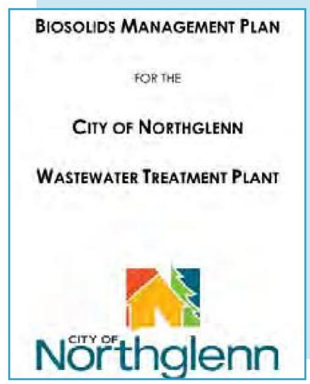
Biosolids Management Plan

CITY OF NORTHGLENN, COLORADO

The City of Northglenn selected JVA to develop a Biosolids Management Program. The goal of the Program was to have a comprehensive plan to comply with CDPHE Biosolids Regulation 64. JVA worked with the City to develop a user-friendly procedure consisting of spreadsheet templates to assist the City in effectively and efficiently navigating through the Regulation and completing the required documentation. The City requested that the procedures and templates be developed as the City was responsible for obtaining land areas for the purpose to land apply Class B Biosolids in accordance with the Regulation. In the past, the City hired a certified contractor for obtaining land areas and preparing the annual biosolids reports. JVA prepared the Program in a seamless manner that enable the City to easily take over once JVA's services were finalized. JVA utilized conditional formatting to create the templates for Biosolids Metal Classification, Pathogen Destruction Criteria, Vector Attraction Reduction Criteria, and Soil Monitoring and Plant Available Nitrogen (PAN)—calculations all required in accordance with the Regulation. JVA submitted the final report to the City in February 2018 and prepared a four-hour training session to present and train City staff on the use of the Program templates and forms.

RELEVANCE TO GRAND JUNCTION

- Biosolids management options.
- Regulatory and land application considerations.


BIOSOLIDS MANAGEMENT PLAN

FOR THE

CITY OF NORTHGLENN

WASTEWATER TREATMENT PLANT

CITY OF Northglenn

REFERENCE INFORMATION

Manual Freyre
Chief Plant Operator for Wastewater
303.450.4025
5445 Weld County Road 2
Brighton, Colorado 80603
mfreyre@northglenn.org

TEAM INVOLVEMENT

John McGee

ENGINEERING COSTS

$23K

DATES

2017 - 2018

Collection System Planning Experience

Collection System Modeling and Master Plan

DOMINION WATER AND SANITATION DISTRICT, COLORADO

Carollo is currently working with Dominion WSD to develop a comprehensive collection system master plan that will allow the District mitigate short- and long-term operational and capital risk, and provide the framework to adequately fund and construct a logical sequence of future wastewater facilities. A significant portion of the plan involves a large development community that is currently under construction, and will be developed over the next 10+ years.

Carollo was tasked with developing baseline planning assumptions, calculating existing and future wastewater flows, constructing a hydraulic model, and utilizing the model to evaluate the existing and future facilities. Two major components of the plan were to identify future lift station sites/force main alignments, and phasing plans for the collection system development through the various planning horizons.

The master plan is a living document that has evolved throughout the project to accommodate changes in the development plan/phasing, and accommodate Districts needs. Collaboration with the District and the development community has been key to creating and implementing the master plan.

RELEVANCE TO GRAND JUNCTION

- Collaboration with Client and Stakeholders through master plan development.
- Hydraulic model construction and implementation.
- Collection system master planning to accommodate existing and future development.

REFERENCE INFORMATION

Bob Neal
Engineering and Field Operations Manager
720.531.4207
9250 E. Costilla Avenue, Suite 210
Greenwood Village, Colorado 80112
bob.neal@dominionwsd.com

TEAM INVOLVEMENT

Ryan Rossell, Tim Loper

ENGINEERING COSTS

$122K

DATES

2018 - Present

Sand Creek/Second Creek Basins Regional Master Plan

METRO WASTEWATER RECLAMATION DISTRICT, COLORADO

Carollo led a successful regional planning effort to assess long-term benefits to the Metro Wastewater Reclamation District and four of its member agencies of building a 17.5-mile 30- to 66-inch diameter gravity Second Creek interceptor, instead of expanding a series of lift stations. Life-cycle costs for the various alternatives accounted for construction and operating costs associated with lift stations, new interceptor construction, and treatment at the District's Robert W. Hite Treatment Plant versus its Northern Treatment Plant. Carollo developed the preliminary alignment of the Second Creek Interceptor in consideration of multiple factors, including land availability, maintenance access, difficult crossings and potential tunneling, known environmentally-sensitive areas, land-constrained reaches, and areas with known or suspected geotechnical challenges. The project team also modeled the hydraulic capacity of the Metro District's existing Sand Creek Interceptor system and the East 56th Avenue Interceptor. The model was used to predict capacity constraints and develop a phased program for capacity improvements.

RELEVANCE TO GRAND JUNCTION

- Hydraulic modeling.
- Phased capital improvement planning.

REFERENCE INFORMATION

Jim Mallorey, PE
Principal Engineer
303.286.3487
6450 York Street
Denver, Colorado 80229
jmallorey@mwrd.dst.co.us

TEAM INVOLVEMENT

Tanja Rauch-Williams

ENGINEERING COSTS

$490K

DATES

2015 - 2017

Vail to Avon Interceptor Capacity Study

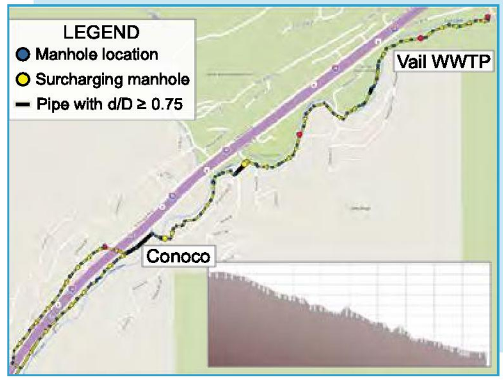
EAGLE RIVER WATER AND SANITATION DISTRICT, COLORADO

Carollo completed a capacity evaluation for ERWSD's nine-mile gravity interceptor sewer between Vail and Avon. The interceptor sewer collects sanitary flows from West Vail, Minturn, Eagle-Vail, and Avon, and conveys them to the Avon WWTF. In addition to collecting local sanitary flows, the Vail WWTF has a connection to the upstream end of the interceptor, allowing flows to by-pass from the Vail plant downstream to the Avon plant. The existing sewer has a known capacity restriction in West Vail, therefore the performance details of this section were critical to the development of the recommended treatment process expansion projects for the Vail and Avon treatment plants.

Carollo developed a hydraulic model of the interceptor sewer using PCSWMM®, including existing and future tributary flows, to estimate the capacity of the interceptor sewer. Under future flow conditions, several sections of the interceptor reached or exceeded their capacity, resulting in unacceptable surcharged flow conditions. Carollo used the model to develop recommended projects to increase flow capacity, with the result of allowing for increased future bypass flow from the Vail WWTF.

RELEVANCE TO GRAND JUNCTION

- Hydraulic modeling considering existing and future conditions.
- Infrastructure capacity assessment.



REFERENCE INFORMATION

Siri Roman
Director of Operations
970.476.7480
846 Forest Road
Vail, Colorado 81657
sroman@erwsd.org

TEAM INVOLVEMENT

Becky Luna, Bryan Coday

ENGINEERING COSTS

$76K

DATES

2016 - 2017

Tiara Rado Forcemain Feasibility Study

CITY OF GRAND JUNCTION, COLORADO

As part of JVA's on-call engineering services contract with the City of Grand Junction, JVA was asked to investigate alternative alignments to replace the Tiara Rado forcemain that serves the Redlands Subdivision. The replacement project will improve reliability and provide redundancy in critical sections of the single 12-inch diameter forcemain beneath the Colorado River and Interstate 70 (I-70).

The project consists of analyzing three main alternatives as part of this study which include: (1) paralleling the existing forcemain beneath the Colorado River and under I-70, (2) suspending dual forcemains or gravity lines from a new pedestrian bridge across the Colorado River, and (3) installing dual forcemains inside the existing box culverts under I-70.

The study involved multiple stakeholders and permitting agencies including CDPHE, the Colorado Department of Transportation (CDOT), Unites States Army Corps of Engineers, and the Colorado Parks and Wildlife (CPW). Following completion of the study, the City anticipates utilizing JVA for permitting and design of the project in 2020.

RELEVANCE TO GRAND JUNCTION

- Permitting and outside agency coordination.
- Familiarity with Grand Junction's infrastructure.

REFERENCE INFORMATION

Lee Cooper
Project Engineer
970.256.4155
333 West Avenue, Building C
Grand Junction, Colorado 81501
leec@gjcity.org

TEAM INVOLVEMENT

Cooper Best

ENGINEERING COSTS

$84K

DATES

2019 (in progress)

Fees

SECTION E

Fees

Should the Carollo team be invited for an oral interview, we will provide a list of standard fees and payment schedule requirements at that time.

Financial Statements

SECTION G

Financial Statements

Should the City deem necessary, upon request, Carollo can provide applicable historical financial statements.

Solicitation Response Form

SOLICITATION RESPONSE FORM

SOQ-47285-19-DH "2020 Persigo WWTP Master Plan Development Project"

Offeror must submit entire Form completed, dated and signed.

The Owner reserves the right to accept any portion of the services to be performed at its discretion

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The undersigned has thoroughly examined the entire Statement of Qualifications and therefore submits the proposal and schedule of fees and services attached hereto.

This offer is firm and irrevocable for sixty (60) days after the time and date set for receipt of proposals.

The undersigned Offeror agrees to provide services in accordance with the terms and conditions contained in this Statement of Qualifications and as described in the Offeror's proposal attached hereto; as accepted by the Owner.

Prices in the proposal have not knowingly been disclosed with another provider and will not be prior to award.

- Prices, when submitted, have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.
- No attempt has been made nor will be to induce any other person or firm to submit a proposal for the purpose of restricting competition.
- The individual signing this proposal certifies they are a legal agent of the offeror, authorized to represent the offeror and is legally responsible for the offer with regard to supporting documentation and prices provided.
- Direct purchases by the City of Grand Junction are tax exempt from Colorado Sales or Use Tax. Tax exempt No. 98-903544. The undersigned certifies that no Federal, State, County or Municipal tax will be added to the above quoted prices.
- City of Grand Junction payment terms shall be Net 30 days.
- Prompt payment discount of ___0___ percent of the net dollar will be offered to the Owner if the invoice is paid within ___30___ days after the receipt of the invoice. Payment Terms _Net 30_.

RECEIPT OF ADDENDA: the undersigned Firm acknowledges receipt of Addenda to the Solicitation, Specifications, and other Contract Documents.

State number of Addenda received: ___2___.

It is the responsibility of the Proposer to ensure all Addenda have been received and acknowledged.

Carollo Engineers, Inc.	Becky Luna, PE
Company Name – (Typed or Printed)	Authorized Agent – (Typed or Printed)
Becky J L	303.404.6313
Authorized Agent Signature	Phone Number
390 Interlocken Crescent, Ste 800	bluna@carollo.com
Address of Offeror	E-mail Address of Agent
Broomfield, Colorado 80021	December 16, 2019
City, State, and Zip Code	Date

Resumes

David S. Pier, P.E., PMP

David Pier is a professional engineer with over 22 years of water related project management experience as a consultant and utility owner. Mr. Pier has managed a $1.4 billion capital expenditure schedule program, developed project-level and program controls documents focused on cost control, estimating, and scheduling. Additionally, Mr. Pier has managed over $500 million in design and construction improvements for various municipalities and utilities.

Education

MBA Business Administration, University of Colorado, Denver, 2004

MS Civil Engineering, Colorado State University, 2000

BSCE Civil Engineering, University of Colorado, Boulder, 1994

Licenses

Professional Engineer, Colorado

Certification

Project Management Professional, Project Management Institute, 2016

Certified Energy Manager, 2019 (in-progress)

Professional Affiliations

American Water Works Association

Water Environment Association

Relevant Experience

→ Deputy project manager for the South Platte Water Renewal Partners, Colorado, 2019 Master Plan. Completed a 20-year comprehensive master plan, which evaluated asset replacement needs, nutrient improvements, and operational efficiency improvements. A detailed business case evaluation was completed for all alternatives which include typical financial impacts, impacts the energy baseline, and greenhouse gas impacts. The scenarios evaluated beneficial recovery of resources including biogas, energy, heat, and reduction of energy use. Monte-carlo simulations were completed to compare financial variability for the 20-year timeframe.

→ Financial and procurement specialist for South Platte Water Renewal Partners, Colorado, Biogas Evaluation Project. Developed financial model and various budgeting scenarios that identified risk and benefits for converting digester gas to pipeline quality gas. Funding approaches include use of a variety of private-public-partnership models, cash financed, and municipal or tax-exempt financing. Developed procurement documents to solicit information and financial information from private equity and development companies for the biogas project. Created procurement documents and agreements for the CMAR, Renewable Identification Number (RIN) broker, and interconnect agreement with Xcel Energy.

→ Financial feasibility for South Platte Water Renewal Partners, Colorado, Pipeline Injection Project. This project included design and construction of a gas conditioning system to clean digester gas for injection into an Xcel natural gas pipeline. In addition to design and construction services, this project included analysis of financing options, procurement of a CMAR contractor, and procurement of a carbon broker to manage the sale of brown gas and Renewable Identification Number (RIN) credits.

→ Financial and procurement specialist for South Platte Water Renewal Partners, Colorado, Biogas Evaluation Project. Developed financial model and various budgeting scenarios that identified risk and benefits for converting digester gas to pipeline quality gas.

→ Planning officer for Metro Wastewater Reclamation District, Colorado, Capital Expenditure Management and Forecasting program. Managed updates to the District's capital expenditure schedule which includes over 300 projects and $1.4 billion dollars of improvements over the next 10 years. Responsible for monthly updates and validating capital expenditure information to maintain accurate cash-flow forecasts as annual expenditures increased from $20 million to over $180 million. Reviewed, validated, and performed sensitivity analysis on cost estimates provided by District staff, consultants, and contractors to ensure high-level accuracy to meet annual budgeting goals and project schedules.

→ Planning officer for the Capital Planning Division, Metro Wastewater Reclamation District, Colorado. Developed cost controls, cost estimating, and forecasting guidance documents as part of the District's Capital Project Management Program. Reviewed and developed project specific preliminary-design level cost estimates for the $280 million Secondary Improvements projects at the Metro District. Leveraged historical asset valuations, ENR indices, and inflationary estimates to develop planning-level estimates for $500 million in replacement projects for the 2013 Facility Plan. Validated cost estimates and completed sensitivity analysis for District's design build projects such as the Northern Treatment Plant ($417 million),

David S. Pier, P.E., PMP

and the North Bar Screen Improvements ($22 million).

→ Business case evaluation for 150-mgd water treatment plant in the Denver metropolitan area. Evaluation investigated the use of renewable energy sources (hydropower, photovoltaic and battery storage) to offset electrical utility use.

→ Project manager for South Platte Water Renewal Partners, Colorado, Workforce Alignment and Strategic Services Project.

→ Technical specialist for Metro Wastewater Reclamation District, Colorado, PAR 1281 – Greenhouse Gas Evaluation Tool. Supported the development of the baseline energy model and quantification of greenhouse gas emissions. Developed greenhouse gas emission profiles for various nutrient removal and recovery technologies to meet future nutrient regulations.

→ Project manager for Metro Wastewater Reclamation District, Colorado, Renewable Energy Assessment. Evaluated the viability and financial feasibility of installing solar array at the Robert W. Hite Facility and at the biosolids application farm. In addition, evaluated the wind energy potential at the biosolids application farm in Eastern Colorado. Assessment include a financial feasibility and framework for the District to invest in renewable energy.

→ Project manager for the Metro Wastewater Reclamation District, Colorado, 2013 Facility Plan. Managed the 2-year planning process and developed an integrated planning document detailing conceptual solutions, creating costs and implementation schedules focused on regulatory drivers, planning and staffing projections. Assessed the current and future staffing projections for all business units over a 20 year period. Conducted one-on-one interviews and focus group discussions with managers from each business unit. Interviews were used to identify infrastructure improvements and develop plans for accommodating future staffing levels. The Plan developed conceptual layouts and building programming to develop sufficient information for cost estimating purposes. Evaluate current and future infrastructure trends and processes to determine impact of operations and maintenance staffing associated with meeting the CDPHE Regulation 85 and 31 and with commissioning the new Northern Treatment Plant.

→ Project manager and technical expert for Metro Wastewater Reclamation District, Colorado, Sustainable Return on Investment Projects. Managed sustainability studies evaluating the financial, social, and economic costs and benefits for various infrastructure and administrative approaches. This information facilitated decision making and consensus building with multiple stakeholders and management of large amounts of literature data. The evaluations conducted included co-digestion process, fermentation process, conventional nutrient removal technologies, and effluent heat extraction facilities.

→ Technical specialist for Metro Wastewater Reclamation District, Colorado, PAR 1281 - Greenhouse Gas Evaluation Tool Project. Served as technical expert on greenhouse gas (GHG) emissions calculations and process impacts on the 220-mgd biological nutrient removal treatment plant.

→ Project manager for Metro Wastewater Reclamation District, Colorado, Biosolids Optimization and Diversification Study. Managed the integrated biosolids master plan which used a trip bottom line alternative assessment approach evaluating impacts to solids processing, disposal, and beneficial reuse of biosolids based on changes in water quantities and implementation on of innovative treatment technologies for a 220-mgd biological nutrient removal wastewater treatment plant.

→ Project manager for Denver Water, Colorado, Northern Water Treatment Plant. Managed the preliminary design development for the electrical and instrumentation design of a greenfield 150-mgd advanced water filtration plant. The design included integration of new technologies and design approaches to streamline future design projects for Denver Water.

Leanne Miller, P.E.

Leanne Miller is a senior engineer with more than 11 years of experience in water and wastewater planning, design, construction, and optimization for both treatment plants and linear infrastructure. This work has involved evaluating existing infrastructure, development of capital improvement plans, and design of retrofits for existing facilities. She has worked as a consultant supporting utilities throughout Colorado as well as served as an operations engineer in the municipal sector.

Education

BS Environmental Engineering, University of Colorado, 2009

Licenses

Professional Engineer, Colorado

Professional Affiliations

Rocky Mountain Water Environment Association (RMWEA) – Board of Trustees

Rocky Mountain Section American Water Works Association (RMSAWWA)

American Water Works Association

Water Environment Federation

Previous Relevant Experience

→ Project manager for the City of Ouray, Colorado, Wastewater Treatment Master Plan. The Plan evaluated projected flow and load scenarios, existing infrastructure, future regulatory implications, and provided a 10-year capital improvement program. Recommendations from the master planning effort included: inflow and infiltration study, collection system evaluation and master plan, industrial pre-treatment program development, rate study, and a new mechanical treatment plant to replace the lagoon treatment system. As a result of this effort, Leanne and her team are currently working with the City on the design of a new mechanical wastewater treatment plant to meet the City's treatment objectives and future capacity requirements. The new is in the design phase with construction anticipated to start in spring of 2021. Estimated construction costs for this facility are $12 million.

→ Project engineer for Meeker Sanitation District, Colorado, WWTF & Collection System Assessment. The project included televising and analyzing video of over 18 miles of the collection system and evaluating options including costs for repair and replacement. The project also included a comprehensive evaluation of the District's WWTF including major process equipment, concrete and steel structures, H2S corrosion, electrical and mechanical systems. The evaluation investigated alternatives and developed recommendations for improvements including budgetary costs.

→ Project manager for Crested Butte South Metropolitan District, Colorado, Wastewater Treatment Plant Preliminary Capacity Evaluation. The project included a preliminary evaluation of the service area current and projected flow and loads, evaluation of the existing facility, and development of near- and long-term capital as part of this project a new headworks system was evaluated and layout alternatives within the existing footprint for a new IFAS treatment train were considered. The District has limited expansion capability due to site constraints. This project provided the District with an understanding of their maximum facility capacity based on available tank volumes and existing footprint to use in establishing development guidelines for the service area. The final capital improvement plan recommended and prioritized project needs and developed a timeline for a plant expansion.

→ Senior project engineer for the City of Salida, Colorado, WWTP Nutrient Compliance Study. The objective of this study was to determine the ability of the existing WWTP or necessary improvements required to meet future effluent nutrient standards associated Regulations 85 and 31. This project included development of a Biowin process model, working with operations staff to develop a water quality sampling program to support process modeling efforts, identifying performance limiting factors, optimizing process operations to reduce capital expenditures and maximize nutrient removal, and development of an alternatives analysis report with recommended modifications to comply with future Regulation 85 and 31 nutrient limits. The final report summarized minor operational modifications to meet Regulation 85 limits and recommended pilot testing opportunities for innovative strategies to meet future Regulation 31 limits. The recommendations were prioritized and an opinion of capital cost and annual operations and maintenance costs for each alternative was included.

→ Senior project engineer for the City of Grand Junction, Colorado, Parks Irrigation Raw Water Line Project. Project entailed 3,400 linear feet of 24-inch potable water

Leanne Miller, P.E.

transmission main and a7,000 linear feet of 12-inch raw water transmission main. The project includes the design of a potable water transmission main and raw water distribution system. The new potable transmission main conveys potable water from the City's Water Treatment Plant and replacing an existing, again transmission main. The raw water distribution system will deliver raw water from the City's Water Plant to City property located in west Orchard Mesa and the north side of the Colorado River water front upon completion in 2019. The project entails rehabilitation of existing infrastructure as well as design of new distribution mains. The design includes a bridge crossing and coordination with the Army Corps of Engineers due to an existing levee under federal jurisdiction. Our services include water system modeling, CDOT permitting, Army Corps of Engineers permitting, stakeholder meetings, construction drawings and specifications.

→ Senior project engineer for the City of Montrose, Colorado, WWTF Headworks Improvements. The project included permitting, design, and construction administration services for a new screen and washer compactor as well as grit pumps for the City's WWTF. The project included a detailed evaluation of screening equipment options and review of HVAC issues in the headworks building.

→ Lead engineer for the City of Idaho Springs, Colorado, Wastewater Treatment Facility Expansion. The project involves a detailed evaluation of various treatment technologies to meet increased flows, loads, and regulatory discharge requirements and design of upgrades for a $6.0M WWTF expansion. This expansion includes new headworks with mechanical screen, grit removal and flow monitoring, influent equalization, conversion of the sequencing batch reactors to an alternative technology (aerobic granular sludge), new aerobic digesters, increased UV disinfection capacity, and relocation of the dewatering facility.

→ Technical project representative for the City of Longmont, Colorado, Wastewater Treatment Facility Expansion. Project included secondary treatment modifications to comply with CDPHE regulation 85 requirements and solids processing modifications. Secondary treatment modifications consisted of a new clarifier, construction of an eighth aeration basin, addition of mixers and baffle walls to create anoxic zones, and secondary primary influent feed channel to provide operational flexibility for step feed configurations. Solids process modifications included anaerobic digester optimization for methane gas beneficial reuse, construction of new dewatering building, centrifuge for dewatering with polymer feed system, centrate treatment and holding tank, odor control system for dewatering building, and truck bay design for solids hauling.

→ Project manager for the City of Longmont, Colorado, Wastewater Treatment Facility Centrifuge Pilot Test. The project involved onsite centrifuge pilot testing to evaluate Alfa Laval and Centrysis centrifuges as part of a $32M wastewater improvement project. Developed solids and centrate quality testing protocol, sampling plan for pilot testing, evaluated results from each manufacturer's demonstration, and coordinated approval of pilot testing through CDPHE.

→ Project manager for the City of Longmont, Colorado, Wastewater Treatment Facility Beneficial Methane Reuse Alternatives Analysis. Evaluated beneficial reuse alternatives of methane gas including compressed natural gas for vehicles, compressed natural gas for pipeline injection, combined heat and power using an internal combustion engine and fuel cell, and turbines. Project included evaluation of power generation alternatives, operations and maintenance requirements, gas treatment alternatives, market analysis for supply, public-private partnership investigation, anaerobic digestion process modifications to improve methane gas quality and solids dewaterability. Final selected alternative for methane reuse was combined heat and power using an internal combustion engine.

Roderick D. Reardon, P.E., BCEE

Roderick Reardon is an environmental engineer with 41 years of experience in the study, design, and operation of municipal wastewater facilities. Mr. Reardon has particular expertise in advanced wastewater treatment processes, including membrane technologies, for the removal of nutrients and for producing reclaimed water fit for various types of reuse.

As Carollo's National Wastewater Technology Leader, Mr. Reardon is responsible for a wastewater technology team that manages acquisition, compilation, transfer, and consistent application of wastewater processes and technology throughout the company. For specific projects, he performs as project manager/engineer or as process specialist.

During his career, Mr. Reardon has worked as a project engineer, project manager, and wastewater process specialist on a wide variety of environmental engineering projects, including facility plans, water and wastewater transmission systems, and numerous wastewater treatment plants ranging in size from 0.1 to over 600 mgd. He managed an innovative capacity study at an advanced wastewater treatment facility that won the Grand Prize in Research in the American Academy of Environmental Engineering Excellence in Environmental Engineering competition. He also directed the process selection and final design for the first nitrogen removal facility on Puget Sound.

Mr. Reardon is active in the Water Environment Federation (WEF) and was the Task 1 Volume Lead for the Fifth Edition of Manual of Practice No. 8 – Design of Municipal Wastewater Treatment Plants (MOP 8). Previously, he co-authored the chapter on nutrient removal in the Third and Fourth Editions of MOP 8 and a chapter on the costs of nutrient control in a WEF special publication titled Biological and Chemical Systems for Nutrient Removal. He wrote chapters on wet weather clarification and tertiary clarification for the second edition of the WEF Manual of Practice No. FD-8 Clarifier Design and a chapter in Membrane Systems for Wastewater Treatment. He also collaborated on the facility design chapter in WEF MOP No. 36, Membrane Bioreactors.

Mr. Reardon has been a wastewater specialist on over 30 value engineering (VE) studies. Many of these studies have contributed to significant savings on planned improvements to a number of very large, complex treatment facilities.

Education

MS Civil and Sanitary Engineering, Lehigh University, 1977

BS Chemical Engineering, Lehigh University, 1973

Licenses

Professional Engineer, Florida, Washington, Tennessee, Alabama, Pennsylvania, Mississippi

Professional Affiliations

American Academy of Environmental Engineers (Board Certified – Water Supply and Wastewater)

American Chemical Society

American Membrane Technology Association

American Water Works Association

Florida Water Environment Association,

International Water Association

Water Environment Federation

Relevant Experience

→ Task leader for the Orange County Utilities, Florida, Water, and Wastewater Facilities Program Management. Continuing services for program management are being provided under this contract, including a variety of planning, engineering, and management services necessary to implement the County's Capital Improvement Program for water, wastewater, and reclaimed water facility improvements and various other projects necessary for facility management and utility operation, compliance, and optimization.

→ Senior process engineer for an update to the Facility Plan for the Southwest Water Reclamation Facility (SWWRF), Orange County Utilities, Florida. Provided direction, advice, and review for a re-evaluation of the selection of the best treatment technologies to meet current and possible future water quality standards. The SWWRF will be a new 5.0-mgd plant providing advanced wastewater treatment and reclaimed water supply for the County's Southwest Service Area.

→ Process engineer for the City of Mount Holly, North Carolina, Wastewater Treatment Plant Cost Evaluation. The project included preparation of a feasibility study to

Roderick D. Reardon, P.E., BCEE

expand the existing plant from 4 mgd to 6 mgd, cost estimates for the expansion, and comparison of these costs to the cost of decommissioning the existing plant and pumping the City's wastewater to the Charlotte- Mecklenburg Utilities collection system.

→ Technical advisor and project manager for work done to assist the Florida Water Environment Association Utility Council in their responses to the U.S. EPA's on EPA's determination that numeric criteria for in-stream nutrient concentrations were necessary for Florida waters to meet the requirements of the Clean Water Act. Work products produced by the project team included briefing and white papers on the treatment technologies that might be needed to meet the proposed criteria, estimates of the cost to implement such technologies, assistance in presenting this information to a panel of the National Research Council regarding the federal rule's compliance costs for utilities, and authoring of several papers and presentations to professional groups to help educate Florida citizens and regulators about the potentially huge cost and environmental implications of EPA's NNC Rule.

→ Project advisor for the Hillsborough County, Florida, Northwest Regional Wastewater Consolidation Program Assistance. Hillsborough County has undertaken a program to regionalize their Northwest Service Area by decommissioning three of the four existing facilities and consolidating treatment at one regional facility. Provided review and advice to the County on matters related to wastewater treatment from the development of the strategic implementation plan through review of the design/build proposals, and refinement of the specific project components. Participated in a VE for the project. Part of the VE evaluated the use of surface aerators vs. fine pore aeration.

→ Process engineer supporting the development of a capital cost estimate to upgrade and expand the wastewater treatment facilities at a large potato and corn processing plant in the California Central Valley.

→ Lead process engineer for the mainstream biological nutrient removal process for the expansion and upgrade of the Edmond, Oklahoma, Coffee Creek Water Resource Recovery Facility. The project consists of upgrading the Coffee Creek facility to meet new regulatory requirements on the discharge of nitrate nitrogen and expected future limits on total phosphorus while expanding the treatment capacity in two phases from 9 to 12 mgd. Included capacity expansion and conversion of mechanical surface aeration to fine pore diffused aeration.

→ Process advisor and reviewer for the Babcock Ranch Wastewater Treatment Facilities, Florida. Babcock Ranch is a planned residential community being developed on the 17,000-acre Babcock Ranch property near Ft. Myers that will ultimately have a population of about 50,000. The wastewater treatment facilities will meet limits in the reclaimed water for both nitrogen and phosphorus. The project is being constructed in two phases using a design/build approach.

→ Process advisor for the Central Contra Costa Sanitary District, California, 2016 Comprehensive Wastewater Master Plan. Provided advice and quality management review of calculations and technical memorandums on existing facility capacities and alternative liquid treatment technologies to provide nitrification and to meet future limits on the total nitrogen discharged by this 53.8-mgd facility to San Francisco Bay. This plan will provide the framework for decisions related to sustainable operations and management of the District's existing wastewater assets and provide a 20-year Capital Improvement Plan that is consistent with the District's Strategic Plan.

Timothy J. Loper, P.E.

Timothy Loper has 17 years of experience in wastewater collection system modeling, water distribution system modeling, water system feasibility studies, wastewater treatment facilities planning, and infrastructure master planning.

Education

MS Environmental Engineering, University of California, Berkeley, 2005

BS Civil Engineering, California State University, Fresno, 2003

Licenses

Civil Engineer, California, Nevada

Professional Affiliations

Nevada Water Environment Association

American Water Works Association

Relevant Experience

→ Technical advisor for Dominion Water and Sanitation District, Colorado, Collection System Modeling and Master Plan. The project included a comprehensive collection system master plan that will help the District mitigate short- and long-term operational and capital risk, and provided an adequate framework to adequately fund and construct a logical sequence of future wastewater facilities.

→ Collection system lead for the City of Riverside, California, Comprehensive Wastewater Master Plan. The Master Plan included both treatment and wastewater collections. Carollo built the City's collection system model using Innovyze's InfoSWMM modeling software.

→ Collection system lead for the West County Wastewater District (WCWD), California, District-Wide Master Plan. The project included the sanitary sewer collection system; Water Pollution Control Plant (WPCP); and non-process facilities such as administration, laboratory, storage, and maintenance. Work efforts included a condition assessment/capacity assessment, alternatives evaluation, and 20-year capital improvement program (CIP) development. All of WCWD's facilities were combined in one master plan, allowing the needs of each to be prioritized in an overall program. Other work efforts included a risk-based analysis of all 12,000 assets to identify failure likelihood, BioWin modeling to assess capacity, 3-D computational fluid dynamic (CFD) modeling of secondary basins to optimize performance, and a wet weather capacity improvements assessment of the 249-mile collection system.

→ Principal-in-charge for the City of Reno, Nevada, Northwest Reno Sewer Capacity Analysis and Master Plan. Carollo was retained to conduct a sanitary sewer capacity analysis and develop a master plan for the City's Northwest area. The team developed a temporary flow monitoring program; reviewed the City's existing SewerGEMS model to expand the existing wastewater collection system hydraulic computer model, including nine major trunk lines; calibrated the model using flow monitoring data; reviewed planning documents to determine existing and build-out wastewater flow projections; modeled existing and future system capacity evaluations; and developed prioritized, recommended capacity projects based on deficiencies.

→ Principal-in-charge for the ongoing Truckee Sanitary District, California, 2017 Hydraulic Modeling Assistance. The District hired Carollo provide assistance with the development and calibration of three of their four existing wastewater collection system models. The models are being calibrated to peak dry and peak wet weather flow conditions using flow monitoring data from the 2016 and 2017 storm season.

→ Principal-in-charge for the South Tahoe Public Utility District, California, Sewer System Hydraulic Model. This is an ongoing project. No changes or updates have been made to the District's wastewater collection system model that was created 10 years ago using Innovyze InfoSewer hydraulic modeling software. In the last decade, additional infrastructure construction and collection system changes have been made. This contract allowed for on-call hydraulic modeling support to evaluate the existing model, identify potential improvements, and convert the model to InfoSWMM.

→ Quality control engineer for the City of Banning, California, Water and Wastewater Master Plan. The project involved updating the City's water, sewer, and recycled water master plans into an integrated master plan to guide the City with budgeting and implementation of capital improvement projects. Responsible for quality review and project oversite and technical direction.

Timothy J. Loper, P.E.

→ Project manager for the Santa Cruz County Sanitation District, California, 2017 Inflow and Infiltration (I/I) Study. Led an I/I study which included a flow monitoring program, updates and calibration of the County's InfoSWMM sewer collection system hydraulic model based on the flow monitoring data, and simulation of the effect of a 10-year design storm on the County's sewer collection system.

→ Collection system project manager for the Central Contra Costa Sanitary District, California, Comprehensive Wastewater Master Plan. The project included conducting a pump station condition assessment, developing a force main inspection program, and a large-diameter condition and rehabilitation plan. The project also included creation of a collection system Asset Management Plan. The master plan focused on the pump stations, force mains, and collection system assets and summarized the District's assets in detail.

→ Project manager for the City of Fresno, California, Wastewater Collection System Master Plan. The project identified capacity constraints within the existing collection system and provided recommendations for infrastructure improvements necessary to accommodate densification and future growth, including future industrial growth. The MP included an update of the City's sewer rehabilitation project CIP.

→ Project manager for the City of Oakland, California, Administrative Order Assistance. Carollo is assisting the City with meeting the requirements of the U.S. Environmental Protection Agency's administrative order to eliminate the City's contribution to discharges of untreated wastewater from the East Bay Municipality Utility District's (EBMUD) wet weather facilities. The project included construction and calibration of the City's first-ever collection system model. The project utilized data from 140 flow meters and data from two years of wet weather flow monitoring. The modeling effort also utilized gauge adjusted radar rainfall data to accurately simulate the infiltration/inflow response during the calibration effort. The hydraulic model incorporated the EBMUD interceptor model and the hydraulic model developed for the Port of Oakland to develop a citywide hydraulic model of the entire collection system. Carollo also developed an asset management implementation plan and a sewer pipe inspection and cleaning program.

→ Project manager for City of Tulare, California, Sewer, Water, and Storm Drain Master Plans. This project developed master planning documents for planning infrastructure improvements to serve rapid growth within the City. Responsible for coordination of the water, sewer, and storm drain computer models that integrate GIS databases into the modeling platform. The City's wastewater collection system included industrial and domestic collection systems with separate treatment facilities. The storm drain project required coordination with Tulare Irrigation District for discharge of storm water from the City's drainage facilities. This project also developed the City's Sewer System Management Plan.

→ Project manager for the City of Chico, California, Sanitary Sewer Master Plan Update. Responsible for conversion and update of the City's previous HYDRA collection system model to the InfoSWMM hydraulic modeling software application. Current average and peak wet weather flows were developed based on the City's historical flow data, as well as the results of the temporary flow monitoring projects. Build out average and peak flows were projected for future land use areas, as identified in the City's General Plan Update. The project was calibrated to dry and wet weather flow conditions, and the collection system was analyzed under current and build out peak flow conditions. Several pipeline improvement routing options were considered and analyzed based on costs and other non-cost factors, and the preferred improvement alternatives were included in the master plan report.

Tanja Rauch-Williams, Ph.D., P.E.

Dr. Tanja Rauch-Williams, an Associate Vice President, joined Carollo in 2005 and has over 20 years of experience in the water and wastewater engineering fields specializing in wastewater process performance optimization and modeling and master planning. She serves since 2015 as Carollo's Wastewater Innovation Lead.

Education

PhD Environmental Science and Engineering, Colorado School of Mines, 2005

MS Environmental Engineering, Technical University of Berlin, Germany, 1999

BS Environmental Engineering, Technical University of Berlin, Germany, 1995

Licenses

Professional Engineer, Colorado, Texas

Water Treatment Plant Operator, Class D, Colorado

Wastewater Treatment Plant Operator, Class D, Colorado

Professional Affiliations

Water Environment Federation (WEF)

WEF Municipal Water Resource Recovery Facility Design Publications Committee, Co-Chair

Leaders Innovation Forum for Technology (LIFT), Steering Committee Member

Rocky Mountain Section American Water Works Association/Water Environment Association, Water Reuse Committee

RMWEA/LIFT Innovative Water Technologies Committee, Co-Chair

Relevant Experience

→ Senior process lead for the City of Greeley, Colorado, Treatment and Nutrient Master Plan. Evaluated alternatives for compliance with Regulation 85 limits and the Inventive Program. Developed flow and load projections, collection system load analysis, conceptual design criteria for the selected treatment alternatives, process optimization support for the DEMON anammox and mainstream process.

→ Senior process lead for Fort Collins Utilities, Colorado, Master Plan Update. Evaluated compliance strategies for Regulation 85, the Incentive Program, and Regulation 31 for both the Drake and Mulberry Water Reclamation Facilities. Identified process limitations and optimization opportunities to enhance nitrogen and phosphorus removal and better carbon management at both facilities.

→ Lead process engineer, Eagle River Water & Sanitation District, Colorado for the Wastewater Planning Study. The Eagle River District operates a system of three WWTFs, all interconnected by a common interceptor. Carollo's planning approach assessed how the individual plants can work together as a system with load sharing and prioritized capital improvements to comply with future nutrient regulations and offer the best watershed and community benefits at the lowest capital costs.

→ Project manager for Plum Creek Wastewater Reclamation Authority, Castle Rock, Colorado, Wastewater Utility Update. Project included a process analysis and capacity evaluation to comply with daily nitrate effluent limits and anticipated future ultra-low total nitrogen and phosphorus limits, a compliance evaluation for manganese discharge, a plant-wide energy consumption and energy reduction analysis, as well as a utility plan for future solids treatment. The alternative analyses included continued aerobic digestion or conversion to primary treatment with anaerobic digestion. The utility plan also evaluated treatment options to allow for potable reuse in the future.

→ Project engineer for the Upper Blue Sanitation District, Breckenridge, Colorado. Assisted the District in the full planning and permitting process associated with the plant expansion. Critical components of this assistance included: close coordination between local, county, and Colorado State permitting agencies, as well as with other local stakeholders. Prepared all required regulatory permitting reports for submission to the permitting agencies, including the preliminary and final engineering reports, the 1041 permit application, the site plan, the site application, and assisted the State with the preparation of the preliminary effluent limits application.

→ Project engineer for the Regional Wastewater Treatment Plant Authority, Colorado, for the planning of a 24-mgd wastewater treatment plant. Assisted with the preparation of the Wastewater Utility Plan, which served as the reporting documentation for the CDPHE site application approval process. Also reviewed requirements by other local and regional authorities.

→ Project engineer for the 100-mgd Metro Wastewater Reclamation District, Denver, Colorado, South Secondary Improvements Project. Assisted in the preparation of the "Amendment of an Existing Site Location Approval and Process Design Report," responsible for defining the basis of design for secondary process treatment, including justification of design criteria and identification of required variances. Provided technical process support as requested by CDPHE for successful variance applications for organic loading rate, weir loading rate, and firm blower capacity.

Tanja Rauch-Williams, Ph.D., P.E.

→ Principal investigator for the Preparation of Baseline Data to Establish the Current Amount of Resource Recovery at Water Resource Recovery Facilities (WRRFs) for the Water Environment Foundation. Analysis and industry survey quantified current state of WRRFs recovering energy, biogas, phosphorus, nitrogen, water, and biosolids in the U.S.

→ Lead engineer for the Simi Valley/Schneider Electric WQCP Electrical Energy Services Design Support project. In this ESCO project, Carollo provided engineering support for possible energy improvements. Assessed the feasibility and developed recommendations for aeration control upgrades and anammox side stream treatment systems for centrate handling.

→ Principal investigator for WRF's Project 4915. "Characterization and Contamination Testing of Source Separated Organic Feedstocks and Slurries for Co-digestion at WRRFs" and "Workshop: Parameters to Calibrate Anaerobic Models for Co-digestion and High Strength Waste Digestion – Standardizing Terminology and Characterization".

→ Process Engineer for Fort Collins Utilities, Colorado, Drake WRF Food Waste Receiving Study. This study conducted a nationwide review of food waste receiving facilities and conceptually sized and designed a commercial food waste receiving facility at the DWRF facility. Assessed and modeled the effects of receiving food waste for co-digestion on plant performance and effluent quality.

→ Lead process engineer for the City of Longmont, Colorado, Nutrient and Biosolids Facility Plan and Design Build Improvements. Carollo developed a Nutrient Study and Biosolids Facilities Plan for the City's 13 mgd WWTP. Processes modeling assessed opportunities to maximize the use of existing infrastructure under proposed nutrient limits. Supported design-builder to expand secondary treatment capacity and incorporate side stream treatment to meet more stringent daily effluent ammonia limits. Supported owner in process operation and stability during construction for continued process stability and permit compliance.

→ Senior process engineer for the Final Design of the City of Santa Fe, New Mexico, Aeration Improvements Project. Project includes replacement of existing blowers for improved sizing, diffuser layout upgrades, surface wasting, mixing improvements, and ongoing process support for operations staff.

→ Process optimization specialist for the City of Fort Collins, Colorado. Worked for eight months for the City's operations group at Fort Collins Utilities to train operators on nutrient removal and conduct process optimization initiatives from within the utility.

→ Co-principal investigator for the Water Research Foundation project, "Trace Organic Compounds Removal During Wastewater Treatment - Categorizing Wastewater Treatment Processes by their Efficacy in Reduction of a Suite of Indicator TOrC." The goal of this research project was to provide understanding of occurrence and fate of TOrC in municipal wastewater systems and will allow a utility to determine the most cost-effective method for TOrC reduction.

→ Process lead engineer for the City of Boulder, Colorado, Nutrient Upgrade Design. Responsible for the developing design criteria for the aeration basin modifications to convert the MLE process into 4-stage Bardenpho. Led testing of operational strategies to maximize internal carbon generation in primary clarifiers, gravity thickeners, and aeration basins for enhanced nitrogen removal. Responsible for evaluating plant-wide operational and design strategies to better comply with daily ammonia limits.

→ Team member City of Boulder, Colorado School of Mines, Baylor University of Texas and Carollo Engineers, Inc. 2019 Intelligent Water Systems (IWS) Challenge, LIFT. Developed Model Predictive Control algorithm with the goal of increasing energy efficiency and optimization at the Boulder Water Resource Recovery Facility.

CONSULTING ENGINEERS

Laurie A. Laos

Project Engineer, Civil Engineering

Education

Master of Science, Civil Engineering, Colorado State University, 2014

Bachelor of Science, Environmental Engineering, University of Wisconsin-Platteville, 2008

Project Experience

Design and Project Engineer for the following projects:

City of Louisville Lateral Piping, Louisville CO. Modeled the proposed waterline from the Howard Berry Water Treatment Plant to the Louisville Reservoir in Stormwater Management Model (SWMM) to analyze the hydraulic components of the system. Coordinated with the design group to ensure the most efficient and adequate system was designed.

City of Greeley Ashcroft Draw Basin Sanitary Sewer, Greeley, CO. Project Engineer of Phase I design for the Ashcroft Draw Basin sanitary sewer project. The design included a hydraulic analysis and study for a future lift station that will serve part of the Ashcroft Draw Basin and tie into the Ashcroft sewer with a force main. JVA worked with the City, regional planning entities, and reviewed existing City intergovernmental agreements to evaluate the feasibility of the proposed lift station. The lift station evaluation included setting a service boundary, alternative force main alignments, potential siting and required capacity for pumping wastewater to the new Ashcroft sewer.

Town of Berthoud I-25 Water Distribution and Wastewater Collection Systems, Berthoud, CO. Design Engineer for design and construction of 4,250 linear feet of a 16-inch PVC water transmission main and 8,000 linear feet of 15-inch and 12-inch PVC sanitary sewer main with connection to the Berthoud Regional Wastewater Treatment Facility (WWTF). The project included coordination and dual design of the water and sanitary sewer that included three crossing, through two separate borings of Interstate Highway 25, two open cut river crossings, and an irrigation ditch crossing.

Town of Windsor Water Transmission Main Rehabilitation, Windsor, CO. Provided design and GIS support for the analysis and rehabilitation recommendation for 2,800 linear feet of an existing 16-inch diameter pipe. Design Engineer for the design and construction of the water main replacement. Coordinated with the Town on design and plans for final construction documents.

Town of Lochbuie CR 2 Water Transmission Main, Lochbuie CO. Project and design engineer for the design and construction of 3,550 feet of 20-inch water line the included the coordination with the Town, Canal Company, and other engineering firms. The alignment design required analysis and future planning of CR2 widening to ensure the proposed waterline was within the future utility easement while avoiding existing utilities and understanding locations of future utilities. Coordinated with the Canal Company for crossing requirement and design considerations.

Town of Wellington Storm Sewer Design and Water Line Replacement, Wellington CO. Design Engineer for the drainage analysis of 1,500 linear feet of 36 and 42-inch RCP storm sewer pipe within a residential roadway. The analysis included delineating storm runoff basins, creating a SWMM, designing the storm sewer system including a railroad crossing. Coordinated with BNSF railroad for permits and requirements during constructions. Worked with surveyor to develop easement descriptions for utility easements. In conjunction with the storm sewer design, design was completed for the replacement of the existing 8" AC water line that parallels the designed storm system and installing two new sanitary sewer manholes.

Berthoud Taft Sanitary Sewer Extension, Berthoud, CO. Design Engineer for the design and construction of a 4,200 foot 18-inch sanitary sewer extension to connect the existing Taft Sanitary Sewer to the Dry Creek Interceptor Sewer. The sewer line was designed within Taft Avenue's right-of-way and was designed to provide future growth connections to the system while minimizing bury depth. The sewer line design also included a river crossing of Dry Creek to connect to the existing system.

Larimer County Western Mini-Ranches / Vaquero Estates Sanitary Sewer, Berthoud, CO. JVA Design Engineer for the design and construction of a new 6,000-foot 8-inch PVC sanitary sewer to connect to the Town of Berthoud collection system including one boring under Dry Creek. Completed the site grading for the decommissioning of the existing lagoon treatment facility. Construction of the new sewer is expected to be complete by spring 2017.

City of Fort Collins Utilities Water Systems Engineering Division: Capital Projects, Fort Collins, CO. Performed an analysis on the City's existing sanitary sewer model including a comparison to the existing system and records. Developed a method to update the physical characteristics of the sewer system using the InfoSewer Model, GPS unit, GIS and Microsoft Excel. Modeled and analyzed the effects of a proposed development's flow on the existing sanitary sewer system using InfoSewer. Assisted Project Managers as a Resident Engineer on construction sites for water, wastewater, and stormwater projects.

GIS Database Development, Town of Mead, CO Created a new GIS database of the Town's sanitary sewer system by collecting and compiling existing and surveyed data into shapefiles. Coordinated with the Town to develop appropriate GIS fields and maps. Modeled the existing and future sewer system using the Stormwater Management Model (SWMM). Combined the GIS and modeled data to evaluate the system's capacity, performance, and future development potential. Assisted in providing the Town with a masterplan report outlining the existing and future system and service area, and capital improvement projects.

Town of Berthoud Utility Mapbook, Berthoud, CO Initiated the developed of a Town utility mapbook was created in GIS using existing field data, AutoCAD drawings, construction documents, and available GIS County and Town shapefiles. The Town of Berthoud was divided into a grid and each grid box was a sheet in the mapbook with an aerial, property line, water, sewer and storm lines and structures, and road centerline and labels within each grid. As future data is collected, the GIS shapefiles and mapbook will be updated and maintained for the Town.

East River Regional Sanitation District, Crested Butte, CO. Performing an I/I Study for the district to isolate the location of I/I within their system. Includes coordinating with District Staff on location of flow meters, analysis of flow data to determine probability of I/I within their system monitored and provided recommendation on methods to isolate the system further to reduce the area of interest.

Front Range Community College Campus (FRCC) Water and Sanitary Model, Fort Collins, CO. Developed a water and sanitary model for FRCC Larimer Campus using WaterCAD and SWMM, respectively. The models were created using existing mapping data, AutoCAD files, water usage data, and coordination with staff. The models were then used to analyze the systems and identify any defects and capacity issues within the systems. Future buildout scenarios were modeled and required system improvements were evaluated and presented to the staff. Assisted in developing the construction plans for the approved sanitary sewer system improvements.

Town of Berthoud I-25 Water Distribution and Wastewater Collection Systems, Berthoud, CO. Design Engineer for design and construction of 4,250 linear feet of a 16-inch PVC water transmission main and 8,000 linear feet of 15-inch and 12-inch PVC sanitary sewer main with connection to the Berthoud Regional Wastewater Treatment Facility (WWTF). The project included coordination and dual design of the water and sanitary sewer that included three crossing, through boring, of Interstate Highway 25, two open cut river crossings, and an irrigation ditch crossing.

Larimer County Western Mini-Ranches / Vaquero Estates Sanitary Sewer, Berthoud, CO. JVA Design Engineer for the design and construction of a new 6,000-foot 8-inch PVC sanitary sewer to connect to the Town of Berthoud collection system including one boring under Dry Creek. Completed the site grading for the decommissioning of the existing lagoon treatment facility. Construction of the new sewer is expected to be complete by spring 2017.

Town of Mead North Creek Sewer, Mead CO. Design and Project Engineer for the design and construction of a new 2,100 lf 8-inch sanitary sewer main that was identified in the masterplan as a capital improvement project to eliminate a failing lift station and force main. The project included a stream crossing and floodplain permitting.

City of Dubuque Iowa, Town Engineering Intern Analyzed the Town's existing GIS sanitary sewer database to create an asset management program that included a matrix to provide a proactive approach to maintenance for the system. Developed a plan to isolate I/I throughout the sanitary system, which included strategically placing flow meters, analyzing the data, and providing results/conclusions and recommendations to remediate the I/I.

CONSULTING ENGINEERS

Cooper D. Best

Regional Manager, Environmental Engineering

Education

B.S. Texas A&M University, Civil Engineering, 2000

M.S. Colorado School of Mines, Environmental Engineering, 2009

Registration

Professional Engineer: Colorado, 2005

Professional Organizations

Water Environment Federation

Rocky Mountain Water Environment Association – Executive Committee

American Water Works Association

Project Experience

Project Manager or Engineer of Record for the following Facilities:

City of Grand Junction, Grand Junction, CO – Project Manager for several water and wastewater projects including the Persigo WWTP Influent Wet Well Rehabilitation, Water Treatment Plant Upgrades and the Parks Raw Water Irrigation project. The raw water project included the repair of a pre-1940's era concrete lined basin. The basin measured 390 feet by 264 feet and had thousands of feet of joints and exhibited evidence of leaking. JVA evaluated several repair options and with input from the City a polypropylene geomembrane membrane liner was selected for this project. The Persigo WWTP project involved the inspection of cast-in-place concrete structures that exhibited varying degrees of corrosion due to hydrogen sulfide exposure. For this project JVA worked with coating manufacturers to develop a rehabilitation and coating system that would provide long term protection to the affected structures. Current wastewater projects include a forcemain feasibility study for the Tiara Rado Lift Station and design and permitting to replace the Ridges lift station.

City of Salida Wastewater Treatment Improvements, Salida, CO. The project included engineering, surveying, construction management, and start-up and operational consulting services. The expansion replaced the outdated Trickling Filter and Rotating Biological Contactor treatment processes. The project included feasibility and rate studies, treatment evaluations, permitting, design, and construction management of new 2.7 MGD WWTF for BNR of nitrogen. Provided the following tasks: Project reused/repurposed several structures, New treatment processes constructed without interrupting existing plan treatment, Headworks modifications including new screenings washer-compactor and odor control system, New Kruger's IFAS™ (Integrated Fixed Film Activated Sludge) treatment process, New process building for process pumping, new high speed turbo blowers, and rotary drum thickener, New tertiary disc filter, Retrofit the existing chlorine contact chamber with UV disinfection and new seasonal effluent pump station, and Reuse of existing anaerobic digestion and centrifuge dewatering operations. USDA funded and the facility was master planned for future phosphorus removal. Other projects for the City include a wastewater characterization and effluent nutrient compliance evaluation.

Eagle River Water & Sanitation District, Edwards, CO. Project Manager for the replacement of four primary clarifier sludge pumps at the Edwards WWTF. The project included new rotary lobe pumps and an inline grinder for primary sludge pumping to a gravity thickener. Services included design, cost estimating, bidding and construction management. Other projects with the District have included collection system condition assessments, interceptor extensions and collection system replacement.

Cortez Sanitation District Sludge Dewatering Improvements, Cortez, CO. Project Manager for the replacement and upgrade of the sludge dewatering equipment. The project including demolition and removal of the existing belt filter presses and installation of a new screw press. Project included permitting, design, cost estimating, equipment pre-purchasing, bidding, and construction management.

Town of Carbondale WWTF Sludge Dewatering Improvements, Carbondale, CO. Project Manager for a project to implement new dewatering equipment at the WWTF. The project included a new grinder and sludge feed pump, polymer system, screw press, and shaftless screw conveyance system. The old headworks building was converted to a biosolids building. Services included planning, design, cost estimating, bidding, and construction management.

City of Montrose WWTF Headworks Improvement Project, Montrose, CO – Project Manager for permitting and design at the City's WWTF to replace their headworks screen, washer compactor and grit pumps. Initial design included evaluating screen options and pre-purchasing equipment. Services included permitting, design, bidding and construction administration.

Meeker Sanitation District WWTF & Collection System Assessment, Meeker, CO. Project Manager to conduct a detailed analysis of the District's WWTF and Collection System. The project included televising and analyzing video of over 18 miles of the collection system and evaluating options including costs for repair and replacement. The project also included a comprehensive evaluation of the District's WWTF including major process equipment, concrete and steel structures, H2S corrosion, electrical and mechanical systems. The evaluation investigated alternatives and developed recommendations for improvements including budgetary costs.

Town of New Castle WWTF, New Castle, CO. Project Engineer for $8M expansion and upgrade of the treatment facility to 0.6 MGD. Design components include new aeration basins, digesters, odor control, RAS/WAS building, clarification, biosolids dewatering, and plant SCADA control system. Design of biological treatment process for ammonia and nitrogen removal based on Kruger Kaldnes HYBAS process, an integrated fixed film activated sludge process.

City of Glenwood Springs WWTF, Glenwood Springs, CO. Project Engineer for the $28.5M Glenwood Springs WWTF improvement and relocation project. Project include the expansion and relocation of the existing wastewater treatment facility to a location approximately three miles west of the Cit. The project involved permitting and design of a new 2.0 MGD advanced wastewater treatment facility, a 9.0 MGD peak flow lift station and roughly three miles of force main.

City of Rifle Regional Wastewater Reclamation Facility, Rifle, CO. Project Engineer for the $23M RRWWRF project. This project was a new facility to replace the two existing lagoon facilities the City historically used to serve areas north and south of the Colorado River. The project included a new interceptor, transfer pump station, outfall, and complete plant process design for biological treatment using oxidation ditches.

Town of Crested Butte CPE, Crested Butte, CO. Project Manager to complete a Comprehensive Performance Evaluation (CPE) for the Town of Crested Butte Wastewater Treatment Facility. The detailed study analyzed each process unit at the treatment facility and provided a capacity rating. Determined the areas that most limit performance and how they may impact other processes in the treatment plant. The CPE assisted the Town with prioritizing upcoming improvements.

Red Cliff Wastewater Treatment Plant, Red Cliff, CO – Project Manager for planning, funding assistance and design of a new integrated fixed film activated sludge (IFAS) wastewater treatment plant. Project included a two train IFAS system, aerobic sludge digesters, and 4 miles of collection system rehabilitation and replacement to significantly reduce I/I.

Town of Hayden WWTF Effluent Pump Station, Hayden, CO. Project Manager for a new effluent pump station to assist the Town with compliance with effluent ammonia standards at the WWTF. The project included 3,000 linear feet of 8-inch forcemain and an above ground lift station. Services included planning, design, and environmental permitting. The project was funded through the SRF program.

Mt. Crested Butte Water & Sanitation District, Mt. Crested Butte, CO. Project Manager and on-call District Engineer for numerous District projects. Wastewater projects include a new UV Disinfection Building, Paradise Lift Station troubleshooting and pump recommendation analysis, Lift Station Building, Process Building Improvements, construction observation, and development review services.

East River Regional Sanitation District Wastewater Master Plan, Crested Butte, CO. Project Manager for a comprehensive wastewater master plan for the District. The project included review of the existing wastewater infrastructure, existing and projected flow and loading projections and improvement recommendations.

Clifton Sanitation District WWTF Effluent Diffuser Feasibility Study, Clifton, CO. Project manager for a detailed feasibility analysis to explore the advantages and options to install an effluent diffuser system for the District's WWTF. The study included preliminary planning and effluent diffuser design as well as hydraulic analysis and cost estimating.

Mesa County Whitewater Lift Station Hydrogen Sulfide Abatement Project, Whitewater, CO. Project Manager to investigate odor control alternatives to reduce hydrogen sulfide concentrations from the Mesa County Whitewater Lift Station and forcemain. The Whitewater Lift Station discharges wastewater to the Clifton Sanitation District via dual 8-inch and 10-inch forcemains that are approximately 13,000 feet long. The low influent flows to the Lift Station require pumps to cycle only once per day resulting in several days of retention within the forcemain. Anaerobic conditions in the forcemain create excessive hydrogen sulfide concentrations in the wastewater. The project evaluated alternative technologies to abate hydrogen sulfide formation. The County's preferred solution was to add calcium nitrate into the lift station wetwell. JVA designed and completed a four-month long calcium nitrate pilot with Evoqua and successfully reduced concentrations to non-detectable limits. The pilot system was purchased by the County and implemented as the long term solution.

Ryan P. Rossell, P.E., ENV SP

Ryan Rossell joined Carollo in 2012. His experience at Carollo includes water and wastewater master planning, hydraulic and hydrologic modeling, cost estimating (planning level and detailed estimates), water and wastewater infrastructure design, and construction inspection and support services. Hydraulic and hydrologic modeling experience included the use of Carollo's Hydraulix®, XPSWMM, InfoWorks ICM, QUAL2K, HEC-RAS, SMS/FESWMS, and AcrGIS.

Education

MS Civil Engineering, South Dakota State University, 2012

BS Civil Engineering, South Dakota State University, 2010

Licenses

Professional Engineer, Kansas, Missouri, Nebraska

Certification

Certified, Envision™ Sustainability Professional, Institute for Sustainable Infrastructure, 2017

Professional Affiliations

American Water Works Association

Water Environment Federation

Relevant Experience

→ Project engineer for the Collection System Master Plan for the Dominion Water and Sanitation District. This project involved the creation and implementation of a collection system master plan for the District's existing and future collection system. Responsibilities included development of planning assumptions, hydraulic modeling construction, and modeling evaluations throughout the development of the master plan. Modeling work included design flow development, sewer alignment/sizing, lift station/force main siting evaluations, and evaluating improvements through the various planning horizons.

→ Project engineer for the Fitzsimons-Peoria Stormwater Outfall Project, City of Aurora, Colorado. The project involved removal and replacement of aging, undersized stormwater infrastructure installed in the 1950's. The proposed improvements included approximately 15,000-feet of 48-inch to 96-inch stormwater pipeline and the associated storm drain inlets. The alignments were located through a highly urbanized area of Aurora along six lane arterial roadways managed by the City and Colorado Department of Transportation (CDOT). Project work included hydrologic/hydraulic modeling of the proposed infrastructure using InfoWorks ICM, inlet sizing, and drawing development. The modeling was updated from prior studies and correlated to the final design recommendations for pipeline and inlet sizing.

→ Project engineer for the CSO 202 and 203 sewer separation projects for the City of Omaha, Nebraska. Responsibilities included hydrologic and hydraulic modeling of the project area and designing the new separated storm and sanitary sewer systems. Proposed improvements included ~14,000 LF of storm sewers, and ~4,000 LF of sanitary sewers. Additional work included report/deliverable development, utility coordination, and stakeholder coordination/meetings.

→ Project engineer for the Outfall 066 and 067 sewer separation project for the City of Kansas City, Missouri. Responsibilities included hydrologic and hydraulic modeling of the project area and designing the new separated storm and sanitary sewer systems, and designing the ~16,000 LF water main replacements included as part of the project. Additional work included preparing design reports through the different design phases, utility coordination, and stakeholder coordination/meetings.

→ Project engineer for the water main replacement in the area of Noland Road to Rhinehart Road, Little Blue Road to East 87th Street for the City of Kansas City, Missouri. Responsibilities included designing ~6,100 LF of new 8"-16" water main.

→ Project engineer for the Riverview Lift Station Replacement Project in Omaha, Nebraska. Responsibilities included InfoWorks modeling of the new gravity sewer and lift station. Additional work included using ArcGIS during sewer alignment and model development, and preparing design reports through the different design phases.

→ Project engineer for the City of Omaha, Nebraska Sanitary Interceptor Master Plan Responsibilities included GIS and modeling work. GIS data was utilized to project future growth and flows within the study area. InfoWorks modeling activities included two calibration efforts (dry weather and wet weather) and developing a CIP given the projected flows for the various planning horizons.

→ Assisted with the waste load allocation study performed for the Coffee Creek Water

Resource Recovery Facility in Edmond, Oklahoma. Responsibilities included environmental and stream survey field data collection and processing, HEC-RAS modeling, and assisting with stream water quality modeling (QUAL2K).

→ Assisted with the City of Lincoln, Nebraska wastewater system collection master plan update. Responsibilities included reevaluating the city wide CIP based on the updated population and flow projections.

→ Project engineer for the water main replacement in the area of North Richards to North Brighton, Northeast 1st Street to Northeast 37th Street for the City of Kansas City, Missouri. Responsibilities included designing ~7,300 LF of new 8"-12" water main.

→ Project engineer for the water main replacement in the area of Hickman Mills to Bristol Terrace for the City of Kansas City, Missouri. Responsibilities included designing ~9,100 LF of new 6"-8" water main.

→ Project engineer for the 49th and Caldwell study area RNC sewer project in Omaha, Nebraska. Responsibilities included XPSWMM modeling of the study area. Additional work included using ArcGIS during model development and preparing design reports through the different design phases.

→ Project engineer for the City of Shawnee, Oklahoma master plan. Responsibilities included constructing and calibrating hydraulic models for the water and wastewater treatment plants using Carollo's Hydraulix®. Computed and analyzed the treatment and hydraulic capacities of the water and wastewater treatment plants. Performed an evaluation of the gravity filters at the water treatment plant. Helped construct the InfoWater model for the gravity raw water supply line to the water treatment plant. Assisted with writing master plan report.

→ Project engineer for the City of Edmond, Oklahoma master plan. Responsibilities included constructing and calibrating the hydraulic model for the water treatment plant using Carollo's Hydraulix®. Computed and analyzed the treatment and hydraulic capacities of the water treatment plant. Assisted with analyzing data for collection system modeling using ArcGIS.

→ Project engineer City of Liberty, Missouri wastewater collection system master plan. Assisted in developing collection system model using ArcGIS and XPSWMM.

→ Assisted in developing detailed cost estimate and ductbank routing for the Phase II expansion to the Norman, Oklahoma WWTP. Cost estimate included the new aeration/UV basins.

→ Assisted in performing SDS testing during a pilot study at the Norman, Oklahoma WTP. Additional activities included writing summary report for the pilot study and conceptual design based on pilot study results. Treatment units include dissolved air flotation, ozonation, and Biofiltration.

→ Assisted with constructing an InfoWater model for the Overholser WTP raw water supply line in Oklahoma City, Oklahoma.

→ Factory inspector and witness engineer for the Bellingham, Washington WWTP 72" ML process piping. Activities included witnessing surface preparation, lining/coating of the pipe, and compliance testing which included thickness, adhesion, and holiday testing of the applied lining/coating.

→ Graduate research assistant at South Dakota State University. Research included the development and use of hydraulic models to predict bridge scour at a bridge site in South Dakota. The models that were developed included a 1-D (HEC-RAS) and 2-D (SMS/FESWMS) model. Both were validated by and compared to measured data over a range of flows. The validated hydraulic results were then used to predict bridge scour using two methods which utilized the standard scour prediction equations for ultimate scour, and equations which accounted for the time-rate of scour. The results were utilized to demonstrate how more detailed hydraulic models and scour prediction equations can predict scour depths which are more realistic to actual field conditions.

Becky J. Luna, P.E.

Becky Luna, a vice president, has 17 years of experience in the evaluation, design, and construction of municipal wastewater treatment facilities. This work has involved unit process evaluation, new facility layout, hydraulic analysis, and retrofitting of existing facilities. Her primary areas of focus have been in secondary treatment and solids handling facilities, and biogas facilities.

Education

MS Environmental Engineering, University of Illinois, 2002

BS Civil Engineering, University of Illinois, 2000

Licenses

Professional Engineer, Colorado

Civil Engineer, Hawaii, California

Professional Affiliations

Rocky Mountain Water Environment Association

Water Environment Federation

Relevant Experience

→ Project manager for the South Platte Water Renewal Partners, Colorado, Strategic Operations Plan. Developed a 10-year capital improvements plan for the 50-mgd facility, including secondary process improvements to meet Regulation 85, asset renewal improvements, and infrastructure improvements.

→ Project manager for the South Platte Water Renewal Partners, Colorado, Pipeline Injection Project. This project included design and construction of a gas conditioning system to clean digester gas for injection into an Xcel natural gas pipeline. In addition to design and construction services, this project included analysis of financing options, procurement of a CMAR contractor, and procurement of a carbon broker to manage the sale of brown gas and Renewable Identification Number (RIN) credits.

→ Design lead for the City of Longmont, Colorado, Design-Build Services for the Biogas Treatment and Vehicle Fueling Station for Public Works and Natural Resources. This progressive design-build project included design and construction of a gas conditioning system and RNG pipeline to supply cleaned digester gas to a new CNG fueling station that services the City of Longmont's Sanitation Fleet.

→ Project manager for the Eagle River Water and Sanitation District, Colorado, Avon WWTF Nutrient Upgrades Conceptual Design. The purpose of this project was to develop a conceptual design for improvements to the Avon WWTF secondary treatment process to meet Regulation 85 nutrient limits. The recommended process configuration included an Anaerobic/Anoxic/Oxic (A2O) process with flexibility to operate in the 5-Stage Bardenpho configuration.

→ Project manager for the Metro Wastewater Reclamation District, Colorado, PAR 1259 Digester Complex Rehabilitation Project. This work involved modification to existing digester feed and withdrawal systems, digester gas system upgrades, digester cleaning analysis, digester coating rehabilitation and replacement, and miscellaneous improvements.

→ Project manager for the City of Longmont, Colorado, Digester Gas Utilization Project. She reviewed the feasibility of alternatives for beneficial use of digester gas, including combined heat and power, compressed natural gas (CNG) for a fueling station, pipeline injection, digester gas supply to local industries, and biosolids drying. She also developed capital and life cycle costs for alternatives, including preliminary process and equipment sizing. Performed sustainability evaluation and identified funding opportunities.

→ Project manager for the South Platte Water Renewal Partners, Colorado, Biogas Use Project. Reviewed the feasibility of alternatives for beneficial use of digester gas, including CNG for a fueling station and pipeline injection. Developed capital and life cycle costs for alternatives, including preliminary process and equipment sizing. Developed business case analysis for beneficial use of digester gas.

→ Project manager for the City of Fort Collins, Colorado, Dewatering and Strain Press Project. Performed design and construction support of improvements to install new centrifuge dewatering equipment in the existing Dewatering Building at the Drake Water Reclamation Facility. Project also included installation of a redundant strain press for the cleaning of primary solids.

→ Deputy design-build manager for the City of Longmont, Colorado, Ammonia Treatment and Biosolids Dewatering Im-

Becky J. Luna, P.E.

provements Project. This $30 million progressive design-build project included expansion of secondary treatment capacity and incorporation of side stream treatment to meet more stringent daily effluent ammonia limits. The project also included design and construction of a new centrifuge dewatering facility, including centrate handling and storage.

→ Project manager for the City of Longmont, Colorado, Biosolids Facilities Planning Project. This project included an evaluation of the City's thickening, digestion, and dewatering facilities for capacity, redundancy, and operational flexibility. Process modeling was used to develop sludge generation and quality projections under proposed, more stringent, nutrient requirements. Alternatives were analyzed to offset the increase in ammonia-rich centrate return, including centrate equalization, side-stream treatment, and implementation of integrated fixed film activated sludge (IFAS). The potential for onsite beneficial use of digester gas was evaluated and recommendations were made for increasing digester gas production, including codigestion, waste activated sludge hydrolysis, and advanced digestion processes.

→ Project manager for the Eagle River Water and Sanitation District, Colorado, Wastewater Planning Project. Developed master plan update and capital improvements plan for the three wastewater plants operated by the District. Project included evaluation of portfolios of different combinations of improvements for the District's three water reclamation facilities as part of a watershed based approach to planning, including flow and nutrient trading. Performed full-scale process testing to optimize nutrient removal at each facility.

→ Project manager for the City of Longmont, Colorado, Digester Gas Utilization Study. The objective of this study was to maximize digester gas production and use while minimizing natural gas purchases. Responsibilities included coordinating all field investigations, evaluation systems, and preparing the study that defined digester gas production, use and storage, heater/heat exchanger performance, system head balances, insulation options, and electrical code compliance of existing facilities.

→ Project manager for the City of Longmont, Colorado, Air Pollution Emissions Notification (APEN) Renewal and Permit Update Project. Performed calculations for the air emissions sources at the wastewater treatment plant. Developed and submitted APEN updates to the Colorado Department of Public Health and Environment.

→ Project manager for the Eagle River Water and Sanitation District, Colorado, Avon WWTF Nutrient Upgrades Design. Avon required secondary treatment upgrades to achieve compliance with nitrogen and phosphorus discharge criteria, including expanded and modified aeration basins, secondary pumping, and a new secondary clarifier. Condition assessment improvements to screening, grit removal, primary sedimentation, and equalization basins were also included. A significant project challenge was the existing below grade aeration basins structural roof, which was removed and replaced with a building structure to increase operator access, odor control, and aesthetics. Flexibility in zone configuration, treatment volume, and chemical addition provided operators the ability to react and adjust to significant seasonal changes in influent flows and loads. The project was delivered via a Construction Manager At Risk (CMAR) delivery model to include construction sequence and constructability approach in the design process.

→ Peer reviewer for the Plum Creek Wastewater Reclamation Authority, Colorado, Wastewater Utility Plan Update. Project included energy consumption and energy reduction analysis and review of alternatives to beneficially reuse digester gas. Reviewed plant-wide hydraulic model.

Bryan D. Coday, Ph.D., P.E.

Dr. Bryan Coday is a lead technologist with Carollo Engineers specializing in wastewater process performance optimization, process modeling, and the planning and design of wastewater treatment facilities. He has a wide range of project and technical capabilities, including detailed process performance evaluations and data visualization, whole-plant modeling, BNR optimization through pilot- and full-scale testing, water quality monitoring, BNR secondary treatment design, and regulatory permitting.

Education

PhD Civil and Environmental Engineering, Colorado School of Mines, 2015

MS Environmental Science and Engineering, Colorado School of Mines, 2013

BS Environmental Engineering, Colorado School of Mines, 2011

Licenses

Professional Engineer, Colorado

Professional Affiliations

Association of Environmental Engineering and Science Professors

Water Environment Federation

Co-Chair of Innovative Wastewater Technologies Committee

Rocky Mountain Section American Water Works Association/Water Environment Association

Relevant Experience

→ Lead process engineer/process modeler for the South Platte Water Renewal Partners 2019 Master Plan at City of Littleton/Englewood, Colorado. The Master Plan was intended to be a roadmap for achieving operational excellence, managing assets, and identifying capital improvements to sustainably protect and extend resources through a 20 year planning horizon. Responsibilities included BioWin process modeling of the existing trickling filter/solids contact/nitrifying trickling filter process, flow and load projections, detailed process performance and secondary treatment capacity evaluations, and coordination with Colorado Department of Public Health and Environment on behalf of the utility.

→ Lead process engineer/process modeler for the Broomfield Wastewater Reclamation Facility Pilot-scale Carbon Addition Optimization and Testing Project at City and County of Broomfield, Colorado. The goal of the project was to identify operational adjustments and potential capital improvements to optimize total inorganic nitrogen removal to achieve compliance with Colorado's Regulation 85. Responsibilities included dynamic BioWin process modeling of the existing integrated fixed film activated sludge (IFAS) process, full-scale pilot testing development and operational support, and coordination with Colorado Department of Public Health and Environment on behalf of the Utility.

→ Project engineer/process modeler for the WPCF Treatment and Nutrient Master Plan at City of Greeley, Colorado. Project goals included development of a long-term (20 years) sustainable strategy for meeting Regulation 85, future regulations, and population growth with a prioritized list of projects, their costs, and recommended timing for the WPCF. Responsibilities included dynamic BioWin process modeling, flow and load projections, detailed process performance and secondary treatment capacity evaluations, and development of full-scale optimization testing protocols with operations staff.

→ Project engineer/process modeler for the 2017 Master Plan Update at Fort Collins Utilities, Colorado. Responsibilities included the review and visualization of historical plant performance, whole-plant hydraulic modeling, projection of influent flows and loads and dynamic BioWin model development, calibration, and execution for the evaluation of treatment alternatives at the Drake and Mulberry Water Reclamation Facilities.

→ Process performance analysis for the 2017 Wastewater Master Plan Update at Eagle River Water and Sanitation District, Colorado. Responsibilities included detailed process performance and secondary treatment capacity evaluations, data visualization, plant-wide energy audits and benchmarking, steady state and dynamic BioWin process modeling, development of full-scale optimization testing protocols, and identification of energy optimization opportunities for each treatment facility.

→ Assistant engineer/process modeler for the Capacity Analysis Project at Plum Creek Water Reclamation Authority, Colorado. The project included a process analysis and capacity evaluation to comply with daily nitrate effluent limits and anticipated future ultra-low total nitrogen and phosphorus limits, a compliance evaluation for manganese discharge, and a plant-wide energy consumption and energy reduction analysis. Responsible for the evaluation of secondary treatment capacity expansion alternatives,

Bryan D. Coday, Ph.D., P.E.

Awards

2016 Water Environment Federation (WEF) Rudolfs Industrial Waste Management Medal

which consisted of BioWin process modeling, defining of secondary treatment operational parameters, and evaluation of future capacity expansions for ultimate build out of the facility.

→ Staff engineer/process modeler for the South Truckee Meadows Water Reclamation Facility Plan, Washoe County, Nevada. The facility plan included an assessment of the current treatment process and recommended facility improvements to meet a 20-year planning horizon. Responsibilities included evaluation of historical process performance and treatment capacity, and the refinement of existing BioWin process models to optimize plant operations.

→ Lead process engineer for the $40 million Eagle River Water and Sanitation District's Avon Wastewater Treatment Facility Nutrient Upgrades Project. The project included major modifications and expansion of the secondary treatment process for compliance with total inorganic nitrogen and total phosphorus limits set by Colorado's Regulation 85, and an increase in the facility's rated treatment capacity. Conceptual design elements included dynamic BioWin process modeling. Final design elements included an A2O biological process with flexibility to seasonally operate in the Modified Ludzack-Ettinger and 5-stage Bardenpho configurations, and aeration, mixing, pumping, and secondary clarifier improvements.

→ Project engineer for the Drake Water Reclamation Facility Sidestream-P Treatment Project at City of Fort Collins, Colorado. The project included design of an AirPrex sidestream phosphorus sequestering system for treatment of anaerobically digested biosolids prior to centrifuge dewatering. The project was implemented by City of Fort Collins to sequester soluble phosphorus from the solids stream, thereby reducing recycled phosphorus loads to the secondary treatment process and improving the facility's overall BNR performance to achieve compliance with Colorado's Regulation 85. Responsibilities included design of mechanical facilities supporting the AirPrex system and coordination of permitting efforts with Colorado Department of Public Health and Environment.

→ Project engineer for the Eagle River Water and Sanitation District's Edwards Wastewater Treatment Facility Aeration Basin Channel and HVAC Improvements Project. The project included construction of a new aeration basin influent channel and ancillary equipment to improve aeration basin flexibility and secondary treatment performance. Early procurement of critical process equipment during the design phase was required to meet a stringent construction schedule. Responsible for design of mechanical components in the liquid stream process, development of cost estimates, and early procurement of process equipment.

→ Assistant engineer/process modeler for the City of Loveland, Colorado's Biological Nutrient Removal Project. The project included modifications to influent screening and secondary treatment for compliance with Colorado's Regulation 85 total inorganic nitrogen and total phosphorus limits, and an increase in plant treatment and hydraulic capacity from 10 mgd to 12 mgd. Responsible for detailed analysis of the existing secondary treatment process, BNR modeling, diffuser system sizing, and air demand calculations, and development of operational tools to stabilize secondary treatment performance. Assisted in the evaluation of BNR process alternatives, which consisted of BioWin process modeling and calibration, defining of secondary treatment operational parameters, and evaluation of future capacity expansions.

CONSULTING ENGINEERS

John P. McGee

Principal, Environmental Engineering

Education

M.S., Civil/Environmental Engineering, West Virginia University, 1988

B.S., Civil Engineering, West Virginia University, 1986

Registration

Professional Engineer: Maryland, Indiana, Colorado

Professional Organizations

Water Environment Federation (WEF)

American Water Works Association (AWWA)

Instructor/Trainer

Colorado State University – Part Time Instructor for teaching the Spring Semester, 3 credit hour class CIVE 437 – Wastewater Treatment Process Design and Fall Semester CIVE 439, 3 credit hour class – Environmental Engineering Concepts.

Intergovernmental Agreement between City of Loveland and Colorado State University – Assists with graduate level research and water quality testing for developing technologies. Research includes BioWin modeling of the Loveland WWTF, Big Thompson River, Green Ridge Glade Reservoir and Loveland WTP water quality testing, biosolids and digester gas analyses for siloxanes, Volatile Fatty Acid (VFAs) analyses and wastewater characterization work for Biological Nutrient Removal.

Wastewater Projects: Project Manager, Technical Lead or Engineer of Record for the following Projects:

Town of Lyons, CO Technical Lead for the Lyons WWTP capacity re-rating evaluation. Project included a detailed treatment capacity evaluation and mathematical modeling based on influent wastewater characterization to meet effluent discharge requirements. Project also involved the request of Preliminary Effluent Limits (PELs) and working with CDPHE to determine selected effluent discharge locations that allowed for less stringent effluent concentrations for nutrients.

Town of Lochbuie, CO Project Manager for a 2.0 MGD WWTF Headworks improvements including fine screening, grit removal and influent pump station. The project also included aerobically digested sludge dewatering using a rotary fan press and dewatered sludge conveyance to a roll off container. The project was delivered using the Construction Manager at Risk (CMAR) method and was completed in June 2019.

City of Montrose, CO Project Manager for comprehensive performance evaluation (CPE) and Preliminary Engineer Report (PER) for the 4.32 MGD Montrose WWTF. The project also involved evaluating existing performance and modeling operational adjustments to the oxidation ditch system along with recommending minor capital improvements for meeting Regulation 85 effluent nutrient criteria.

City of Salida, CO Technical lead for the 2.7 MGD Salida WWTF wastewater characterization and effluent nutrient compliance evaluation. John assisted with setting up the sampling protocol for the wastewater characterization which lead to data inputs for a mathematical model to calibrate and run model simulations to optimizing nutrient removal. The Salida WWTF is a two-stage nutrient removal system utilizing IFAS technology for nitrification.

City of Northglenn, CO Project Manager for the development and preparation of the City's WWTF biosolids management program. The project involved an overall assessment of the City's current biosolids management followed by developing a template based program for meeting the Biosolids Regulation No. 64. Standard operating procedures (SOPs) were prepared and Excel based conditional formatting was used to develop user friendly templates and checklists for the City to prepare Letters of Intent and to sample, monitor, track and report biosolids applied to land application sites. The Biosolids Management Program report was completed March 2018.

Town of Mead, CO Project Manager for replacing a failing diffused aeration system for the aerobic digester with a more efficient type of course bubble diffused aeration system. The new aeration system improved volatile solids reduction significantly resulting in less biosolids production as well as a more stabilized Class B biosolid and less odors. The project was completed in 2017.

Town of Berthoud, CO Technical Lead for WWTP Improvements including aerobic digestion expansion, replacement of grit removal and classification equipment, replacement of Ultra-Violet Disinfection system, new effluent metering, UV Building HVAC addition, and secondary clarifier covers. Project will be delivered by CMAR with anticipated completion November 2020.

Town of Berthoud, CO. Project Manager for the 2.0 MGD Berthoud WWTP Regulation 85 nutrient evaluation. The project included a detailed wastewater characterization sampling and analysis plan for calibrating a mathematical model to simulate the treatment performance of the WWTP. Following calibration, the model was used to simulate biological and chemical nutrient removal performance with the addition of operational modifications and addition of unit process treatment systems at existing and future flow and loading conditions. The results of the evaluation were summarized in a report along with a detailed phased capital improvement program and budgets for WWTP operational modifications and improvements to meet Regulation 85 nutrient requirements.

Town of Berthoud, CO. Project Manager for the 0.125 MGD Berthoud Regional Wastewater Treatment Facility (WWTF) planning, design and construction to serve the Berthoud Interstate-25 corridor. The Berthoud Regional WWTF will ultimately be expanded for a build-out capacity of 2.7 MGD. The project involved review and approval of the Site Application and PER by NFRWQPA and CDPHE followed by design and construction of the new Regional WWTF and sanitary sewer collection system. The WWTF was designed to meet stringent nutrient effluent limits in accordance with Regulation 85 for new discharges (TIN<7 mg/l, TP<0.7 mg/l). The project was implemented using the Construction Manager at Risk (CMAR) delivery method. The Berthoud Regional WWTF began operation late July 2016.

City of Loveland, CO Project Manager for 10 MGD step feed activated sludge secondary clarifier addition and anaerobic digester improvements. Project included the addition of RAS and WAS pumping and critical tie-ins that were done in the middle of the night. The digester improvements consisted on the replacement of the mixing guns, ventilation improvements and odor control.

City of Loveland, CO Project Manager for a 10 MGD headworks improvements consisting of the addition of a fine screen, conveyor and washer / compactor and replacement of the aerated grit chamber with a vortex type grit chamber with grit pumping. The project also consisted of a new bio filter and chemical scrubbing system for odor control for the gravity influent junction box and headworks. In addition, project included replacement of the primary sludge pumps with new screw centrifugal pumps along with flow metering and piping to the digester.

City of Loveland, CO Project Manager for a 10 MGD WAS thickening system and grease / scum separation project. The WAS thickening consisted of two rotary drum thickeners with WAS feed and thickened pumping, odor control, new building, process lab, and polymer feed system. Grease / Scum separation consisted of separating the grease and scum from the primary clarifier pumping system and modifying the existing scum / grease pit with submersible cutter pumps and piping it directly to the anaerobic digesters.

WWTF Expansion, Town of Crested Butte, CO Project Engineer for the design of an Autothermal Thermophilic Aerobic Digestion (ATAD) system and 0.6 MGD oxidation ditch system. The ATAD system was designed and constructed as a joint project for the Town of Crested Butte and Mount Crested Butte.

City of Grand Junction, CO Persigo WWTF Project Engineer for a joint venture City / Mesa County pilot composting project. The pilot composting project consisted of a series of windrows containing anaerobically treated dewatered sludge mixed with bark chips (bulking agent). The pilot windrows were constructed in a dedicated section of the Persigo WWTF equalization basin. The windrows were monitored for time-temperature to determine if a Class A biosolids could be produced. The composting pilot was successful and demonstrated that a Class A biosolid could be produced. The full scale project never was implemented at the County landfill due to public opposition.

City of Grand Junction, CO Persigo WWTF Project Manager for a 12 MGD conventional activated sludge secondary clarifier addition and associated return activated sludge (RAS) and waste activated sludge piping modifications at the Persigo Wastewater Treatment Facility. Project also includes addition of variable frequency drives and flow meters on the RAS pumps, addition of sludge blanket detectors, and clarifier weir cleaning devices.

Town of Telluride, CO Project Manager for a 0.7 mgd expansion of the wastewater treatment facility. The expansion increased the hydraulic capacity of the wastewater treatment facility to 2.1 mgd. The project included the addition of a third train **oxidation ditch**, secondary clarifier, ultra-violet disinfection, scum pumping and associated piping and control structure modifications. Prepared EPA grant and CDPHE loan applications for project.

U.S. Air Force Academy, CO Project Engineer for the design, construction and operation of a 2.12 MGD 2-stage Biological Nutrient Removal Oxidation Ditch system. The project also included improvements to the headworks, secondary clarifiers, anaerobic digesters, and the addition of a continuous backwash filtration system for post phosphorus removal. Prepared the O & M Manual for the expanded 2.12 mgd wastewater treatment plant. Assisted in on-going operations, troubleshooting and optimization at the wastewater treatment facility. This facility has a dual discharge permit which includes effluent reuse to green space and golf courses within the Academy grounds and effluent discharge to Monument Creek.

Sarah A. Deslauriers, P.E., ENV SP

Sarah Deslauriers' expertise is in the areas of legislative and regulatory development related to the wastewater sector, climate change resilience analyses, greenhouse gas emission management, life-cycle assessment, water and wastewater master planning, water and air quality monitoring and laboratory analysis, integrated water resources management, biosolids management and innovative technology assessment, project prioritization using decision analysis, alternative funding, and asset management.

Education

MSE Environmental Engineering, University of Michigan, 2004

MS Atmospheric and Space Science, University of Michigan, 2002

BS Atmospheric, Oceanic, and Space Science, University of Michigan, 2000

Licenses

Civil Engineer, California

Certification

Certificate, Program in Industrial Ecology, University of Michigan, Michigan, 2005

Certified, Envision™ Sustainability Professional, Institute for Sustainable Infrastructure, 2017

Professional Affiliations

California Association of Sanitation Agencies Climate Change Program Manager

California Water Environment Association

Water Environment Federation Resource & Recovery Subcommittee Chair

American Water Works Association, Climate Change Committee Chair

Central Valley Clean Water Agencies, Air and Climate Change Committee Vice-Chair

Bay Area Biosolids Coalition, Program Manager

Relevant Experience

→ Project engineer for the Denver Metro Wastewater Reclamation District, Colorado, Greenhouse Gas Emission Inventory Tool for the Robert W. Hite Treatment Facility (RWHTF) and METROGRO Farm. The goal was to establish a comprehensive baseline inventory to account for greenhouse gas emissions and sinks. The tool enables the Metro District to assess their ability to comply with regulatory changes and evaluate impacts/benefits of operational changes, as well as evaluate potential energy efficiency measures.

→ Engineer supporting the City of Longmont, Colorado, Wastewater Treatment Plant Digester Gas Utilization Alternatives Analysis. Project included evaluation of alternatives for the beneficial use of digester gas in order to select the most sustainable option and proceed with design and construction of facilities for gas utilization. It also included identifying alternative funding options for digester gas utilization options.

→ Engineer supporting the Plum Creek Water Reclamation Authority, Colorado, Wastewater Utility Update. Project included a plant-wide energy consumption and energy reduction analysis, as well as a utility plan for future solids treatment, and identifying alternative funding options for digester gas utilization options.

→ Project manager serving as the supporting consultant to the Bay Area Clean Water Agencies Air Issues and Regulations (BACWA AIR) Committee for fiscal years 2017 to 2019, advocating on their behalf in discussions and written development of air permits, climate change policy, and rule development with Bay Area Air Quality Management District (BAAQMD) staff, Air Resources Board staff, and other state agencies as needed.

→ Program manager for the California Association of Sanitation Agencies (CASA) Climate Change Program implementing their vision to be the recognized providers of education, leadership, and advocacy for California's wastewater community on climate change issues. The CASA is a statewide group of wastewater agencies that collect and treat over 90 percent of municipal wastewater in California, many of whom also provide recycled water services and actively participate in the beneficial use of biosolids and biogas. The Climate Change Program is focused on helping California achieve its multiple mandates and goals by 2030 and beyond, including: (1) providing 50 percent of the State's energy needs from renewable sources; (2) reducing carbon dioxide equivalent emissions to 40 percent below 1990 levels; (3) reducing the carbon intensity of transportation fuel used in the State by 20 percent; (4) diverting organic waste from landfills and recycling 75 percent of the solid waste generated in the State (by 2025); and (5) reducing short-lived climate pollutants. Additionally, we engage in state and federal policy development for adapting critical municipal infrastructure.

→ Program manager for the Bay Area Biosolids Coalition supporting their efforts in developing subregional biosolids projects for long term management of biosolids generated by the 19 member agencies in the San Francisco Bay Area, securing alternative funds for those projects, and identifying viable wet weather options for biosolids management, all in support of achieving the state's greenhouse gas emissions reduction targets by 2020, 2030, and 2050.

→ Task manager for the One Water Los Angeles 2040 Plan for the Bureau of Sanitation in the City of Los Angeles, California. Responsibilities include leading efforts to

Sarah A. Deslauriers, P.E., ENV SP

Awards

2017 Environmental Business Journal Achievement Award - Consulting & Engineering: Climate Change Adaptation & Resilience

2019 American Water Works Association – Water Resource Sustainability Division OASIS (Outstanding Achievement, Service and Initiative in Sustainability) Award Recipient

evaluate the impact (type and cost) of climate change and variability on the wastewater and stormwater infrastructure, as well as recommend adaptation strategies to improve overall resiliency.

→ Assistant project manager for the Co-Digestion Capacity Analysis for the California State Water Resources Control Board. This project includes a statewide analysis of food waste quantities, anaerobic digestion capacity needs/availability, impacts on greenhouse gas production, and measures that can be taken to successfully implement co-digestion of food waste across California to achieve methane emissions reduction goals.

→ Project engineer serving on the Modeling Advisory Committee for the Water Utility Climate Alliance for their Piloting Utility Modeling Applications project to develop credible and useful downscaled climate data that could be used by New York, San Francisco, and Seattle to better understand projected changes in urban hydrology for consideration in infrastructure improvements, the development of new design guidelines, and alternative interventions.

→ Project engineer serving on the American Water Works Association and National Oceanic and Atmospheric Administration's panel in a series of workshops for "Decreasing Climate Induced Risk for Municipal Water Demand Forecasting."

→ Engineer selected as the climate change specialist to serve on the value engineering team for New York City Department of Environmental Protection evaluating the Conversion or Optimization of the Rockaway Wastewater Treatment Plant for impacts due to climate change and the resulting future extreme events, including hurricanes. She also reviewed the sustainability aspects of the project, including assessing the application of the Envision™ Rating System.

→ Engineer for the Sewer System Master Plan for the San Francisco Public Utilities Commission (SFPUC), California. Led research on global climate change and package ("scalping") plants and presenting the material in technical memorandums to support the master planning decision process.

Also integrated decision analysis with engineering analysis to create an integrated project approach addressing relevant benefits and costs for project alternative comparison and prioritization.

→ Engineer for the evaluation and inventory of greenhouse gas emissions resulting from the construction and/or operation of project alternatives developed for various projects and in compliance with relevant existing and developing regulations (e.g., California's Assembly Bill 32 and U.S. EPA's Mandatory Reporting Program). The evaluation process includes boundary development; collecting, reducing, and analyzing data; and development of a technical memorandum summarizing the methodology, assumptions, and results. Evaluations and/or inventories have been conducted for the following projects:

- Project engineer for San Luis Obispo County, California's Los Osos Wastewater Project Development in its evaluation of wastewater treatment and collection system project alternatives. Provided environmental review support by estimating greenhouse gas emissions from the construction and operation of the treatment and collection system alternatives.
- Project engineer for the Oro Loma Sanitation District greenhouse gas emissions estimate project for the City of San Lorenzo, California. Estimated greenhouse gas emissions for onsite stationary combustion sources to determine CARB reporting requirements and provided emissions monitoring system recommendations.
- Project engineer for the Rancho California Water District greenhouse gas emissions baseline inventory project for the City of Rancho, California. Estimated greenhouse gas emissions for existing plant operations as well as estimates of emissions after a plant expansion to determine CA reporting requirements and potential for developing carbon offset and renewable energy credit projects.

Education

MBA Finance, Rockhurst University, 1994

BS Business Administration, Loyola University of Chicago, 1990

Professional Affiliations

American Water Works Association

American Water Works Association, Missouri Section

Missouri Water Environment Association

Ann Casey

Ann Casey is a Vice President and Service Delivery Lead for the Strategic Management Group which includes solutions for Asset Management, Organizational Management, and Technology Optimization. She has over 28 years of experience working with operational, managerial, and financial aspects of water, wastewater, and energy utilities. Her comprehensive experience leverages industry best practices and advanced techniques to provide utilities the balance of risk and capital, while continuing to provide the service expected by their customers.

Relevant Experience

→ Asset management technical lead, Northeast Water Purification Plant (NEWPP), Houston, Texas. The goal of this project is to better understand the capital and operational needs of the existing facility over the next 20 years. Key tasks included completing a condition assessment and business risk exposure profile for the facility's assets to ensure the ability to meet the established levels of service to the community. The project ultimately will provide the City with information to make better informed long term decisions on alternatives for treatment plant operations.

→ Project manager, Griswold Water Purification Facility Asset Management Plan, Aurora, Colorado. Ms. Casey is currently leading a project team to develop a comprehensive Asset Management Plan for the Griswold Plant as part of the system-wide Total Asset Management Plan for the Utility. Key tasks anticipated to complete the project include the Condition Assessment to understand the current state of the plant, establishing levels of service, developing risk protocol and understanding business risks, resulting in O&M strategies and a long term funding strategy.

→ Partner-in-charge for the Madera Irrigation District (MID) AM Gap Assessment and CIP Development, Madera, California. In this ongoing project, Carollo will assist MID in the evaluation of its existing practices, technologies, and data, in an effort to develop a framework for a robust asset management business practice. The framework will be used to define risk protocols and evaluate the District's critical assets by applying those protocols. Following this evaluation, Carollo will develop a risk-based prioritized capital improvement plan for the next five years to efficiently plan near-term annual funding needs.

→ Program advisor, Comprehensive System Assessment and Update, Dallas Water Utilities, Dallas, Texas. Ms. Casey is currently serving as Program Advisor and Condition Assessment Lead to complete a comprehensive system assessment and update for the City of Dallas Water Delivery System. This assessment is expected to address projected water demands; aging infrastructure; service reliability, water quality, security, water loss and recommendations of applications/procedures to maximize operation efficiency.

→ Project manager for the Albuquerque Bernalillo County Water Utility Authority (ABCWUA) Utility-wide Asset Management Plan - Phase 1 in Albuquerque, New Mexico. Phase 1 of the Plan consists of reviewing the Utility's existing asset management reports and data; becoming familiar with the Water Authority's GIS system; and reviewing the Water Authority's CMMS system.

→ Project advisor and QA lead, Alvarado Wastewater Treatment Plant Asset Condition Assessment and Update, Union Sanitary District, California. Ms. Casey served as Project Advisor to team to update the asset condition and refine asset replacement costs from the 2006 Master Plan and 2009 Master Plan Update for the Alvarado Wastewater Treatment Plant facilities. The project supported the utility leadership to set the course for managing asset risk and optimizing asset investment into the future.

→ Project manager, Asset Management Plan Phase 1, City of Gallup, New Mexico. Ms. Casey served as project manager to support the development of an Asset Management implementation plan. The project

Ann Casey

included the review of existing asset management practices, identification of the gap between current practices and development of some foundational elements of Asset Management. Once the gap analysis was completed, a gap closure plan and implementation plan was developed to guide the City to implement the elements and realize the benefits of a formalized Asset Management Program.

→ Project manager, Asset Management Needs Assessment, Greenville Water, Greenville, South Carolina. Ms. Casey recently completed a study to help Greenville Water to identify the needs associated with implementing Asset Management at the utility. The project is focused on identifying the gaps between current practices, data sources and supporting business processes associated with Asset Management. Once identified, a gap closure plan and phased implementation plan will be developed to guide the utility through the implementation process.

→ Project manager, Asset Management Implementation Plan, Coachella Valley Water District (CVWD), Palm Desert, California. Ms. Casey served as the Project Manager to support the development and full implementation of asset management at CVWD. The project included the development of a vision for Asset Management at CVWD, identification of gaps and gap closure plan, pilot of foundational asset management elements, selection of a computerized maintenance management system (CMMS), and the tactical implementation plan for Asset Management initiatives. Following the completion of the project, CVWD will be positioned to realize the benefits of formalized asset management.

→ Project task lead, Asset Management Program Development, US Navy Facilities and Engineering Command Atlantic (NAVFAC LANT). Ms. Casey served as project task leader to support the full implementation of asset management for NAVFAC all utilities at Naval bases throughout the world.

NAVFAC is responsible for the operations and maintenance of all utility systems on Naval bases throughout the world. The project included the development of an organizational strategic plan, as well as the implementation of a worldwide utility asset management program which positioned the client to adequately fund and staff for optimal operations and maintenance of each base's utility systems. This program spanned over 65 US Navy installations and 250 separate utility systems (water, wastewater, electric, gas, steam, etc.) and involved:

- Strategic Plan Development – development of strategic plan known as the Utilities Systems Program Plan (USPP) to guide the management and resourcing of utilities managed by NAVFAC, based on the principles of Effective Utility Management. The Plan enabled NAVFAC to provide efficient life-cycle management of the Navy utility systems to include the ability to develop, program/budget, and defend the prudent level of investment and to provide an integrated business model and enterprise-level Plan of Action and Milestones for the systems and components that support the objective, including current status, inter-dependencies and way ahead.

- Asset Management Program Planning – Assistance with developing a utility-based AM framework that provides the process, technology, and organizational foundation for the entire program.

- Technology Review and GIS Development – Assessment and configuration of pertinent technology systems currently being used to support AM functions, these include Maximo CMMS, Esri GIS, and other in-house systems. In addition, this included development of the GIS data necessary to support the program.

- Utility Inventory and Condition Assessment Strategy Development – Development of the processes and technical logistics necessary to effectively inventory and assess over 450,000 horizontal and vertical assets at 65 Navy facilities world-wide.

E. Ron Burdick, P.E.

Ron Burdick, a vice president with Carollo Engineers, has diverse experience that includes development of process, instrumentation and control drawings, such as SCADA block diagrams, fiber routing, patch panels, digital bus network drawings, control panel layouts, P&IDs, I/O diagrams, loops drawings, and schematics. In addition to instrumentation drawings, his capabilities also extend into the electrical arena. Electrical skills include developing panel schedules, one-lines and MCC elevations, electrical room and panel layouts, as well as conduit sizing and routing. Mr. Burdick has been designing digital bus networks since 2001. These designs include Profibus DP, Profibus PA, Foundation Fieldbus, and DeviceNet network calculations and drawings. This technology is used to interface with instruments, valves, starters, VFDs, and I/O modules.

His knowledge and experience has been used to develop both client standards and corporate standards. His philosophy of working smarter not harder has led to innovative solutions for drawing development, database population through the development of specialized software and workflow. Combination of these skills has led to our current workflow of where attribute information from the P&IDs is linked to a database to provide information in cataloging, reporting. His experience also includes development of process and instrumentation diagram (P&ID) standards and work flow where attribute information either is extracted or linked to a database for information cataloging, report fabrications, and extensive quality checks. This has aided in the designing, programming, purchasing of plant equipment and instrumentation.

Mr. Burdick has a strong AutoCAD background, having worked with AutoCAD since 1986 using version 2.5 through 2013. His experience has involved implementing a wide range of enhancements to help increase speed and improve quality. These enhancements include menu customization, dialog modifications, macro programming, and the incorporation of third-party software.

He also has in-depth knowledge of a variety of other software packages including AutoCAD Electrical, Word, MathCAD, Access, and Excel. He has developed custom software solutions utilizing Visual Basic, Excel, and HTML programming skills. Tasks with automated sequences include conduit schedules, voltage drop worksheets, load studies, DeviceNet power and utilization, and fiber budget loss calculations. Recent project assignments include:

Education

BS Mechanical Engineering, Colorado University, 1995

AA Mechanical Drafting, Denver Institute of Technology, 1988

Licenses

Professional Engineer, Colorado

Professional Affiliations

American Society of Mechanical Engineers

Automotive Society of Engineers

The Instrumentation Systems, and Automation Society

Relevant Experience

→ Metro Wastewater Reclamation District, Denver, Colorado, PAR 1085 South Secondary Improvements instrumentation project entails complete upgrade to the plant's south secondary treatment facility. Components include Primary Effluent Pump Station with five 4,160-VAC VFDs, six aeration basins, centrate re-aeration system, RAS/WAS pump stations, five 2,000-hp blowers, ten secondary clarifiers, ammonia feed system, sodium hypochlorite modifications, HVAC, and several additional support systems. This design incorporated the use of digital bus networks and small amount of traditional I/O. Total soft and hard I/O totaled in excess of 9,000 points, 232 Profibus DP nodes, 43 Profibus PA nodes, 1,055 DeviceNet nodes, and multiple MODBUS RTU, Ethernet/IP, and Ethernet TCP/IP connected devices. Almost all of the instrumentation components are supported by FDT DTMS allowing for remote access and monitoring for instrumentation and equipment health. In addition, two large Rockwell vibration systems were designed for the Aeration Blowers and PEPS pumps. Network junction boxes were placed throughout the facility allowing easy access both now and the future to MODBUS TCP, Profibus PA, and Profibus DP. The control system backbones consisted of eight new ABB S800 DCUs and eleven Allen Bradley ControlLogix PACs. The network backbone consisted of 72 fibers segregated into different networks including security, phones, and multiple control networks. Engineering included fully detailed point-to-point wiring for all panels, patch panels, PLC and network junction boxes.

→ Instrumentation engineer for the Pismo Beach Wastewater Treatment Facility 8 mgd expansion, California. The instrumentation design of the oxidation ditch plant included PLC networks, P&IDs, installation details, PLC and network cabinet layouts. Project included full construction management services.

→ Design services for a wastewater treatment plant expansion for the City of Turlock, California. This project is a large-scale enhancement including two phase digesters, flotators, secondary and biotower pump stations, grit removal, high rate floc/sed treatment trains, tertiary filtration, and chemical facilities including polymer, alum, ferric and chlorine.

→ Electrical and instrumentation design of the Brantner Gulch Lift Station Pump Replacement and Polymer Injection System for the Metro Wastewater District, Denver, Colorado. This project consisted of two new 300-hp pumps with VFDs, and a high-rate polymer injection system into the force mains.

→ Development of a complete set of P&IDs for both water and wastewater treatment plants for the City of Fort Collins, Colorado. The process included weekly meetings with key individuals ranging from plant operators to the head of Fort Collins' electrical and instrumentation group. Several of these meetings focused on expanding the current capabilities of the system and integrating P&ID documents through live database links with the maintenance package. This proved to be challenging and resulted in the development of both in-house and custom third-party software.

→ Instrumentation and control planning engineer for the City of Boulder, Colorado, 75th Wastewater Treatment Plant Process Automation System Master Plan. Monte Richard and Ron Burdick co-led this master planning effort including field investigation and evaluation of current assets, including planned obsolescence from the currently installed manufacturers. Staff surveys, and project scoping, estimating, and prioritizing recommended projects for integration into the facilities short and long-term Capital Improvements Project (CIP) schedule. Carollo is currently implementing the Process Automation Master Plan.

→ Technical lead for the City of Sunnyvale, California, Sunnyvale Water Pollution Control Plant Automation Master Plan. This project includes a full automation upgrade and includes sharing data with other business units within the city, wireless access, Security, iPad mobile control, redundant virtualized HMI environment, local and enterprise historians, Profibus and Ethernet/IP instruments and Ethernet/IP motor control center communications for all starter, RVSS and VFDs. Project included development of Standards that included the following: Control panels, Control Drawings, network, PLC Hardware and Software, tagging, HMI, Construction requirements and a cutover plan. The project was developed using multiple meetings with staff to evaluate and each portion of the control system and included plant tours both local and remote from the facility. The Master Plan has been designed to be implemented over several CIP projects.

→ Lead engineer for the City of Edmond, Oklahoma, Automation Control System Master Plan. This design encompasses the Coffee Creek WWRF, Arcadia WTP and 60+ remote sites. The master plan included a full evaluation of existing facilities, radio path studies, evaluation of telemetry options including evaluations on Microwave, cellular, licensed, unlicensed and DSL. The control system is based on Rockwell ControlLogix and FactoryTalk Plant PAx. The design encompassed proximity card ID logins, iPad control of the HMI, remote Instrumentation configuration, local and enterprise historians and incorporation of the data into the City's asset management . The design also included a full physical security component. This design is currently being engineered into Coffee Creek WWTP expansion and later this year the Arcadia WTP expansion design will also begin implementation.

Christopher A. Heger, P.E.

Chris Heger joined Carollo in 2008, gaining experience in construction management and electrical and instrumentation design for both water and wastewater treatment facilities. Chris has experience in medium voltage and low voltage design, including development of conduit plans, design of power generation systems and automatic controls, P&ID development, and experience on many water and wastewater projects.

Education

MS Electrical Engineering, Colorado School of Mines, 2012

BS Electrical Engineering, Colorado School of Mines, 2008

Licenses

Professional Engineer, Colorado, Oklahoma, South Carolina, Wisconsin

Professional Affiliations

Institute of Electrical and Electronics Engineers

Lightning Protection Institute

Relevant Experience

→ Lead electrical engineer for the City of Aurora, Colorado, Wemlinger WPF PLC Upgrades Project. Led the electrical aspects of the design and procurement services to replace Wemlinger's existing PLCs with new Allen Bradley ControlLogix PLCs.

→ Electrical design for the South Valley Water Reclamation Facility Headworks VFD Replacement project in Salt Lake City, Utah. The project included replacement of four out of the six 250-hp VFDs for the headworks lift pumps. Detailed project sequencing was crucial as all but two pumps were required to remain operational during the replacement.

→ Electrical design for the Drake Water Reclamation Facility motor control center (MCC) replacement project for the City of Fort Collins, Colorado. The project includes replacement the Sludge Thickening Building MCC as well as the North Plant Lift Station MCC. As part of the replacement of both MCCs, the existing controls and power cables were re-used, which required significant coordination between Carollo, the contractor, and the manufacturer of the MCCs. Replacement of the Sludge Thickening Building MCC also incorporated a Profibus network to provide additional control and diagnostic features for the plant staff.

→ Electrical, instrumentation, and control design of Mulberry Water Reclamation Facility for City of Fort Collins, Colorado. The project included addition of an aeration basin, blowers, odor control, and sludge pumping and renovation of the final clarifier and headworks facility. Design included one-lines, motor control center and switchgear elevations, conduit and duct bank routing, switchgear, process P&IDs, Profibus network, and process control descriptions.

→ Electrical, instrumentation, and control design of Drake Water Reclamation Facility for City of Fort Collins, Colorado. The project consisted of renovating the aeration basin, and blowers of their South Train. Design included one-lines, conduit and duct bank routing, process P&IDs, Profibus network, and process control descriptions.

→ Electrical and instrumentation design for the Wastewater Treatment Facility UV disinfection project for the City of Belton, Missouri. The project included addition of a UV disinfection system and replacement of the facility's non-potable water pumps. Design included one-lines, standby power generation studies, conduit routing, switchgear, automatic transfer gear, schematics, and process P&IDs.

→ Electrical design for Pump Stations 1 and 2 for the City of San Diego, California. The project included replacing the service entrance switchgear and distribution equipment for the six 600-hp pumps at Pump Station 1 and for the six 2250-hp pumps at Pump Station 2. Design included switchgear and relaying design, one-lines, elevations, conduit and duct bank routing, and P&IDs.

→ Electrical design for the Wastewater Treatment Facility Improvements project for the City of Belton, Missouri. The project included an expansion of the existing influent lift station that doubled the pumping capacity and added a standby diesel generator, and a new headworks facility also with its own standby diesel generator. Design included one-lines, standby power generation studies, conduit routing, switchgear, automatic transfer gear, and schematics.

→ Carbon Footprint analysis for the City of Fort Collins, Colorado. The analysis included the Mulberry and Drake Water Reclamation Facilities.

→ Instrumentation and control design of McAllen Public Utility South Wastewater Treatment Plant in McAllen, Texas. The project included upgrades and additions to the

Christopher A. Heger, P.E.

headworks, aeration basin, blowers, digester, odor control, sludge pumping, final clarifiers and renovation of the solids handling facility. Design included process P&IDs, control description, network diagrams, and schematic wiring diagrams.

→ Electrical, instrumentation, and control design of the City of Loveland's Water Reclamation Facility in Colorado. The project consisted of renovating the aeration basins, headworks facility, and various pump stations on the site. Electrical design included replacement motor control centers, construction sequencing, vendor equipment, and load diversity. Design documents included one-lines, conduit diagrams, and ductbanks.

→ Electrical, instrumentation, and control design of Drake Water Reclamation Facility for City of Fort Collins, Colorado. The project consisted of renovating the aeration basin and blowers of their South Train and North Train. Electrical design included replacement motor control centers and switchboards. Design documents included one-lines, conduit and duct bank routing, process P&IDs, Profibus network, and process control descriptions.

→ Electrical and instrumentation design for the Drake Wastewater Reclamation Facility Digester Cogeneration Project for the City of Fort Collins, Colorado. The project included addition four 275 kVA generator units, digester gas conditioning system, and 480 VAC paralleling switchgear. Design included one-lines, standby power generation studies, conduit routing, automatic transfer gear, network diagrams, and process P&IDs.

→ Lead electrical, instrumentation, and controls engineer for master planning services for the City of Fort Collins, Colorado, Drake Water Reclamation Facility. The master planning effort included field investigation and condition assessment of the existing electrical and controls infrastructure. Staff surveys were conducted to understand the needs and desires of management, information technology, operations, and maintenance. Based on findings from the field investigation and staff surveys, recommended projects were scoped, prioritized, and budgeted for integration into the facilities short and long-term Capital Improvements Project schedule.

→ Electrical and instrumentation design for the Drake Wastewater Reclamation Facility Dewatering Project for the City of Fort Collins, Colorado. The project included adding two centrifuge units in place of their existing belt filter presses, adding a strain press at their existing Headworks Facility, and replacing the associated electrical equipment to serve the new load of approximately 300 HP. Design included one-lines, standby power generation studies, conduit routing, automatic transfer gear, network diagrams, and process P&IDs.

→ Electrical system study for the Mulberry and Drake Water Reclamation Facilities and the LaPorte Water Treatment Facility for the City of Fort Collins, Colorado. The project included a field investigation as well as a load study, shock hazard analysis, arc flash hazard analysis, and protective device coordination studies.

→ Electrical system study for the City of Aurora, Colorado. The project included a field investigation as well as a load study, shock hazard analysis, arc flash hazard analysis, and protective device coordination studies for 33 of their pumping and distribution facilities. The facilities range from single pump installations up to eight 800-hp medium voltage pumps.

→ Electrical system study for South Island Public Service District, Hilton Head Island, South Carolina. The project included a field investigation as well as a load study, shock hazard analysis, arc flash hazard analysis, and protective device coordination studies for 88 of their pumping and distribution facilities, their RO Treatment Facility, and their Wastewater Treatment Facility.

→ Electrical system study for the City of San Diego, California, Pump Stations No. 1 and No. 2. The project included a load study, shock hazard analysis, arc flash hazard analysis, and protective device coordination studies.

Jason Rozgony, P.E.

Jason Rozgony has more than 23 years of experience in the water and wastewater industry, the majority of which has been full-time cost estimating for design, CMAR, design-build, and hard bid projects. He has been responsible for the development of corporate estimating standards, and has managed estimating staff across the United States. Jason has prepared discipline-level estimates and has led complete estimates for more than 150 design and fixed price construction projects requiring collaboration with design engineers, vendors, and subcontractors from preliminary through final design.

Education

BS Civil Engineering, South Dakota School of Mines and Technology, 1995

Licenses

Professional Engineer, Colorado

Professional Affiliations

Invited Member of the Sage Timberline Industry Advisory Board

Engineer's Estimates

→ Water Quality Improvements – Phase III, City of Odessa, Texas, $154 million.

→ Northwood Water Treatment Plant – Phase II Improvements, City of North Miami Beach, Florida, $30 million.

→ Wemlinger CT Chamber Project, City of Aurora, Colorado, $19 million.

→ Pellet Softening, Disinfection, and Facility Improvements Project, South Adams County Water and Sanitation District, Colorado, $42 million.

→ Avon Wastewater Treatment Facility Nutrient Upgrades, Eagle River Water and Sanitation District, Colorado, $43 million.

→ Blue River Wastewater Treatment Plant Biosolids Upgrades, City of Kansas City Water, Missouri, $215 million.

→ Treasure Island Wastewater Treatment Plant, San Francisco Public Utilities Commission, California, $139 million.

→ Estimator for the Northeast Water Purification Plant Expansion Owner's Advisor Services, City of Houston, Texas. As part of the project advisory task, Jason provided estimates for the design-build project. His primary responsibilities included reviewing GMPs from the other program consultants, McCarthy and Balfour Beatty.

Previous Experience – Engineer's Estimates

→ Lead estimator for the Austin Water Treatment Plant No. 4, City of Austin, Texas. While with a previous firm, Jason served as the lead construction cost estimator for the $150 million project located in located in Austin, Texas. Major elements of work included construction of clarifiers, gravity filters, sludge facilities, maintenance and administration buildings, pump stations, and clearwells. Jason collaborated with procurement staff to prepare the subcontractor scopes of work and solicitation documents, led the internal estimating effort, and completed all of the bid evaluations and GMP development.

→ South Mesquite Regional Wastewater Treatment Plant Solids Handling Improvements, North Texas Municipal Water District, $20 million.

→ Water Reclamation Facility Improvements, City of Niles, Ohio, $51 million.

→ Lancaster Water Reclamation Plant Expansion – Phase I, County Sanitation Districts of Los Angeles County, California, $120 million.

→ West Seattle and Maple Leaf Reservoirs, Seattle Public Utilities, Washington, $66 million.

→ Peace River Reservoir Expansion, Peace River Manasota Regional Water Supply Authority, Florida, $45 million.

→ Point of the Mountain Water Treatment Plant, Metropolitan Water District of Salt Lake and Sandy, Utah, $81 million.

→ Filtration Building Improvements, City of Las Vegas, Nevada, $20 million.

Previous Experience - Design-Build

→ Ft. Polk North and South Wastewater Treatment Plants, American Water, Florida, $64 million.

→ Rio Tinto Holden Mine Reclamation and Water Treatment Facility, Washington, $23 million.

→ Water Reuse Facility, Pueblo of Santa Ana, New Mexico, $17 million.

Jason Rozgony, P.E.

→ Central Treatment Plant Upgrade and Expansion, City of Tacoma Department of Public Works, Washington, $150 million.

Previous Experience - Construction Management-at-Risk

→ Southeast Treatment Plant Biosolids Improvements, San Francisco Public Utilities, California, $1.1 billion.

→ Next Level Treatment, City Spokane, Washington, $126 million.

→ Water Treatment Facility Expansion, Town of Eagle, Colorado, $23 million.

→ Berl L. Handcox, Sr. Water Treatment Plant, City of Austin, Texas, $150 million.

→ Wastewater Pollution Control Center, City of Fremont, Ohio, $57 million.

→ Hillcrest Reservoirs and Pump Station, Denver Water, Colorado, $100 million.

→ Phase A Expansion, Upper Blackstone Water Pollution Abatement District, Massachusetts, $23 million.

→ Thomas P. Smith Water Reclamation Facility Expansion, City of Tallahassee, Florida, $170 million.

→ Wastewater Treatment Plant Expansion, North Davis Sewer District, Utah, $90 million.

Previous Experience - Hard-Bid Projects

→ Wastewater Treatment Facility, Trinity River Water Authority, Texas, $196 million.

→ Lake Texoma Water Treatment Plant Expansion, City of Sherman, Texas, $24 million.

→ PAR 1225 South Headworks and Grease Processing Improvements, Metro Wastewater Reclamation District, Colorado, $52 million.

→ Water Storage Improvements, City of Avon Lake, Ohio, $23 million.

→ Wastewater Treatment Plant Expansion, City of Louisville, Colorado, $27 million.

Steven J. Walker, C.W.P.

Steven Walker, with more than 35 years of experience in the operation and management of wastewater treatment facilities, Mr. Walker also serves on the State of Colorado's Water and Wastewater Operators Certification Board. Additionally, Mr. Walker is Carollo's Operations Assistance Group Leader, and as such, he directs the efforts of our licensed clean water specialists.

Education

BS Technical and Industrial Administration, Metropolitan State College of Denver, 1997

AAS Water Quality Management, Red Rocks Community College, 1990

Licenses

Industrial WWTP Operator, Class A, Colorado

Wastewater Treatment Plant Operator, Grade IV, California

Wastewater Treatment Plant Operator, Class A, Colorado

Professional Affiliations

Rocky Mountain Water Environment Association

Water Environment Federation

Colorado Water and Wastewater Plant Operators Certification Board Member (2009-2017)

RMWEA/RMSAWWA Joint Technical Activities Committee (1996-2017)

Relevant Experience

→ Operations coordinator for the San Jose Santa Clara Regional Wastewater Facility, California, CIP Program O&M Coordination Support. Developed O&M coordination support for the $2 billion CIP program including methodology, tools, and procedures to integrate O&M input into project designs (Design-Bid-Build and Progressive Design-Build) and establish methods to ensure the plant achieves permit criteria. Steve developed a comprehensive Shutdown Coordination plan to execute project-driven shutdowns. He also developed an annual operations plan and recorded existing process operating strategies and isolation constraints. Notably, he also provided O&M perspective for the 2011 Facility Master Plan.

→ Principal operations specialist and project lead for the Albuquerque Bernalillo County Water Utility Authority, New Mexico, Facility Management Training and Development Services. Provided guidance to eliminate ammonia and nitrate related permit violations. Developed initiatives to address the gaps, and trained staff on use. He conducted gap analysis to determine steps to improve operations and maintenance of the wastewater treatment plant. He also conducted staffing analysis to align operations staffing with facility requirements to optimize personnel. In addition he developed comparable initiatives and training at the water treatment plant, including process-focused procedures and awareness for the ozone contact system.

→ Operations specialist for the City of Longmont, Colorado, Digester Gas Utilization Study. The goal was to maximize digester gas production and use while minimizing natural gas purchases at the City's wastewater treatment plant. Provided field services and analysis, and developed emergency response protocols, procedures, and documents for the water and wastewater treatment facilities.

→ Operations specialist for the Eagle River Water and Sanitation District, Vail, Colorado. Focus areas included optimizing existing treatment processes, improving process awareness, and improving staff training.

→ Operations specialist for the City of Longmont, Colorado, supporting $33M Design-Build for BNR and biosolids handling improvements, from study through commissioning. Steve provided a comprehensive sampling, data collection, and analysis review for improved process awareness and facility optimization. He also developed emergency response protocols and procedures for the water and wastewater treatment facilities. In addition he provided guidance for moving to unmanned plant operation. Conducted "lessons learned" meetings between City of Longmont and the City of Boulder to transition the 75th St. Wastewater Treatment Plant to unmanned operation.

→ Operations specialist for the City of Riverside, California, Regional Water Quality Control Plant. Coordinating O&M activities and process optimization with $192M Capital Improvements by improving process awareness through comprehensive sampling, data collection, and analysis review. He also provided staffing and workload gap analysis for all work groups.

→ Operations specialist for the North Texas Municipal Water District's Wylie Treatment Plant upgrades, specializing in chemical handling, site safety, and security.

→ Treatment superintendent and operator responsible for the Denver Metro Wastewater Reclamation District, Colorado, Robert W. Hite Treatment Facility, a 227 mgd plant for 14 years. The plant achieved first place for the Environmental Protection Agency's (EPA) Large Advanced Treatment

Steven J. Walker, C.W.P.

Awards

William D. Hatfield Award, Outstanding Performance and Professionalism, Water Environment Federation, 2005, Operation of a Wastewater Treatment Facility

"You have had a positive impact on myself and staff. We were spending a lot of time trying to figure it out, which was exhausting. You gave us the tools and mindset to be successful and now we are unstoppable, even with limited staff."

- David Huff, Water Quality Control Division Manager, June 2019

Plant in 1999 and 2005 and received 14 National Association of Clean Water Agencies (NACWA) Gold awards from 1995 through 2009.

→ Startup and commissioning specialist for the Eastern Municipal Water District, Perris, California. Provided training and commissioning services, facility management and optimization protocols for four treatment plants – Temecula, Perris, San Jacinto, and Moreno Valley.

- Commissioned new Headworks at San Jacinto in fall 2014.
- Steve's innovative startup and commissioning plans allowed beneficial use of all the new processes much sooner than planned while saving the Owner significant contractor overhead and risk.
- Developed and provided an operational awareness program that saves the District over 10% annually on total dewatering costs.

→ Startup and commissioning specialist for the Post Point Wastewater Treatment Facility, Bellingham, Washington. Provided operability review at each design phase. Provided training for conversion from high purity oxygen to the BNR process and process optimization protocols for facility optimization, and decommissioning guidance.

→ Operations specialist for the City of Sunnyvale, California 2016 Facility Master Plan. Provided O&M direction and developed control strategies for the new Headworks and Flow Diversion structures. He developed a staffing reorganization plan to proactively realign O&M staff with changing process footprints, improved automation, and increased instrumentation.

→ Operations specialist and Owner's Advisor for the Hi-Desert Municipal Water District in Yucca Valley, CA, for the Design-Build and staffing of the wastewater treatment plant and collections system.

→ Principal operations specialist for the Orange County Sanitation District, California, Primary Solids Thickening Optimization project. Developed optimization methods to improve primary solids thickening at Plant 1.

→ Startup and commissioning specialist for the Western Regional Wastewater Treatment Facility, Hancock County, Mississippi. Provided commissioning services and developed process sampling and data recording protocols.

→ Operations specialist for the Orange County Utilities in Orlando, Florida. Provided operational assessment to establish means to address consent order issues.

→ Operations specialist for Hillsborough County's Valrico Advanced Wastewater Treatment Plant, Brandon, Florida. Conducted gap analysis for bond holders due to ongoing effluent permit violations. Identified O&M shortcomings and wrote SOPs for each unit process.

→ Operations specialist for the East Bay Municipal Utilities District (EBMUD) Energy Independence Program - Solar 50 Turbine Installation, Oakland, California. Wrote standard operating procedures (SOPs) to integrate the Solar 50 turbine and its supporting systems into daily operation.

→ Operations specialist for Metro Wastewater Reclamation District's Northern Treatment Plant. Developed about 200 SOPs and other content for the Electronic O&M Manual.

→ Operations specialist for the City of Carson City, Nevada, Optimization Methods Study. Provided analysis and recommended methods to stabilize the dewatering process at the City's wastewater treatment plant.

→ Operations specialist providing staffing analyses for the Water Pollution Control Facility Design Improvements Project for the City of Everett, Washington.

→ Operations specialist for the Willow Lake Headworks and Primary Treatment Improvements Design Project for the City of Salem, Oregon. Worked closely with staff to develop an innovative O&M manual for operating the facility.

CONSULTING ENGINEERS

Adam J. Teunissen, PE

Project Manager, Structural Engineering

Education

B.S. Civil Engineering, University of Wisconsin - Platteville, 2003

Registration

Professional Engineer:
Colorado
Wisconsin
Minnesota
Indiana

Professional Organizations

Structural Engineers Association of Colorado

American Concrete Institute Committee 350 Member

Awards

2011 ACEC Minnesota Engineering Excellence Honor Award, Structural Engineer: New Wastewater Treatment Facility at Willmar, Minnesota

Project Experience

Project Manager or Engineer of Record for the following representative projects:

Persigo Wastewater Treatment Facility, Grand Junction, Colorado. This project involved the inspection of cast-in-place concrete structures that exhibited varying degrees of corrosion due to hydrogen sulfide exposure. For this project JVA worked with coating manufacturers to come up with a rehabilitation and coating system that would provide long term protection to the affected structures.

Pueblo West States Avenue Lift Station (LS3), Pueblo West, Colorado. Lead structural engineer for the design of a 20 foot by 30 foot lift station and building. The structure consists of a 8 foot diameter precast concrete wet well, cast in place concrete foundations supported on drilled piers and a pre-engineered metal building.

Lochbuie Wastewater Treatment Facility Expansion, Lochbuie, Colorado. Project Manager for the structural design of a new grit removal and pump station structure. The structure consists of a 23 foot by 30 foot by 11 foot deep grit removal area and a 38 foot by 31 foot by 18 foot deep pump station and a 17 foot by 26 foot masonry control building. The grit removal and pump station consisted of reinforced cast-in-place concrete construction.

Nederland Wastewater Treatment Facility Biosolids Building, Nederland, Colorado. Project manager for the structural design of a new boisolids handling building. Structural design consisted of foundations for a pre-engineered metal building, a 28 foot by 28 foot reinforced cast-in-place concrete digester and a 20 foot by 28 foot below grade pump room. Building dimensions are 71 feet by 31 feet.

Town of Fleming Wastewater Treatment Facility, Fleming, Colorado. Lead Structural Engineer for a small wastewater treatment facility. The structural design consisted of a 25 foot by 30 foot wood frame treatment building and 3 foot by 9 foot 4y 4.5 foot deep cast-in-place concrete headworks structure.

Town of Iliff Wastewater Treatment Facility, Illiff, Colorado. Lead Structural Engineer for a new polishing basin, chlorine contact basin, and control building. All three structures formed one larger structure measuring 68 feet by 32 feet. The polishing chlorine contact basins were constructed from cast-in-place concrete. The control building bears on the chlorine contact basin and is a wood frame building. The polishing basin was designed to have cover formed by precast concrete hollow core planks,

Mt Crested Butte Wastewater Treatment Facility, Mt Crested Butte, Colorado. Lead structural engineer for addition of a new pre-engineered metal building (43 feet by 29 feet) over an existing UV treatment process. New cast-in-place foundations were designed to work with existing pipes and other existing interferences.

Town of Cedaredge Wastewater Treatment Facility, Cedaredge, Colorado. Lead Structural Engineer for a new sequencing batch reactor (SBR) structure (89 feet by 48 feet by 24 feet deep). This project also included a new Headworks structure and (41 feet by 15 ft) and new control building located atop the SBR (20 feet by 48 feet).

Berthoud Wastewater Treatment Plant – Headworks Building, Berthoud, Colorado. Lead Structural Engineer. Design of a masonry addition (18 feet by 66 feet) to house an existing headworks facility at the treatment plant.

Eau Claire Wastewater Treatment Plant, Eau Claire, Wisconsin. Lead Structural Engineer. Large scale improvement project to an existing wastewater treatment facility (3 year construction schedule). Project included new buildings and tanks and additions and alterations to existing structures. New buildings included a new blower building (52 feet by 110 feet), alkalinity building (20 feet by 10 feet), and solids building. Other new structures included a large aeration basin complex (206 feet by 165 feet), clarifier splitter box, and odor control structure (50 feet by 30 feet). Modifications were made to several other structures most significantly to the digester complex which received two building additions and saw one digester converted to a sludge storage tank.

Middlebury Wastewater Treatment Plant, Middlebury, Indiana. Lead Structural Engineer: Design of new structures including a new 50-foot diameter final clarifier, RAS/WAS pump station, clarifier distribution box, chemical feed building (32 feet by 32 feet), and sludge dewatering building (74 feet by 35 feet). Modifications were also made to several existing structures including the addition of a third ring to an existing oxidation ditch, an expansion to the influent pump station, repurposing of an existing blower building, conversion of an rectangular clarifier to a sludge dewatering pump station. This project had some unique challenges such as supporting an existing building with shallow foundations while a new wall was constructed underneath the existing footings.

Cole Junction Pump Station, Jefferson City, Missouri. Lead Structural Engineer: Design of new pump station (41 feet by 60 feet by 56 feet deep) and associated split-face masonry building at grade.

Oconomowoc Wastewater Treatment Facility, Oconomowoc, Wisconsin. Lead Structural Engineer: Design of new structures including secondary splitter box, 80-foot diameter secondary clarifier, chemical containment pad, UV disinfection facility, dump station, 90-foot diameter glass lined biosolids storage tank, and sludge pumping building/garage (75 feet by 67 feet). This project also included modifications to several existing facilities notably repair and protection of an existing junction chamber at the head of the plant that showed signs of considerable concrete degradation.

Jeffersonville North Wastewater Treatment Plant, Jeffersonville, Missouri. Lead Structural Engineer: Design of new municipal wastewater treatment plant. Design included a two-story headworks structure (103 feet by 30 feet), an oxidation ditch electrical building (43 feet by 14 feet), a splitter box, two 75-foot diameter secondary clarifiers, and a RAS/WAS pump station (35 feet by 39 feet).

Mississippi River Wastewater Treatment Plant, St. Charles, Missouri. Lead Structural Engineer: Design of new aeration blower building (54 feet by 25 feet), aeration basin 6 (130 feet by 29 feet), final effluent structure (45 feet by 60 feet by 39 feet deep), and sludge loading building (92 feet by 24 feet). The project also included a number of structures requiring structural modifications, additions, or alterations. A notable structural modification was made to the existing aeration basins with beam system that will strengthen the existing structure enough to allow for an approximate 4-foot increase in water depth across all four existing basins. Project challenges include overcoming poor soils across the site that resulted in the extensive use auger cast concrete piles and rammed aggregate piers to support new structures. The project site is also located in an area where seismic effects needed to be taken into consideration.

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Chad Green, P.E.

Chad Green is a supervisory building mechanical engineer, has 10 years of engineering experience, and manages the building services group for Carollo. As a building mechanical engineer, he provides all aspects of design services and quality control reviews associated with the design of air, heating, cooling, controls, plumbing systems, fire protection systems, odor treatment, and fuel systems. His project experience includes:

Education

BS Mechanical Engineering, University of Texas, Arlington, 2009

Licenses

Professional Engineer, New Mexico, Utah, Washington, Texas, Oregon, Colorado, Oklahoma, Arkansas, Florida, Illinois, North Dakota

Mechanical Engineer, Minnesota, Nebraska, California, Arizona, Nevada

Professional Affiliations

American Society of Heating, Refrigeration, and Air Conditioning Engineers

Wastewater Treatment

→ Lead building mechanical engineer for the Edwards Wastewater Treatment Facility Aeration Basin Channel and HVAC Improvements, Eagle River Water & Sanitation District, Colorado. Supervised engineers for HVAC calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included a maintenance shop, WAS storage, and influent pump station.

→ Lead building mechanical engineer for the Drake Dewatering Building, City of Fort Collins, Colorado. Supervised engineers for HVAC, and odor control designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included an existing dewatering building consisting of a centrifuge room, and truck bay area.

→ Lead building mechanical engineer for the Nitrogen Upgrades Project, City of Boulder, Colorado. Provided HVAC/plumbing designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included a new external carbon storage/feed facility.

→ Lead building mechanical engineer for the Biological Nutrient Removal Improvements, Colorado Springs Utilities, Colorado. Provided HVAC designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included an existing final clarifier pumping station consisting of electrical rooms and a sludge pump station.

→ Quality control review for the Wastewater Treatment Plant Ammonia Treatment and Biosolids Dewatering Improvements, City of Longmont, Colorado. Provided quality Control Reviews of HVAC/plumbing drawings and specifications.

→ Mechanical engineer for the Metro Wastewater Reclamation District, Headworks Improvements Design, Denver, Colorado. Provided HVAC/plumbing calculations, designs, code reviews, drawings, and construction services related to the District's plant. Scope includes HVAC/plumbing of the existing north primary bar screen building, the new grit building, the new Grit tunnel and the new north electrical building.

→ Mechanical engineer for the Southern Delivery System Raw Water Pump Stations, Colorado. Provided HVAC/plumbing/fire protection calculations, designs, code reviews, drawings, and construction services related to the southern delivery system pump stations. Scope includes HVAC/plumbing/fire protection of the new pump stations consisting of electrical rooms, pump rooms, control rooms and chemical rooms.

→ Mechanical engineer for Las Vegas Street Wastewater Treatment Facility Alternative Disinfection Project design-build, Colorado Springs Utilities, Colorado. Provided HVAC/plumbing calculations, designs, code reviews, drawings, and construction services related to Las Vegas Wastewater Treatment Facility. This project also included HVAC/plumbing design of the new UV building as well as HVAC/plumbing design of the existing building 707 (hypochlorite storage/feed room) and a code review/evaluation of current HVAC systems and new plumbing design of the existing reuse water pump station.

→ Lead building mechanical engineer for the City of Fargo Phase IIA Expansion, Fargo, North Dakota. Supervised engineers for HVAC designs, specifications, and construc-

Chad Green, P.E.

tion services related to the project. Scope included a UV control building.

→ Lead building mechanical engineer for the City of Fargo Phase IIB Expansion, Fargo, North Dakota. Supervised engineers for HVAC, plumbing, fire protection, odor control, and digester boiler system designs, specifications, and construction services related to the project. Scope included a new RAS/WAS pump station, headworks, blower building, thickening building, existing transfer stations, dewatering building, digester control building, and tunnels. The existing headworks was renovated into a new 8,000 square foot administration. A plant wide boiler system was designed utilizing both natural gas and digester gas as fuel sources.

→ Lead building mechanical engineer for the Rock Creek Centrifuge Installation Project, Clean Water Services, Oregon. Supervised engineers for HVAC and Odor Control designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included an existing three story dewatering building consisting of BFP room, centrifuge rooms, truck loading facility, control rooms, electrical rooms, and mechanical/equipment rooms. The existing odor control system was evaluated and optimized for current code adoption.

→ Lead building mechanical engineer for the Gravity Belt Thickener Replacement Project, Clean Water Services, Oregon. Supervised engineers for HVAC designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included an existing thickening building, and control room.

→ Lead building mechanical engineer for the Spring Street Sewage Treatment Plant Upgrade Project, City of Klamath Falls, Oregon. Supervised engineers for HVAC/ plumbing designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included a headworks, magnetite recovery building, dewatering building, and existing digester building.

→ Lead building mechanical engineer for the Water Reclamation Facility Project 5, South Valley Water Reclamation Facility, Utah. Supervised engineers for HVAC, plumbing, and odor control designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included a new grit handling facility and biofilter.

→ Lead building mechanical engineer for the Coffee Creek Water Resources Recovery Facility Expansion, City of Edmond, Oklahoma. Supervised junior Engineers for HVAC/plumbing/odor control designs, calculations, code reviews, drawings, specifications, and construction services related to the project. Scope included a lift station, headworks, blower building, recycle pump station, disinfection building, digester thickening building, digester pumping building, digester blower building, dewatering building, and maintenance building. Geothermal ground source cooling was utilized on this project for all cooling and heating of facilities. Odor control was provided for the headworks building with a 60,000 cfm radial carbon absorber system.

→ Lead building mechanical engineer for the 2018 Treatment Plant Improvements, Napa Sanitation District, California. Supervised engineers for HVAC calculations, code reviews, drawings, specifications, and construction services related to project. Scope included a two story operations building. An initial condition assessment was performed to analyze what improvements were needed. The design included replacing existing packaged air conditioning equipment and re-zoning the building for optimal temperature control. In addition, several dedicated mini-split air conditioning systems were installed in areas that required independent temperature control. The laboratory renovation included replacing the existing outside air and exhaust systems to comply with current code requirements. The existing fume hoods were replaced along with the dedicated exhaust systems serving the fume hoods.

Cody Berg

Cody Berg is an associate vice president with Carollo with 13 years of extensive experience in municipal finance. As a consultant and former employee at Denver Water, Cody understands both sides of the utility business. He routinely conducts multi-year financial planning, impact fee, bond feasibility, and cost of service, rate, and charge studies throughout the Western U.S. He is currently active in industry associations including the American Water Works Association (AWWA) National Rates and Charges Committee.

Education

MS Finance, University of Colorado at Denver, 2010

BS Business Administration, Regis University, 2006

Professional Affiliations

American Water Works Association (AWWA)

Water Environment Federation (WEF)

Relevant Experience

→ Financial lead for the City of Houston's evaluation of repairing and rehabilitating their existing plant versus utilizing the reserve capacity of the Northeastern Water Purification Plant Expansion. Managed a study that evaluated and compared the costs between the two alternatives, including multiple scenario analysis of each alternative.

→ Financial lead for the Chlorine Analysis Study, City of Odessa, Texas. Reviewed financial results of the Chlorine analysis and cost of potential processes to ensure accurate use of assumptions and calculations of net-present value.

→ Financial lead for the third-party review of Financial Planning and Cost of Service Study for San Diego County Sanitation District, California. Carollo reviewed the revenue requirement, allocations and unit costs to ensure appropriate industry cost of service and rate making standards were used in development of the financial model. Prepared a Technical Memorandum summarizing findings and recommendations for presentation to District staff.

→ Financial lead for the Wastewater Service Scenario Analysis Study for the Town of Sahuarita, Arizona. Developed a decision matrix to assist Town in identifying important considerations for Wastewater Service scenarios. Produced financial model evaluating unit costs for identified scenarios, ultimately leading the Town to a determination of best option for wastewater service.

→ Project manager for the Water, Sewer, and Stormwater Financial Plan and Rate and Tap Fee Study for Dominion Water and Sanitation District (Colorado). He determined annual revenue requirements for 10-year period, cost of service by customer class, and recommended rate structures and rates. Study included full customer billing analysis, development of cost of service rate model, and presentations to elected officials and public stakeholders.

→ Project manager for the Water and Wastewater Financial Planning Study for the City of Surprise, Arizona. Developed an interactive and dynamic model which provided the City with the ability to run multiple scenario analysis in real-time. Delivered model to client including a written manual and hands on training workshops with staff.

→ Project manager for the Wastewater Financial Planning, Cost of Service and Rate Design Study for the Town of Ruidoso, New Mexico. Conducted a comprehensive 10-year financial plan to meet EPA mandate requiring the town to upgrade its wastewater treatment plant due to its discharging of effluent flows into a river containing endangered Trout species. Through a combination of Grants, State Funds, and Bonds, the Town successfully implemented rates sufficient to upgrade the plant, meeting the mandate.

→ Project manager for the Water and Wastewater Financial Planning, Cost of Service and Rate Design Study for Security Water and Sanitation District (Colorado). Developed a comprehensive financial plan that consistently met financial objectives and policies and successfully implemented annual increases which were unanimously approved by the Board of Directors. Transitioned to Cost of Service based rates over a three year period while ensuring enterprise funds were financially viable and self-sufficient. Conducted in depth analysis of customer billing data to assist the District in analyzing the existing rate structure and its ability to meet its objectives, which ultimately resulted in a rate structure change.

Engineers...Working Wonders With Water®

Gregory Parana, C.S.P.

Gregory Parana, a vice president and Carollo's Corporate Health and Safety Manager, has 19 years of health, safety, environmental, and industrial hygiene expertise managing infrastructure projects related to water and wastewater treatment. Greg provides total project lifecycle management of safety programs from design through construction. He is an excellent communicator of risk, controlling hazards, delivering presentations, and strategy development. Greg is an OSHA certified construction outreach trainer.

Education

BS Safety Science, Indiana University of Pennsylvania, 1998

Certifications

Board Certified Safety Professional, #20346

Professional Affiliations

American Society of Safety Professionals

Board of Certified Safety Professionals

Relevant Experience

→ Health and safety director for Denver Water, Colorado, Hillcrest Reservoir and Pump Station. Development and oversite of the CMAR project H&S program for the water storage and pump station construction project.

→ Health and safety director for Metro Water Reclamation District, Colorado, PAR 1225 South Headworks. Development and oversight of the H&S program for the south headworks hard bid construction project. This project included demolition and construction of new headworks structure while maintaining treatment of influent waste stream.

→ Health and safety director for Metro Wastewater Reclamation District, Colorado, PAR 1244 Solids Processing Building Improvements. Development and oversight of the H&S program for the hard-bid construction of the new solids processing buildings. This project also required MOPO for existing solids processing.

→ Health and safety director for the Town of Eagle, Colorado, Lower Basin Water Treatment Plant. Development and oversite of the CMAR project H&S program for the raw water pump station and water treatment building.

→ Health and safety director for the City of Logan, Utah, Logan Regional Wastewater Treatment Facility. Development and oversite for this CMGC project H&S program for the construction of the new facility. The project will allow the City of Logan to treat a greater amount of wastewater, to a higher quality, with a smaller footprint.

→ Health and Safety Director for Trinity River Authority, Texas, Phase III-B Solids Management Improvement Project for the Central Regional Wastewater System. This is one of three projects in the U.S. to utilize the Cambi Thermal Hydrolysis Process to produce higher quality biosolids, capture and treat odors more effectively.

→ Health and safety director for the City of Frisco, Texas, Stewart Creek West Wastewater Treatment Plant Expansion. This expansion project allowed the NTMWD to increase treatment and discharge from 5 MGD to 10 MGD with better odor control and backup power.

→ Health and safety director for the City of Ennis, Texas, Joint Booster Pump Station #3 Project. This project involved constructing a raw water booster pump station and pipeline for Tarrant Regional Water District in Ennis, Texas. This new pump station connected the Dallas-Fort Worth Metroplex to new sources of raw water and treatment of 347 MGD through the installation of 4,000' of 108" and 114" pipe.

→ Health and safety director for Orange County, Florida, South Water Reclamation Facility Phase V Improvements. This project expanded the wastewater treatment capacity from 43 MGD to 56 MGD involving the construction of three new mechanical screen units, upgrades to the grit removal system, aeration improvements, a secondary clarifier, new RAS and WAS pump station and blower building.

→ Health and safety director for Orange County, Florida, South Water Reclamation Facility Influent Pump Station Improvements. This project included the construction of a new submersible raw wastewater influent pump station. Work included significant yard piping, a new electrical building, demolition of buildings, and miscellaneous site civil and roadway improvements.

Gregory Parana, C.S.P.

→ Health and safety director for Orange County, Florida, Malcolm Road Water Supply Facility. This project involved the green-field construction of six raw water wells, two (2) 2-million-gallon ground storage tanks, a treatment building and yard piping.

→ Construction safety manager for the City of Fort Worth, Texas, Village Creek Wastewater Treatment Plant SCADA Upgrade Design-Build. Mr. Parana is the construction safety manager for this $7 million design-build project with Johnson Controls, Inc. and the City of Ft. Worth. CDM Smith is in the process of installing and commissioning a new SCADA system in conjunction with Emerson, who will furnish and install the new distributed control system gear at the Village Creek Wastewater Treatment Plant. CDM Smith has remodeled the existing control room as part of the DCS replacement project.

→ Construction safety manager for the City of Weslaco, Texas, North Wastewater Treatment Plant CMAR. Mr. Parana served as construction safety manager for this The $16.1 million project that involved improvements to the existing influent pump station as well as the installation of four additional pumps and bypass piping; construction of a new aeration basin with preliminary bio selector aeration chambers and fine and coarse bubble diffusers; new headworks and screening structures; a 104 ft diameter circular clarifier with skimmer; chlorination system, sludge facilities, and belt filter press. The project also included the conversion of an existing clarifier to a chlorine contact basin and conversion of an existing oxidation ditch to aerobic digester and ancillary pumping, piping and minor structure.

→ Construction safety manager for the City of Weslaco, Texas, Water Treatment Plant CMAR. Mr. Parana served as construction safety manager for water treatment plant improvements and offsite distribution system improvements for the City of Weslaco's Water Treatment Plant. Post construction services will include startup training and startup assistance and oversight of process equipment startup and training.

→ Construction safety manager for the City of Hempstead, Texas, Hempstead Wastewater Treatment Plant CMAR. Mr. Parana served as construction safety manager for this $6 million, 1 MGD plant that includes lift station, headworks structure, treatment structures, digesters, sludge holding tank, blowers, chlorine contact basin, chlorine storage and feed system, non-potable water pumps, operations building and laboratory, emergency generator, electrical services, sitework, and yard piping.

→ Construction safety manager for League City, Texas, Southwest Water Reclamation Facility CMAR. Mr. Parana served as Construction Safety Manager for this $30 million project to construct a new water reclamation facility under a CMAR contract to meet the growing demand of the community. CDM Smith's scope of work includes site location analysis, permitting, preliminary process selection and final design as well as all construction support services and system integration and the new plant contains two lift stations, head works, dewatering, aeration basins, clarifiers, filters, re-aeration and UV disinfection. The wastewater will be disinfected allowing it to be released into the ground for reuse.

→ Construction safety manager for League City, Texas, State Highway 3 Booster Pump Station CMAR. Mr. Parana served as Construction Safety Manager for the construction of the improvements to League City's existing State Highway 3 Booster Pump Station under a Construction Manager at Risk (CMAR) contract mechanism. The booster pump station improvements and upgrades are necessary in order to bring the City's Water Production facilities into compliance with Homeland Security and TCEQ requirements and to build redundancy into the City's system.

Statement of Qualifications
SOQ-4728-19-DH

2020 Persigo WWTP Master Plan Development Project

RESPONSES DUE:
December 6, 2019 Prior to 3:30 p.m.

Accepting Electronic Responses Only
Responses Only Submitted Through the Rocky Mountain E-Purchasing System
https://www.rockymountainbidsystem.com/default.asp
(Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor MUST contact RMEPS to resolve issue prior to the response deadline. 800-835-4603)

PURCHASING REPRESENTATIVE:
Duane Hoff Jr.
Senior Buyer
duaneh@gjcity.org
970-244-1545

This solicitation has been developed specifically for a Statement of Qualifications intended to solicit competitive responses for this solicitation, and may not be the same as previous City of Grand Junction solicitations. All offerors are urged to thoroughly review this solicitation prior to submitting. Submittal by **HARD COPY, FAX, OR E-MAIL IS NOT ACCEPTABLE** for this solicitation.

ADMINISTRATIVE INFORMATION & CONDITIONS FOR SUBMITTAL

Issuing Office: This Statement of Qualifications (SOQ) is issued by the City of Grand Junction, in conjunction with Mesa County, on behalf of the Persigo Wastewater Treatment Plant (WWTP). All contact regarding this SOQ is directed to:

SOQ Questions:
Duane Hoff Jr.
duaneh@gjcity.org

The City would like to remind all Contractors, Sub-Contractors, Vendors, Suppliers, Manufacturers, Service Providers, etc. that (with the exception of Pre-Bid or Site Visit Meetings) all questions, inquiries, comments, or communication pertaining to any formal solicitation (whether process, specifications, scope, etc.) must be directed (in writing) to the Purchasing Agent assigned to the project, or Purchasing Division. Direct communication with the City assigned Project Managers/Engineers is not appropriate for public procurement, and may result in disqualification.

Purpose: The City of Grand Junction, in conjunction with Mesa County, is requesting qualifications from interested engineering firms capable of performing the planning study described in the proposed scope of work for the 2020 Persigo WWTP Master Plan Development Project.

Non-Mandatory Pre-Proposal/Site Visit Meeting: Prospective Offerors are encouraged to attend a non-mandatory pre-proposal/site visit meeting on November 25, 2019 at 2:00 pm. Meeting location shall be in the Persigo Wastewater Treatment Plant Conference Room, located at 2145 River Road, Grand Junction, CO. The purpose of this visit will be to inspect and to clarify the contents of this Request for Proposals (RFP).

The Owner: The Owner is the City of Grand Junction and is referred to throughout this Solicitation. The term Owner means the Owner or his authorized representative.

Compliance: All participating Offerors shall agree to comply with all conditions, requirements, and instructions of this SOQ as stated or implied herein. Should the Owner omit anything from this packet which is necessary to the clear understanding of the requirements, or should it appear that various instructions are in conflict, the Offerors shall secure instructions from the Purchasing Division prior to the date and time of the submittal deadline shown in this SOQ.

Submission: Please refer to section titled "Administrative Requirements and Instructions" for what is to be included. ***Each proposal shall be submitted in electronic format only, and only through the Rocky Mountain E-Purchasing website (https://www.rockymountainbidsystem.com/default.asp).*** *This site offers both "free" and "paying" registration options that allow for full access of the Owner's documents and for electronic submission of proposals.* *(Note: "free" registration may take up to 24 hours to process. Please Plan accordingly.)* Please view our "**Electronic Vendor Registration Guide"** at http://www.gjcity.org/BidOpenings.aspx for details. For proper comparison and evaluation, the City requests that proposals be formatted as directed in section titled "Administrative Requirements and Instructions". Submittals received that fail to follow this format may be ruled non-responsive. (Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline. **800-835-4603**).

Certification Regarding Debarment, Suspension, Ineligibility And Voluntary Exclusion: The bidder/offeror certifies, by submission of this proposal or acceptance of this contract, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. It further agrees by submitting this proposal that it will include this clause without modification in all lower tier transactions, solicitations, proposals, contracts, and subcontracts. Where the bidder/offeror or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

Altering Submittals: Any alterations made prior to opening date and time must be initialed by the signer of the submittal, guaranteeing authenticity. Submittals cannot be altered or amended after submission deadline.

Withdrawal of Submittal: A submittal must be firm and valid for award and may not be withdrawn or canceled by the Offeror prior to the sixty-first (61st) day following the submittal deadline date and only prior to award. The Offeror so agrees upon their submittal. After award this statement is not applicable.

Acceptance of Submittal Content: The contents of the submittal of the successful Offeror shall become contractual obligations if acquisition action ensues. Failure of the successful Offeror to accept these obligations in a contract shall result in cancellation of the award and such vendor shall be removed from future solicitations.

Exclusion: No oral, telegraphic, or telephonic submittals shall be considered.

Addenda: All Questions shall be submitted in writing to the appropriate person as shown in Section 1.1. Any interpretations, corrections and changes to this SOQ or extensions to the opening/receipt date shall be made by a written Addendum to the SOQ by the City Purchasing Division. Sole authority to authorize addenda shall be vested in the City of Grand Junction Purchasing Representative. Addenda will be issued electronically through the City's website at www.gjcity.org by selecting the Bids link. Offerors shall acknowledge receipt of all addenda in their submittal.

Exceptions and Substitutions: All submittals meeting the intent of this SOQ shall be considered for award. Offerors taking exception to the specifications/scope of work/scope of services shall do so at their own risk. The Owner reserves the right to accept or reject any or all substitutions or alternatives. When offering substitutions and/or alternatives, Offeror must state these exceptions in the section pertaining to that area. Exception/substitution, if accepted, must meet or exceed the stated intent and/or specifications/scope of work/scope of services. The absence of such a list shall indicate that the Offeror has not taken exceptions, and if awarded a contract, shall hold the Offeror responsible to perform in strict accordance with the specifications/scope of work/scope of services contained herein.

Confidential Material: All materials submitted in response to this SOQ shall ultimately become public record and shall be subject to inspection after contract award. "Proprietary or Confidential Information" is defined as any information that is not generally known to competitors and which provides a competitive advantage. Unrestricted disclosure of proprietary information places it in the public domain. Only submittal information clearly identified with the words "***Confidential***

Disclosure" shall establish a confidential, proprietary relationship. Any material to be treated as confidential or proprietary in nature must include a justification for the request. The request shall be reviewed and either approved or denied by the Purchasing Manager. If denied, the proposer shall have the opportunity to withdraw its entire submittal, or to remove the confidential or proprietary restrictions. Neither cost nor pricing information nor the total proposal shall be considered confidential or proprietary.

Response Material Ownership: All submittals become the property of the Owner upon receipt and shall only be returned to the Offeror at the Owner's option. Selection or rejection of the submittal shall not affect this right. The Owner shall have the right to use all ideas or adaptations of the ideas contained in any submittal received in response to this SOQ, subject to limitations outlined in the section 1.9 entitled "Confidential Material". Disqualification of a submittal does not eliminate this right.

Minimal Standards for Responsible Prospective Offerors: A prospective Offeror must affirmably demonstrate their responsibility. A prospective Offeror must meet the following requirements:

- Have adequate financial resources, or the ability to obtain such resources as required.
- Be able to comply with the required or proposed completion schedule.
- Have a satisfactory record of performance.
- Have a satisfactory record of integrity and ethics.
- Be otherwise qualified and eligible to receive an award and enter into a contract with the Owner.

Open Records: Submittals shall be received and publicly acknowledged at the location, date, and time stated herein. Offerors, their representatives and interested persons may be present. Submittals shall be received and acknowledged only so as to avoid disclosure of process. However, all submittals shall be open for public inspection after the contract is awarded. Trade secrets and confidential information contained in the submittal so identified by Offeror as such shall be treated as confidential by the Owner to the extent allowable in the Open Records Act.

SOLICITATION TERMS AND CONDITIONS

Acceptance of SOQ Terms: An Offeror's submittal in response to this SOQ shall constitute a binding offer. Acknowledgment of this condition shall be indicated on the Letter of Interest or Cover Letter by the autographic signature of the Offeror or an officer of the Offeror legally authorized to execute contractual obligations. A submission in response to the SOQ acknowledges acceptance by the Offeror of all terms and conditions including compensation, as set forth herein. An Offeror shall identify clearly and thoroughly any variations between its submittal and the Owner's SOQ requirements. Failure to do so shall be deemed a waiver of any rights to subsequently modify the terms of performance, except as outlined or specified in the SOQ.

Execution, Correlation, Intent, and Interpretations: Owner will provide the contract. By executing the contract, the Offeror represents that he/she has familiarized himself/herself with the local conditions under which the Work/Services is to be performed, and correlated his/her observations with the requirements of the Contract Documents. The Contract Documents are complementary, and what is required by any one, shall be as binding as if required by all. The intention of the documents is to include all labor, materials, equipment and other items necessary for the proper execution and completion of the scope of work/scope of services as defined in the technical specifications and/or drawings contained herein. All drawings, specifications, and scopes copies furnished by the Owner are, and shall remain, Owner property. They are not to be used on any other project, and with the exception of one contract set for each party to the contract, are to be returned to the owner on request at the completion of the work/services.

Permits, Fees, & Notices: The Offeror shall secure and pay for all permits, governmental fees and licenses necessary for the proper execution and completion of the services. The Offeror shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the services. If the Offeror observes that any of the Contract Documents are at variance in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be adjusted by approximate modification. If the Offeror performs any services knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall assume full responsibility and shall bear all costs attributable.

Responsibility for those Performing the Services: The Offeror shall be responsible to the Owner for the acts and omissions of all his employees and all other persons performing any of the work/services under a contract with the Offeror.

Changes in the Services: The Owner, without invalidating the contract, may order changes in the services within the general scope of the contract consisting of additions, deletions or other revisions. All such changes in the services shall be authorized by Change Order/Amendment and shall be executed under the applicable conditions of the contract documents. A Change Order/Amendment is a written order to the Offeror signed by the Owner issued after the execution of the contract, authorizing a change in the services or an adjustment in the contract sum or the contract time.

Minor Changes in the Services: The Owner shall have authority to order minor changes in the services not involving an adjustment in the contract sum or an extension of the contract time and not inconsistent with the intent of the contract documents.

Uncovering & Correction of Services: The Offeror shall promptly correct all services found by the Owner as defective or as failing to conform to the contract documents. The Offeror shall bear all costs of correcting such rejected services, including the cost of the Owner's additional services thereby made necessary. The Owner shall give such notice promptly after discover of non-conforming services. All such non-conforming services under the above paragraphs shall be corrected to comply with the contract documents without cost to the Owner.

Amendment: No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All amendments to the contract shall be made in writing by the Owner Purchasing Division.

Assignment: The Offeror shall not sell, assign, transfer or convey any contract resulting from this SOQ, in whole or in part, without the prior written approval from the Owner.

Compliance with Laws: Submittals must comply with all Federal, State, County and local laws governing or covering this type of service and the fulfillment of all ADA (Americans with Disabilities Act) requirements.

Confidentiality: All information disclosed by the Owner to the Offeror for the purpose of the services to be done or information that comes to the attention of the Offeror during the course of performing such services is to be kept strictly confidential.

Conflict of Interest: No public official and/or Owner employee shall have interest in any contract resulting from this SOQ.

Contract: This Statement of Qualifications, submitted documents, and any negotiations, when properly accepted by the Owner, shall constitute a contract equally binding between the Owner and Offeror. The contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the submittall documents. The contract may be amended or modified with Change Orders, Field Orders, or Addendums.

Project Manager/Administrator: The Project Manager, on behalf of the Owner, shall render decisions in a timely manner pertaining to the services proposed or performed by the Offeror. The Project Manager shall be responsible for approval and/or acceptance of any related performance of the Scope of Services.

Contract Termination: This contract shall remain in effect until any of the following occurs: (1) contract expires; (2) completion of services; (3) acceptance of services or, (4) for convenience terminated by either party with a written *Notice of Cancellation* stating therein the reasons for such cancellation and the effective date of cancellation at least thirty days past notification.

Employment Discrimination: During the performance of any services per agreement with the Owner, the Offeror, by submitting a Proposal, agrees to the following conditions:

- The Offeror shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, disability, citizenship status, marital status, veteran status, sexual orientation, national origin, or any legally protected status except when such condition is a legitimate occupational qualification reasonably necessary for the normal operations of the Offeror. The Offeror agrees to post in conspicuous places, visible to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

- The Offeror, in all solicitations or advertisements for employees placed by or on behalf of the Offeror, shall state that such Offeror is an Equal Opportunity Employer.

- Notices, advertisements, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

Immigration Reform and Control Act of 1986 and Immigration Compliance: The Offeror certifies that it does not and will not during the performance of the contract employ illegal alien workers or otherwise violate the provisions of the Federal Immigration Reform and Control Act of 1986 and/or the immigration compliance requirements of State of Colorado C.R.S. § 8-17.5-101, *et.seq.* (House Bill 06-1343).

Expenses: Expenses incurred by prospective proposers in preparation, submission and presentation of this SOQ are the responsibility of the Offeror and cannot be charged to the Owner.

Ethics: The Offeror shall not accept or offer gifts or anything of value nor enter into any business arrangement with any employee, official, or agent of the Owner.

Failure to Deliver: In the event of failure of the Offeror to deliver services in accordance with the contract terms and conditions, the Owner, after due oral or written notice, may procure the services from other sources and hold the Offeror responsible for any costs resulting in additional purchase and administrative services. This remedy shall be in addition to any other remedies that the Owner may have.

Failure to Enforce: Failure by the Owner at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the Owner to enforce any provision at any time in accordance with its terms.
Force Majeure: The Offeror shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions, and acts of God beyond the control of the Offeror, unless otherwise specified in the contract.

Indemnification: Offeror shall defend, indemnify and save harmless the Owner, State of Colorado, and all its officers, employees, insurers, and self-insurance pool, from and against all liability, suits, actions, or other claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property on account of any negligent act or fault of the Offeror, or of any Offeror's agent, employee, subcontractor or supplier in the execution of, or performance under, any contract which may result from proposal award. Offeror shall pay any judgment with cost which may be obtained against the Owner growing out of such injury or damages.

Independent Firm: The Offeror shall be legally considered an Independent Firm and neither the Firm nor its employees shall, under any circumstances, be considered servants or agents of the Owner. The Owner shall be at no time legally responsible for any negligence or other wrongdoing by the Firm, its servants, or agents. The Owner shall not withhold from the contract payments to the Firm any federal or state unemployment taxes, federal or state income taxes, Social Security Tax or any other amounts for benefits to the Firm. Further, the Owner shall not provide to the Firm any insurance coverage or other benefits, including Workers' Compensation, normally provided by the Owner for its employees.

Nonconforming Terms and Conditions: A submittal that includes terms and conditions that do not conform to the terms and conditions of this Statement of Qualifications is subject to rejection as non-responsive. The Owner reserves the right to permit the Offeror to withdraw nonconforming terms and conditions from its proposal prior to a determination by the Owner of non-responsiveness based on the submission of nonconforming terms and conditions.

Ownership: All plans, prints, designs, concepts, etc., shall become the property of the Owner.

Oral Statements: No oral statement of any person shall modify or otherwise affect the terms, conditions, or specifications stated in this document and/or resulting agreement. All modifications to this request and any agreement must be made in writing by the Owner.

Patents/Copyrights: The Offeror agrees to protect the Owner from any claims involving infringements of patents and/or copyrights. In no event shall the Owner be liable to the Offeror for any/all suits arising on the grounds of patent(s)/copyright(s) infringement. Patent/copyright infringement shall null and void any agreement resulting from response to this SOQ.

Venue: Any agreement as a result of responding to this SOQ shall be deemed to have been made in, and shall be construed and interpreted in accordance with, the laws of the City of Grand Junction, Mesa County, Colorado.

Sovereign Immunity: The Owner specifically reserves its right to sovereign immunity pursuant to Colorado State Law as a defense to any action arising in conjunction to this agreement.

Public Funds/Non-Appropriation of Funds: Funds for payment have been provided through the Mesa County budget, approved by the Board of County Commissioners for the stated fiscal year only. State of Colorado statutes prohibit the obligation and expenditure of public funds beyond the fiscal year for which a budget has been approved. Therefore, anticipated orders or other obligations that may arise past the end of the stated Mesa County fiscal year shall be subject to budget approval. Any contract will be subject to and must contain a governmental non-appropriation of funds clause.

Collusion Clause: Each Offeror by submitting a proposal certifies that it is not party to any collusive action or any action that may be in violation of the Sherman Antitrust Act. Any and all proposals shall be rejected if there is evidence or reason for believing that collusion exists among the proposers. The Owner may or may not, at the discretion of the Owner Purchasing Representative, accept future proposals for the same service or commodities for participants in such collusion.

Gratuities: The proposer certifies and agrees that no gratuities, kickbacks or contingency fees were paid in connection with this contract, nor were any fees, commissions, gifts or other considerations made contingent upon the award of this contract. If the proposer breaches or violates this warranty, the Owner may, at their discretion, terminate this contract without liability to the Owner.

Safety Warranty: Offeror also warrants that the services performed shall conform to the standards declared by the US Department of Labor under the Occupational Safety and Health Act of 1970.

OSHA Standards: All Offerors agree and warrant that services performed in response to this invitation shall conform to the standards declared by the US Department of Labor under the Occupational Safety and Health Act of 1970 (OSHA). In the event the services do not conform to OSHA Standards, the Owner may require the services to be redone at no additional expense to the Owner.

Performance of the Contract: The Owner reserves the right to enforce the performance of the contract in any manner prescribed by law or deemed to be in the best interest of the Owner in the event of breach or default of resulting contract award.

Benefit Claims: The Owner shall not provide to the Offeror any insurance coverage or other benefits, including Worker's Compensation, normally provided by the Owner for its employees.

Default: The Owner reserves the right to terminate the contract immediately in the event the Offeror fails to meet delivery or completion schedules, or otherwise perform in accordance with the accepted proposal. Breach of contract or default authorizes the Owner to purchase like services elsewhere and charge the full increase in cost to the defaulting Offeror.

Multiple Offers: Offerors must determine for themselves which services to offer. If said Offeror chooses to submit more than one offer, THE ALTERNATE OFFER must be clearly marked "Alternate Submittal". The Owner reserves the right to make award in the best interest of the Owner.

Cooperative Purchasing: Purchases as a result of this solicitation are primarily for the Owner. Other governmental entities may be extended the opportunity to utilize the resultant contract award with the agreement of the successful provider and the participating agencies. All participating entities will be required to abide by the specifications, terms, conditions and pricings established in this Submittal. The quantities furnished in this submittal document are for only the Owner. It does not include quantities for any other jurisdiction. The Owner will be responsible only for the award for our jurisdiction. Other participating entities will place their own awards on their respective Purchase Orders through their purchasing office or use their purchasing card for purchase/payment as authorized or agreed upon between the provider and the individual entity. The Owner accepts no liability for payment of orders placed by other participating jurisdictions that choose to piggy-back on our solicitation. Orders placed by participating jurisdictions under the terms of this solicitation will indicate their specific delivery and invoicing instructions.

Public Disclosure Record: If the Offeror has knowledge of their employee(s) or sub-Offerors having an immediate family relationship with a Owner employee or elected official, the Offeror must provide the Purchasing Representative with the name(s) of these individuals. These individuals are required to file an acceptable "Public Disclosure Record", a statement of financial interest, before conducting business with the Owner.

DEFINITIONS

"Consultant" or "Firm" refers to the person, partnership, firm or corporation entering into an Agreement with the Owner for the services required and the legal representatives of said party or the agent appointed to act for said party in the performance of the service(s) contracted for.

"Offeror" refers to the person or persons legally authorized by the Consultant to make an offer and/or submit a bid (fee) proposal in response to the Owner's SOQ.

The term "Services" includes all labor necessary to produce the requirements by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such services.

"Owner" is The City of Grand Junction and is referred to throughout the Contract Documents. The term Owner means the Owner or his authorized representative. The Owner shall, at all times, have access to the services wherever it is in preparation and progress. The Offeror shall provide facilities for such access. The Owner will make periodic visits to the site to familiarize himself generally with the progress and quality of services and to determine, in general, if the services are proceeding in accordance with the contract documents. Based on such observations and the Offeror's Application for Payment, the Owner will determine the amounts owing to the Offeror and will issue Certificates for Payment in such amounts, as provided in the contract. The Owner will have authority to reject services which does not conform to the Contract documents. Whenever, in his reasonable opinion, he considers it necessary or advisable to insure the proper implementation of the intent of the Contract Documents, he will have authority to require the Offeror to stop the services or any portion, whether or not such services can be then be completed. The Owner will not be responsible for the acts or omissions of the Offeror, and sub-Contractor, or any of their agents or employees, or any other persons performing any of the services.

“Offeror” is the person or organization identified as such in the Agreement and is referred to throughout the Contract Documents. The term Offeror means the Offeror or his authorized representative. The Offeror shall carefully study and compare the General Contract Conditions of the Contract, Scope of Services, Addenda and Modifications and shall at once report to the Owner any error, inconsistency or omission he may discover. Offeror shall not be liable to the Owner for any damage resulting from such errors, inconsistencies or omissions. The Offeror shall not commence services without clarifying such.

INSURANCE REQUIREMENTS

Insurance Requirements: The selected Firm agrees to procure and maintain, at its own cost, policy(s) of insurance sufficient to insure against all liability, claims, demands, and other obligations assumed by the Firm pursuant to this Section. Such insurance shall be in addition to any other insurance requirements imposed by this Contract or by law. The Firm shall not be relieved of any liability, claims, demands, or other obligations assumed pursuant to this Section by reason of its failure to procure or maintain insurance in sufficient amounts, durations, or types.

Firm shall procure and maintain and, if applicable, shall cause any Subcontractor of the Firm to procure and maintain insurance coverage listed below. Such coverage shall be procured and maintained with forms and insurers acceptable to The Owner. All coverage shall be continuously maintained to cover all liability, claims, demands, and other obligations assumed by the Firm pursuant to this Section. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. Minimum coverage limits shall be as indicated below unless specified otherwise in the Special Conditions:

(a) Worker Compensation insurance to cover obligations imposed by applicable laws for any employee engaged in the performance of work under this Contract, and Employers' Liability insurance with minimum limits of:

ONE MILLION DOLLARS ($1,000,000) each accident,
ONE MILLION DOLLARS ($1,000,000) disease - policy limit, and
ONE MILLION DOLLARS ($1,000,000) disease - each employee

(b) General Liability insurance with minimum combined single limits of:

ONE MILLION DOLLARS ($1,000,000) each occurrence and
ONE MILLION DOLLARS ($1,000,000) per job aggregate.

The policy shall be applicable to all premises and operations. The policy shall include coverage for bodily injury, broad form property damage (including completed operations), personal injury (including coverage for contractual and employee acts), blanket contractual, products, and completed operations. The policy shall contain a severability of interests provision.

(c) Comprehensive Automobile Liability insurance with minimum combined single limits for bodily injury and property damage of not less than:

ONE MILLION DOLLARS ($1,000,000) each occurrence and
ONE MILLION DOLLARS ($1,000,000) aggregate

(d) Professional Liability & Errors and Omissions Insurance policy with a minimum of:

ONE MILLION DOLLARS ($1,000,000) per claim

This policy shall provide coverage to protect the contractor against liability incurred as a result of the professional services performed as a result of responding to this Solicitation.

With respect to each of Consultant's owned, hired, or non-owned vehicles assigned to be used in performance of the Services. The policy shall contain a severability of interests provision. The policies required by paragraphs (b) above shall be endorsed to include the Owner and the Owner's officers and employees as additional insureds. Every policy required above shall be primary insurance, and any insurance carried by the Owner, its officers, or its employees, or carried by or provided through any insurance pool of the Owner, shall be excess and not contributory insurance to that provided by Consultant. No additional insured endorsement to any required policy shall contain any exclusion for bodily injury or property damage arising from completed operations. The Consultant shall be solely responsible for any deductible losses under any policy required above.

OVERVIEW AND INFORMATION

Through this Statement of Qualifications (SOQ) process, it is the intent of the City of Grand Junction, in conjunction with Mesa County to hire a professional engineering firm experienced in Master Plan development and Wastewater Treatment Plant design and operations.

The intent of the 2020 Persigo Master Plan Project is to provide the City of Grand Junction and Mesa County with two (2) strategic planning documents focused on near- and long-term infrastructure improvements for the Persigo Sewer System to address asset condition, hydraulic capacity, treatment capacity, and regulatory requirements.

1. Guide development of a Persigo Wastewater Treatment Plant Facility Master Plan
2. Update the existing 2008 Comprehensive Wastewater Basin Study Update

This Project will evaluate components of the wastewater collection system, wastewater treatment plant, and supporting infrastructure. The Consultant will have access to facility records, drawings, process control data, and other relevant information to conduct this planning effort. The Project will be completed as a collaborative effort between the Consultant and City/County staff, with scope tasks conducted by the Consultant and informed by staff knowledge of the facility history, business practices, innovation goals, and facility specific information.
The primary mission of the Project is to develop a near- and long-term prioritized capital improvement and asset replacement program to meet the City's wastewater collection and treatment facility needs now through buildout. For the purposes of this Project the term "buildout" refers to achieving full land use zoning capacity/potential of our service area as is currently contemplated by the 201 Service Area in the Comprehensive Plan long-range planning scenarios.

Non-Mandatory Pre-Proposal/Site Visit Meeting: **Prospective Offerors are encouraged to attend a non-mandatory pre-proposal/site visit meeting on November 25, 2019 at 2:00 pm**. Meeting location shall be in the Persigo Wastewater Treatment Plant Conference Room, located at 2145 River Road, Grand Junction, CO. The purpose of this visit will be to inspect and to clarify the contents of this Request for Proposals (RFP).

SOQ GOALS

It is the intent of this SOQ to provide interested firms with sufficient information to enable them to prepare and submit statements of qualifications for the project. Based on a rating of the qualified submittals by the evaluation team, a "short list" of the most qualified firms will be developed. Only the top "short list" firms will be invited for interviews and pricing proposals.

Pricing is not to be included with this SOQ submittal.

SCOPE OF SERVICES

Background:

The City of Grand Junction Utilities Department is dedicated to maintaining and improving the quality of life in Grand Junction by planning for future needs, promoting environmental quality, building and maintaining municipal water and wastewater infrastructure, managing public investments, and protecting health and safety. The Utilities Department helps meet this goal by ensuring the City water and wastewater systems are planned, engineered, built, operated, and maintained according to industry best practices.

The Persigo Sewer System is a regional wastewater collection and treatment facility that is jointly owned by the City of Grand Junction and Mesa County. The Persigo Wastewater Treatment Plant (WWTP) was commissioned for service 35 years ago in 1984 and is administered according to rules, goals, and policy guidance specified in the 1998 Persigo Intergovernmental Agreement between the City of Grand Junction and Mesa County.

The Persigo Sewer System is comprised of:

- The 201 Service Area which defines the geographic area in which all the properties within are intended to connect to, and be served by the Persigo Sewer System, to the exclusion of septic or other individual sewage disposal systems.
- The 12.5 million gallons per day (mgd) rated Persigo Wastewater Treatment Plant which is located at 2145 River Road in Grand Junction, Colorado. Note: the original design of the WWTP at full buildout is 25 mgd.
- An expansive wastewater collection system consisting of approximately 600 miles of wastewater collection sewer lines, 14,000 manholes, 27 lift stations, and 2 syphon structures.

Scope of Services:

1. **Coordination with the Comprehensive Plan –** The City of Grand Junction is in the process of completing a Comprehensive Plan through the year 2040. The Comprehensive Plan is a long-range plan that looks at where and how the City and County will grow over the next 20 years. The update will include planning for residential and commercial growth and needed services and

infrastructure (parks, utilities, roads, police, fire, etc.), potential changes to the City's growth boundary, identifying risks and vulnerabilities of natural and human caused hazards and identifying goals, strategies and actions that reflect the community's values and vision. The Comprehensive Plan is independent from the 2020 Persigo Master Plan however; it will set the future land use and ultimate buildout assumptions that will need to dovetail into the Persigo Master Plan. The Comprehensive Plan will be completed over an 18-month period (2019-2020).

2. **Sustainability and Resource Stewardship –** The City of Grand Junction has implemented a number of successful conservation programs, projects and initiatives over the years. These programs help the City become better stewards of natural resources and make more economical choices which improve the efficiency of City facilities. City sustainability and stewardship efforts can be categorized as:
    - Energy
    - Fleet and Infrastructure
    - City Parks and Green Spaces
    - Recycling
    - Plans and Partnerships

3. **Hydraulic and Organic Loading Capacity –** The Persigo WWTP is currently operating at 80% throughput for flow and 82% for organic loading on the 30-day average basis in regards to permitted rated capacity. The projected years to achieve 95% throughput are 2032 and 2029, respectively.

4. **Staff Health and Safety –** Continuous improvement in staff health and safety is a fundamental consideration and value to the Utilities Department. We believe considerable advances in technology, equipment, and design approaches that enhance worker health and safety have occurred since the sewer collection and treatment facilities were originally constructed.

5. **Biosolids Management –** The Persigo WWTP produces a biosolid that does not meet Class B nor Class A quality standards and as such, disposes of all biosolids at the Mesa County Landfill. About 15 years ago the WWTP collaborated with the landfill to evaluate composting biosolids within the existing landfill composting operation. At that time the Persigo WWTP was the first Utility to attempt to beneficially use biosolids in Mesa County and even though the biosolids composting pilot demonstrated the ability to produce a Class A quality product, there was significant community pushback on reusing biosolids in the area. As a result, the concept to compost biosolids was abandoned without further analysis.

    Today there is a renewed interest in understanding all viable long-term biosolids management approaches. Some of the factors that have shifted in the last 15 years are:

    - Escalating biosolids disposal cost at the landfill (staff time, hauling and tipping fees)
    - Dewatering equipment at the WWTP is nearing the end of its useful service life (original 1980s belt filter presses)
    - Solids handling unit process may need to be expanded within the planning horizon

- Poor dewatering and digestion performance seasonally
- Local public perception of biosolids may have shifted. Other local WWTPs are beneficially reusing biosolids in the area

6. **Aging Infrastructure –** The facility is now over 35 years old and although all mechanical equipment has been maintained and replaced as needed, there are some classes of assets that are in need of condition assessment and an asset replacement plan. In particular, electrical (switch gear, transformers, VFDs), instrumentation & control (telemetry, HMI), and some process equipment (aeration blowers, dewatering equipment, clarifier mechanisms) are some areas where we expect increased asset replacement within the planning horizon.

7. **Effluent Diffuser Discharge to Colorado River –** In March 2019, the Persigo WWTP completed construction of an effluent diffuser. The project involved rerouting the WWTP's outfall from Persigo Wash to the Colorado River and discharging the treated wastewater via an effluent diffuser on the bottom of the Colorado River. This project allowed the Persigo WWTP to meet Regulation #31 instream water quality standards in the Colorado River for total phosphorus and total inorganic nitrogen at current effluent concentrations. This resulted in the Persigo WWTP being except from Regulation #85 total phosphorus and total inorganic nitrogen effluent limits as allowed under 85.5(3)(b)(iv).

8. **Onsite Solar Farm –** The Persigo WWTP owns and operates a 98kW ground mounted photovoltaic system at the plant site. The system was designed and constructed in 2012 and it successfully provides electricity to the plant. There is significant space available at the WWTP to support expansion of the photovoltaic system and further reduce the WWTP's reliance on purchased electricity and potentially offset additional operating costs.

9. **Asset Management Program –**The Utility Department's asset management mission statement is: "*Manage City of Grand Junction Water & Wastewater infrastructure assets through a holistic approach for continuous improvement in the most cost effective manner to minimize service interruptions & environmental impacts with reliable high quality service to the customer.* "

   The Utilities Department is working to enhance our asset management strategies and improve infrastructure reliability across all Utility workgroups. This includes investing in expanding our CMMS system, adopting the NASSCO pipeline and manhole condition assessment program and adding dedicated staff to our asset management team.

10. **Odor Control Study –** The Wastewater Division is currently working with a consultant to complete an air management and odor control study for the wastewater collection system and at the WWTP. The study includes an extensive sampling campaign, source identification and characterization, evaluation of best practices to mitigate odors, alternatives analysis, and summary report with recommended air management and odor mitigation projects prioritized by the City. The results of this study will be available for the Master Planning Consultant in the first quarter 2020. Furthermore, funds have been budgeted in FY20 to implement odor control improvements.

11. **Lift Station Elimination Study –** In 2019, the Wastewater Division worked with a consultant to complete a lift station elimination study for several lift stations in the collection system. The results from this study are available to the selected Master Planning Consultant upon contract execution.

12. **Tiara Rado Forcemain Replacement –** The Wastewater Division will be working with a consultant to develop an approach to replace the Tiara Rado forcemain from the Tiara Rado lift station on the south side of the Colorado River to the Persigo WWTP on the north side of the Colorado River. The initial effort will be to determine whether a bridge or under river option is preferred for the forcemain replacement. The results of this effort will be available to the selected Master Planning Consultant in the first quarter 2020.

13. **Sewer Improvement Districts –** In 2000, the City and the County passed a joint resolution establishing the septic system elimination program to provide incentives to property owners to eliminate septic systems. There are still approximately 1,500 properties that remain on septic systems within the Persigo 201 Sewer Area. The program has not yet achieved the goal of eliminating septic systems and making available connection to the sewer system to all properties within the service area. The last sewer improvement district was completed in 2010. Funding is budgeted for 2020 and beyond to revitalize the incentive program by targeting completion of existing and new sewer improvement districts over the next 10 years.

14. **Persigo WWTP Structural Assessment –** The Wastewater Division is currently working with a consultant to complete a structural assessment of the raw sewage pump station, aeration basin gallery, aerobic and anaerobic digesters, dewatering building, and primary clarifiers at the WWTP. There are several distresses observed in these structures. The objective of this project is to perform an engineering investigation that will quantify the condition of facility concrete & structural steel and then identify and evaluate alternatives for repair and replacement to provide continued reliable operation of the Persigo WWTP. The results of this study will be available for the selected Master Planning Consultant in the first quarter 2020.

15. **BioCNG Storage and Automation –** The Wastewater Division is currently pursuing a grant with the Department of Local Affairs (DOLA) under their "Renewable and Clean Energy Challenge" to construct additional biogas storage and enhance the fleet fueling station automation. Currently about 20% of the biogas produced in the anaerobic digesters is flared to the atmosphere due to inadequate storage and due to an offset in the timing of biogas production compared to fueling station use. We estimate that through completion of these improvements we can beneficially reuse approximately 100% of the available biogas and further reduce greenhouse gas emissions by an additional 500,000 lbs-CO_2 annually. Once this is complete it will open the door to explore opportunities to increase net biogas production over current levels.

Project Goal

The overall goal of this Project it to provide the City and County with two strategic master planning documents focused on infrastructure investments decisions in the near- and long-term. One document will focus on the Persigo WWTP and the other document will focus on the Persigo collection system. The City and County would like to produce strategic, “action-oriented” documents that highlight specific measures and triggers that support decision making over the next few years, while maintaining a 20-year planning horizon. To be successful we would like the Project to:

1. Achieve a high level of staff engagement and collaboration.
2. Support implementation of the City of Grand Junction’s 2019 Strategic Plan in the goal area of planning and infrastructure.
3. Support development of Persigo’s Asset Management Program through coordination efforts and condition assessment data integration.
4. Support sustainability and resource stewardship through identification of applicable innovative approaches, technologies, and best practices in use at peer wastewater agencies

Preliminary Scope of Work

Below is a preliminary scope of work (SOW); the final SOW will be determined with the selected Consultant. Major tasks in the final SOW will include, but are not limited to:

- Project Management
- Project Initiation and Coordination
- Data Collection, Review and Organization
- Alternative Development and Evaluation
- Meetings and Workshops
- Report Presentations

Development of Persigo Wastewater Treatment Plant Facility Master Plan

The selected Consultant will work with staff to guide development WWTP facility master plan which includes a prioritized, near- and long-term capital improvement program (CIP) that addresses regulatory drivers and treatment plant capacity requirements now through buildout, including infrastructure and asset replacement needs. A major objective is to develop a strategic recommendation for treatment plant expansion requirements at the Persigo WWTP to meet the needs of both current and future users of the system. Key elements of this study include:

- Update wastewater flow and load projections
- Prepare and validate a wastewater process model and plant hydraulic model to assist in alternative evaluations of treatment plant expansion options.
- Evaluate options to re-rate the existing WWTP to an increased hydraulic capacity and organic loading capacity.
- Evaluate energy use and opportunities to increase energy efficiency.
- Evaluate and recommend treatment process improvements that will meet future regulations and growth projections.
- Evaluate and recommend solids handling improvements.
- Evaluate and recommend a biosolids management approach.
- Evaluate and recommend electrical, instrumentation, and control improvements.

- Develop a near- and long-term prioritized Capital Improvement Plan (CIP) with planning level cost estimations to the meet the plant capacity needs now through buildout.
- Develop a near- and long-term prioritized asset replacement plan to meet aging infrastructure replacement needs.
- Develop a financial approach to meeting future treatment capacity expansion requirements by reviewing the current Plant Investment Fee and Trunkline Extension Fee basis and provide recommendations on future fee formulation to fund expansion needs.

Update the 2008 Comprehensive Wastewater Basin Study Update

Policy makers are considering changes to the boundaries of the 201 Service Area. Wastewater conveyance infrastructure capacity and the ability to serve outlying areas of the current 201 Service Area will be key to future land use recommendations. Key elements of the study will include:

- Conduct flow monitoring in the collection system.
- Prepare and validate a wastewater collection system hydraulic model to assist in alternative evaluations.
- Update the wastewater basin boundaries, flow criteria, and infrastructure facilities.
- Identify infrastructure requirements and costs to serve the 201 Service Area and outlying areas.
- Benchmark and recommend collection system maintenance needs (staff, equipment, etc.).
- Evaluate sewer infrastructure capacity based on land use recommendations associated with the Comprehensive plan (only one scenario).
- Review Sewer System Elimination Program (SSEP) and provide recommendations on sewer improvement district boundary updates and other enhancements to the existing SSEP.
- Re-evaluation of sewer trunk extensions to various drainage basins (Figure 4-1 of the 2008 study revision effort). This would include areas outside the current 201 planning area. Update recommendation for required route alternatives and line sizes to adequately serve designated basins including estimate of costs for each line extension.

Attachments

2008 Comprehensive Wastewater Basin Study Update for general orientation and general reference

Special Conditions/Provisions:

Oral Interviews: Should the Owner determine interviews are necessary, only respondents who demonstrate the required qualifications and experience for this project will be considered for participation in oral presentations. It is the intent of the Owner to invite those firms that are determined to be qualified to be a participant in the creation of a qualified pool of firms, to prepare a detailed pricing proposal and participate in oral interviews for the required services.

Fees: ***DO NOT INCLUDE ANY PRICING OR FEE SCHEDULES WITH YOUR SUBMITTAL TO THIS SOQ***. If your firm is selected as one of the finalists, you may be invited for an oral interview. At that time, you will be required to provide a complete list of standard fees and payment schedule requirements in a separate sealed envelope. Any additional consultant fees must also be included. All fees will be considered by the Owner to be negotiable based on the final scope of services and deliverables. The fee proposals will not be opened by the Owner until a prospective awarded firm has been determined. Then, only the fee proposal of the successful preferred proposer will be opened. However, the Owner reserves the right to open competing fee proposals and consider their contents if a contract agreement cannot be negotiated with the number one selected firm or if it is considered in the best interest of the Owner to do so.

Short Listed Firms: Finalist, short listed firms, may be provided detailed questions developed by the evaluation committee during the review process that finalists will be required to respond. Firms will be limited to a previously determined amount of time for their presentations. It is the intent of the Owner to participate in oral interviews with a maximum of no more than three (3) firms. Presentations should be made by principals and key personnel who can respond to any additional questions the evaluation team may pose during the oral interviews. Presentations are to be professional in nature, but concise and to the point with illustrations relevant to the firm's abilities with regard to the prospective project. Visual aids to include Power Point or other objective information that will assist the evaluation team are recommended, but not required.

Should the Owner not be able to agree on the details of the contract with the top rated firm through good-faith negotiations, they will proceed to the next highest ranked firm and enter into negotiations.

Questions Regarding Scope of Services:
Duane Hoff Jr., Senior Buyer
duaneh@gjcity.org

ANTICIPATED SCHEDULE OF ACTIVITIES

• Statement of Qualifications Available	November 15, 2019
• Non-Mandatory Pre-Proposal/Site Visit Meeting	November 25, 2019
• Inquiry Deadline (no questions after this date)	December 2, 2019
• Addendum Posted	December 3, 2019
• Due Date for Submittals	December 6, 2019
• Owner Evaluations and Review	December 9-13, 2019
• Interviews (if required)	December 19, 2018
• Negotiations (if required)	December 20-31, 2019
• City Council Approval	February 5, 2019
• Contract Execution	February 6, 2019
• Contract Services Begin	Upon Contract Execution

ADMINISTRATIVE REQUIREMENTS AND INSTRUCTIONS

Submission: ***Each proposal shall be submitted in electronic format only, and only through the Rocky Mountain E-Purchasing website (https://www.rockymountainbidsystem.com/default.asp).*** *This site offers both "free" and "paying" registration options that allow for full access of the Owner's documents and for electronic submission of proposals.* *(Note: "free" registration may take up to 24 hours to process. Please Plan accordingly.)* Please view our "**Electronic Vendor Registration Guide"** at http://www.gjcity.org/BidOpenings.aspx for details. (Purchasing Representative does not have access or control of the vendor side of RMEPS. If website or other problems arise during response submission, vendor **MUST** contact RMEPS to resolve issue prior to the response deadline **800-835-4603**). For proper comparison and evaluation, the City requests that proposals be formatted as directed in the section titled "Administrative Requirements and Instructions". Offerors are required to indicate their interest in this Project, show their specific experience and address their capability to perform the Scope of Services in the Time Schedule as set forth herein. For proper comparison and evaluation, the Owner requires that proposals be formatted **A** to **H**:

A. **Cover Letter:** Cover letter shall be provided which explains the Firm's interest in the project. The letter shall contain the name/address/phone number/email of the person who will serve as the firm's principal contact person with Owner's Contract Administrator and shall identify individual(s) who will be authorized to make presentations on behalf of the firm. The statement shall bear the signature of the person having proper authority to make formal commitments on behalf of the firm. By submitting a response to this solicitation the Firm agrees to all requirements herein.

B. **Qualifications/Experience/Credentials:** Proposers shall provide their qualifications for consideration as a contract provider to the Owner and include prior experience in the development of master plans, specifically for wastewater treatment plants for counties and municipalities.

C. **Strategy and Implementation Plan:** Describe your (the firm's) interpretation of the Owner's objectives with regard to this SOQ. Describe the proposed strategy and/or plan for achieving the objectives of this SOQ The Firm may utilize a written narrative or any other printed technique to demonstrate their ability to satisfy the Scope of Services. The narrative should describe a logical progression of tasks and efforts starting with the initial steps or tasks to be accomplished and continuing until all proposed tasks are fully described and the SOQ objectives are accomplished. Include a **time schedule** for completion of your firm's implementation plan and an estimate of time commitments from Owner staff.

D. **References:** A minimum of five summaries and project descriptions of at least five (5) projects completed within the last five (5) years similar in nature, scope, complexity and size. Include project information, and reference names, telephone numbers and email addresses for each project.

E. **Fees:** See Item titled "Fees" under the Special Conditions/Provisions section.

F. **Financial Statements:** **DO NOT SUBMIT FINANCIAL STATEMENTS WITH PROPOSAL**. If Owner deems necessary, Proposer shall provide a financial statement, as prepared by a certified public accountant, for their prior fiscal year, consisting of a balance sheet, profit and loss statement and such other financial statements as may be appropriate, which shall demonstrate that the proposer possesses adequate financial ability and stability to enable the Proposer to fulfill their obligations under the terms of this

SOQ. If requested by the Proposer, such information shall be treated as confidential by the Owner and shall not be subject to public disclosure. These documents must depict the financial status of that entity, subsidiary, division, or subdivision thereof, which will actually provide services. If the Proposer is a partnership or joint venture, individual financial statements must be submitted for each general partner or joint venture thereof. Consolidated balance sheets and profit/loss statements depicting the financial status of a Parent Corporation or joint venture shall not be considered an acceptable response.

G. **Solicitation Response Form:** Proposers shall complete and submit the attached Solicitation Response Form with their proposal response.

H. **Additional Data (optional):** Provide any additional information that will aid in evaluation of your qualifications with respect to this project.

EVALUATION CRITERIA AND FACTORS

Evaluation: An evaluation team shall review all responses and select proposals that best demonstrate the capability in all aspects to perform the scope of services and possess the integrity and reliability that will ensure good faith performance.

Intent: Only respondents who meet the qualification criteria will be considered.
Therefore, it is imperative that the submitted proposal clearly indicate the firm's ability to provide the services described herein.

Submittal evaluations will be done in accordance with the criteria and procedure defined herein. The Owner reserves the right to reject any and all Statements. The following parameters will be used to evaluate the submittals (in no particular order of priority):

- Responsiveness of submittal to the SOQ
- Understanding of the project and the objectives
- Experience & Required Skills developing master plans specifically to wastewater treatment plants
- Necessary resources
- Strategy & Implementation Plan
- References
- Financial Stability (If Owner deems necessary)

The Owner will undertake negotiations with the top rated firm and will not negotiate with lower rated firms unless negotiations with higher rated firms have been unsuccessful and terminated. Should the Owner not be able to agree on the details of the contract with the top rated firm through good-faith negotiations, they will proceed to the next highest ranked firm and enter into negotiations.

Oral Interviews (if required): It is the Owner's intent to invite (if required) up to three of the most qualified rated Offerors to participate in oral interviews.

Award: Firms shall be ranked or disqualified based on the criteria listed herein. The Owner reserves the right to consider all of the information submitted and/or oral presentations, if required, in selecting the project Offeror.

SOLICITATION RESPONSE FORM

SOQ-47285-19-DH "2020 Persigo WWTP Master Plan Development Project"

*Offeror must submit entire Form completed, dated and signed***.**

The Owner reserves the right to accept any portion of the services to be performed at its discretion

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The undersigned has thoroughly examined the entire Statement of Qualifications and therefore submits the proposal and schedule of fees and services attached hereto.

This offer is firm and irrevocable for sixty (60) days after the time and date set for receipt of proposals.

The undersigned Offeror agrees to provide services in accordance with the terms and conditions contained in this Statement of Qualifications and as described in the Offeror's proposal attached hereto; as accepted by the Owner.

Prices in the proposal have not knowingly been disclosed with another provider and will not be prior to award.

- Prices, when submitted, have been arrived at independently, without consultation, communication or agreement for the purpose of restricting competition.
- No attempt has been made nor will be to induce any other person or firm to submit a proposal for the purpose of restricting competition.
- The individual signing this proposal certifies they are a legal agent of the offeror, authorized to represent the offeror and is legally responsible for the offer with regard to supporting documentation and prices provided.
- Direct purchases by the City of Grand Junction are tax exempt from Colorado Sales or Use Tax. Tax exempt No. 98-903544. The undersigned certifies that no Federal, State, County or Municipal tax will be added to the above quoted prices.
- City of Grand Junction payment terms shall be Net 30 days.
- Prompt payment discount of ________ percent of the net dollar will be offered to the Owner if the invoice is paid within ___________ days after the receipt of the invoice. Payment Terms _______.

RECEIPT OF ADDENDA: the undersigned Firm acknowledges receipt of Addenda to the Solicitation, Specifications, and other Contract Documents.

State number of Addenda received: ___________.

It is the responsibility of the Proposer to ensure all Addenda have been received and acknowledged.

______________________________	______________________________
Company Name – (Typed or Printed)	Authorized Agent – (Typed or Printed)
______________________________	______________________________
Authorized Agent Signature	Phone Number
______________________________	______________________________
Address of Offeror	E-mail Address of Agent
______________________________	______________________________
City, State, and Zip Code	Date

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Abbreviations and Acronyms

Abbreviation	Definition
1992 Study	Comprehensive Wastewater Basin Study
1997 Update	Update to the Comprehensive Wastewater Basin Study
2008 Comp Plan	2008 Comprehensive Plan Update
2008 Update	2008 Comprehensive Wastewater Basin Update
ADDF	average daily dry weather flow
Bio-P	biological phosphorous
Black & Veatch	Black & Veatch Corporation
CCI	Construction Cost Index
CGVSD	Central Grand Valley Sanitation District
City	City of Grand Junction, Colorado
DUs	dwelling units
ENR	Engineering News Record
EPS	extended period simulation
GIS	Geographic Information System
gpcd	gallons per capita per day
gpd	gallons per day
gpd/sq ft	gallons per day per square foot
gpm	gallons per minute
gpm/sq ft	gallons per minute per square foot
HDR	HDR Engineering, Inc.
I-70	Interstate 70
ID	identification
IFAS	integrated fixed film activated sludge
mgd	million gallons per day
mg-P/L	milligrams of phosphorus per liter
mil gal	million gallons
MPO	Metro Planning Organization
OMSD	Orchard Mesa Sanitation District
PE	population equivalent
ppd	pounds per day
RDTs	rotary drum thickeners
SRT	solids retention time
SWD	side water depth
TAZs	traffic analysis zones
TM 1	Technical Memorandum No. 1
TM 2	Technical Memorandum No. 2
TM 3	Technical Memorandum No. 3

Abbreviation	Definition
TM 4	Technical Memorandum No. 4
TM 5	Technical Memorandum No. 5
TM 6	Technical Memorandum No. 6
WAS	waste activated sludge
WWTP	Wastewater Treatment Plant

TECHNICAL MEMORANDUM NO. 1

City of Grand Junction, Colorado — B&V Project 160319.0100
2008 Comprehensive Wastewater Basin Study Update — B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Introduction

Technical Memorandum No. 1 (TM 1) provides an overview of the 2008 Comprehensive Wastewater Basin Study Update (2008 Update).

A. Background

The City of Grand Junction, Colorado (City) hired Black & Veatch Corporation (Black & Veatch) to provide updates to the Comprehensive Wastewater Basin Study (1992 Study) completed by HDR Engineering, Inc. (HDR) in 1992. In 1997, HDR updated the 1992 Study to reflect updates in the area north of Interstate 70 (I-70) (1997 Update). Since the 1992 Study and the 1997 Update, there have been significant changes to the City's wastewater collection system, including:

- Extending service to serve new developments.
- Replacing the Duck Pond Lift Station with a gravity line.
- Replacing the Scenic School and Redlands Parkway lift stations with the Connected Lakes Lift Station.
- Providing service to the Panorama Sanitation District, which is now part of the City.
- Dissolution of the Fruitvale Sanitation District on January 1, 2009, which is now a part of the City.

In addition, the City is expecting Orchard Mesa and Central Grand Valley sanitation districts to dissolve in the next 10 years and become part of the City.

The 2008 Update is being completed in conjunction with the City's 2008 Comprehensive Plan Update (2008 Comp Plan) and the recommendations for future capacity and expansion reflect the land use planning from the 2008 Comp Plan as of March 2009. Figure TM1-1 shows the existing 201 Planning Area Boundary, the future service area boundary used for this study, other sanitation district boundaries, and the existing wastewater collection system.

B. Study Objectives

The goal of the 2008 Update is to update the 1992 Study and 1997 Update to provide a guidance document for the City wastewater collection system facilities based on the 2008 Comp Plan land use development plan (as of March 2009) and the Future Service Area developed in conjunction with City staff. Key elements of this update include:

- Updating the wastewater basin boundaries, flow criteria, and collection system facilities.
- Preparing and validating a wastewater system model to assist in alternative evaluations.
- Identifying infrastructure requirements and costs to serve the future service area boundary.

C. Data Sources

The development and evaluation of the hydraulic model required compiling data from many sources. Table TM1-1 summarizes the data used and the apparent source of the data.

TECHNICAL MEMORANDUM NO. 1

City of Grand Junction, Colorado	B&V Project 160319.0100
2008 Comprehensive Wastewater Basin Study Update	B&V File B
	August 4, 2009

Table TM1-1

2008 Update Data Sources

Source	**Data**
City of Grand Junction Geographic Information System (GIS) Department	Traffic analysis zones (TAZs), County parcels, City limits, other sanitation district limits, roads, sewer lines, manholes, existing zoning data and hydrologic features
City of Grand Junction Public Works and Planning Department	Sewer line plan and profile drawings, large contributor data, existing population and land use information
City of Grand Junction Wastewater Treatment Plant (WWTP)	WWTP flow data and collection system flow metering data
Winston Associates	Future land use planning options and 2008 Comp Plan land use data

pjr
Attachment

TECHNICAL MEMORANDUM NO. 2

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin
Study Update

B&V Project 160319.0100
B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Inventory and Model Construction

Technical Memorandum No. 2 (TM 2) provides a description of the existing and future planning areas defined for this study and the methods used in constructing the dynamic model to perform system-wide hydraulic analyses of the major interceptors within the City's collection system.

A. Planning Area

The wastewater collection system and treatment plant are jointly owned by the City and Mesa County. The City operates and maintains the system. The planning area boundaries are the 201 Planning Area Boundary which includes the City, portions of Mesa County outside of the City limits, and two sanitation districts (Fruitvale Sanitation District was dissolved as of January 1, 2009 and is now part of the City collection system):

- Central Grand Valley Sanitation District (CGVSD)
- Orchard Mesa Sanitation District (OMSD)

Although the City does not serve the entire 201 Planning Area Boundary at this time, in the future, it is expected that they will absorb the two districts mentioned above, as well as expand service as growth continues. Clifton and Whitewater are not expected to be incorporated into the City's collection and treatment system.

For the 2008 Update, major interceptors were identified to characterize the collection system. All the flow collected and conveyed through this system is discharged to the Persigo WWTP, which has a current design capacity of 12.5 million gallons per day (mgd). The Persigo WWTP is located in the northwestern corner of the City and discharges treated effluent to the Colorado River.

1. Existing Service Area

The City currently provides wastewater collection and treatment to approximately 78,000 residents through roughly 520 miles of collection pipelines within the 201 Planning Area Boundary.

The existing service area, which spans over 64 square miles, is divided into twenty basins as shown on Figure TM2-1. These basins represent the areas of the City being serviced by a particular interceptor or lift station. The existing basin boundaries were updated from the 1992 Study and 1997 Update by incorporating the Panorama Improvement District into the Tiara Rado basin, extending the Orchard Mesa boundary to the south and east, and extending the northern edge of the 201 Boundary to accommodate recent infill and growth in the northern reaches of the City.

2. Future Service Area

Future growth is expected to include redevelopment of the downtown area, north of the City toward J Road and along the eastern peripheries of the existing Orchard Mesa boundary. A future service area boundary was identified. Existing basin boundaries were modified into future basin boundaries by extending boundaries to the future service area limits. In addition, four new basins were created: two to incorporate the area north of the existing 201 Boundary, a new pumped area in Orchard Mesa, and the area north of the Airport. The future service area boundary and basins are shown on Figure TM2-2.

B. Data Collection

Information about the existing wastewater collection system was obtained from the City's GIS data, as-built drawings, survey information for manholes, and other lift station information available from City records. After the initial survey and model construction, areas with missing information were identified and the City attempted to locate further GIS data and as-builts for the areas of concern.

1. Available Data

Black & Veatch used GIS shape files and as-built information provided by the City to construct a collection system model, including the major interceptors within the City's service area. The GIS data consists of two shape files:

- Collection system structures such as manholes and lift stations.
- Pipes, including gravity mains, force mains, and siphons.

The GIS shape files were used to spatially locate the pipes and other structures in the model. This data also contained structure characteristics such as length, diameter, and material. Most of the GIS pipe shape file was missing pipe invert elevation data and manhole rim elevations, so Black & Veatch input both upstream and downstream invert elevation data, as well as rim elevations from as-builts provided by the City. Appendix TM2A lists the as-built drawings used to input data into the model.

2. Calculable Data

Once the available information from the GIS and drawings was entered, values were calculated for as much of the missing information as possible. Calculated values included the following:

- Invert elevations calculated from pipe length and slope.
- Rim elevations calculated from invert elevation and depth information.
- Pipe length calculated from pipe slope and difference in invert elevations.

3. Assumed Data

Data gaps remaining after data collection and calculations were filled making assumptions about the system. Additional assumptions were made to rectify conflicting information. Assumptions were generally made using other information about the system and were discussed with the City. For example, diameter assumptions were made by looking at upstream and downstream information.

Two interceptors have assumed slopes along a majority of the pipe length. In these areas, an assumed pipe slope (matching the slope upstream or downstream of the missing invert data) is used to project the invert elevations along the length of the interceptor. The following pipe segments contain assumed slopes and invert elevations:

- **Connected Lakes.** The slope of the pipeline was estimated from Manhole E2-222-050 (along South Rim Drive east of Redlands Parkway) upstream to Manhole E2-231-035 (at Eagle Point Court) and again from Manhole D3-232-018 (along West Scenic Drive) upstream to Manhole D2-241-006 (along Sandia Drive).

- **15th Street Interceptor.** The slope of the pipeline for the upstream reach north of Patterson Road (Manhole F1-271-103 to Manhole F1-271-101) was estimated by extending the known pipe slope of the downstream reach. The pipe slope was also estimated for the pipe south of Cedar Avenue (Manhole E3-271-123) downstream to the Colorado Avenue Interceptor (at Manhole D1-271-017).

The Connected Lakes Interceptor was also missing rim elevations, so assumed rim elevations were input to the model by estimating the elevation between the nearest known rim elevations and the hypsography from the 2005 aerial photography available from the City.

C. Hydraulic Model

In order to evaluate the ability of the wastewater collection system to handle existing and future peak flow conditions, a wastewater collection system hydraulic model was developed. The computer model developed for this project used H2OMap Sewer Pro Version 8.0 (by MWH Soft). Wastewater collection system facilities, including manholes, wetwells, outfalls, interceptors, force mains, and lift station pumps, are represented in the model.

1. Data Input and Checking

The first step in the hydraulic model construction is to input the collection system inventory. The GIS Exchange tool in H20MAP Sewer was utilized to import the shape files into the model and convert them into links and nodes while assigning the GIS attributes to predefined model attributes. Table TM2-1 shows how the shape file attributes were mapped to the model attributes.

Table TM2-1

Attribute Fields

GIS Shape File Attribute Field	H2OMAP Sewer Attribute Field
Structure Shape File	
MA_MANHOLE	(ID)
MA_MHID	Description
MA_DIA	Diameter
MA_RIM_ELE	Rim Elevation
MA_STRC_TY	Type
Int_Name [1]	INT_Name
Pipe Shape File	
NT_USMAN	Link: From
NT_DSMAN	Link: To
NT_USMAN [2]	(ID)
NT_NUMBER	Pipe: Description
NT_LENGTH	Pipe Hyd: Length
NT_DIA	Pipe Hyd: Diameter
NT_DT_CONS	Installation Year
NT_DIST_TY	Zone
NT_MAT_TY	Material
NT_LINR_TY	Lining
Int_Name[1]	INT_Name

(1) Int_Name attribute was added to shape file by Black & Veatch. It contains the name of the major interceptor.

(2) The pipe identification (ID) in the model is the upstream manhole ID.

Hydraulic inventory data was provided by the City in the form of GIS shape files and as-built drawings. The hydraulic parameters extracted from these data sets included manhole coordinates, rim elevations, pipe diameter, length, invert elevations, and other special structures information. The model was constructed to include all major interceptor lines greater than 12 inches in diameter and other major wastewater collection system facilities located along these interceptors. Smaller sewer lines were included if they were considered important or needed for continuity. Following importation of the data, additional checks were made to locate and correct adverse slopes, improper connections, missing data, and other model problems. Where necessary, assumptions were made, especially with relation to the pipe inverts and manhole rim elevations, to alleviate these data discrepancies.

2. Collection System Inventory

Figure TM2-1 shows the existing interceptor wastewater collection system as constructed in the model. The following paragraphs summarize the system inventory.

a. Persigo WWTP

All flow collected within the City's wastewater collection system is treated at the Persigo WWTP. Evaluation of the capacity and treatment facilities at the Persigo WWTP was not included in the scope of the 2008 Update; however, Technical Memorandum No. 5 includes additional information about options for expanding the capacity and treatment facilities at the existing site. In addition, Table TM2-2 summarizes the design conditions and 2007 flow data.

Table TM2-2

Persigo WWTP Summary

Criteria	Flow (mgd)
Design Capacity Flow	12.5
2007 Annual Average Flow	8.1
2007 Instantaneous Maximum Flow	18.6

Note: 2007 flow values based on data from the flowmeter on the River Road interceptor.

b. Gravity Interceptors

The City operates and maintains approximately 520 miles of gravity sewers (including Orchard Mesa and CGVSD) in the wastewater collection system. For the 2008 Update, approximately 50 miles of the larger diameter pipelines were hydraulically analyzed under various scenarios. A summary of the modeled interceptor lengths and diameter ranges are included in Table TM2-3.

c. Lift Stations, Wetwells, and Force Mains

There are currently 26 lift stations in use by the City. Five of the lift stations were included in the model as they significantly influence the hydraulics of the interceptors they are tributary to. Table TM2-4 summarizes available data on the lift stations and their associated force mains. Modeled lift stations are shown on Figure TM2-1.

Table TM2-3

Existing Gravity Interceptor
Modeled Collection System Summary [1]

Interceptor	Basin	Diameter (inch)	Length[2] (feet)
15th Street	15th Street	15	11,000
24 Road	24 Road	10 - 15	11,000
24 ½ Road	Paradise Hills	15 - 18	6,700
B ½ Road	Orchard Mesa	10 - 12	13,300
Colorado Avenue/Crosby Avenue	Colorado Avenue	18 - 24	10,900
Connected Lakes	Goat Wash	8 - 12	3,700
Frontier Street	Orchard Mesa	8 - 10	4,200
Grand Avenue	Grand Avenue	18 - 30	9,000
Goat Wash	Goat Wash	8 - 21	14,000
Horizon Drive	Horizon Drive	15 - 24	21,900
Highway 50	Orchard Mesa	10 - 15	7,300
Lime Kiln	Lime Kiln	8	400
Orchard Mesa	Orchard Mesa	14 - 24	12,700
Paradise Hills	Paradise Hills	8 - 18	19,700
Redlands	Goat Wash	8	3,600
River Road	--	18 - 54	28,500
Ridges	Rosevale	8 - 12	6,600
River Trunk	River Trunk	10 - 27	8,300
Rood Avenue	Rood Avenue	15	5,100
Scenic School	Goat Wash	8	4,600
South Avenue	River Trunk	21 - 27	6,700
South Camp	Goat Wash	8 - 12	9,200
South Side	South Side	20 - 30	14,400
Tiara Rado	Tiara Rado	8 - 15	9,600
Unaweep Avenue	Orchard Mesa	10 - 12	7,200
Total			**249,600**

[1] Data from summary of hydraulic model output.

[2] Force main lengths not included in pipe length totals.

Table TM2-4

Lift Station and Force Main Summary [1]

Lift Station Name	Location	Lift Station		
		Number of Pumps	Pump Capacity [2] (gallons per minute [gpm])	Total Dynamic Head (feet)
Alpine Meadows [3]	776 Sedona Court	2	83	30
Brach [3]	East end of Monument Road	2	93	22
Cheyenne [3]	2770 Cheyenne Drive	2	183	50
Connected Lakes	2380 North San Miguel	4	147	137.8
Coors [3]	559 Sandhill Lane	2	317	--
Corn [3]	365 32 Road	2	93	24
D.O.E. [3]	2591 B 3/4 Road	2	210	90
Desert Hills [3]	479 Escondido Circle	2	90	119
El Poso [3]	445 Crosby Avenue	2	146	11
Falls [3]	Grand Falls Drive and 28 1/4 Road	2	244	45
Fifth Street [3]	725 South 5th Street	1	30	Not available
Grand Valley Byproducts [3]	347 27½ Road	2	391	43
Heather Ridge [3]	2523 Snowmass Court	2	93	Not available
Lime Kiln Gulch (also know as Redlands Village)	2206 Crestline Circle	4	388	150
Mesa Mall [3]	2432 Highway 6 and 50	2	94	37
Monument [3]	329 Dakota Circle	2	146	40
Panorama 2 [3]	2122 Sequoia Court	2	170	60
Railhead [3]	River Road and Railhead Circle	2	244	20
Redlands Mesa [3]	373 High Desert Road	2	97	56
Ridges 1	425 Sandstone Drive	2	298	10
Ridges 2 [3]	408 1/2 Ridgeway Drive	1	30	80
Riverbend [3]	3110 Kerset Court	2	80	25
Rosevale	2526 Broadway	2	475	35

Table TM2-4

Lift Station and Force Main Summary [1]
(Continued)

Lift Station Name	Location	Lift Station		
		Number of Pumps	Pump Capacity [2] (gallons per minute [gpm])	Total Dynamic Head (feet)
Safeway [3]	29 Road and F Road	2	140	11
Tiara Rado (also known as River View North)	2078 Raindance Court	2	2,272	80
Wellington [3]	2078 Raindance Court	2	225	30

[1] Lift station data provided by the City.

[2] All pumps in the lift station are the same capacity.

[3] Lift station was not included in the hydraulic modeling.

d. Siphons

There are currently four siphons used by the City. Siphons are segments of pressurized sewer, which allow the City to convey wastewater under low areas in the system (such as a river) without requiring a lift station. Table TM2-5 summarizes available data on the siphons. Siphon locations are shown on Figure TM2-1.

Table TM2-5

Siphon Summary [1]

Name	Location	Diameter (inch)	Length (feet)
28 Road	28 Road and Grand Avenue	15	100
Broadway Street	US Highway 340 and Monument Road	8 and 10	2,200 each
High Street	Crosses Colorado River just west of US 50 Highway Bridge	12 and 14	1,000 each
River Road	River Road and I-70	18, 24, and 30	150 each

pjr
Attachment

TECHNICAL MEMORANDUM NO. 3

City of Grand Junction, Colorado	B&V Project 160319.0100
2008 Comprehensive Wastewater Basin Study Update	B&V File B
	August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Population and Flows

Technical Memorandum No. 3 (TM 3) provides a review of the methodology used to compute residential and non-residential wastewater generation for both the existing and buildout collection systems for the City.

A. Existing Population and Flows

The Grand Valley Metro Planning Organization (MPO) provided the population and employment densities by TAZ for year 2005, which was assumed to be the population and employment for the existing year modeling in the 2008 Update. Figure TM3-1 shows the TAZ data in relation to the study area and drainage basin boundaries.

1. TAZ Population and Employment Data

The spatial distribution of population by basin for 2005 was calculated based on the TAZ data. The resulting residential and employment estimates were then used to determine the wastewater unit rates for each basin in the study area.

TAZs represent a geographic area, as defined by the United States Bureau of Census, used for analytical and planning purposes. By intersecting the TAZ data with the drainage basin shape file, population and employment totals were calculated for each drainage basin. Table TM3-1 summarizes the population by basin for the existing system.

Table TM3-1

Existing Population and Employment by Basin [1]

Basin	Area (acres)	Employment	Population	Population Equivalent [2]
15th Street	700	500	3,400	3,650
24 Road		2,250	950	2,100
CGVSD [3]	6,250	3,050	18,550	20,050
Colorado Avenue	350	3,300	2,150	3,800
Fruitvale [3]	1,200	3,450	6,950	8,650
Goat Wash	2,850	400	4,100	4,300
Grand Avenue	1,350	8,450	8,150	12,350
Horizon Drive	2,450	5,550	3,700	6,500
Lime Kiln	750	200	1,650	1,750
Orchard Mesa	4,400	2,450	10,750	11,950
Paradise Hills	2,550	4,000	5,800	7,850
Ridges	650	100	950	1,000
River Road North	1,250	1,300	200	850
River Road North B	400	1,600	1,550	2,350
River Road South	650	500	50	300
River Trunk	500	2,500	1,550	2,800
Rood Avenue	450	1,500	3,500	4,250
Rosevale	1,050	200	800	900
South Side	200	850	100	550
Tiara Rado	2,150	350	3,300	3,450
Total	**31,000**	**42,500**	**78,150**	**99,400**

(1) Data Calculated from TAZ and Basin shape file intersection and reflects 2005 population estimates. Rounded to the nearest 50.

(2) Population Equivalent = (Employment) * 0.5 + Population.

(3) CGVSD and Fruitvale are represented in the model as point loads into the collection system.

Population data was used to account for the base per capita sanitary wastewater flow from residential land uses, and employment data was used for the commercial and industrial land uses. In order to simplify unit flows, population and employment data was combined, and an equivalent population number developed. A population equivalent (PE) was defined at one resident or two employees.

2. Flow Metering Data

Flow meter data was provided by the City for 14 permanent flow metering locations and Persigo WWTP. Flow data is summarized in Table TM3-2 for 2007, which was the data used for validation of the hydraulic model. Not all the meters have recorded data for every month. Appendix TM3A includes additional detail from the flowmeters and typical diurnal curves. The metering locations are shown on Figure TM3-2.

Flow balancing was performed using the 2007 average daily dry weather flow (ADDF) calculated from the flow records at each metering site. Flow balancing is used to confirm understanding of how various areas of the collection system are connected. In addition, it is used to identify flow metering records which do not appear to reflect expected flows for a tributary area. Figure TM3-3 shows a schematic of the basin connectivity and the 2007 ADDF for the flowmeters. Based on the flow balancing procedures, the flowmeters for 15th Street, Colorado Avenue, Rood Avenue, and South Side were not included since they were either too low, less than 50 (gallons per capita per day (gpcd) or too high, greater than 200 gpcd to be considered realistic. Figure TM3-3 shows in red the 2007 ADDF balanced flows that were included in determining unit flows in Section 4.

Table TM3-2

2007 Meter Data

Interceptor	Location	Diameter (inches)	Instantaneous Maximum Flow (mgd)	ADDF (mgd)
15th Street	13th Street and Main Street	15	0.37	0.15
24 Road	Patterson and Highway 6 and 50	10	1.18	0.18
Colorado Avenue	Crosby Avenue and West Main Street	24	2.47	1.14
Goat Wash	23 1/4 Road and River Road	21	1.11	0.32
Grand Avenue	City Fleet Shops	27	6.81	0.93
Horizon Drive Lower	25 Road and Independent Avenue	24	1.98	0.76
Horizon Drive Upper	Willowbrook Road and Northridge Drive	15	1.56	0.49
Orchard Mesa	1654 Canon Avenue	24	0.65	1.96
Paradise Hills	24 1/2 Road and Highway 6 and 50	18	2.18	0.80
River Road	2145 River Road	54	18.60	8.08
River Trunk	Riverside Park	21	0.77	0.25
Scenic School	River Road and Broadway Street	10	--	--
Southside	West Avenue and West Main Street	30	5.68	2.70
Tiara Rado	2155 River Road	12	0.86	0.29

3. Large Producer Flows

February water use from the largest commercial and industrial water customers was provided by the City and Ute Water. Since there are no large industries in the City that consume water in production (such as a bottling company), it was assumed that all water delivered to these businesses was returned to the wastewater collection system (no outdoor irrigation in February). Large producers were defined as those consuming more than 100,000 gallons of wastewater during February 2007. Since Ute Water also serves areas outside the City's collection system, only large producers within the collection system service area were included.

The total ADDF from the large producers was 1.04 mgd. Based on the physical location within the collection system, a large producer's flow was point loaded to the nearest manhole in the existing collection system model. A detailed list of the large producers and the corresponding model manhole to which the load was assigned is included in Appendix TM3B. Figure TM3-2 shows the locations of the large users.

4. Unit Flows by Basin

For each of the City's existing wastewater basins, unit flow rates were developed. Unit flow rates for flow metered basins are presented in Table TM3-3 and were developed in the following manner:

- The population equivalent of each basin was determined from the TAZ data population and employment densities.
- The large producers within a given basin were subtracted from the basin's monitored flow to calculate a remaining flow for each basin.
- The remaining flow in each basin was divided by the equivalent population to calculate the unit rate in gallons per day per PE (or per capita).

Table TM3-3

Wastewater Unit Rate Summary for Existing System Basins with Flow Metering Data

Basin	February 2007 Large Producer Flow (mgd)	2007 ADDF (mgd)	Population Equivalents	Calculated Unit Rate [1] (gpcd)	Rounded Unit Rate (gpcd)
24 Road	--	0.18	2,100	85.7	85
Goat Wash [2]	--	0.32	6,050	52.9	55
Grand Avenue	0.24	0.93	12,350	55.8	55
Fruitvale [3]	--	0.87	8,650	N/A	N/A
Horizon Drive	0.24	0.76	6,500	80.6	80
Orchard Mesa	0.13	1.96	11,950	153.3	150
Paradise Hills	0.02	0.80	7,850	99.7	100
River Trunk	0.06	0.25	2,800	66.4	65
Tiara Rado	--	0.28	3,450	81.2	80
Sum of Flows	**0.69**	**6.35**	--	--	--

(1) Calculated Unit Rate = (2007 ADDF – February 2007 Large Producer Flow)/Population Equivalents.

(2) Includes Lime Kiln population and employment.

(3) Fruitvale was point loaded into the model.

Basins that either had no flow metering data, or had meter data that was discounted, were grouped together and an average for all of these areas was determined: The five basins that did not have flow data are Ridges, River Road North, River Road North B, River Road South, and Rosevale. The discounted flow meter basins are 15th Street, Colorado Avenue, Rood Avenue, and Southside. (Although the Lime Kiln Basin did not have flow metering, it was combined with Goat Wash, since it is directly upstream from this meter.) Table TM3-4 summarizes the unit flow calculations for the combined areas.

Flow from CGVSD and Fruitvale Sanitation District were point loaded into the model. A summary of existing demand by basin used in the hydraulic modeling is included in Table TM3-5.

B. Future Population and Flows

Future population and flows from the 2008 Update are based on 2035 population and land use information from the 2008 Comp Plan (as of March 2009).

1. Comprehensive Planning Efforts

The City is completing the 2008 Comp Plan, which includes population projections through the year 2035. Winston Associates is the planning consultant assisting the City with completing the 2008 Comp Plan. The 2008 Update is using the current 2008 Comp Plan land use projections for year 2035 (March 2009 contained in the file Preferred3-25-9.gdb from Winston Associates). The land use projections are not finalized at this time, and the final 2008 Comp Plan may include some changes in land use and/or changes in total projected population or employment.

Table TM3-4

Wastewater Unit Rate Summary for Existing System Basins without Flow Metering Data

Basin	February 2007 Large Producer Flow	Population Equivalents	2007 ADDF	Calculated Unit Rate(1)	Rounded Unit Rate
15th Street	0.03	3,650	--	--	80
Colorado Avenue	0.11	3,800	--	--	80
Ridges	--	1,000	--	--	80
River Road North	0.02	850	--	--	80
River Road North B	0.06	2,350	--	--	80
River Road South	0.07	300	--	--	80
Rood Avenue	0.05	4,250	--	--	80
Rosevale	--	900	--	--	80
Southside	0.01	550	--	--	80
Total	**0.35**	**17,650**	--	**78.2**	--
Persigo WWTP	--	--	8.08	--	--
Sum of Flows from Table TM3-3	--	--	**6.35**	--	--

(1) Calculated Unit Rate = (2007 ADDF Persigo WWTP – Sum of Flows from Table 3-3-February 2007 Large Producer Flow)/Population Equivalents.

Table TM3-5

Existing ADDF by Basin
(mgd)

Basin	Large Producers	Residential and Non-residential [(1)]	Total
15th Street	0.03	0.29	0.32
24 Road	--	0.18	0.18
CGVSD	--	0.94	0.94
Colorado Avenue	0.11	0.30	0.41
Fruitvale	--	0.87	0.87
Goat Wash [(2)]	--	0.33	0.33
Grand Avenue	0.24	0.68	0.92
Horizon Drive	0.24	0.52	0.76
Orchard Mesa	0.13	1.79	1.92
Paradise Hills	0.02	0.79	0.81
Ridges	--	0.08	0.08
River Road North	0.02	0.07	0.09
River Road North B	0.06	0.19	0.25
River Road South	0.07	0.02	0.09
River Trunk	0.06	0.18	0.24
Rood Avenue	0.05	0.34	0.39
Rosevale	--	0.07	0.07
South Side	0.01	0.04	0.05
Tiara Rado	--	0.28	0.28
Total	**1.04**	**7.96**	**9.00**

(1) Population equivalents from Table TM3-1 multiplied by the rounded unit rate from Tables TM3-3 and TM3-4.

(2) Includes Lime Kiln population and employment.

2. Future Population and Land Use

The 2008 Comp Plan land use projections include significant residential, commercial and industrial development within the planning period. Based on information from the land use projections and input from the City, a Future Service Area Boundary was developed. It is anticipated that the City will not extend service beyond this boundary within the planning period.

The 2008 Comp Plan future land use projection is shown on Figure TM3-4 along with the Future Service Area Boundary. The 2008 Comp Plan includes a variety of land uses and densities. The land use model from the 2008 Comp Plan included the anticipated number of dwelling units (DUs) and employment expected by year 2035 for each land use type. Based on anticipated wastewater flows and the City's ability to cost-effectively provide sewer service, it was assumed that the following land uses would not be served by the City's wastewater collection system: Agriculture, Agricultural/Forestry Transition, Agricultural/Forestry, Conservation, Open Space, Park, Parks/Open Space, and Residential Very Low (Rural). Table TM3-6 summarizes the housing and employment projections by land use for the Future Service Area.

Land use information was combined with the basin boundaries to develop the population and employment by basin for year 2035. Table TM3-7 summarizes the additional and total year 2035 projections for population, employment, and population equivalents by basin.

Since the Future Service Area is not expected to be fully developed by 2035, some of the development areas will have development densities lower than the land use projection.

TECHNICAL MEMORANDUM NO. 3

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin Study Update
B&V Project 160319.0100
August 4, 2009

Table TM3-6

Housing Units, Population, and Employment for Year 2035 by Land Use for the Future Service Area [(1)]

Land Use	Density Range	Projected Housing Units	Population	Employment
Ag/Forestry Transition	--	50	140	0
Agricultural/Forestry	--	0	0	0
Agriculture	> 35 acres	0	0	0
Business Park	8 DU/acre 32 jobs/acre	3,280	9,840	11,250
Commercial	20 jobs/acre	0	0	4,680
Commercial/Industrial	15 jobs/acre	0	0	12,080
Conservation	1 DU/5 acres	60	190	0
Cooperative Planning Area	Average 5 acres	110	320	0
Downtown	24 + DU/acre 96 jobs/acre	950	2,840	3,240
Estate	1 - 3 acres	390	1,160	0
Industrial	15 jobs/acre	0	0	5,110
Open Space	--	0	0	0
Park	--	0	0	0
Parks/Open Space	--	0	0	0
Public	20 jobs/acre	0	0	480
Residential High	14 - 16 DU/acre 4 jobs/acre	3,290	9,860	570
Residential Low	0.5 - 2 DU/acre	7,880	23,620	0
Residential Med/High	8 - 16 DU/acre	3,710	11,120	0
Residential Medium	4 - 8 DU/acre	12,350	37,040	0
Residential Urban	24 + DU/acre 4 jobs/acre	3,070	9,210	330
Residential Very Low	--	1,210	3,620	0
Town Center	6 DU average 10 jobs/acre	3,120	9,340	10,690
URR-5	1 DU/2 acres	890	2,670	0
Village Center	7 DU average 28 jobs/acre	1,040	3,120	1,490
Total	--	**41,370**	**124,100**	**49,900**

(1) Does not include assigned land uses outside of the Future Service Area Boundary. Based on information provided in "Preferred3-25-9.gdb" from Winston Associates.

Table TM3-7

Projected Year 2035 Population and Employment by Basin [1]

Basin	Additional			Total		
	Employment	Population	Population Equivalent [2]	Employment	Population	Population Equivalent [2]
15th Street	61	923	953	540	4,306	4,576
21 Road	2,181	1,481	2,572	2,181	1,481	2,572
24 Road	5,272	13,302	15,938	7,497	14,262	18,010
Airport	153	94	170	153	94	170
Baseline	2	331	332	2	331	332
CGVSD [3]	10,297	26,353	31,501	13,332	44,908	51,575
Colorado Avenue	1,246	1,447	2,070	4,525	3,586	5,848
Fruitvale [3]	1,730	2,738	3,603	5,155	9,677	12,255
Future River Road North	2,008	13,356	14,360	2,008	13,356	14,360
G Road	2,946	951	2,424	2,946	951	2,424
Goat Wash	200	6,324	6,424	581	10,431	10,721
Grand Avenue	1,208	1,435	2,039	9,677	9,561	14,400
Horizon Drive	6,418	6,089	9,298	11,987	9,804	15,798
Lime Kiln	80	1,102	1,142	273	2,766	2,902
Orchard Mesa	2,542	23,949	25,220	4,985	34,679	37,171
Paradise Hills	2,445	9,591	10,814	6,457	15,411	18,640
Ridges	0	1,910	1,910	99	2,883	2,932
River Road North	4,767	3,933	6,317	6,042	4,124	7,145
River Road North B	474	1,329	1,566	2,070	2,871	3,906
River Road South	2,741	484	1,855	3,220	505	2,115
River Trunk	2,276	1,712	2,850	4,759	3,243	5,623
Rood Avenue	250	533	658	1,773	4,013	4,899
Rosevale	84	1,864	1,905	287	2,661	2,804
South Side	96	159	207	942	261	732
Tiara Rado	0	1,857	1,857	328	5,150	5,313
Total	**49,477**	**123,247**	**147,985**	**91,819**	**201,315**	**247,223**

(1) Data calculated from "Preferred3-25-9.gdb" from Winston Associates and the Future Basin shape file intersection.

(2) Population Equivalent = (Employment) * 0.5 + Population.

(3) CGVSD and Fruitvale are represented in the model as point loads into the collection system.

3. Future Wastewater Flow

The 1992 Study and 1997 Update used an average residential flow of 105 gpcd for future growth. Since these evaluations, the City has continued to eliminate remaining combined sewer systems and address areas of high infiltration and inflow. In addition, the use of lower water demand fixtures in homes and businesses has resulted in lower wastewater flows. Based on the review of 2007 data and expectations with regard to design and construction practices for new development a unit flow of 85 gallons per day (gpd) per population equivalent was chosen for future growth. Table TM3-8 summarizes projected ADDF for year 2035 based on existing flows and projected growth.

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Attachments

Table TM3-8

Projected ADDF for Year 2035

Basin	Existing Large Producer Flow (mgd)	Existing ADDF (mgd)	Additional 2035 ADDF (mgd)	Total ADDF (mgd)
15th Street	0.03	0.29	0.08	0.40
21 Road	--	--	0.22	0.22
24 Road	--	0.18	1.35	1.53
Airport	--	--	0.01	0.01
Baseline	--	--	0.03	0.03
CGVSD	--	0.94	2.68	3.62
Colorado Avenue	0.11	0.30	0.18	0.59
Fruitvale	--	0.87	0.31	1.18
Future River Road North	--	--	1.17	1.17
G Road	--	--	0.21	0.21
Goat Wash	--	0.33	0.55	0.88
Grand Avenue	0.24	0.68	0.17	1.09
Horizon Drive	0.24	0.52	0.79	1.55
Lime Kiln	--	0.10	0.08	0.19
Orchard Mesa	0.12	1.79	2.15	4.05
Paradise Hills	0.02	0.79	0.92	1.73
Ridges	--	0.08	0.16	0.30
River Road North	0.02	0.07	0.54	0.63
River Road North B	0.06	0.19	0.13	0.38
River Road South	0.07	0.02	0.16	0.25
River Trunk	0.06	0.18	0.24	0.48
Rood Avenue	0.05	0.34	0.06	0.45
Rosevale	--	0.07	0.16	0.23
South Side	0.01	0.04	0.02	0.07
Tiara Rado	--	0.28	0.16	0.44
Total	**1.04**	**7.96**	**12.55**	**21.7**

(1) Does not include assigned land uses outside of the Future Service Area Boundary. Based on information provided in "Preferred3-25-9.gdb" from Winston Associates.

TECHNICAL MEMORANDUM NO. 4

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin
Study Update

B&V Project 160319.0100
B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Wastewater Collection System Modeling

Technical Memorandum No. 4 (TM 4) provides a summary of the input parameters and an evaluation of the hydraulic analyses for both the existing and Year 2035 collection system hydraulic models for the City.

A. Modeling Inputs

Hydraulic model construction requires the inventory of the collection system, system flows, and design parameters. TM 2 describes the construction of the collection system model in terms of physical facilities and an existing system inventory. To complete the modeling process, the following paragraphs describe the remaining modeling inputs required for the creation of the collection system:

- Dry weather diurnal curve.
- Wet weather diurnal curve.
- Flow allocation.

1. Flow Components

Wastewater flow consists of the ADDF, wet weather infiltration, and inflow. In 2007, the City had 13 flowmeters located throughout the collection system to provide flow information in specific drainage basins. Of these 13 flowmeters, only two had flow information for all 12 months of the year. For the 2008 Update, the ADDF was approximated using the average flow from each flow meter based on the available 2007 data provided by the City.

Infiltration is defined as groundwater entering the collection system through defective pipes, pipe joints, and manhole structures. The rate of infiltration depends on the depth of groundwater above the defects, the size of the defects, and the percentage of collection system submerged. The variation in groundwater levels and the associated infiltration is seasonal and weather dependent. For the 2008 Update, dry weather infiltration contributions are accounted for in the per capita contributions from each basin.

Inflow is rainfall-related water which enters the collection system from sources such as private sewer laterals, downspouts, manholes, defective piping, and foundation drains. Inflow is directly influenced by the intensity and duration of a storm event. Inflow was accounted for in the model by applying a design storm curve to the entire system.

2. Diurnal Curve

Flow within a collection system varies continuously in response to the diurnal pattern of flow input from system users. Typically, peak flow occurs in the morning, with a secondary peak in the evening. The lowest flows typically occur overnight. The collection system flow response changes in different parts of the collection system as flows are added at different locations. The resulting flow pattern recorded at the WWTP may differ significantly from the input pattern, with peaking attenuated and timing shifted, as a result of the collection system geometry.

For the 2008 Update, an extended period simulation (EPS) hydraulic model was used, which allows for evaluation of the collection system response over time as flow is routed through the hydraulic model. H2OMAP Sewer uses input patterns, which consist of a series of factors applied to the base load, to model the variations in flow over the course of a day. The 24-hour patterns are repeated and applied to a 48-hour EPS run so that the effect of initial system filling can be accounted for in the first 24 hours and repeatable results can be provided in the second 24 hours.

The diurnal curve is based on flowmeter data provided by the City and discussed previously in TM 3. Appendix TM3A includes sample diurnal curves from each of the flowmeters. Meter data from several of the flowmeters that were not downstream from a lift station were analyzed to determine a typical dry weather flow pattern. Several of the flowmeters, including Orchard Mesa and Colorado Avenue, had diurnal curves that appeared to be significantly influenced by upstream large producers, large collection system areas, or both. To provide a more consistent pattern for the entire system, a single diurnal curve was developed and applied to the entire system. The 24 Road diurnal curve (F1-232-013) was used because it had no large producers, the least flow, and the least pipe and, therefore, the least attenuate pattern. This curve was normalized (i.e., an average flow value of one over 24 hours) so its value can be used as multipliers to create the input pattern required for the hydraulic model. Figure TM4-1 shows the ADDF diurnal curve input to the model, which shows a projected, dry weather diurnal peaking factor of 1.8.

3. Wet Weather Curve

In order to estimate the impact of rainfall events on the collection system, separate wet weather patterns were developed. The potential impact of rainfall events on the collection system can be difficult to estimate, because rainfall events typically vary widely in intensity, duration, location, and antecedent conditions, all of which can have a significant impact on either a single basin or the system as a whole.

A five-year, six-hour rainfall event was used to help generate a "typical" pattern for evaluation of the wastewater collection system. Storms produce the greatest peak inflow when their duration is equal to or greater than the travel time from the furthest point in the collection system to the WWTP (also known as the time of concentration). It is estimated that the time of concentration in the collection system is less than six hours. Even though a shorter storm may have a higher intensity level, a longer storm produces a higher peak flow since all areas of the collection system are contributing at the same time.

The Rational Method was chosen to estimate the runoff volume from the five-year event. The Rational Method uses the formula Q = KiA (where "Q" is the runoff in mgd, "K" is runoff coefficient, "i" is the rainfall intensity in inches/hour, and "A" is the area in acres) to estimate the runoff based on the rainfall intensity, area, and a runoff coefficient. Based on information from the *Mesa County/City of Grand Junction Stormwater Management Manual* (December 2007), a rainfall intensity and time distribution were determined. Because the collection system only sees runoff from a rainfall event via system defects, the runoff coefficients are much lower than for a stormwater collection system. For the 2008 Update, runoff coefficients were adjusted to produce the modeled flow at the outlet of the basin. In addition, it was assumed that only 50 percent of the service area contributes runoff. Appendix TM4A includes additional information on development of the wet weather diurnal patterns.

Based on the results of the wet weather diurnal curve development, the projected peak flow at the Persigo WWTP for existing conditions is 19.4 mgd. Although Persigo WWTP has received influent flows of over 20 mgd, flows in excess of 18 mgd are diverted to a flow equalization basin and flows over 20 mgd cannot be measured with the current configuration of the influent flowmeter. Since the City completed the Combined Sewer Elimination Project in 2005, wet weather influent flow to the Persigo WWTP is greatly reduced (both peak flow and volume). Based on the available information, the model appears to approximate peak flows at the Persigo WWTP.

For each time step, the projected runoff was compared to the projected base flow and a new peaking factor was developed. For conservatism, the wet weather pattern was superimposed over the diurnal pattern so that the peaks would coincide. Figure TM4-2 shows the resulting wet weather diurnal patterns.

4. Average Daily Dry Weather Flow

The first step in allocating the model was to manually assign the flow from CVGSD, Fruitvale, and the large producers to individual manholes. This allocation is detailed in Appendix TM3B. The remaining flow of 6.14 mgd is generated by population and employment throughout the collection system. The existing loading was allocated to the model based on the unit rates calculated for each basin that was described in TM 3.

For each basin, a manhole selection set was identified as the loading manholes. This exercise excluded manholes that were in areas where there was no contributing development and helped assign the flow to appropriate manholes for each area. The "Allocation Manager" tool in H2OMAP Sewer was used to create Thiessen polygons around the manhole selection set or junctions to which the ADDF was allocated. Where appropriate, additional "dummy" manholes were added to the allocation manager to improve model allocation in areas where there were no modeled pipes. Figure TM4-3 shows an example of the existing system allocation methodology. Flow allocated to the dummy manholes is then assigned to the manhole where the collection system would connect to the interceptors, rather than at the closest manhole. The basin boundaries were also used in the creation process to ensure the Theissen polygons followed basin boundaries. Table TM4-1 summarizes the allocation of flow to the hydraulic model for the existing wastewater collection system analysis.

Table TM4-1

Existing ADDF Summary

Parameter	Flow (mgd)
CGVSD [1]	0.94
Fruitvale [1]	0.80
Ute Large Users [2]	0.39
Grand Junction Large Users [2]	0.65
Residential and Non-residential Flow [3]	6.14
Total ADDF	**8.92**

[1] Based on annual average flow records provided by the City.

[2] Provided by the City.

[3] Based on TAZ data converted to population equivalents.

B. Model Calibration

Model calibration is the process of checking the simulated results versus field observations. A dry weather calibration of the Grand Junction model was performed by matching the daily average simulated flows at the various flowmeter locations with the annual dry weather average flows calculated from the City's flowmeters. The model was run for a total of 48 hours to allow for the system to "fill" during the first 24-hour period, and flow averages were calculated in the model during the second 24-hour period. Table TM4-2 summarizes the ADDF results from the model compared to the 2007 flowmeter results provided by the City. Additional detail on model results for all modeling is included in Appendix TM4B.

Table TM4-2

Calibration Summary

Basin	ADDF		Peak Wet Weather	
	2007 Flowmeter	Model Results	2007 Flowmeter	Model Results
(Flowmeter Manhole)	(mgd)	(mgd)	(mgd)	(mgd)
Flowmeters Used in Flow Balancing				
24 Road (F1-232-013)	0.18	0.18	1.18	1.18
Goat Wash (F1-231-003)	0.35	0.36	1.11	1.37
Grand Avenue (D2-252-011)	0.93	1.09	6.81	7.06
Fruitvale (D2-272-011)	0.87	0.86	1.53	2.41
Horizon Drive (E1-242-002)	0.76	0.76	1.98	2.11
Orchard Mesa (C1-261-024)	1.96	1.82	3.71	3.76
Paradise Hills (E3-241-034)	0.80	0.80	2.18	2.06
River Trunk (D1-252-010)	0.25	0.14	0.77	0.73
Tiara Rado (G1-211-003)	0.29	0.28(1)	0.86	0.81
Persigo WWTP (G3-211-018)	8.08	9.07	18.60	19.62
Flowmeters Excluded from Flow Balancing				
15th Street (D2-271-023)	0.15	0.33	0.37	0.83
Colorado Avenue (D2-252-069)	1.14	1.90	2.47	4.05
Horizon Drive Upper (F1-261-026)	0.49	0.69	1.56	2.20

(1) ADDF calculated at inflow into the Tiara Rado Lift Station.

The results show that there was good correlation of ADDF between monitored flow and resulting modeled flow for those basins that had flow meters included in the flow balancing discussed in TM 3. As expected, in those basins where the flowmeter data was not used did not match well.

For calibration of peak wet weather flows, K values, which are the runoff coefficient and are an indicator of the relative inflow contribution from the basin, were adjusted until the peak flow from each basin correlated with the monitored flow. As expected, although the minimum K values were used for the 15th Street, Colorado Avenue, and Horizon Drive Upper basins, the model results still over predicted the flow metering results. Since these flowmeters had previously been excluded from the flow balancing, no further effort was made to try to match the flowmeter data.

C. Existing System Hydraulic Evaluation and Analyses

Using the calibrated model, the existing system was evaluated for its ability to handle existing dry and wet weather flows.

1. Collection System Evaluation

The objective of the collection system evaluation is to identify and alleviate system deficiencies capable of causing the system to overflow or a basement backup. To identify possible areas where deficiencies exist in the City's main interceptors, the ratio of peak wet weather flow to full pipe flow (Q_p/Q_c) was reviewed for every pipe in the model.

The criteria used for hydraulic analysis and design of the wastewater collection system are shown in Table TM4-3. For all gravity sewers, a Manning's "n" value of 0.013 was assumed. Force mains were assumed to have a Hazen-Williams "C" value of 110.

Based on the results of the evaluation, recommendations for facility improvements were made.

Table TM4-3

Hydraulic Evaluation and Criteria

Parameter	Value
Evaluation Criteria for the Existing Collection System	
Velocity – Gravity Sewer (at Peak ADDF)	
Minimum	2.5 feet per second (fps)
Maximum	10 fps
Velocity – Force Main (when lift station is operating)	
Minimum	2.0 fps
Maximum	12 fps
Flow Depth Ratio (d/D) in existing gravity lines	
<0.80	Adequate capacity
0.80 – 1.20	Watch List
>1.20	Recommended improvement
Pump Start/Stop	
<1 per day	Configuration change to avoid hydrogen sulfide problems.
1 – 4 per hour	Properly sized lift station
>4 per hour	Expand lift station
Design Criteria for Recommended Improvements	
Flow Depth Ratio (d/D)	
Interceptor Sewers (≥12 inch)	0.7
Collector Sewers (<12 inch)	0.6
Minimum Pipe Slope (feet per foot)	
Pipe Size (inches)	
8	0.0040
10	0.0030
12	0.0022
15	0.0015
18	0.0012
21	0.0010
24	0.0008

2. Existing System Analysis

The existing system was modeled under both dry and wet weather conditions to identify any areas with existing capacity limitations. The hydraulic model studies were all performed using EPS or dynamic modeling. This approach considers diurnal variations in flow input and differences in travel time for system flow peaks (time of concentration) as well as system filling and draining. The model was run for two 48-hour simulations, one for dry weather and another for wet weather. In both cases, results were used from the second 24-hour period to allow the model to fill during the initial 24-hour period.

Table TM4-4 summarizes the percent capacity utilization results for the existing system in tabular format. Figure TM4-4 shows the percent capacity results of the wet weather hydraulic model. In general, the City's interceptor system has adequate capacity for existing flows. The areas that do not have adequate capacity are generally flat areas or interceptors that have had additional flows from upstream development added.

Table TM4-4

Existing Interceptor System Capacity Utilization – Peak Flow Wet Weather

Capacity Utilization (percent)	Dry Weather Length (feet)	Dry Weather Percent	Wet Weather Length (feet)	Wet Weather Percent
<50	219,747	88	177,470	71
50 to 80	19,218	8	46,783	19
80 to 120	10,111	4	16,657	7
>120	0	0	8,166	3

The Orchard Mesa Sanitation District has been identified as having infiltration issues, and this is reflected in the highest per capita flow rate in the City (150 gpcd). The District is working to reduce infiltration with an aggressive rehabilitation project. Over time, the City may see a reduction in flow contribution from this basin, which may address some of the capacity concerns.

The Colorado Avenue Line, which includes the Fruitvale Sanitation District flows, also showed up as having potential capacity issues.

D. Future System Model Inputs

Based on the future land use assumptions from the 2008 Comp Plan, service extensions were identified and added to the hydraulic model to extend service throughout the Future Service Area. Figure TM4-5 shows the extensions included in the model. Extensions were divided into two types:

- Developer Extensions
- Trunk Extensions

The developer extensions are areas that can be served by 8- or 10-inch sewer lines and serve a single development area or an area with limited future growth. In order for service to be extended to these areas, a developer would likely have to construct the connection to the existing system. Developer extensions are identified in Table TM4-5.

Trunk extensions, on the other hand, are generally 12-inch and larger and will serve multiple developments or areas of more intense development. These extensions are summarized in Table TM4-6 and may be eligible for cost sharing with the City if the following criteria are met:

Table TM4-5

Future Developer Extensions

Name	Basin	Description	Diameter (inch)	Length (feet)
21 Road	21 Road	21 Road from J Road to H Road. Southeast along Highway 6 frontage to Pritchard Wash. Lift from Pritchard Wash to existing 8-inch sewer line.	8 10	5,300 7,200
25 Road	24 Road	25 Road from Oleaster Court south to connect to 26 Road Extension at the I-70 Frontage Road.	8 12	1,800 2,400
26 Road	24 Road	26 Road from south of Kayden Court to H Road. West on H Road to 25 3/4 Road. South on 25 3/4 Road to I-70 Frontage Road. West along I-70 to 24 1/2 Road. South on 24 1/2 Road to G Road. Connect to existing 10-inch line in G Road. Also includes spur from 24 1/4 Road along the north side of I-70 to 24 1/2-Road.	8 12 15	11,950 700 3,000
Alcove Drive	Goat Wash	Starting from the connection to the existing 6-inch line at the southern end of Alcove Drive and continuing ¾ mile southwest along the drainage.	8	3,800
Bella Pago Road	Rosevale	Bella Pago Road from its end to tie into the existing system at Country Club Road.	8	2,050
Broadway	Tiara Rado	South Broadway from Wingate Drive north across Highway 340. Continuing northeast to connect to 8-inch line at Washington Court.	8	8,100
C Road	Orchard Mesa	C Road from 30 3/4 Road alignment west to 30 Road. A lift station at 30 Road lifts flow into a 6-inch force main from C Road to B 1/2 Road.	6 10	2,650 3,900
E 1/2 Road	Tiara Rado	E 1/2 Road and the 20 3/4 Road alignment. Northwest to E 3/4 Road. West of E 3/4 Road to connect to the existing 12-inch line in 20 1/2 Road.	12	2,100
Easter Hill	Goat Wash	West side of Easter Hill going west and connecting into the existing 12-inch line in Redland Parkway.	8	1,900
Greenwood Drive	Lime Kiln	Starting from the existing 8-inch line in Monarch Point heading south and then east along Broadway Street. Continue along Broadway Street and connect to the 8-inch line in Lime Kiln Gulch.	8	2,400
Hwy 50	Orchard Mesa	Along the northeastern boundary of the Veterans Memorial Park (along Highway 50). Connect into existing 15-inch line at Highway 50 and 27 3/4 Road.	8	2,550
Lime Kiln Gulch	Lime Kiln	From the corner of Escondido Circle and Desert Hills Road southwest along the drainage to connect into the existing line at Broadway and Lime Kiln Gulch.	8	6,350
Mira Monte Road	Rosevale	Starting from the end of the 8-inch line in Mt. Sopris Drive and continuing south along Mira Monte Road.	8	3,000
Monument Road	Ridges	Along Monument Road from southwest of Mariposa Drive to the base of the hill below Country Club Park Drive. Flow will be lifted into the 6-inch line in Country Club Park Drive.	8	5,200
Redlands 23 Road	Goat Wash	From the south end of the existing line in 23 Road southwest.	8	3,600

Table TM4-5

Future Developer Extensions (Continued)

Name	Basin	Description	Diameter (inch)	Length (feet)
Rosevale Road	Rosevale	Rosevale Road from Little Park Road north to connect to the existing 8-inch line at C 1/2 Road.	8	2,150
Wildwood	Tiara Rado	Starting at the 8-inch line at the south end of Escondido Drive. One line south along Wildwood Drive and a second line following Lime Kiln Gulch south.	8	6,300

Table TM4-6

Future Trunk Extensions

Name	Basin	Description	Diameter (inch)	Length (feet)
22 Road	Future River Road North	22 Road from J Road south to Highway 6. West on Highway 6 to existing 8-inch line at Valley Court.	8 10 12 18	5,300 3,100 3,500 2,800
23 Road	Future River Road North	23 Road from J Road south to H Road. West on H Road to Foxfire Court. South on Foxfire Court to G 3/4 Road. West on G 3/4 Road to connect into 22 Road Extension.	8 10 12 15 18	3,850 1,350 3,650 5,200 2,950
24 1/2 Road	24 Road	24 1/2 Road from I Road south to I-70.	8 10 12	4,100 1,200 2,300
29 Road	Orchard Mesa	A 1/2 Road from 30 3/4 Road west to 30 Road. North on 30 Road to B 1/2 Road. West on B 1/2 Road to 29 Road. North on 29 Road. Cross the Colorado River on the 29 Road alignment and continue north to C 1/2 Road. West on C 1/2 Road to 28 3/4 Road. North on 28 3/4 Road to C 3/4 Road. Parallel existing 18-inch line in C 3/4 Road back to the Southside Interceptor.	15 18 24	9,250 11,750 8,900
G Road	G Road	G Road from 23 3/4 Road alignment west to 23 1/4 Road alignment. South along 23 1/4 Road alignment to Highway 6. Cross Highway 6 and Denver and Rio Grande Western Railroad tracks and connect to existing 54-inch River Road Interceptor.	12	5,200
I-70	CGVSD	Starting from the connection to the existing 8-inch line at the northern end of 29 Road. Continuing north across I-70 in Highline Canal Road. North of I-70, one segment to the west for 1/2 mile and then north. A second segment going east approximately 1-1/2 miles to the alignment of 30 3/4 Road and then heading northeast.	8 12 15	9,700 3,700 3,600

- The extension is identified in the 2008 Update.
- The area is expected to see additional development within the next three years.
- The developer is able to pay for 15 percent of the total cost.

The designation of developer or trunk extension may vary based on changes in City policy, planned development at the time of construction, or other factors.

Several of the extensions do not connect directly to interceptor sewers. For modeling purposes, these areas were loaded into the model either as a point load at the nearest downstream interceptor manhole, or a pipe was added to connect them to the model. In either case, the capacity of the smaller collection system lines was not evaluated as part of the 2008 Update. The following extensions were not connected directly into the model:

- 21 Road
- 24 1/2 Road
- 29 Road
- Alcove Drive
- Bella Pago
- Broadway
- C Road
- Greenwood Drive
- Lime Kiln Gulch
- Mira Monte Road

- Monument Road
- I-70
- Redlands 23 Road
- Rosevale Road
- Wildwood

E. Future System Hydraulic Analyses

Following the base year analyses, the interceptors were analyzed under the projected buildout conditions. The initial future model runs included extensions with an assumed diameter and future flow allocated to the model. The only change to the existing modeled pipes was City's planned abandonment of the Ridges Lift Station and rerouting of the flow to the Connected Lakes Lift Station. Table TM4-7 and Figure TM4-6 show the impact of future growth on the capacity of the City's interceptor system. Additional detail on model results is included in Appendix TM4B.

Table TM4-7

Future Interceptor System Capacity Utilization – Wet Weather

Capacity Utilization (percent)	Length (feet)	Percent of Wastewater Collection System
<50	308,700	56
50 to 80	148,300	27
80 to 120	57,400	10
>120	34,900	7

The Redlands area (south of the Colorado River and west of the Gunnison

River) has limited potential for significant growth, and the existing system will be able to handle the additional flows.

Additional growth in the Orchard Mesa Basin will cause additional stress on the existing collection system in this basin. The 29 Road Extension is planned to move some of the Orchard Mesa flow into the CGVSD basin. The 29 Road Extension flows, in combination with the additional growth in CGVSD, will exceed the capacity of the existing Southside Interceptor.

Growth in the 24 Road, Paradise Hills, and Horizon Drive basins may result in localized capacity issues especially in the 24 Road and Horizon Drive interceptors.

Based on the results of the future modeling and the evaluation criteria in Table TM4-3, a series of improvements were developed. Pipe segments of concern (utilization over 80 percent) were reviewed and placed into either a watch list or improvement list. TableTM4-8 identifies pipe segments, which are of concern from an existing or future capacity standpoint, but do not justify an improvement. It is difficult to tell in these areas when, or if, relief will be needed. The City should monitor these areas to determine appropriate action and be cautious of allowing additional upstream development without additional investigation. These watch list areas are shown on Figure TM4-7. Pipe improvements were identified for areas that showed significant capacity issues. Improvements were developed as either parallel or replacement pipes, with guidance from City staff as to the type of improvement. In general, parallel replacements were identified for areas in which diverting flow to a new alignment was possible and if the existing pipe is in good condition. Replacement pipes were recommended in more restricted areas and for pipes that have a shorter remaining service life. Figure TM4-7 shows the sizing and location of the various improvements, which are summarized in Table TM4-9.

Table TM4-8

Watch List

Name	Basin	Description
24 1/2 Road	Paradise Hills	24 1/2 Road from Industrial Boulevard to Highway 6.
B 1/2 Road	Orchard Mesa	B 1/2 Road from 27 1/2 Road to 29 Road.
Horizon Drive 1	Horizon Drive	Horizon Place from 12th Street to 7th Street. Continue west to 1st Street and North Ridge Drive.
Horizon Drive 2	Horizon Drive	25 1/2 Road from Pinyon Avenue to F Road.
Patterson Road	Paradise Hills	F Road from Northgate Drive west to 241/2 Road. South to River Road.
Redlands	Goat Wash	Tiffany Drive from Village Way to Redlands Parkway.
River Trunk	--	River Road from 23 3/4 Road northwest to Valley Court.
Unaweep Avenue	Orchard Mesa	Unaweep Avenue from Mountain View Street to Hopi Drive.

Table TM4-9

Recommended Improvements

Name	Basin	Description	Diameter (inches)	Length (feet)
Replacement Line				
24 Road	24 Road	G Road one segment east of 24 1/2 Road west to 24 Road. South on 24 Road to F 1/2 Road. West of F 1/2 Road to the end of the street. South to F Road. Across Highway 6 to the River Trunk Interceptor.	18	8,800
Connected Lakes	Goat Wash	(1) Replace 300 feet of 8-inch line with 12-inch directly upstream of the lift station. (2) Expand Connected Lakes Lift Station with 2, 500-gpm pumps. (3) Replace force main from the Connected Lakes Lift Station along the existing alignment to South Rim Drive and Promontory Court. (4) Replace gravity line from South Rim Drive and Promontory Court to South Rim Drive and Redlands Parkway (2,700 feet).	8 12	3,550 3,000
Crosby Avenue	--	West Gunnison Avenue from Crosby Avenue to River Road.	27	400
Orchard Mesa Lines	Orchard Mesa	(1) Unaweep Avenue from Mountain View Street to 27 Road. 27 Road south to B 3/4 Road. (2) 27 1/2 Road north 600 feet, west across Parkview Drive. Diagonally northwest to B 3/4 Road. West on B 3/4 Road to 27 Road. (3) B 3/4 west from 27 Road to Gary Drive. North 600 feet then west to Linden Avenue. North on Linden Avenue to Glenwood Drive.	15 24 30	4,600 3,500 7,250
Paradise Hills	Paradise Hills	Along Leach Creek beginning at manhole H1-261-009 to H Road. Cross H Road and continue south to Manhole G4-261-017.	10 12	1,550 300
Southside	Southside	Riverside Parkway and C 3/4 alignment west to 15th Street. South on 15th Street to Winters Avenue. West on Winters to 10th Street. Southwest to Noland Avenue. West on Noland Avenue to 7th Street. South approximately 150 feet then continue west beyond Highway 50. Northwest along Riverside Park Drive to West Colorado Avenue. North approximately 750 feet.	30 36	6,400 6,500

Table TM4-9

Recommended Improvements (Continued)

Name	Basin	Description	Diameter (inches)	Length (feet)
Parallel Line				
Colorado Avenue	Colorado Avenue	Colorado Avenue from 7th Street to Spruce Avenue. Spruce Avenue to Main Street.	15	3,650
Ridges	Ridges	Reroute flow from the Ridges lift station across South Broadway and northeast down to the Redlands Power Canal. Continue northwest along the Canal to the Connected Lakes Lift Station.	8 12	2,900 4,300
River Road	--	River Road from 21 1/2 Road southeast approximately 600 feet.	36	650
Rood Avenue	Rood Avenue	Grand Avenue from 28 Road to 21st Street. South to Rood Avenue. Rood Avenue to 14th Street.	21	7,900

pjr
Attachments

TECHNICAL MEMORANDUM NO. 5

City of Grand Junction, Colorado	B&V Project 160319.0100
2008 Comprehensive Wastewater Basin Study Update	B&V File B
	August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Persigo WWTP Site Expansion Considerations

Technical Memorandum No. 5 (TM 5) provides a discussion of considerations for expanding the Persigo WWTP beyond the current capacity. The objective is to determine if the plant site has adequate space to accommodate future projected flows based on the City's Comprehensive Plan (as of March 2009) and the 2008 Update.

A. Introduction and Projected Flows

The existing Persigo WWTP was constructed in 1980 with a maximum month design capacity of 12.5 mgd for basic secondary treatment and disinfection, but without ammonia removal. The plant site was laid out and designed for expansion to 25 mgd at build-out.

1. Introduction and Existing Flows

The 2007 annual average and instantaneous maximum flows were 8.1 and 18.6 mgd, respectively, as summarized in Table TM5-1. The existing facility is an activated sludge treatment plant that utilizes primary clarifiers and both anaerobic and aerobic digestion for solids processing. Unit processes include influent headworks and pumping, primary clarification, activated sludge aeration, final clarification, sludge pumping, and gaseous chlorine and sulfur dioxide for disinfection and dechlorination.

Table TM5-1

Design and Current Flows at the Persigo WWTP

Criteria	Flow (mgd)
Design Maximum Month Flow	12.5
2007 Annual Average Flow	8.1
2007 Instantaneous Maximum Flow	18.6

Note: 2007 flow values based on data from the flowmeter on the River Road Interceptor.

2. Projected Flows

The year 2035 annual average daily flow for this study is projected to be 20.8 mgd. The maximum month flow, which is the basis for the plant capacity rating is projected to be 1.25 times the average flow, or 25.75 mgd. Therefore, the hydraulic capacity of the WWTP can be expanded to meet the City's needs for the foreseeable future.

However, this evaluation considered other factors such as how potential future regulatory requirements may impact the space needed for future treatment facilities. The next section discusses that evaluation.

B. Future Expansion Considerations and Requirements

This evaluation considered the following in determining land area requirements for future treatment facilities:

- Physical space available to accommodate expansion for hydraulic flows and biological loads.
- Additional facilities that may be needed to meet future discharge permit limits.

In addition, the City requested that the north area of the plant site be reserved for future solar power generation facilities.

It is anticipated that future regulatory and discharge permit requirements may include:

- Tighter ammonia limits.
- Partial or full denitrification (nitrate reduction) to limit nutrient loadings.
- A high level of phosphorous removal to limit nutrient loadings.
- Increased waste strength concentrations due to drought conditions, reductions in infiltration and inflow, and the reduction of storm flows from the elimination of the combined sewer system.

The approach for the evaluation of future facility requirements was to forecast the major unit process land area requirements and allow another 50 percent for access roads, set backs from other structures, and support facilities. Existing facilities were assumed to be used to the maximum extent possible. The evaluation was based on providing 37.5 mgd of maximum month treatment capacity.

1. Storm Water Basins

Since storm flows have been reduced to the WWTP, no expansion of the overflow basins is anticipated.

2. Headworks and Influent Pumping

The existing flow metering, screening, grit facilities, and influent pumping can be expanded to meet future capacity needs. If expanded headworks facilities are needed, there is sufficient land area immediately to the east of the existing headworks.

3. Primary Clarifiers

Additional Primary Clarifiers 3 and 4 can be added to the east of the existing units, based on a design maximum month overflow rate of between 800 and 900 gallons per day per square foot (gpd/sq ft).

4. Three-Stage Activated Sludge

Three-stage activated sludge treatment, including biological phosphorous (Bio-P) removal, first-stage denitrification, and nitrification, will respectively require 45, 75, and 420 minutes of detention time at summer maximum month flow conditions. Consequently, additional activated sludge basins will be required.

5. Secondary Clarifiers

If the integrated fixed film activated sludge (IFAS) process is used, it is assumed the secondary clarifiers will be hydraulically limited to 800 gpd/sq ft at maximum month flow. With the IFAS scenario, two additional clarifiers, both 115 feet in diameter, will be required. If IFAS is not used, it is anticipated that the secondary clarifiers will be solids limited, with an equivalent hydraulic loading rate of about 600 gpd/sq ft. In this case, three additional, 115-foot secondary clarifiers will be needed.

6. UV Disinfection

The existing chorine contact facilities can be retrofitted to accommodate UV disinfection. Therefore, no additional area will be required.

7. Anaerobic Digestion

For anaerobic digestion, it was assumed that all primary and waste activated sludge (WAS) solids would be anaerobically digested, with energy recovery of the digester gas and phosphorous recovery from the phosphorous-rich WAS. A combined primary and WAS generation rate of 2,000 pounds per million gallons (mil gal), or 75,000 pounds per day (ppd), was assumed for 37.5 mgd. A combined primary and WAS solids concentration of 4 percent is anticipated, based on the use of rotary drum thickeners (RDTs) for the WAS. This resulted in a total estimated feed flow to the anaerobic digesters of 225,000 gpd. For a 15-day solids retention time (SRT), the required capacity would be 3.375 mil gal. Each of the two existing digesters has a capacity of 590,000 gallons. Therefore, a total of six anaerobic digesters, or four additional units would be needed.

8. Sludge Thickening and Dewatering

RDTs were assumed for WAS thickening and centrifuges for dewatering of the anaerobically digested sludge. Three, 200-gpm RDTs and three centrifuges will be needed based on the following estimates:

WAS Thickening Rate (assume 24/7 wasting):

1,000 lbs/mil gal x 37.5 mgd = 37,500 ppd @ 0.7% underflow

37,500 ppd x 100/0.7 x 1 gal/8.34 lbs = 642,000 gpd
@ 200 gpm/RDT = 3 units

Dewatering of Anaerobically Digested Sludge:

75,000 ppd x 0.6 x 100/2.5 (based on 2.5% digested sludge solids concentration) x 1 gal/8.34 lbs = 216,000 gpd

@ 1 dewatering shift per day, 7 days per week, and assume 150 gpm/centrifuge = 3 centrifuges

9. Sludge Drying Beds

No additional drying beds were assumed. The existing beds were assumed to be used as emergency dewatered sludge storage pads.

10. Second-Stage Activated Sludge Denitrification/Sludge Reaeration

Activated sludge Stages 4 and 5 can be added onto the end of the existing three stages, based on the following summer maximum month calculations:

45 minutes for Second-Stage Denitrification with Methanol

15-minute Reaeration to burn off excess methanol for a total of 60 minutes at maximum month flow

$V=t_d$ x Q = 1/24 x 37.5 mgd = 1.6 mg @ 15 ft side water depth (SWD) = 14,260 sq ft or 0.32 acres

11. Advanced Waste Treatment for Phosphorus Polishing

It was assumed that coagulation, flocculation, sedimentation, and filtration will need to meet a total phosphorus limit of less than 0.05 milligrams of phosphorus per miter (mg-P/L). Assuming an aided sedimentation rate of 5 gallons per minute per square feet (gpm/sq ft) and 30 minutes of detention

time for coagulation and flocculation, then the sedimentation area of 5 gpm/sq ft

= 37.5 mgd/(1440 x 5 gpm/sq ft) = 5,200 sq ft. Adding 7,200 sq ft for coagulation and flocculation = 12,400 sq ft total (0.28 acre). Assuming a granular media filtration rate of 4 gpm/sq ft at maximum month flows, the filter area required = 37.5 mgd/(1,440 x 5 gpm/sq ft) = 6,500 sq ft (0.15 acre). The combined total for the Advanced Waste Treatment = 7,200 sq ft for coagulation and flocculation plus 5,200 sq ft for sedimentation, and 6,500 sq ft for filtration for a total of 18,900 sq ft, or 0.43 acre.

Figure TM5-1 shows the projected plant layout and facility area requirements.

C. Conclusion

The existing plant site should be adequate to accommodate expansion of the facility to at least 37.5 mgd, which is well in excess of the projected 2035 capacity of 25.75 mgd. In addition, there is sufficient land area to accommodate the solar facilities at the north end of the plant. This evaluation should be used as a preliminary planning guide only. As permit regulations are more clearly defined and treatment processes identified to meet the regulations, the land area requirements need to be revisited and confirmed.

pjr
Attachment

TECHNICAL MEMORANDUM NO. 6

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin
Study Update

B&V Project 160319.0100
B&V File B
August 4, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Recommendations, Phasing, and Capital Costs

Technical Memorandum No. 6 (TM 6) provides a summary of the recommendations from the 2008 Update. In addition, planning level capital costs and phasing have been prepared for recommended improvements and extensions.

A. Recommendations

Recommendations were developed for several types of improvements during the course of the 2008 Update. Although many of the improvements are described in other parts of the report, they are summarized here for convenience. In addition, Figure TM6-1 shows all of the recommended capital improvements related to the interceptor system. These recommendations include:

- Extensions (Trunk or Developer)
- Ridges Lift Station Abandonment
- Connected Lakes Lift Station Expansion
- Capacity Improvements (Parallel or Replacement)
- 29 Road Extension Alternative
- Watch List
- Changes in Development Density

- Persigo WWTP
- Other Recommendations

1. Extensions

Based on land use development from the 2008 Comp Plan and the future service area boundary, extensions were identified to serve all residential or commercial land uses in the future (no extensions were identified for agricultural or open space land uses). Preliminary alignments were identified and slopes calculated from available information on ground elevation. It was assumed that manholes would be at least 4 feet deep and that they would not exceed 20 feet in depth. Using land use density information from the 2008 Comp Plan, the extension lines were sized using the criteria in Table 4-3. Extensions were then split into developer and trunk extensions based on their size and type of development served. Final alignment, slope, and size will need to be adjusted when additional information is available based on the approved development plat. Table TM6-1 summarizes the extensions, which are shown on Figure TM6-1.

a. Trunk Extensions

In areas where there is higher density development planned, multiple developers, or a larger line size is needed, the City is willing to participate with developers in providing service to new areas if the following criteria are met:

- The extension is identified in the current Comprehensive Wastewater Basin Study.
- The served area is expected to develop in the next three to five years.
- The developer is willing to contribute 15 percent of the cost.

Table TM6-1 Future Extensions			
Name	**Basin**	**Diameter**	**Length**
		(inches)	**(feet)**
Developer Extensions			
21 Road	21 Road	8 10	5,300 7,200
25 Road	24 Road	8 12	1,800 2,400
26 Road	24 Road	8 12 15	11,950 700 3,000
Alcove Drive	Goat Wash	8	3,800
Bella Pago Road	Rosevale	8	2,050
Broad way	Tiara Rado	8	8,100
C Road	Orchard Mesa	6 10	2,650 3,900
E 1/2 Road	Tiara Rado	12	2,100
Easter Hill	Goat Wash	8	1,900
Greenwood Drive	Lime Kiln	8	2,400
Hwy 50	Orchard Mesa	8	2,550
Lime Kiln Gulch	Lime Kiln	8	6,350
Mira Monte Road	Rosevale	8	3,000
Monument Road	Ridges	8	5,200
Redlands 23 Road	Goat Wash	8	3,600
Rosevale Road	Rosevale	8	2,150
Wildwood	Tiara Rado	8	6,300

Table TM6-1

Future Extensions (Continued)

Name	Basin	Diameter (inches)	Length (feet)
Trunk Extensions			
22 Road	Future River Road North	8	5,300
		10	3,100
		12	3,500
		18	2,800
23 Road	Future River Road North	8	3,850
		10	1,350
		12	3,650
		15	5,200
		18	2,950
24 1/2 Road	24 Road	8	4,100
		10	1,200
		12	2,300
29 Road	Orchard Mesa	15	9,250
		18	11,750
		24	8,900
G Road	G Road	12	5,200
I-70	CGVSD	8	9,700
		12	3,700
		15	3,600

b. Developer Extensions

For smaller development areas and line sizes, the developer is expected to bear the full cost of the sewer line. These lines are then turned over to the City before any service connections are allowed.

2. Ridges Lift Station Abandonment

The Ridges Lift Station is nearing the end of its service life. In addition, construction of the Connected Lakes Lift Station has provided a way for the Ridges Lift Station to be replaced with a gravity line to the Connected Lakes Lift Station. The proposed alignment of the Ridges Line is shown on Figure TM6-1. The size and length of this line is shown in Table TM6-2.

3. Connected Lakes Lift Station Expansion

The additional flows from the Ridges Lift Station, in combination with additional higher density development in the Goat Wash Basin, is projected to exceed the capacity of the Connected Lakes Lift Station, as well as the downstream force main and some of the downstream gravity lines. The requirements for the future lift station are included in Table TM6-2.

4. Capacity Improvements

Modeled flows which caused pipes to exceed 120 percent of capacity were grouped into capacity improvements. For the 2008 Update, it was assumed that the improvement would be along the same alignment and slope as the existing interceptor. When the improvement is constructed an alternate alignment or changes in slope are possible and may affect the diameter or length of the improvement. Table TM6-2 summarizes recommended capacity improvements, which are shown on Figure TM6-1.

Table TM6-2

Recommended Capacity Improvements

Name	Basin	Diameter (inches)	Length (feet)
Replacement Line			
24 Road	24 Road	18	8,800
Connected Lakes Lift Station	Goat Wash	8 (force main) 12 1,300-gpm lift station	3,550 3,000 --
Crosby Avenue	--	27	400
Orchard Mesa Lines	Orchard Mesa	15 24 30	4,600 3,500 7,250
Paradise Hills	Paradise Hills	10 12	1,550 300
Southside	Southside	30 36	6,400 6,500
Parallel Line			
Colorado Avenue	Colorado Avenue	15	3,650
Ridges	Ridges	8 12	2,900 4,300
River Road	--	36	650
Rood Avenue	Rood Avenue	21	7,900

a. Parallel Lines

In areas where there was adequate space and the existing pipe is in good condition, parallel lines were used to alleviate capacity concerns.

b. Replacement Lines

In areas with poor pipe condition or limited space, replacement of the existing line is the preferred approach.

5. 29 Road Extension Alternative

The 29 Road Extension requires crossing the Colorado River along the 29 Road alignment. As an alternative to this extension, the line along B1/2 Road could be replaced with a larger line and the Orchard Mesa Interceptor Improvements upsized. Although the load on the eastern half of the Southside Interceptor would be decreased, this line would still need to be replaced and upsized to handle projected flows from CGVSD. Figure TM6-2 shows the improvements and sizing required with both the 29 Road Extension and the alternate. Table TM6-3 summarizes the differences in line length and diameter for the two alternatives.

6. Watch List

For areas with peak flows greater than 80 percent of pipe capacity, but less than 120 percent, a Watch List was developed. Although no capacity recommendations were made for these areas, the City should remain vigilant with these areas. If the pipe condition deteriorates and it requires replacement, consideration should be given to upsizing the pipe. If upstream development density is higher than projected, this area should be reevaluated to determine if there is adequate capacity in the line. Table TM6-4 summarizes the Watch List Areas shown on Figure TM6-1.

Table TM6-3

29 Road Extension Alternatives

Name	Diameter (inches)	Length (feet)
Alternative 1 – 29 Road Extension, Orchard Mesa Replacements, and Southside Replacement		
29 Road Extension	15	9,250
	18	11,750
	24	8,900
Orchard Mesa Replacements	15	4,600
	24	3,500
	30	7,250
Southside Replacement	30	6,400
	36	6,500
Alternative 2 – Orchard Mesa Replacements and South Side Replacement		
29 Road Extension	15	7,900
	18	1,300
Orchard Mesa Replacements	15	4,600
	21	13,300
	24	3,500
	30	7,250
Southside Replacement	30	6,400
	36	6,500

Table TM6-4

Watch List

Name	Basin	Description
24 1/2 Road	Paradise Hills	24 1/2 Road from Industrial Boulevard to Hwy 6.
B1/2 Road	Orchard Mesa	B1/2 Road from 27 1/2 Road to 29 Road.
Horizon Drive 1	Horizon Drive	Horizon Place from 12th Street to 7th Street. Continue west to 1st Street and North Ridge Drive.
Horizon Drive 2	Horizon Drive	25 1/2 Road from Pinyon Avenue to F Road.
Patterson Road	Paradise Hills	F Road from Northgate Drive west to 24 1/2 Road. South to River Road.
River Trunk	--	River Road from 23 3/4 Road northwest to Valley Court.
Unaweep	Orchard Mesa	Unaweep Avenue from Mountain View Street to Hopi Drive.

7. Changes in Development Density

The 2008 Update is based on projected development densities from the 2008 Comp Plan (March 2009). When development occurs, however, it may be significantly different from the current projections. To assist the City in evaluating development plans in the future compared to current planning recommendations, two tools have been developed.

a. Slope and Capacity Curves

Based on the design criteria in Table 4-3 and 85 gpcd, Figures TM6-3 and TM6-4 were developed to help estimate the PEs that can be served with various pipe sizes assuming minimum pipe slope and a Qp/Qf of either 70 or 85 percent for pipes less than 12-inch diameter and 12-inch diameter or larger, respectively. This tool can be used as a "rule of thumb" to give City staff a feel for the appropriate pipe size. Often, pipes can be laid at slopes greater than the minimum slope providing additional capacity.

b. Alternate Extension Sizing

For areas north of I-70 and in Orchard Mesa, extensions were sized both for the projected development density, as well as a density half or double the projected density. This will help give City staff a feel for the sensitivity of the pipe sizing to the development density. Table TM6-5 summarizes this information, which is also shown on Figure TM6-1.

Table TM6-5

Alternate Extension Sizing

Extension	Projected Development, PEs			Diameter (inches) – Length(feet)		
	2008 Comp Plan	Development at 50 Percent of 2008 Comp Plan	Development at 200 Percent of 2008 Comp Plan	2008 Comp Plan	Development at 50 Percent of 2008 Comp Plan	Development at 200 Percent of 2008 Comp Plan
North of I-70						
21 Road	2,550	1,300	5,100	8 – 5,300 10 – 7,200	8 – 12,500	8 – 5,300 12 – 7,200
22 Road	5,150	2,550	10,250	8 – 5,300 10 – 3,100 12 – 3,500 21 – 2,800	8 – 8,400 10 – 3,500 15 – 2,800	8 – 3,950 10 – 1,300 12 – 3,100 15 – 3,500 24 – 2,800
23 Road	9,100	4,550	18,200	8 – 3,850 10 – 1,350 12 - 3,650 15 – 5,200 18 – 2,950	8 – 5,200 10 – 3,650 12 – 8,200	8 – 3,850 12 – 5,000 18 – 4,300 21 – 3,900
24 1/2 Road	4,550	2,300	9,100	8 – 4,100 10 – 1,200 12 – 2,300	8 – 5,300 10 – 2,300	10 – 4,100 12 – 1,200 15 – 2,300
25 Road	300	150	650	8 – 1,800 12 – 2,400	8 – 1,800 12 – 2,400	8 – 1,800 12 – 2,400
26 Road	1,700	850	3,400	8 – 11,950 12 – 700 15 – 3,000	8 – 11,950 12 – 3,700	10 – 11,950 12 – 700 18 – 3,000
G Road	2,100	1,050	4,200	12 – 5,200	12 – 5,200	12 – 5,200
I-70	6,000	3,000	11,950	8 – 9,700 12 – 3,700 15 – 3,600	8 – 9,700 10 – 3,700 12 – 3,600	8 – 5,200 10 – 4,500 15 – 3,700 21 – 3,600
Orchard Mesa						
C Road	2,500	1,250	5,050	10 – 3,900	8 – 3,900	12 – 2,600 15 – 1,300
29 Road	11,850	5,900	23,650	15 – 9,250 18 – 11,750 24 – 8,900	12 – 9,250 15 – 11,750 18 – 8,900	18 – 2,050 21 – 7,200 24 – 11,750 30 – 8,900
Southside [1]	11,850	5,900	23,650	30 - 4,100 36 – 8,750	30 - 6,500 36 - 6,350	36 - 6,500 42 – 6,350

[1] Southside sees the same growth as the 29 Road Extension.

8. Persigo WWTP

The existing plant site should be adequate to accommodate expansion of the facility to at least 37.5 mgd, which is well in excess of the projected 2035 capacity of 25.75 mgd. As permit regulations are more clearly defined and treatment processes identified to meet the regulations, the land area requirements need to be revisited and confirmed.

9. Other Recommendations

Although hydraulic modeling of the interceptor system is a good tool for assessing the hydraulic capacity of the large sewer conduits within the collection system, there are other areas of the collection system that should also be addressed.

a. Additional Collection System Modeling

In addition to capacity issues in the main lines, there is also the potential for capacity problems in the smaller 8- and 10-inch lines that were not included in the hydraulic modeling. This is especially true in areas where significantly higher density growth has occurred than was originally planned or in areas where there has been or is planned significant growth upstream of existing lines. Good examples of this potential are identified extensions, which are not tied directly into the modeled system (indicating that they will be connecting directly to smaller lines). These include the following extensions:

- 24 1/2 Road
- 25 and 26 Road
- Alcove Drive
- Bella Pago Road
- Broadway

- Greenwood Drive
- I-70
- Lime Kiln Gulch
- Monument Road
- Mira Monte Road
- Redlands 23 Road
- Rosevale Road
- Wildwood

Prior to allowing these areas to connect to the existing sewer system, the capacity of the smaller lines should be investigated to ensure that the additional flow will not create capacity issues.

b. Condition Assessments

The City should continue its inspection and maintenance program on manholes and sewer lines. These efforts will result in a continued reduction in infiltration from defects and extend the life of the existing infrastructure. Where feasible, improvements should be coordinated with street repairs, storm sewer improvements, or other utility work.

c. Flow Monitoring

The City has several permanent flow monitors in place, which provided valuable information for evaluation of existing flow patterns and unit contributions. Some of the flow monitors, however, provided data that was inconsistent with other upstream and downstream data. These monitors may have lost calibration or no longer are installed properly. On a regular basis, the City should review the data and perform some flow balancing analysis to ensure that the monitors are accurately measuring flow in the system.

The flow monitor for the Tiara Rado Basin is installed downstream of the lift station. This provides good data for observing lift station operation, but is does not provide helpful information about unit flows and flow patterns. The City may want to consider providing a second monitoring location upstream of the lift station.

B. Capital Costs and Phasing

Based on the recommended improvements outlined previously, capital costs and a phasing plan were developed.

Planning level costs for each recommendation were developed. The opinions of capital cost were based on recent similar City and Black & Veatch projects. Engineering and legal (20 percent) and contingency (20 percent) were included in the capital costs. April 2009 is the time reference for costs when the Engineering News Record (ENR) – Construction Cost Index (CCI) was 8528.

Table TM6-6 shows the phased improvements with projected capital costs for the City. Capital costs for developer extensions were not included. For trunk extensions, additional costs may be incurred to upsize smaller lines that were not included in the hydraulic model. Additional cost detail is included in Appendix 6A. This is a planning level document, so once a project has been selected for construction, the scope of work, design criteria, and costs should be updated. Alignment and line sizes may change significantly once the scope of work is more specifically defined.

pjr
Attachments

Table TM6-6

Capital Cost and Phasing Summary

Project	**Priority**	**Capital Cost ($)**	**Comments**
Rood Avenue Parallel	1	2,986,000	Existing problem area.
Ridges Lift Station Abandonment	1	1,346,000	Reroute flow to Connected Lakes Lift Station.
Orchard Mesa Replacement	2	6,669,000	Construct prior to significant additional growth in Orchard Mesa.
Crosby Avenue Replacement	2	194,000	Construct prior to significant additional growth Grand Avenue Basin.
29 Road Extension	2	10,149,000	Construct in conjunction with development at 30 Road in Orchard Mesa.
Southside Replacement	2	7,668,000	Construct in conjunction with 29 Road Extension.
Paradise Hills Replacement	2	344,000	Construct in conjunction with additional development in Paradise Hills near airport.
G Road Extension	2	1,123,000	Construct in conjunction with development in G Road Basin.
1-70 Extension	3	3,168,000	Construct in conjunction with development north of I-70 at 29 Road.
Colorado Avenue Parallel	3	986,000	Construct in conjunction with I-70 Extension.
24 1/2 Road Extension	3	1,303,000	Construct in conjunction with development north of I-70 at 24 1/2 Road.
24 Road Replacement	3	2,851,000	Construct in conjunction with 24 1/2 Road.
Connected Lakes Lift Station Replacement	3	1,509,000	Construct in conjunction with higher density development in Goat Wash Basin.
River Road Parallel	3	421,000	Construct to address increasing demands from the entire system.
22 Road Extension	3	3,136,000	Construct in conjunction with development in the western portion of the Future River Road North Basin.
23 Road Extension	3	3,946,000	Construct in conjunction with development in the eastern portion of the Future River Road North Basin.
Total	**--**	**47,799,000**	**--**

TECHNICAL MEMORANDUM NO. 7

City of Grand Junction, Colorado
2008 Comprehensive Wastewater Basin
Study Update

B&V Project 160319.0100
B&V File B
September 30, 2009

To: City of Grand Junction

From: Black & Veatch Corporation

Subject: Errata

After the 2008 Update was completed, an error was discovered in one of the basin boundaries. In addition, two planned development extensions were added. Copies of the affected pages are attached and should replace the original pages. The affected pages are listed below along with a description of the changes made. A description of the changes are included in the following sections.

A. Text Changes

The following pages had text changes:

- Page TC-1. Technical Memorandum No. 7 was added to the Table of Contents.
- Page TC-3. Updated page numbering for tables in TM4.
- TM3-12, Table TM3-7. Updated Population projections for Lime Kiln and Tiara Rado basins.
- TM3-14, Table TM3-8. Updated flow projections for Lime Kiln and Tiara Rado basins.
- TM4-12 and TM4-13, Table TM4-5. Added Lime Kiln Gulch and Redlands 23 Road Developer Extensions. Forced Table TM4-5 onto a second page.
- TM4-14, Table TM4-6. New page number.

- TM4-15. New page number and added Lime Kiln Gulch.
- TM4-16. New page number and added Redlands 23 Road.
- TM4-17 – TM4-20. New page numbers.
- TM6-3 and TM6-4, Table TM6-1. Added Lime Kiln Gulch and Redlands 23 Road.
- TM6-12. Added Lime Kiln Gulch and Redlands 23 Road.

B. Figure Changes

The following figures had changes:

- Figure TM2-2. Changes to the boundary between Lime Kiln and Tiara Rado basins.
- Figure TM3-4. Changes to the boundary between Lime Kiln and Tiara Rado basins.
- Figure TM4-5. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road developer extensions.
- Figure TM4-6. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road results.
- Figure TM4-7. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road developer extensions.
- Figure TM6-1. Changes to the boundary between Lime Kiln and Tiara Rado basins. Addition of the Lime Kiln Gulch and Redlands 23 Road developer extensions.

C. Appendix Changes (for copies that include appendices)

The following appendix changes were made:

- Appendix 4B. Updated to include changes to hydraulic modeling.
- Appendix 4B Node Map. Updated with developer extensions.
- Appendix 4B Node Map C. Updated with developer extensions.
- Appendix 4B Node Map E. Updated with developer extensions.

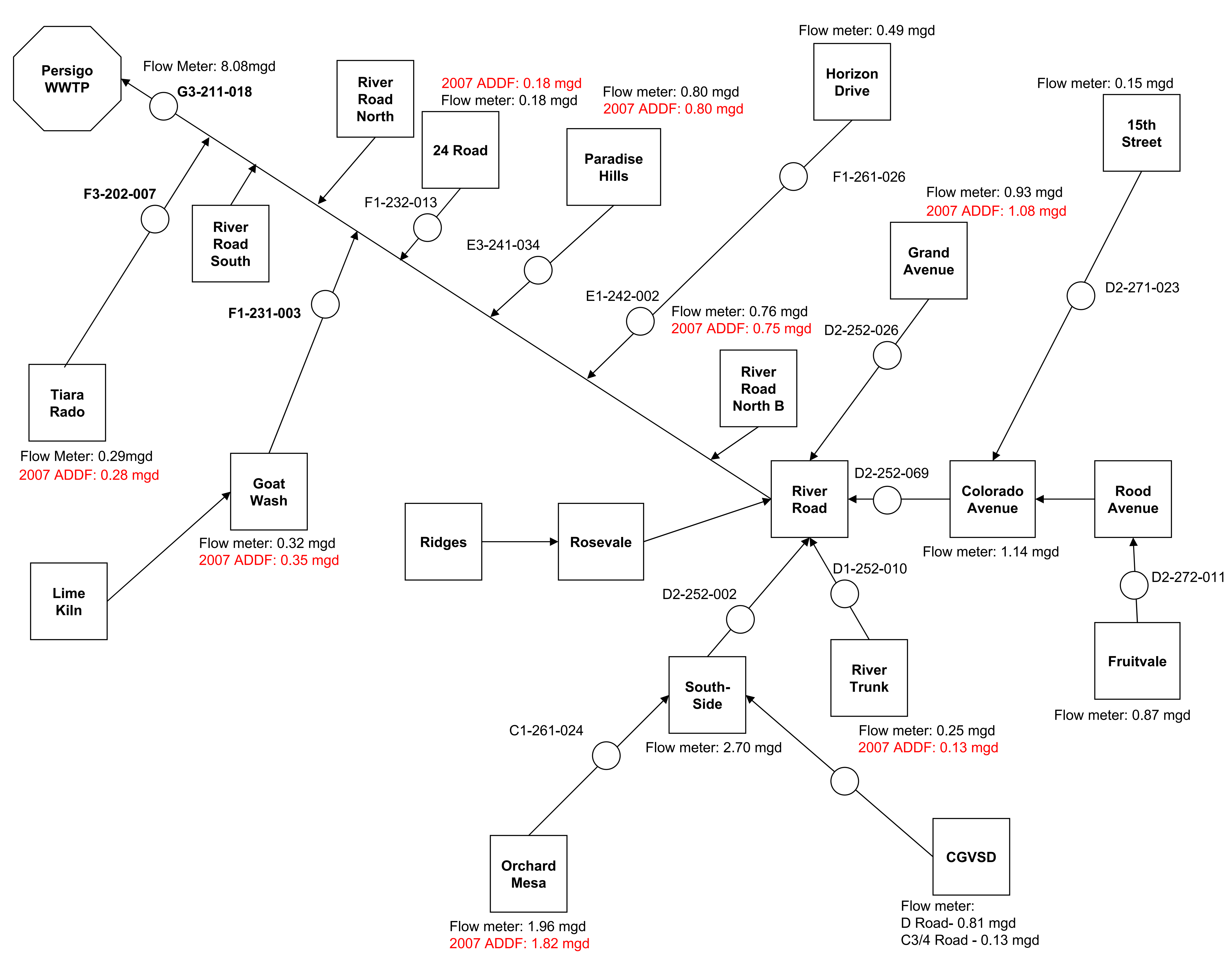
D. Report CD

A new copy of the Report Files (.pdf) CD is included with the updated files.

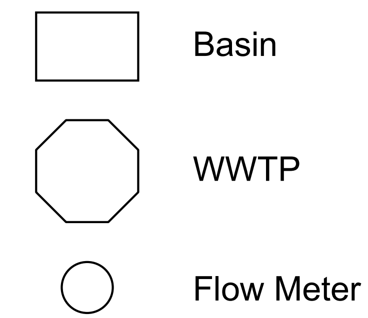
KCB
Attachment

Figure TM 3-3
Basin Connectivity and 2007 ADDF

2008 Comprehensive Wastewater Basin Study

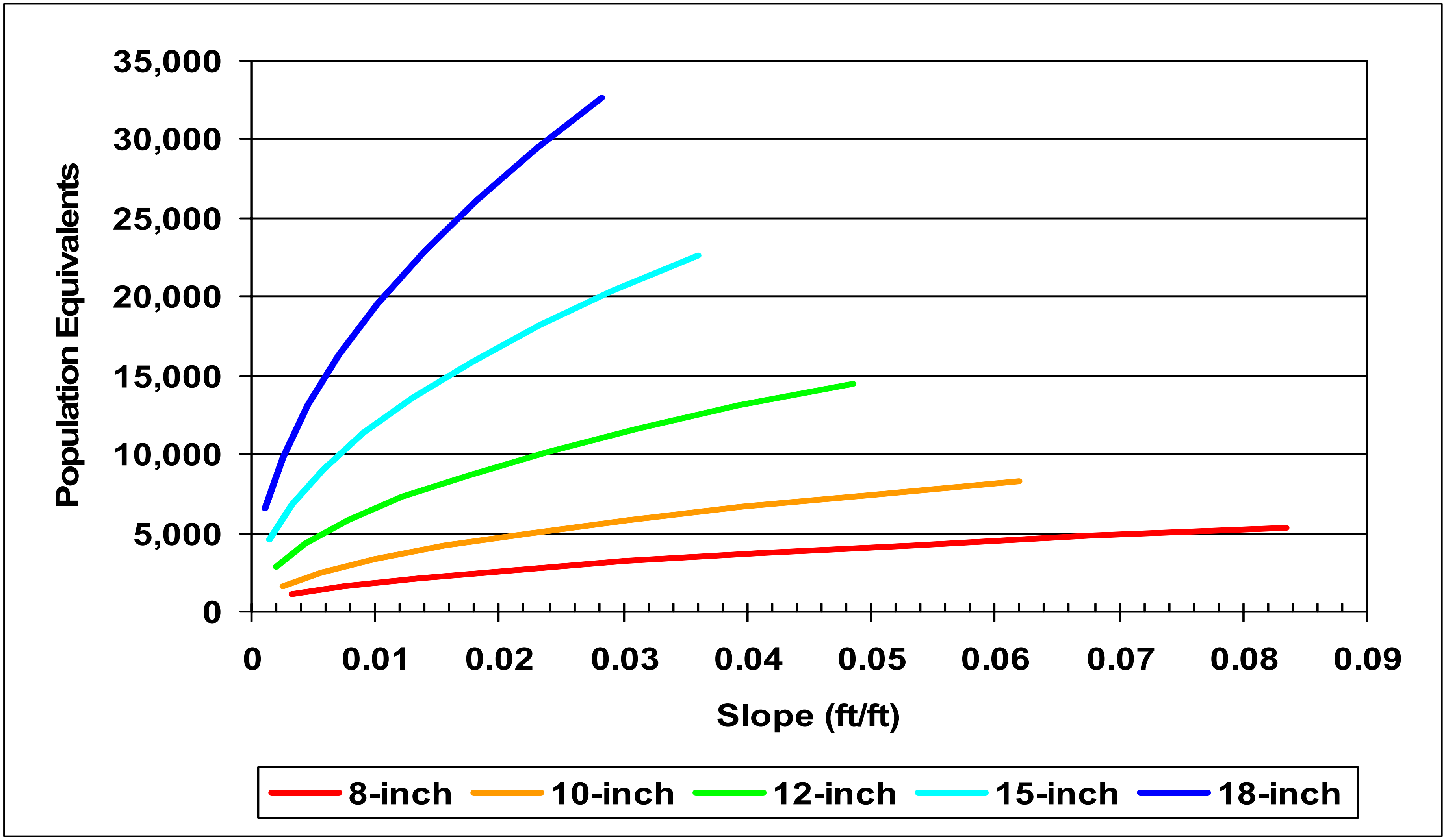


Legend



Flow meter ADDF in black

Model results in Red



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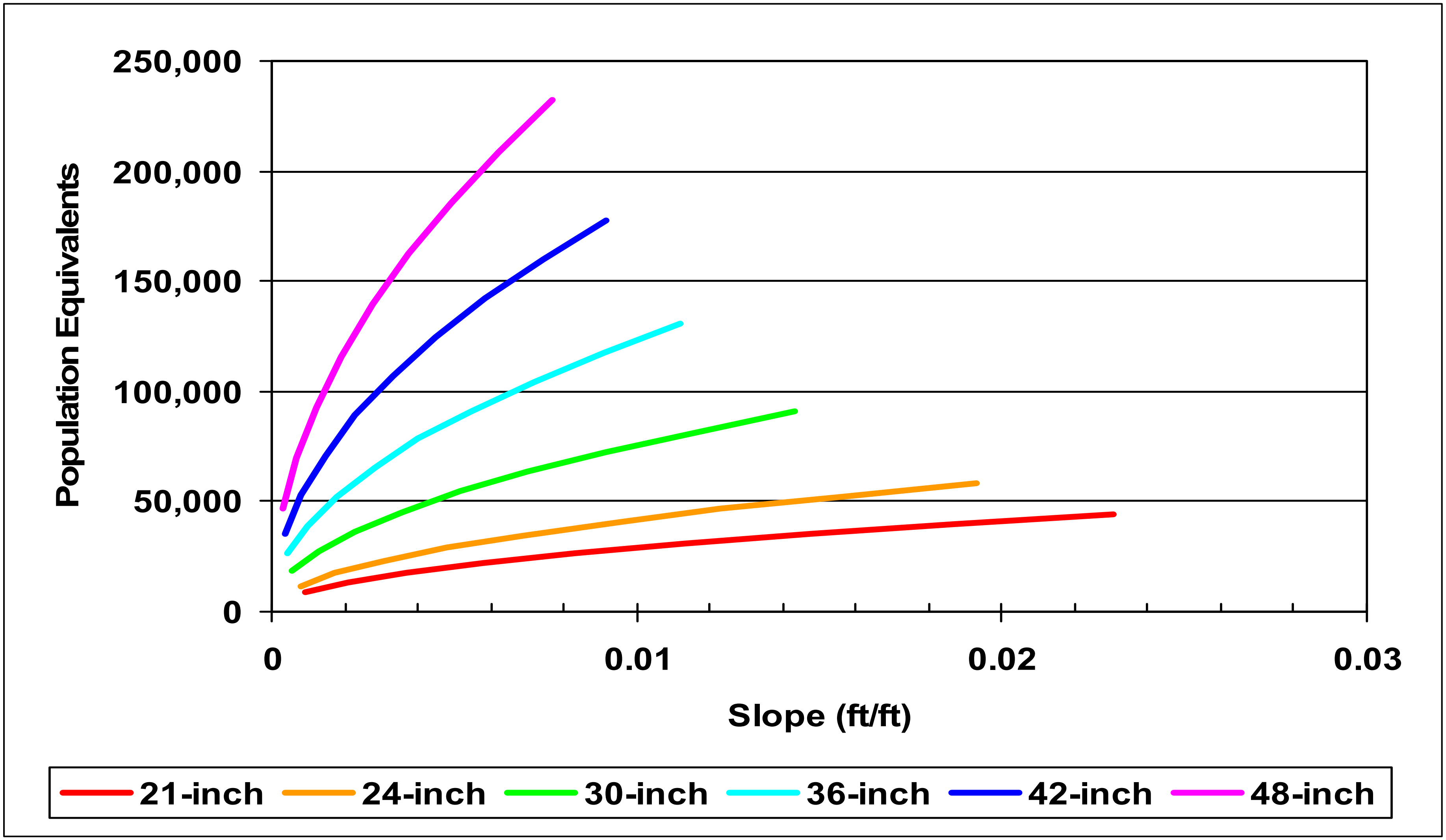
City of Grand Junction
COLORADO

Figure TM 6-3

Population and Sewer Capacity

8 – 18 inch Gravity Lines

2008 Comprehensive Wastewater Basin Study



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CITY OF Grand Junction COLORADO

Figure TM 6-4
Population and Sewer Capacity
21 - 48 inch Gravity Lines
2008 Comprehensive Wastewater
Basin Study

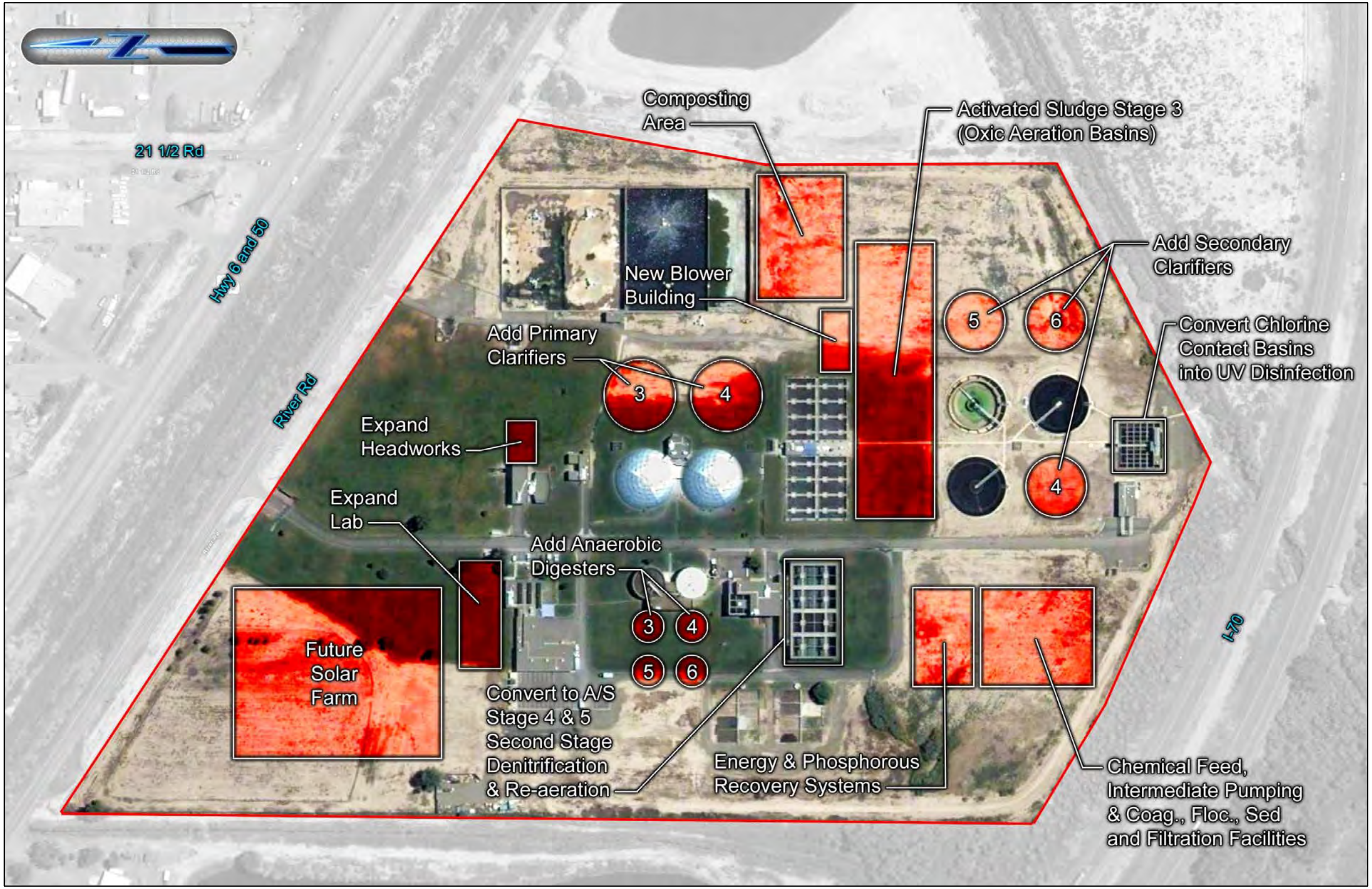

Figure TM 5-1
Persigo WWTP
Future Layout

2008 Comprehensive
Wastewater
Basin Study

Grand Junction
COLORADO

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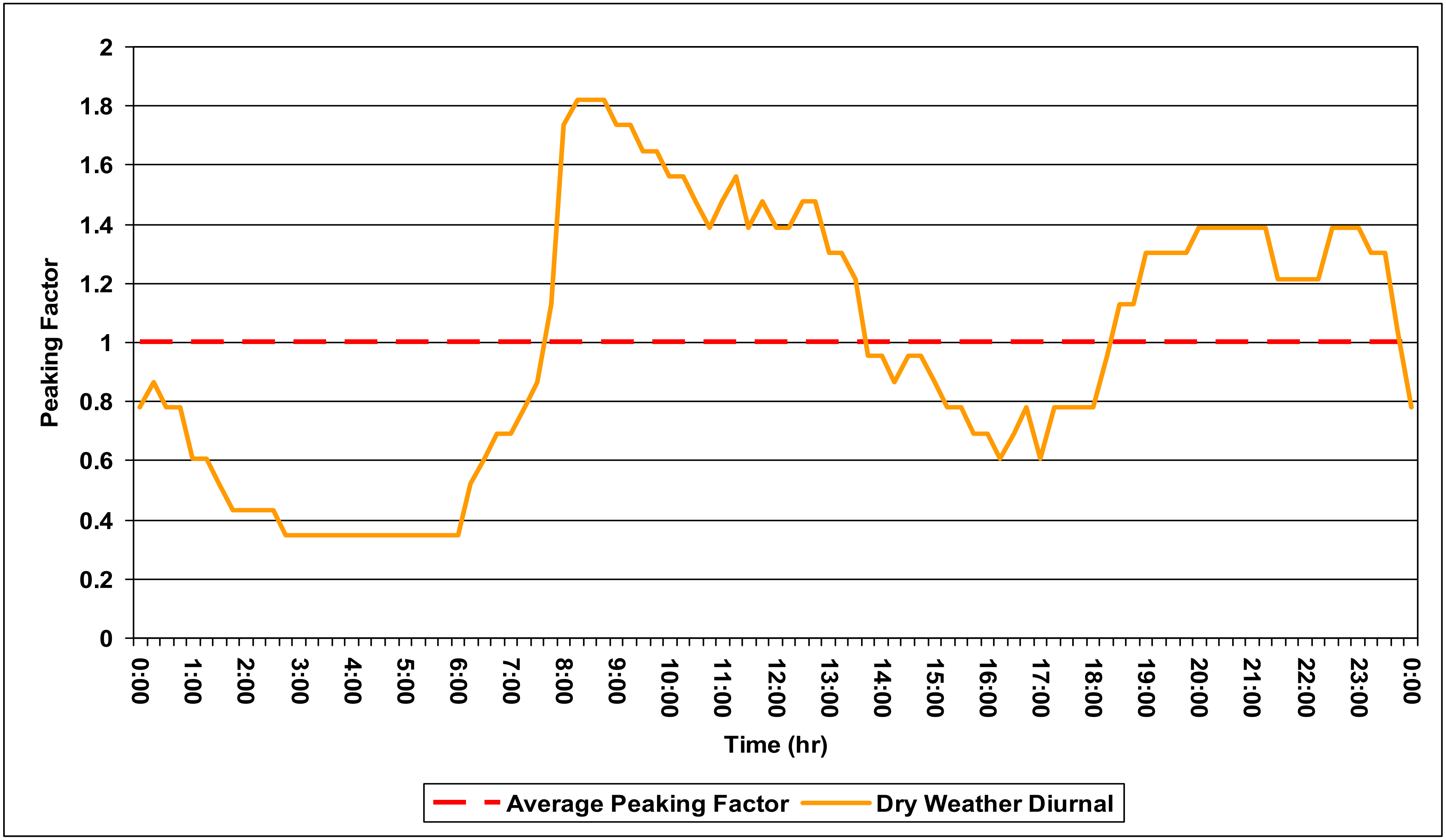

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Figure TM 4-1

Dry Weather Diurnal Input Pattern

2008 Comprehensive Wastewater Basin Study

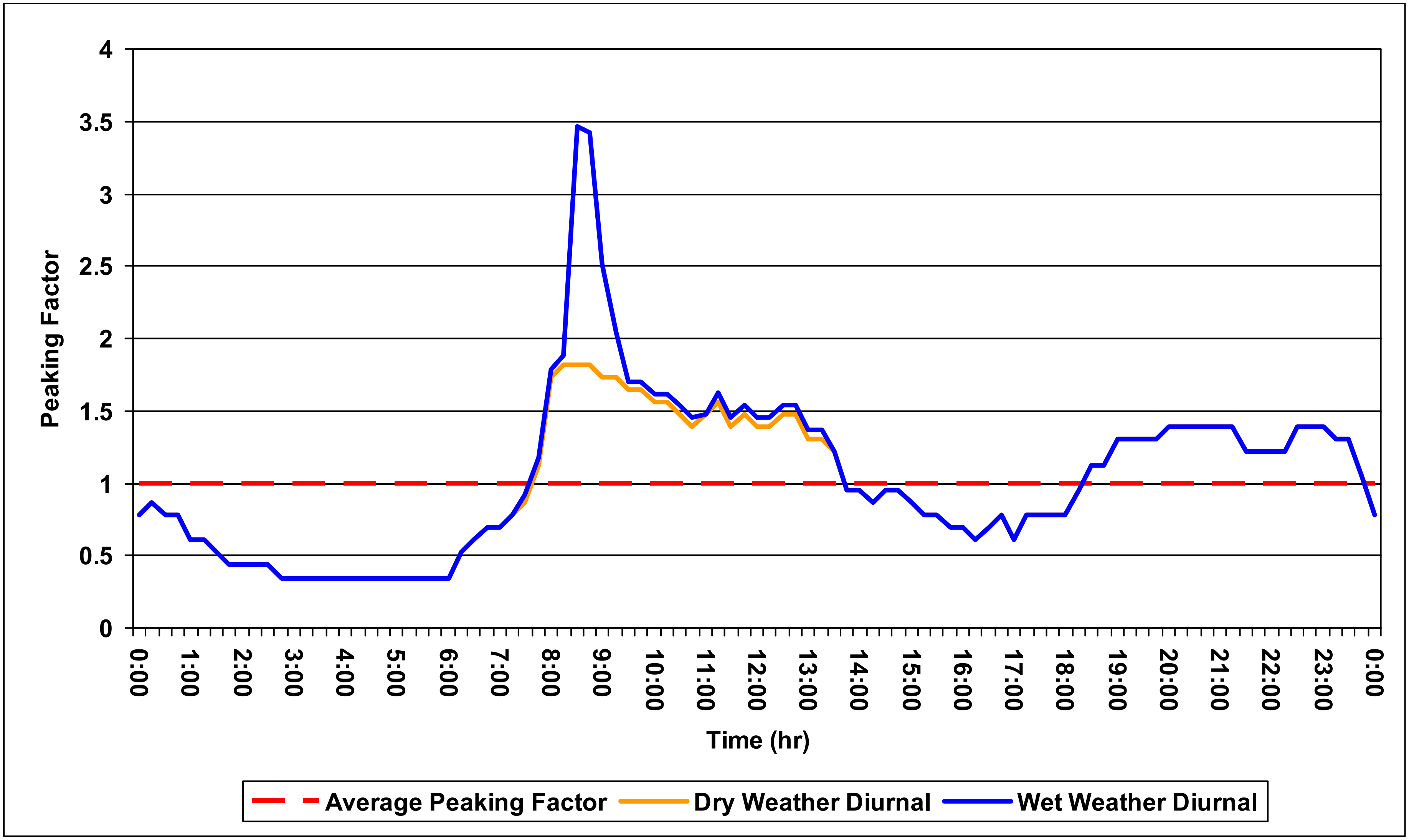

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Figure TM 4-2

Wet Weather Diurnal Input Pattern

2008 Comprehensive Wastewater Basin Study

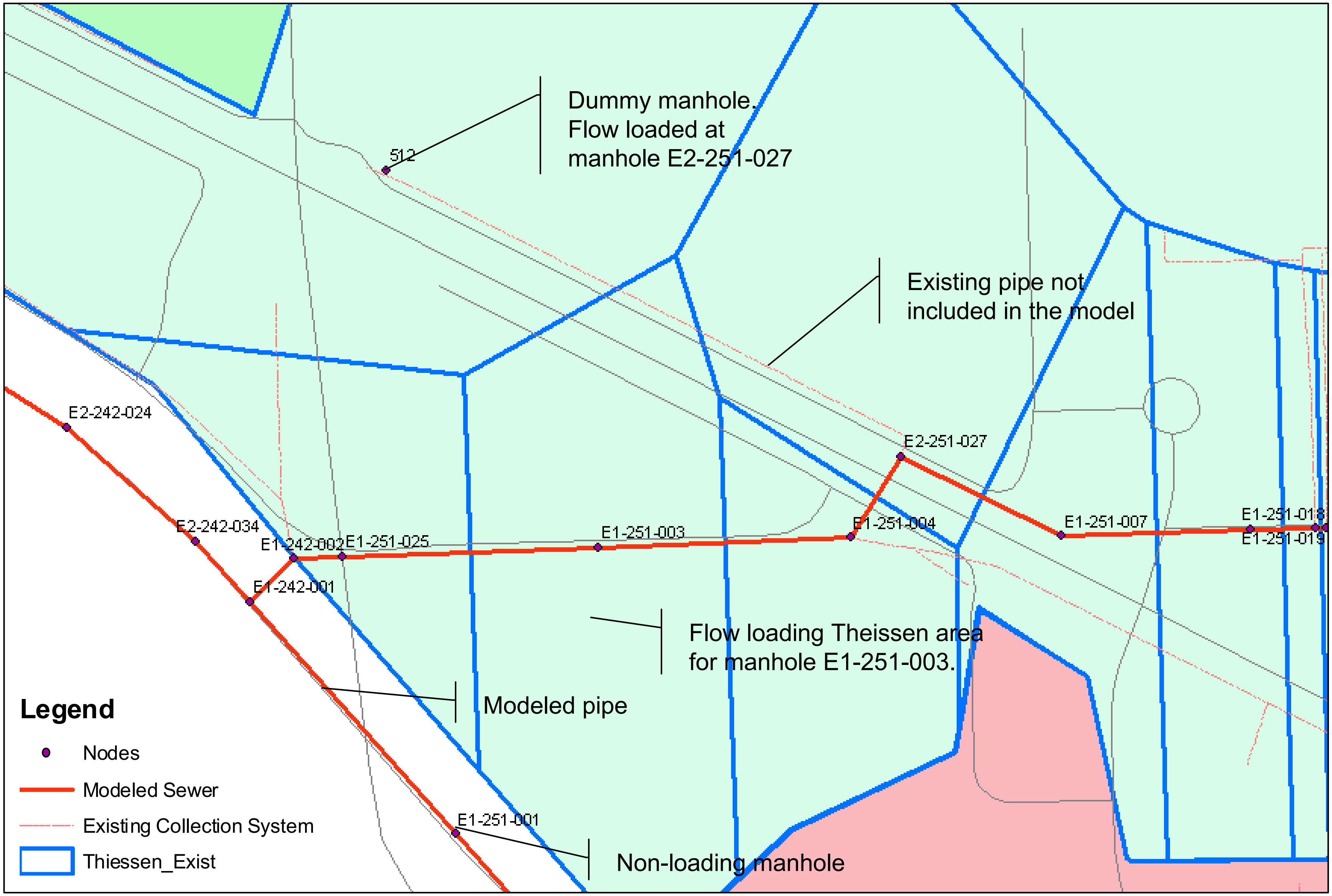

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Figure TM 4-3

Flow Allocation Methodology

2008 Comprehensive Wastewater Basin Study

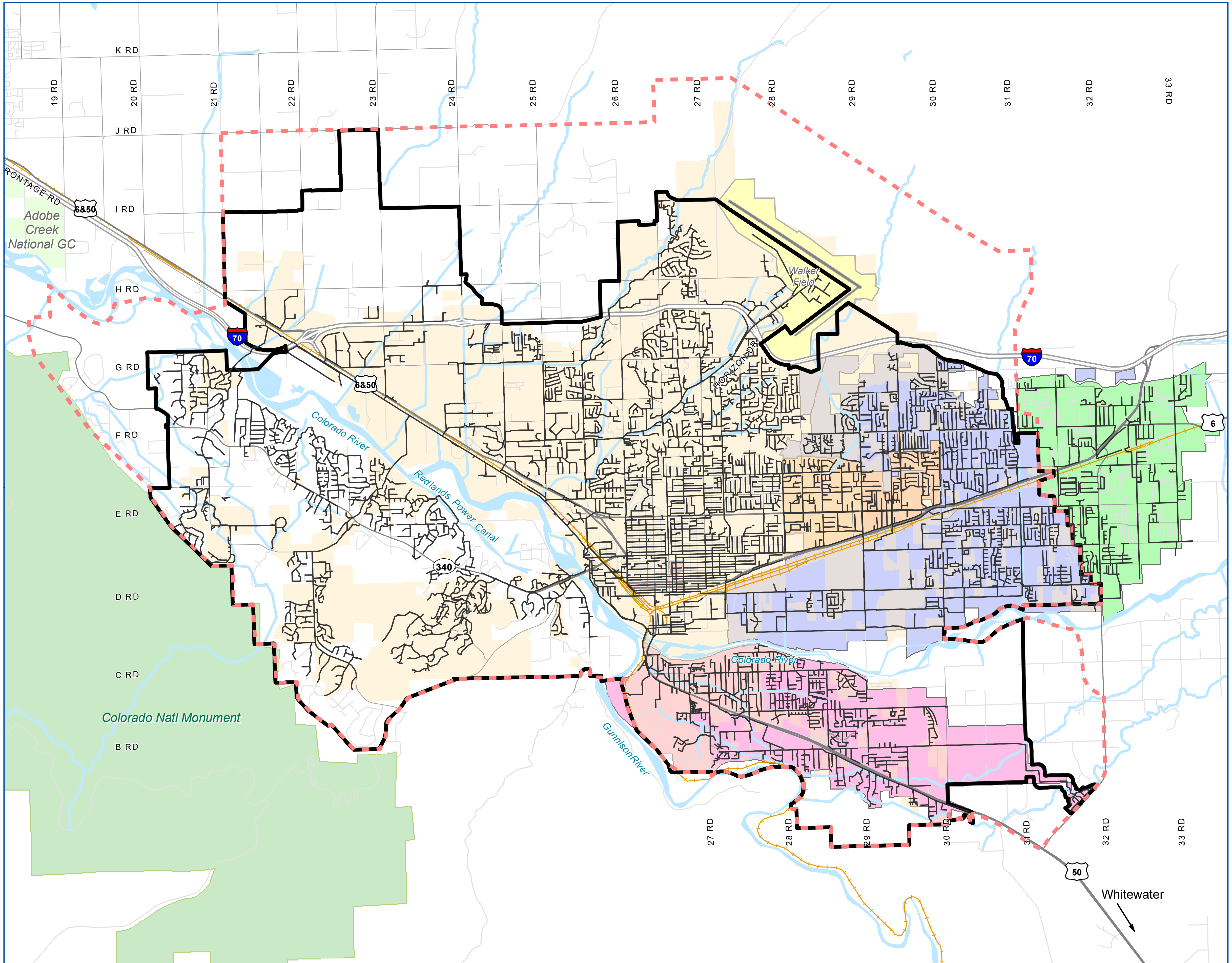

Figure TM1-1
Existing 201 and Future Service Area Boundaries

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Existing Collection System
- Future Service Area
- Existing 201 Boundary
- City Limits
- CGVSD
- Clifton
- Fruitvale
- Orchard Mesa

N
W E
S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM1-1 201PlanningArea.mxd Date Printed: May 13, 2009 Map By: len34412

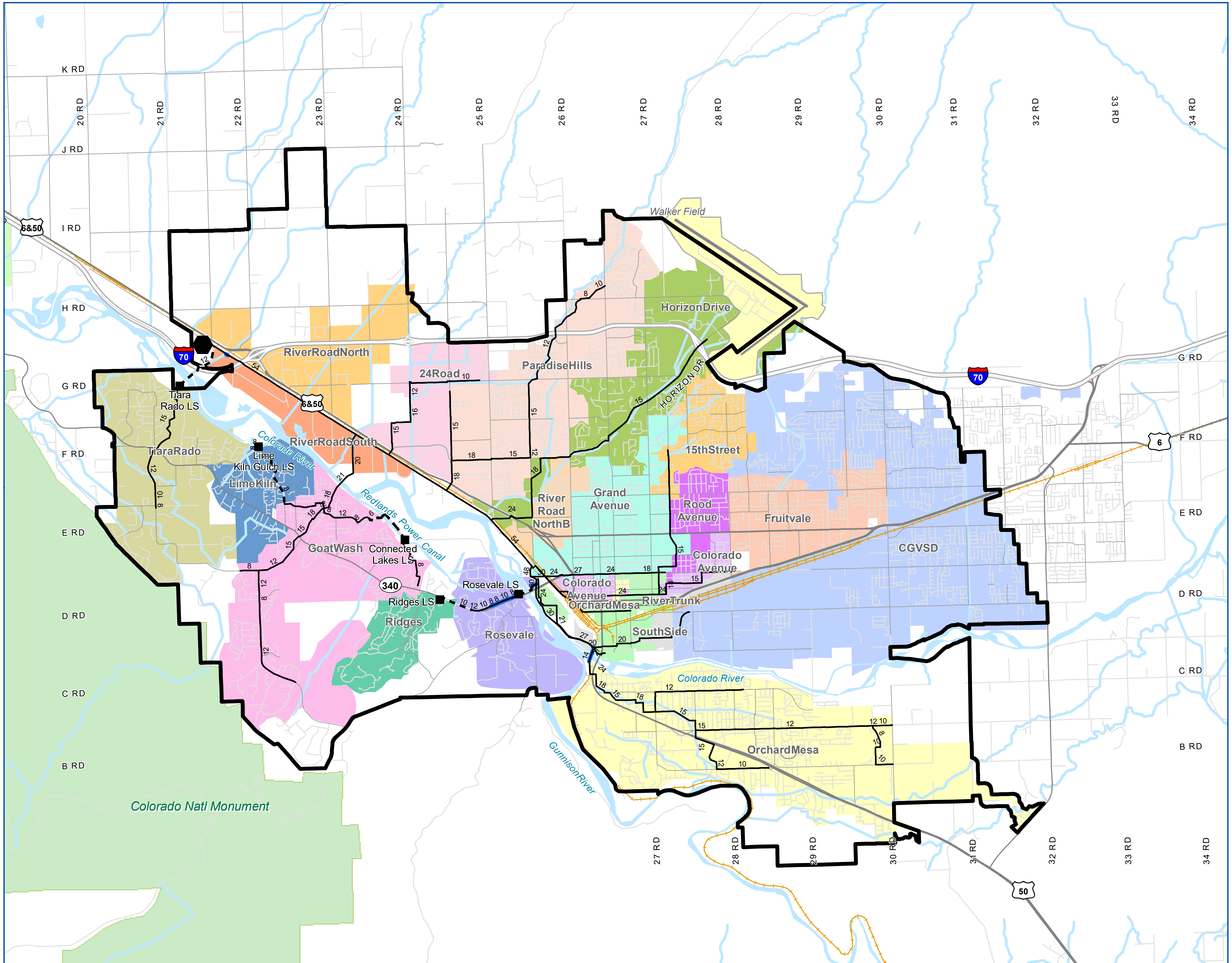

Figure TM2-1
Existing Modeled Collection System

2008 Comprehensive
Wastewater Basin Study Update

LEGEND

- Lift Station
- Persigo WWTP

Modeled Collection System

- Force Main
- Gravity Interceptors (with pipe sizes)
- Siphon
- Existing 201 Boundary

Existing Basin Boundaries

- 15th Street
- 24 Road
- CGVSD
- Colorado Avenue
- Fruitvale
- Goat Wash
- Grand Avenue
- Horizon Drive
- Lime Kiln
- Orchard Mesa
- Paradise Hills
- Ridges
- River Road North
- River Road North B
- River Road South
- River Trunk
- Rood Avenue
- Rosevale
- South Side
- Tiara Rado

N
W E
S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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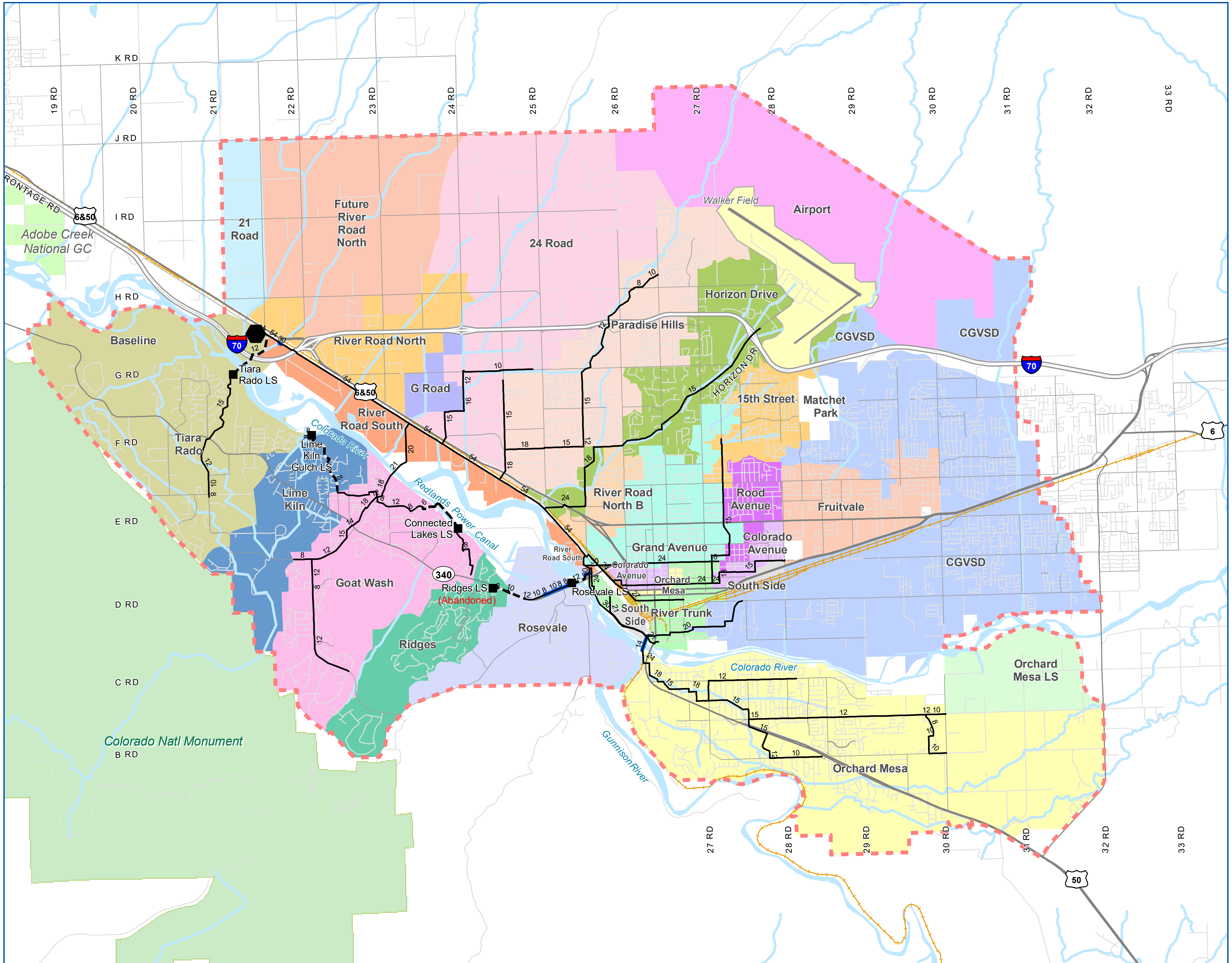

Figure TM2-2
Future Service Area and Basin Boundaries

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Persigo WWTP
- Existing Lift Station

Modeled Collection System

- Force Main
- Gravity Interceptors
- Siphon
- Future Service Area

Future Basin Boundaries

- 15th Street
- 21 Road
- 24 Road
- Airport
- CGVSD
- Colorado Avenue
- Fruitvale
- Future River Road North
- G Road
- Goat Wash
- Grand Avenue
- Horizon Drive
- Lime Kiln
- Orchard Mesa
- Orchard Mesa LS
- Paradise Hills
- River Road North
- River Road North B
- River Road South
- River Trunk
- Rood Avenue
- Rosevale
- Ridges
- South Side
- Tiara Rado

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM2-2 FutureModeledCollectionSystem.mxd Date Printed: September 23, 2009 Map By: len34412

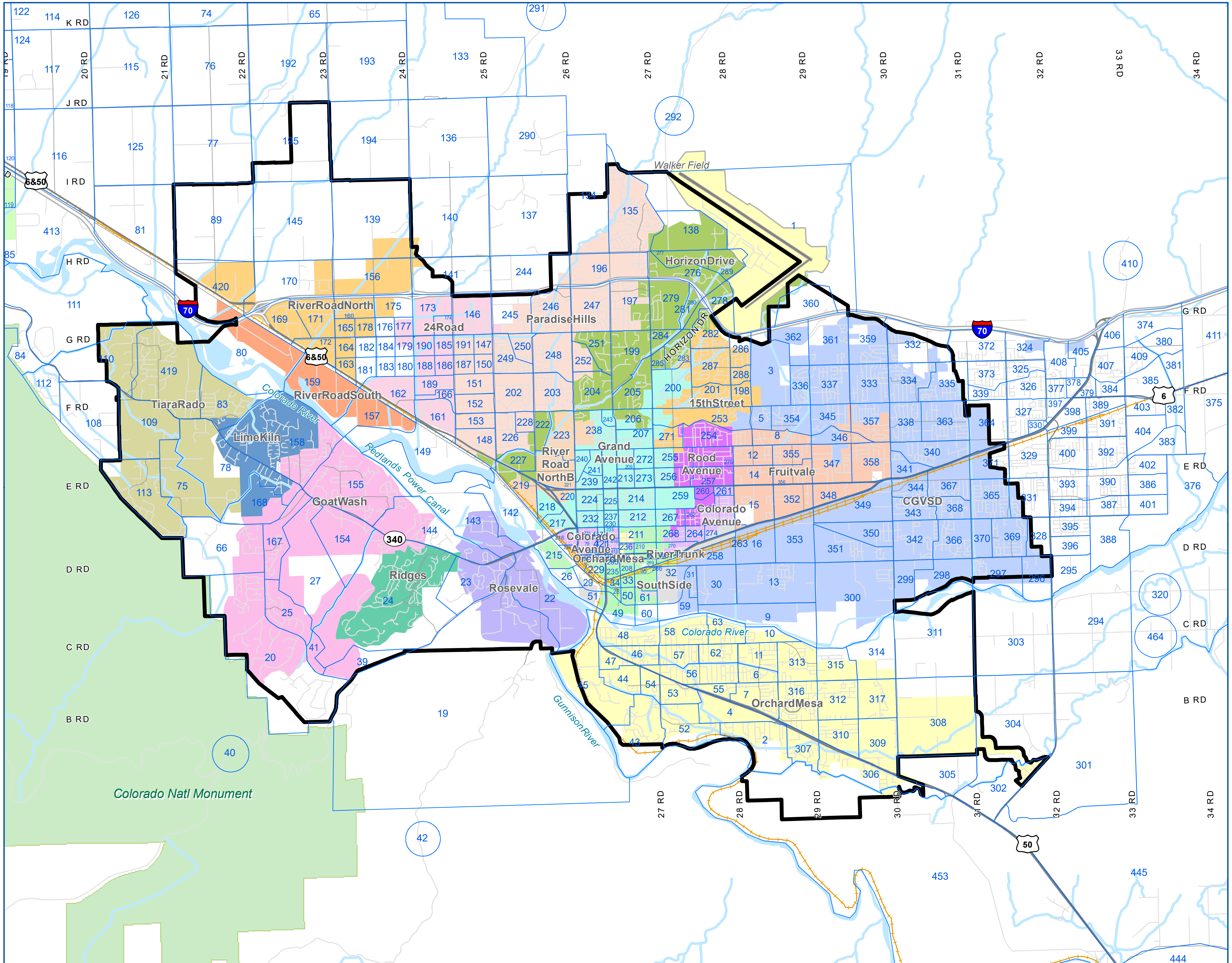

Figure TM3-1
TAZ and Existing Basin Boundaries

2008 Comprehensive
Wastewater Basin Study Update

LEGEND

- TAZ Areas
- Existing 201 Boundary
- 15th Street
- 24 Road
- CGVSD
- Colorado Avenue
- Fruitvale
- Goat Wash
- Grand Avenue
- Horizon Drive
- Lime Kiln
- Orchard Mesa
- Paradise Hills
- Ridges
- River Road North
- River Road North B
- River Road South
- River Trunk
- Rood Avenue
- Rosevale
- South Side
- Tiara Rado

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W E
S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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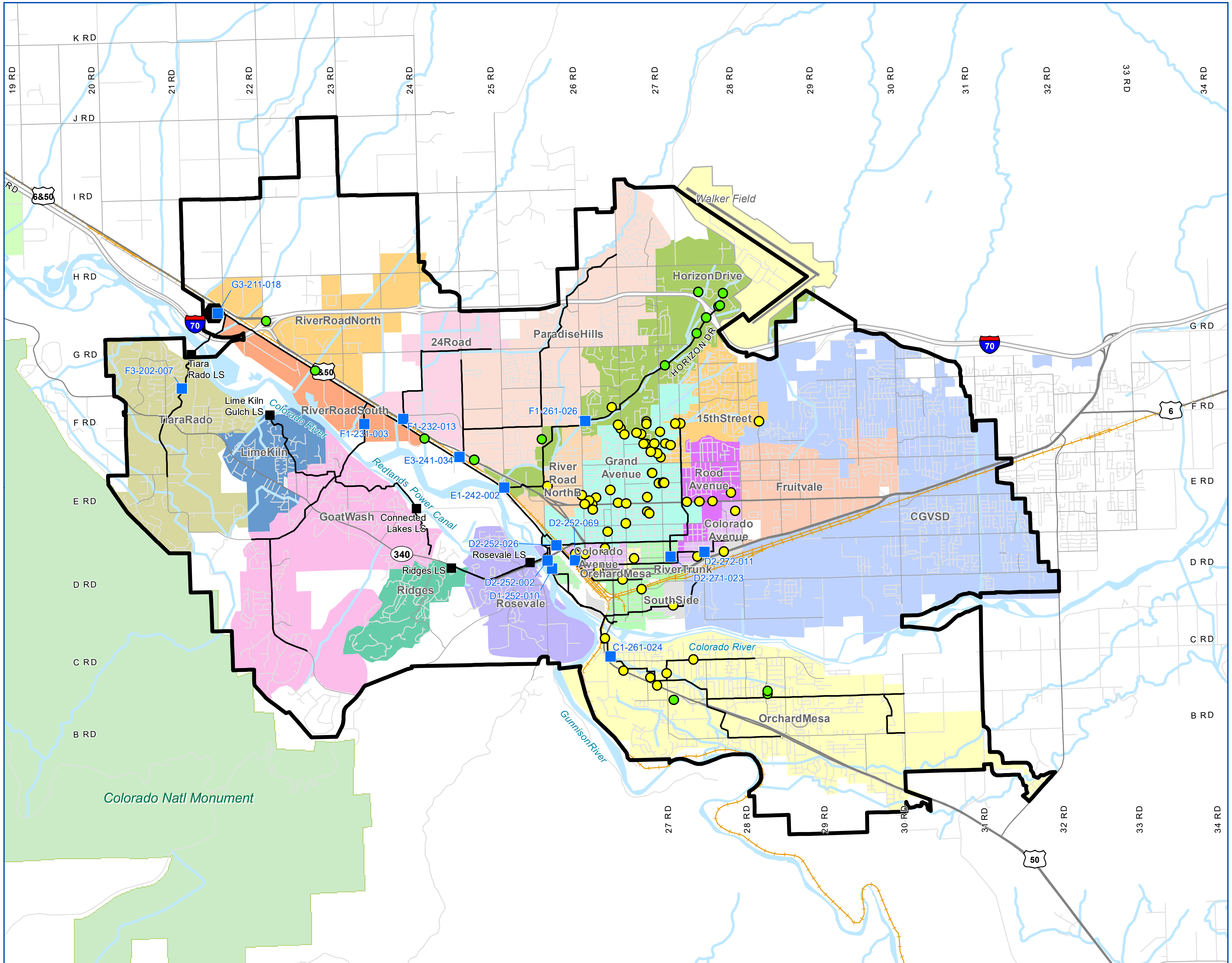

Figure TM3-2
Flow Meter and Large Production Locations

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- Flow Meter Locations
- Ute Large Producers
- City Large Producers
- Lift Station
- Persigo WWTP
- Modeled Collection System
- Existing 201 Boundary

Existing Basin Boundaries

- 15th Street
- 24 Road
- CGVSD
- Colorado Avenue
- Fruitvale
- Goat Wash
- Grand Avenue
- Horizon Drive
- Lime Kiln
- Orchard Mesa
- Paradise Hills
- Ridges
- River Road North
- River Road North B
- River Road South
- River Trunk
- Rood Avenue
- Rosevale
- South Side
- Tiara Rado

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM3-2_FlowMonitorLargeProducers.mxd Date Printed: April 3, 2009 Map By: len34412

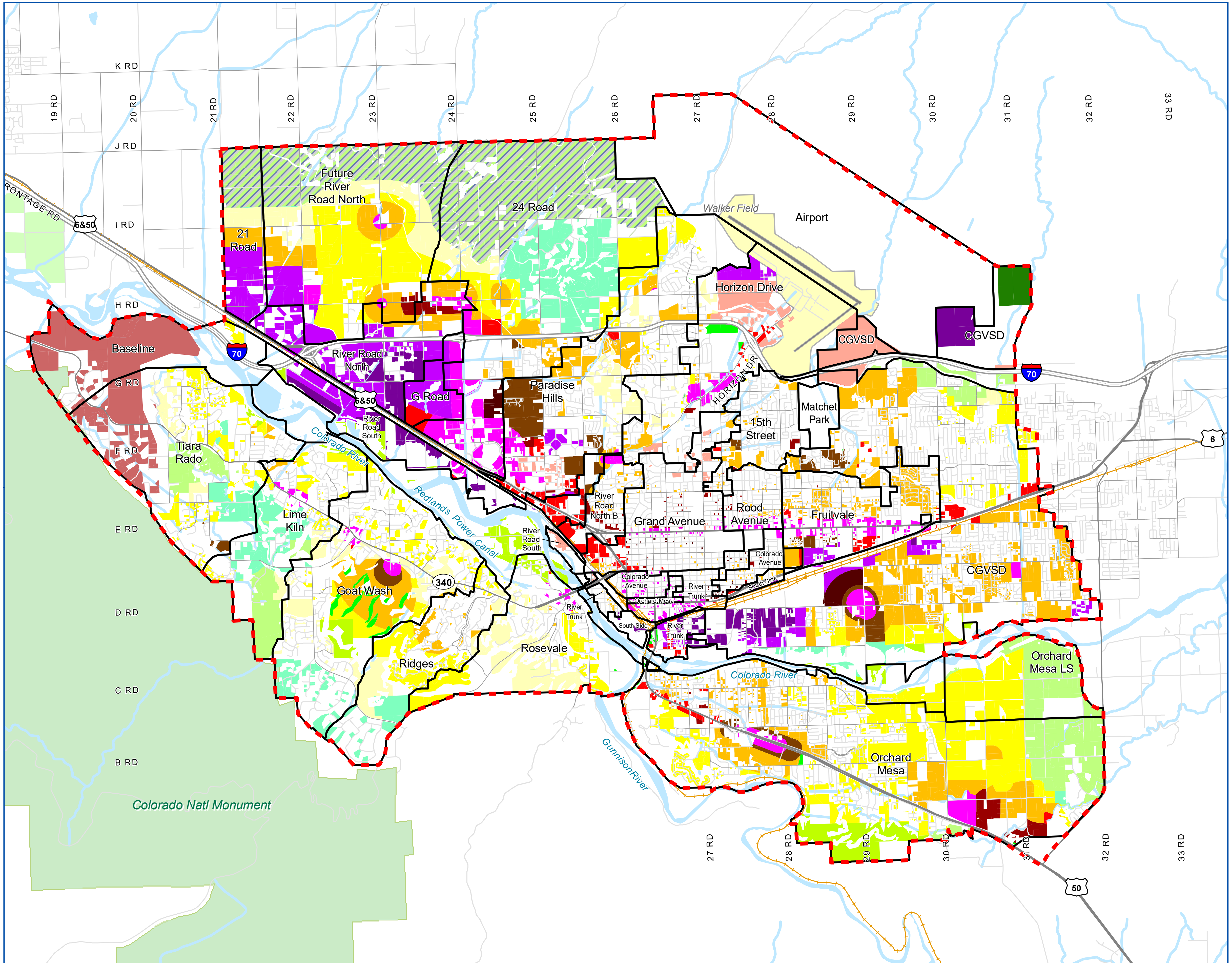

Figure TM3-4
2008 Comp Plan
Future Land Use &
Basin Boundaries

2008 Comprehensive
Wastewater Basin Study Update

LEGEND

- Future Service Area
- Future Basin Boundaries

Future Land Use

- Airport
- Parks and Open Space (P&OS)
- Conservation/Mineral Extraction (CON) (1 DU/5 Acres)
- Cooperative Planning Area (CPA) (Average 5 Acres)
- Agricultural (AG) (> 35 Acres)
- URR-5 (0.5 DU/Acre)
- Rural (RUR) (5-10 Acres)
- Estate (EST) (1-3 Acres)
- Residential Low (RL) (.5-2 DU/Acre)
- Residential Medium Low (RML) (2-4 DU/Acre)
- Residential Medium (RM) (4-8 DU/Acre)
- Residential Medium High (RMH) (8-16 DU/Acre)
- Residential High MU (RH) (16-24 DU/Acre) (4 Jobs/Acre)
- Urban Residential MU (UR) (24+ DU/Acre) (4 Jobs/Acre)
- Commercial (COM) (20 Jobs/Acre)
- Neighborhood Center - MU (NC) (6 DU Avg) (10 Jobs/Acre)
- Village Center - MU (VC) (7 DU Avg) (28 Jobs/Acre)
- Downtown MU (DT) (24+ DU/Acre) (96 Jobs/Acre)
- Industrial (IND) (15 Jobs/Acre)
- Commercial Industrial (CI) (15 Jobs/Acre)
- Business Park MU (BP) (8 DU/Acre) (32 Jobs/Acre)

N W E S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM3-4 FutSAFutBasinFutLU.mxd Date Printed: September 23, 2009 Map By: len34412

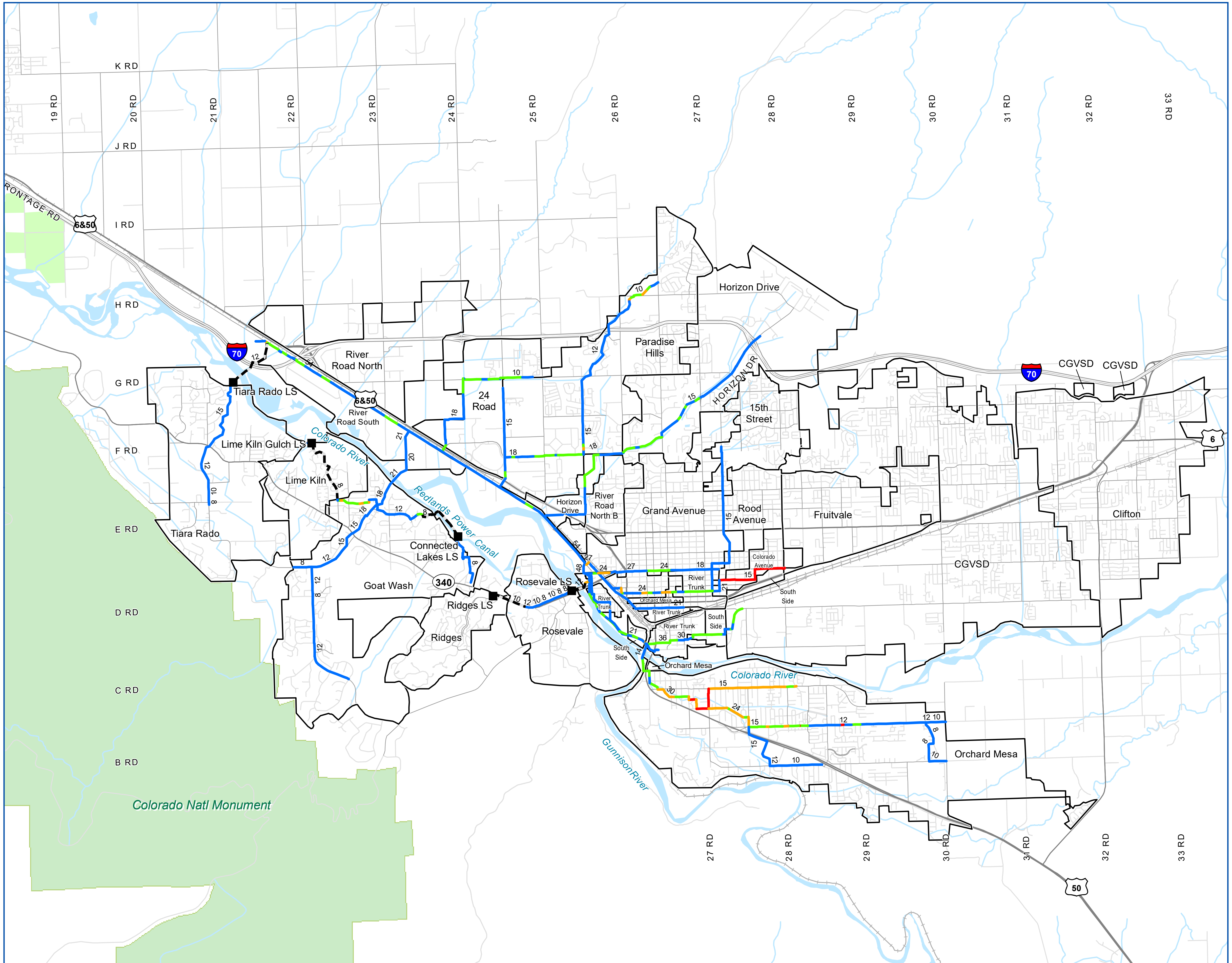

Figure TM4-4

Existing System Capacity Wet Weather Peak Flow

2008 Comprehensive
Wastewater Basin Study Update

LEGEND

- Lift Station
- Force Main

Modeled Gravity Interceptors

Maximum q/Q

- <= 0.5
- 0.5 - 0.8
- 0.8 - 1.2
- > 1.2
- Existing Basin Boundaries

N
W E
S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

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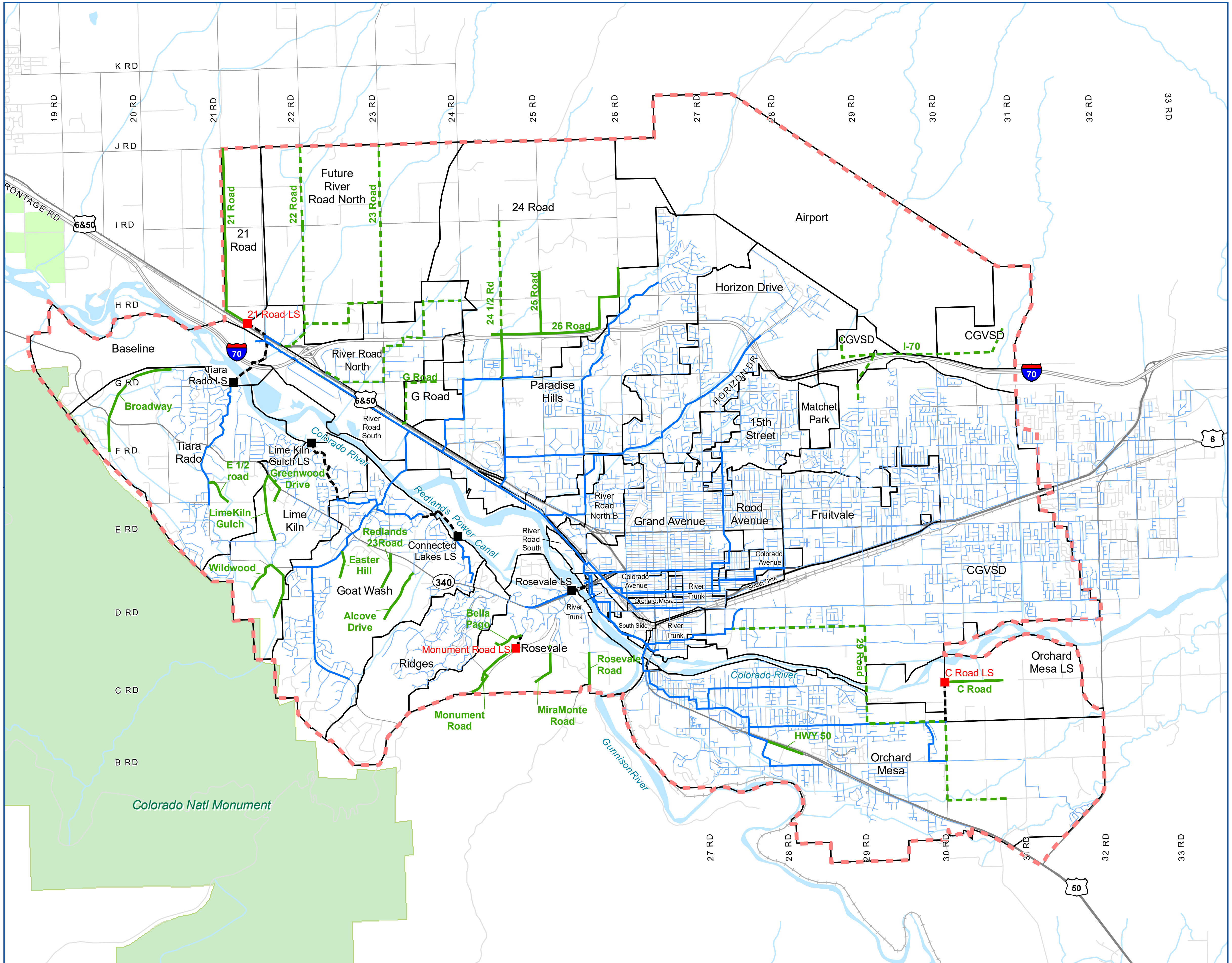
Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-4 ExistingSysCapWetWeatherPeakFlow.mxd Date Printed: August 5, 2009 Map By: len34412

Figure TM4-5

Future Model Extensions

2008 Comprehensive
Wastewater Basin Study Update



LEGEND

Lift Station

- Existing
- Future
- Exting Interceptor
- Force Main
- Developer Extension
- Trunk Extension
- Sewer Lines
- Future Service Area
- Future Basin Boundaries

N
W E
S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction COLORADO

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-5 FutureModeledExtensions.mxd Date Printed: September 23, 2009 Map By: len34412

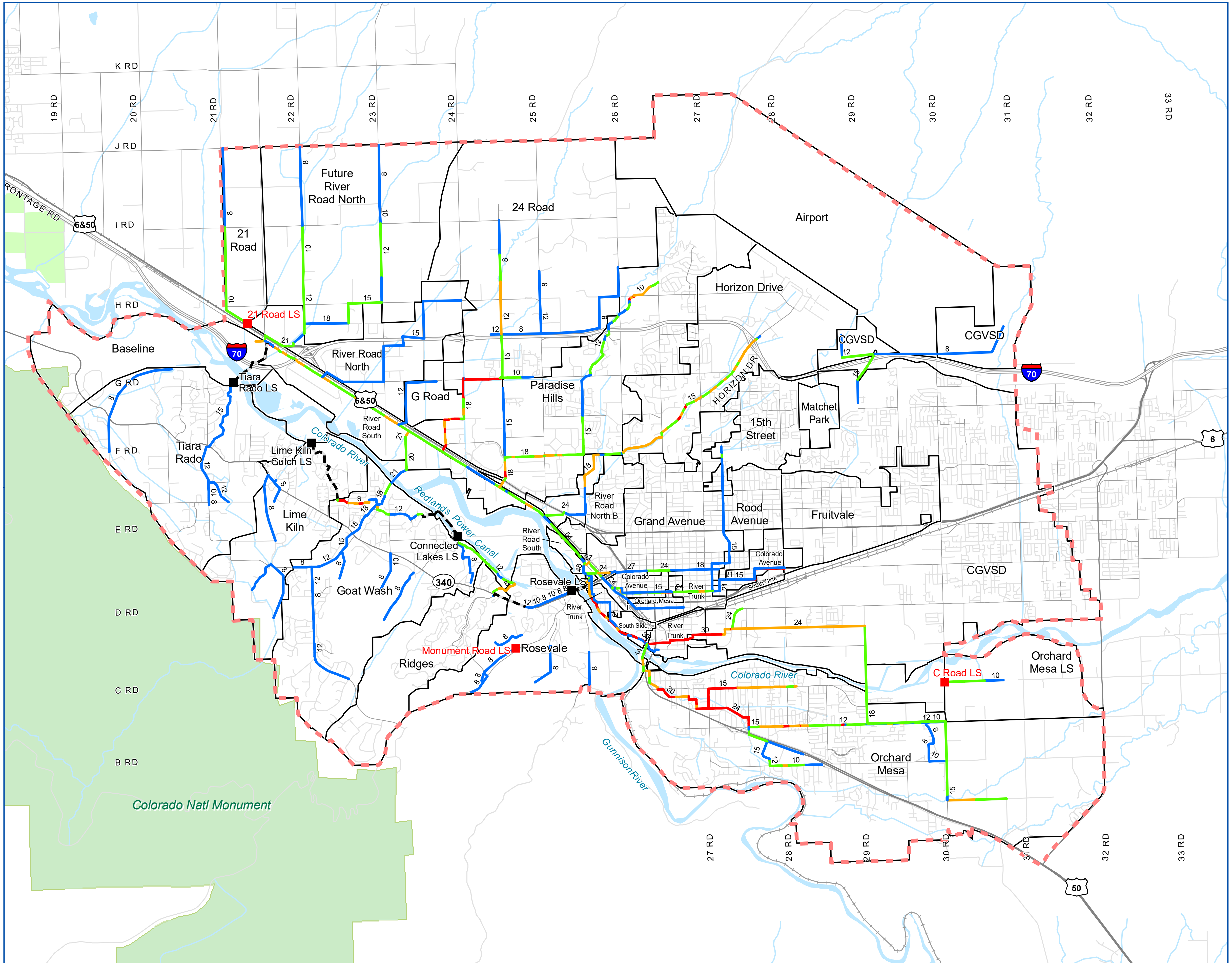

Figure TM4-6
Future System Capacity
Wet Weather Peak Flow
No Capacity Improvements

2008 Comprehensive
Wastewater Basin Study Update

LEGEND

Lift Station

- Existing
- Future
- Force Main

Modeled Gravity Interceptors

FuturePWWFOutput.MAX_q_Q

- <= 0.5
- 0.5 - 0.8
- 0.8 - 1.2
- > 1.2
- Future Service Area
- Future Basin Boundaries

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

BLACK & VEATCH
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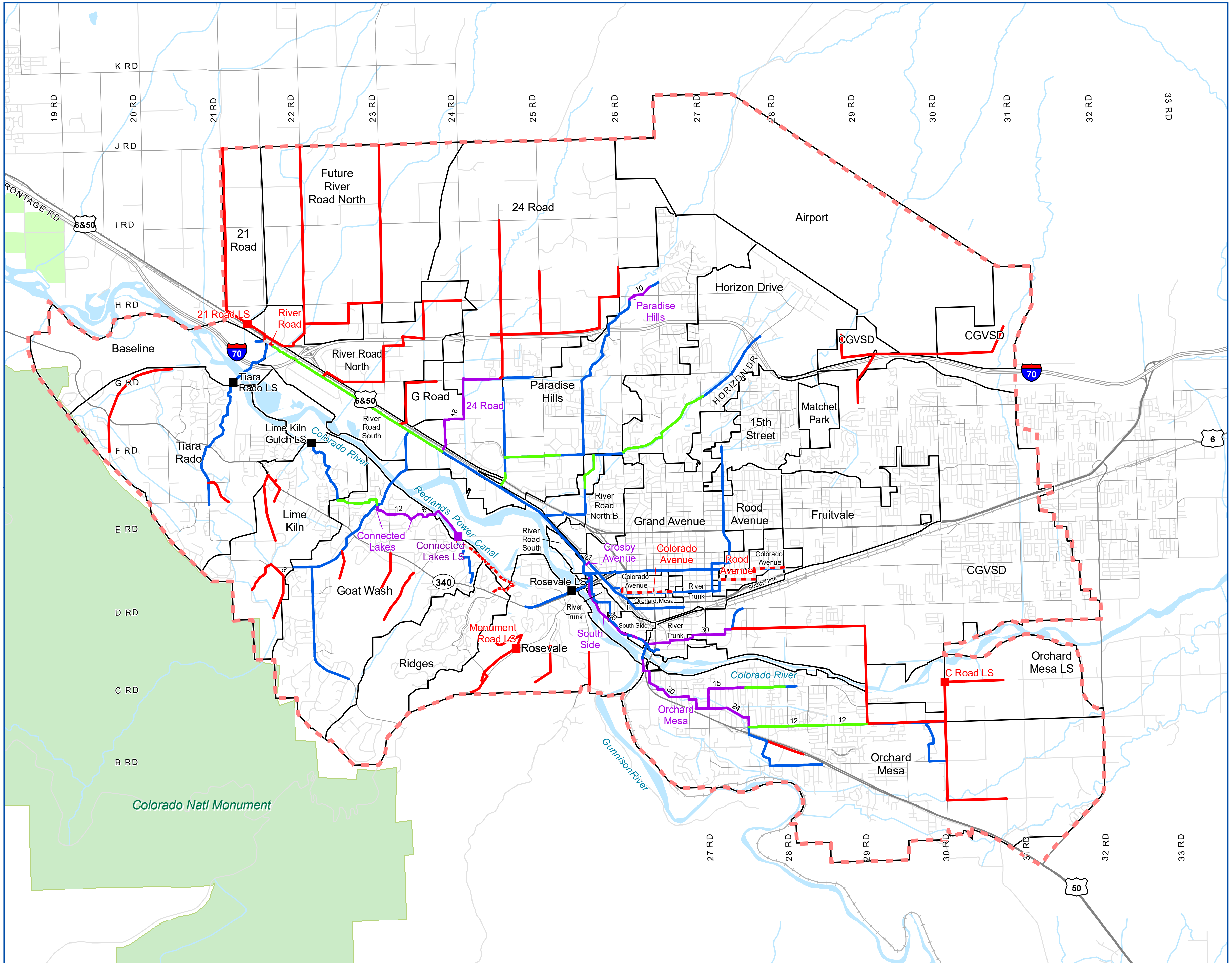
Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-6 FutSysCapWetWeatherPeakFlow.mxd Date Printed: September 24, 2009 Map By: len34412

Figure TM4-7

Watch List and Recommended Improvements

2008 Comprehensive Wastewater Basin Study Update



LEGEND

- Existing Lift Station
- Future Lift Station
- Replacement Lift Station
- Watch List
- Existing Pipe
- Existing Parallel Pipe
- Future Pipe
- Future Parallel Pipe
- Replacement Pipe
- Future Service Area
- Future Basin Boundaries

N
W E
S

0 6,500 13,000
Feet

1 inch = 6,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

Grand Junction COLORADO

BLACK & VEATCH Building a world of difference.

Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM4-7 WatchListImprovements.mxd Date Printed: September 23, 2009 Map By: len34412

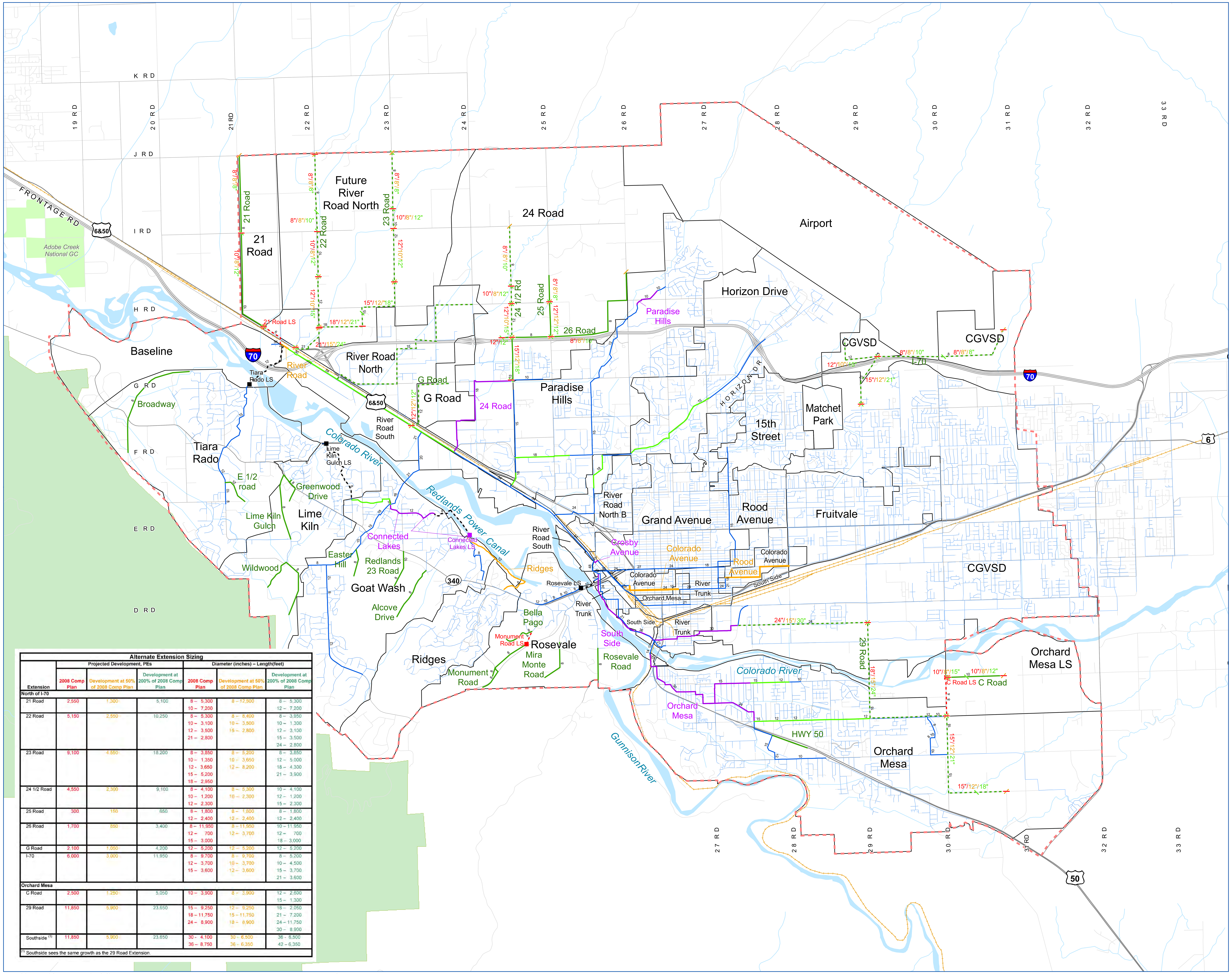


Figure TM6-1

Recommended Improvements

2008 Comprehensive Wastewater Basin Study Update

LEGEND

Lift Station

- Existing Lift Station
- Future Lift Station
- Replacement Lift Station
- Watch List Pipe
- Existing Force Main
- Future Force Main
- Replacement Force Main
- Developer Extension
- Trunk Extension
- Modeled Collection System
- Parallel Pipe
- Replacement Pipe
- Sewer Lines
- Future Service Area
- Future Basin Boundaries

N
W E
S

0 3,000 6,000
Feet

1 inch = 3,000 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction COLORADO

BLACK & VEATCH
Building a world of difference.

Alternate Extension Sizing						
	Projected Development, PEs			Diameter (inches) – Length(feet)		
Extension	2008 Comp Plan	Development at 50% of 2008 Comp Plan	Development at 200% of 2008 Comp Plan	2008 Comp Plan	Development at 50% of 2008 Comp Plan	Development at 200% of 2008 Comp Plan
North of I-70						
21 Road	2,550	1,300	5,100	8 – 5,300 10 – 7,200	8 – 12,500	8 – 5,300 12 – 7,200
22 Road	5,150	2,550	10,250	8 – 5,300 10 – 3,100 12 – 3,500 21 – 2,800	8 – 8,400 10 – 3,500 15 – 2,800	8 – 3,950 10 – 1,300 12 – 3,100 15 – 3,500 24 – 2,800
23 Road	9,100	4,550	18,200	8 – 3,850 10 – 1,350 12 - 3,650 15 – 5,200 18 – 2,950	8 – 5,200 10 – 3,650 12 – 8,200	8 – 3,850 12 – 5,000 18 – 4,300 21 – 3,900
24 1/2 Road	4,550	2,300	9,100	8 – 4,100 10 – 1,200 12 – 2,300	8 – 5,300 10 – 2,300	10 – 4,100 12 – 1,200 15 – 2,300
25 Road	300	150	650	8 – 1,800 12 – 2,400	8 – 1,800 12 – 2,400	8 – 1,800 12 – 2,400
26 Road	1,700	850	3,400	8 – 11,950 12 – 700 15 – 3,000	8 – 11,950 12 – 3,700	10 – 11,950 12 – 700 18 – 3,000
G Road	2,100	1,050	4,200	12 – 5,200	12 – 5,200	12 – 5,200
I-70	6,000	3,000	11,950	8 – 9,700 12 – 3,700 15 – 3,600	8 – 9,700 10 – 3,700 12 – 3,600	8 – 5,200 10 – 4,500 15 – 3,700 21 – 3,600
Orchard Mesa						
C Road	2,500	1,250	5,050	10 – 3,900	8 – 3,900	12 – 2,600 15 – 1,300
29 Road	11,850	5,900	23,650	15 – 9,250 18 – 11,750 24 – 8,900	12 – 9,250 15 – 11,750 18 – 8,900	18 – 2,050 21 – 7,200 24 – 11,750 30 – 8,900
Southside [1]	11,850	5,900	23,650	30 - 4,100 36 – 8,750	30 - 6,500 36 - 6,350	36 - 6,500 42 – 6,350

[1] Southside sees the same growth as the 29 Road Extension.

Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM6-1Recommended Improvements.mxd Date Printed: September 23, 2009 Map By: len34412

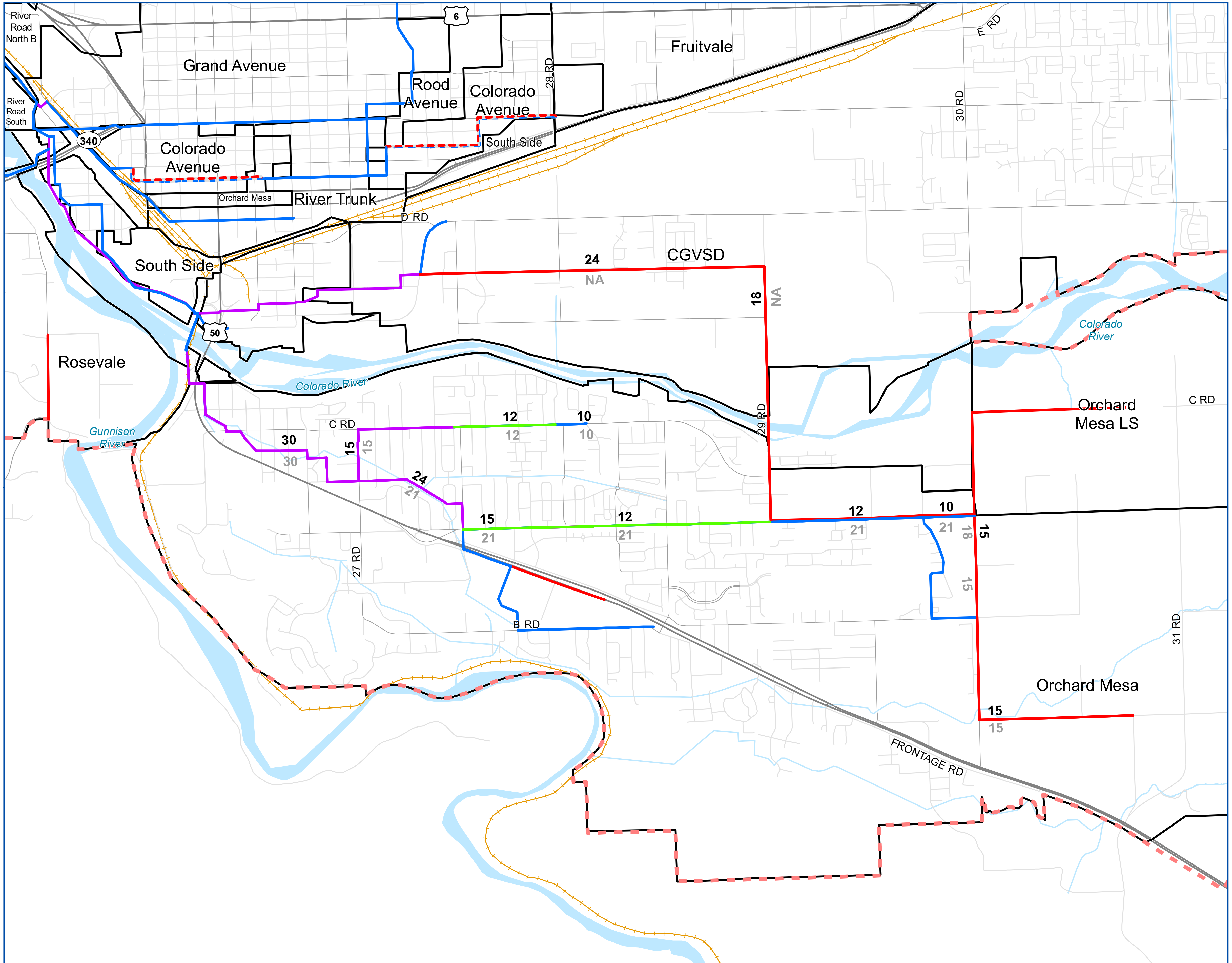


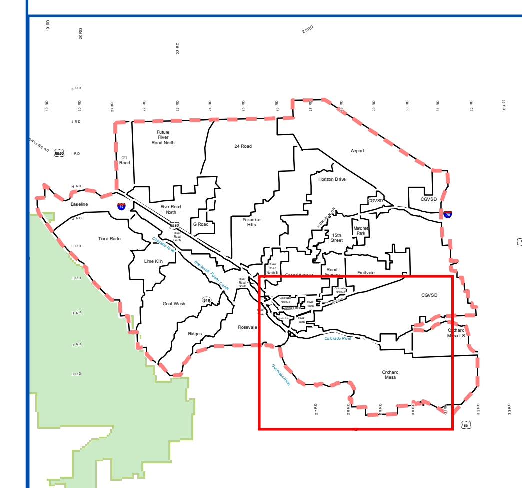
Figure TM6-2

29 Road Alternatives

2008 Comprehensive Wastewater Basin Study Update

LEGEND

- 12 Alt 1 Diameter
- 21 Alt 2 Diameter
- Watch List
- Existing Pipe
- Existing Parallel Pipe
- Future Pipe
- Future Parallel Pipe
- Replacement Pipe
- Future Service Area
- Future Basin Boundaries



N
W E
S

0 2,500 5,000
Feet

1 inch = 2,500 feet

Data source: City of Grand Junction, CO & Mesa County, CO, Black & Veatch

City of Grand Junction Colorado

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Path: C:\Projects\GrandJunction\11GIS\01MapDocuments\FigureTM6-2 Alternative Alignments.mxd Date Printed: August 6, 2009 Map By: len34412

Appendix 2A

As-Built Drawing List

Appendix TM2A
As-Built Drawing List

Plan and Profile List

24 Road Basin

24 Road Sewer Line Replacement – November 1999
Appleton Sanitary Sewer Local Improvement District No. LID – 1984
G Road Sewer Interceptor – March 1991

Goat Wash Basin

The Bluffs West Estates Filing No. 2 – July 1978
Redlands Village South Sewer Improvement District – September 2002
Rim Drive – March 1994
Scenic School Interceptor – 1994
Skyway Area S.I.D. – November 2003
South Camp Road Sewer Line – January 1995
South Rim Filing No. 3 – January 1996
South Rim on the Redlands (Subdivision) – October 1994
Tiara Rado and Goat Wash Interceptor Sewers – January 1984

Lime Kiln Basin

Redlands Village Northwest S.I.D. Limekiln Gulch & Canyon Creek Addition – June 2003
Loma Rio Subdivision – August 1978

Tiara Rado Basin

Panorama Sewer District Extension – July 2001
Tiara Rado and Goat Wash Interceptor Sewers – January 1984
South Camp Road Sewer Line – January 1995
Renaissance in the Redlands Filing Two – July 2002

Rosevale Basin

Sanitary Sewer Outfall Line for the Ridges – May 1997
Sanitary Sewer Replacement Highway 340 Across the Colorado River Bridge – October 1985

15th Street Basin

1996 Interceptor Rehabilitations – May 1998
Sanitary Sewer Improvement District No. 28-71 – 1971
Street Improvement District & Lincoln Park Bike Path – 1984
Patterson Road Reconstruction 12th Street to 27 ½ Road – March 1983

Paradise Hills Basin
24 ½ Road Sewer Trunk Extension – January 2007
Paradise Hills Subdivision – 1968
Paradise Hills Interceptor Sewer – November 1976
River Road Interceptor Sewer and Paradise Hills Interceptor Sewer – Phase II – March 1980

Colorado Avenue Basin
Colorado Avenue Water & Sewer Project 1St.to 14th Streets – November 1981
Colorado Interceptor Sewer Rehabilitation
2003 Sewer Interceptor Rehabilitations – April 2003

Orchard Mesa Basin
Duck Pond Park Lift Station Elimination and Gravity Sewer Construction – May 2005
Orchard Mesa Sanitary Sewer River Crossing – March 1981
Sanitary Sewer District 30-74 – April 1974
Orchard Mesa S.I.D 33-76 – Phase III – June 1976
Orchard Mesa Sanitation District Sewage Collection System and Appurtenances – February 1976
West Orchard Mesa Sanitary Sewer Trunk Line Extension – June 1973
Fairway Sewer District on Orchard Mesa – August 1973
Sanitary Sewer District 31-74
Orchard Mesa Sanitary Sewer River Crossing – March 1981
Orchard Mesa Sanitation District Master Map - undated

Rood Avenue Basin
Fruitvale Sanitation District Outfall Line – October 1957

South Side Basin
South Side Interceptor Sewer – June 1969
1996 Interceptor Rehabilitations
Riverside Parkway Phase 1 – August 2005

River Trunk Basin
Sewer Districts No. 5 & 6

Combined Sewer Elimination Project

Appendix 3A

Flow Metering Data and Analysis

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area															
	Colorado Ave - 24 in				Goat Wash - 21 in				Grand Ave - 27 in				Scenic School - 10 in			
	Crosby Ave & W Main St				23 1/4 Rd & River Rd				City Fleet Shops				River Rd & Broadway St			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	2.01	0.27	1.15	30%	-	-	-	-	-	-	-	-	-	-	-	-
Feb	2.01	0.27	1.13	30%	-	-	-	-	-	-	-	-	-	-	-	-
Mar	1.92	0.26	1.12	29%	-	-	-	-	-	-	-	-	-	-	-	-
Apr	2.47	0.25	1.15	37%	-	-	-	-	-	-	-	-	-	-	-	-
May	2.03	0.28	1.17	30%	-	-	-	-	1.52	0.35	0.90	11%	-	-	-	-
Jun	-	-	-	-	0.76	0.06	0.29	13%	5.39	0.33	0.87	41%	-	-	-	-
Jul	-	-	-	-	0.84	0.07	0.31	15%	4.73	0.31	0.86	36%	-	-	-	-
Aug	-	-	-	-	1.04	0.07	0.32	18%	5.51	0.38	0.97	41%	-	-	-	-
Sep	-	-	-	-	1.11	0.06	0.35	19%	6.81	0.43	1.03	51%	-	-	-	-
Oct	-	-	-	-	1.02	0.07	0.33	18%	2.55	0.37	0.98	19%	-	-	-	-
Nov	-	-	-	-	1.19	0.05	0.24	21%	1.52	0.30	0.88	11%	-	-	-	-
Dec	-	-	-	-	1.02	0.05	0.21	18%	3.51	0.32	0.86	26%	-	-	-	-
Max				37%				21%				51%				0%
Capacity				6.70				5.75				13.30				1.20
			1.14				0.29				0.92					

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area															
	Horizon Dr. Upper- 15 in				Horizon Dr. Lower- 24 in				Paradise Hills - 18 in				Southside - 30 in			
	Willowbrook Rd & Northridge Dr				25 Rd & Independent Ave				24 1/2 Rd & Hwy 6&50				West Ave & W Main St			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	0.93	0.17	0.49	31%	1.23	0.20	0.68	23%	2.18	0.23	0.80	52%	-	-	-	-
Feb	0.89	0.18	0.48	30%	1.19	0.22	0.65	22%	1.83	0.21	0.78	44%	-	-	-	-
Mar	1.20	0.18	0.49	40%	1.35	0.19	0.69	25%	1.88	0.22	0.79	45%	-	-	-	-
Apr	1.00	0.18	0.48	33%	1.36	0.19	0.70	26%	1.77	0.22	0.80	42%	-	-	-	-
May	1.56	0.21	0.52	52%	1.61	0.28	0.78	30%	1.84	0.23	0.81	44%	-	-	-	-
Jun	-	-	-	-	1.79	0.31	0.82	34%	-	-	-	-	4.22	0.92	2.60	38%
Jul	-	-	-	-	1.43	0.39	0.85	27%	-	-	-	-	4.31	1.00	2.65	38%
Aug	-	-	-	-	1.53	0.37	0.85	29%	-	-	-	-	4.53	1.03	2.70	40%
Sep	-	-	-	-	1.98	0.34	0.83	37%	-	-	-	-	5.68	0.98	2.83	51%
Oct	-	-	-	-	1.54	0.34	0.77	29%	-	-	-	-	4.55	0.89	2.64	40%
Nov	-	-	-	-	1.26	0.19	0.67	24%	-	-	-	-	4.85	0.79	2.42	43%
Dec	-	-	-	-	1.39	0.20	0.66	26%	-	-	-	-	4.60	0.82	2.45	41%
Max				52%				37%				52%				51%
Capacity				3.00				5.30				4.17				11.24
			0.49				0.74				0.80				2.61	

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area															
	Tiara Rado - 12 in 2155 River Rd				**River Road - 54 in** 2145 River Rd				**15th St - 15in** 13th & Main St				**24 Road - 10in** Patterson & Hwy 6&50			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	-	-	-	-	11.80	2.10	7.40	30%	0.34	0.04	0.15	13%	0.29	0.00	0.14	21%
Feb	-	-	-	-	12.00	2.10	7.38	31%	0.31	0.05	0.14	12%	0.26	0.00	0.11	18%
Mar	-	-	-	-	11.40	2.00	7.37	29%	0.32	0.04	0.14	12%	0.25	0.03	0.10	18%
Apr	-	-	-	-	17.20	2.20	7.76	44%	0.35	0.04	0.15	13%	0.26	0.03	0.12	18%
May	-	-	-	-	14.80	2.40	8.16	38%	0.37	0.04	0.15	14%	1.18	0.03	0.45	84%
Jun	0.58	0.03	0.28	11%	17.20	3.50	8.20	44%	-	-	-	-	-	-	-	-
Jul	0.67	0.03	0.27	12%	17.00	3.20	8.77	44%	-	-	-	-	-	-	-	-
Aug	0.63	0.03	0.29	12%	18.60	4.80	8.79	48%	-	-	-	-	-	-	-	-
Sep	0.86	0.03	0.30	16%	16.70	4.00	8.91	43%	-	-	-	-	-	-	-	-
Oct	0.76	0.03	0.27	14%	18.00	2.00	8.28	46%	-	-	-	-	-	-	-	-
Nov	0.71	0.03	0.26	13%	11.60	2.40	7.62	30%	-	-	-	-	-	-	-	-
Dec	0.73	0.03	0.26	13%	13.60	1.90	7.78	35%	-	-	-	-	-	-	-	-
Max				16%				48%				14%				84%
Capacity				5.45				39.07				2.68				1.41
			0.28				8.03				0.15				0.18	

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	201 Area							
	River Trunk - 21 in				**Orchard Mesa - 24 in**			
	Riverside Park				1654 Canon Ave			
Month	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*	*Inst Max*	*Inst Min*	*Daily Avg*	*Peak Capacity*
Jan	-	-	-	-	-	-	-	-
Feb	-	-	-	-	-	-	-	-
Mar	-	-	-	-	-	-	-	-
Apr	-	-	-	-	-	-	-	-
May	-	-	-	-	3.29	0.65	1.86	43%
Jun	0.77	0.07	0.25	27%	3.16	0.71	1.88	42%
Jul	0.54	0.10	0.24	19%	3.51	0.77	2.02	46%
Aug	0.77	0.10	0.25	27%	3.36	0.74	2.03	44%
Sep	0.56	0.09	0.25	19%	3.71	0.72	2.02	49%
Oct	0.54	0.11	0.26	19%	3.57	0.57	1.86	47%
Nov	0.56	0.12	0.25	19%	3.45	0.63	1.69	45%
Dec	0.68	0.13	0.29	23%	3.16	0.49	1.67	42%
Max				27%				49%
Capacity				2.90				7.60
			0.26				1.88	

Flow Monitoring Stations
Max, Min & Avg Daily Flows (MGD)
2007

	FSD				CGVSD							
	Fruitvale - 15 in				27 1/2 Road - 18 in				D Road - 15 in			
	N 19th St & Rood Ave				27 1/2 Rd & Winters Ave				S 15th St & D Rd			
	Inst	*Inst*	*Daily*	*Peak*	*Inst*	*Inst*	*Daily*	*Peak*	*Inst*	*Inst*	*Daily*	*Peak*
Month	*Max*	*Min*	*Avg*	*Capacity*	*Max*	*Min*	*Avg*	*Capacity*	*Max*	*Min*	*Avg*	*Capacity*
Jan	1.45	0.28	0.88	91%	-	-	-	-	-	-	-	-
Feb	1.43	0.35	0.90	89%	-	-	-	-	-	-	-	-
Mar	1.35	0.37	0.89	84%	-	-	-	-	-	-	-	-
Apr	1.31	0.31	0.85	82%	-	-	-	-	-	-	-	-
May	1.27	0.19	0.85	79%	-	-	-	-	-	-	-	-
Jun	1.30	0.37	0.85	81%	-	-	-	-	-	-	-	-
Jul	1.53	0.20	0.87	96%	-	-	-	-	-	-	-	-
Aug	1.49	0.14	0.87	93%	-	-	-	-	-	-	-	-
Sep	1.52	0.19	0.93	95%	-	-	-	-	-	-	-	-
Oct	1.57	0.09	0.92	98%	-	-	-	-	-	-	-	-
Nov	1.57	0.11	0.89	98%	-	-	-	-	-	-	-	-
Dec	1.54	0.11	0.92	96%	-	-	-	-	-	-	-	-
Max				98%				0%				0%
Capacity				1.60				2.60				1.60
			0.88									

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007
Units of Flow: MGD
Meter Name: F1_232_013_07

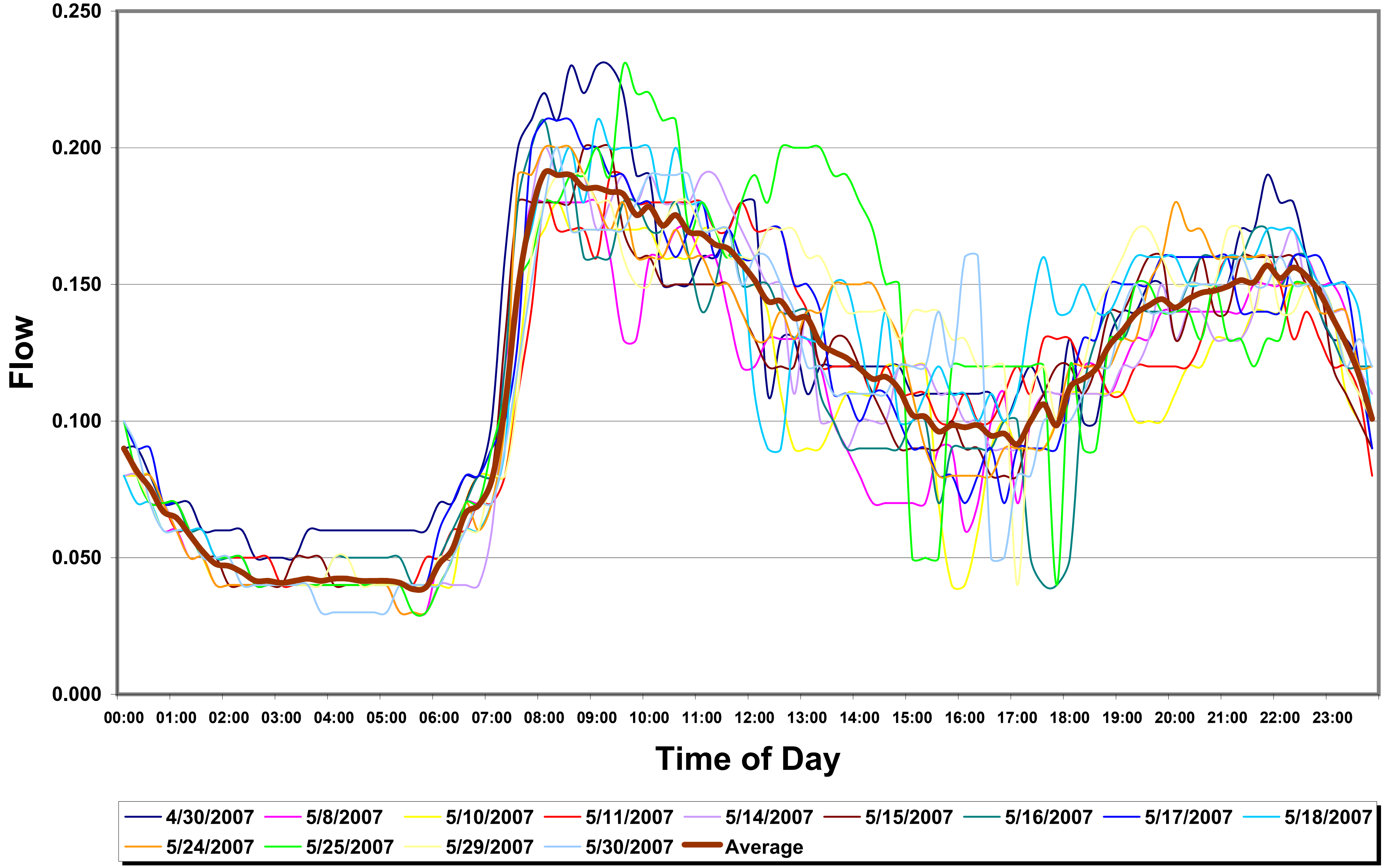
Date: 09/10/08
Time: 3:49 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
30-Apr-07	Mon	0.123	0.228	1.852	0.057	17-Apr-07	0.040
08-May-07	Tue	0.104	0.180	1.731	0.038	24-Apr-07	0.060
10-May-07	Thu	0.102	0.173	1.693	0.040	25-Apr-07	0.054
11-May-07	Fri	0.112	0.185	1.654	0.041	21-May-07	0.043
14-May-07	Mon	0.110	0.193	1.745	0.038		
15-May-07	Tue	0.110	0.195	1.769	0.043		
16-May-07	Wed	0.110	0.198	1.801	0.045		
17-May-07	Thu	0.115	0.208	1.801	0.040		
18-May-07	Fri	0.118	0.203	1.710	0.040		
24-May-07	Thu	0.113	0.198	1.747	0.038		
25-May-07	Fri	0.120	0.220	1.840	0.038		
29-May-07	Tue	0.118	0.188	1.592	0.042		
30-May-07	Wed	0.112	0.190	1.697	0.035		
13		**0.113**	**0.197**	**1.741**	**0.041**	**4**	**0.049**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

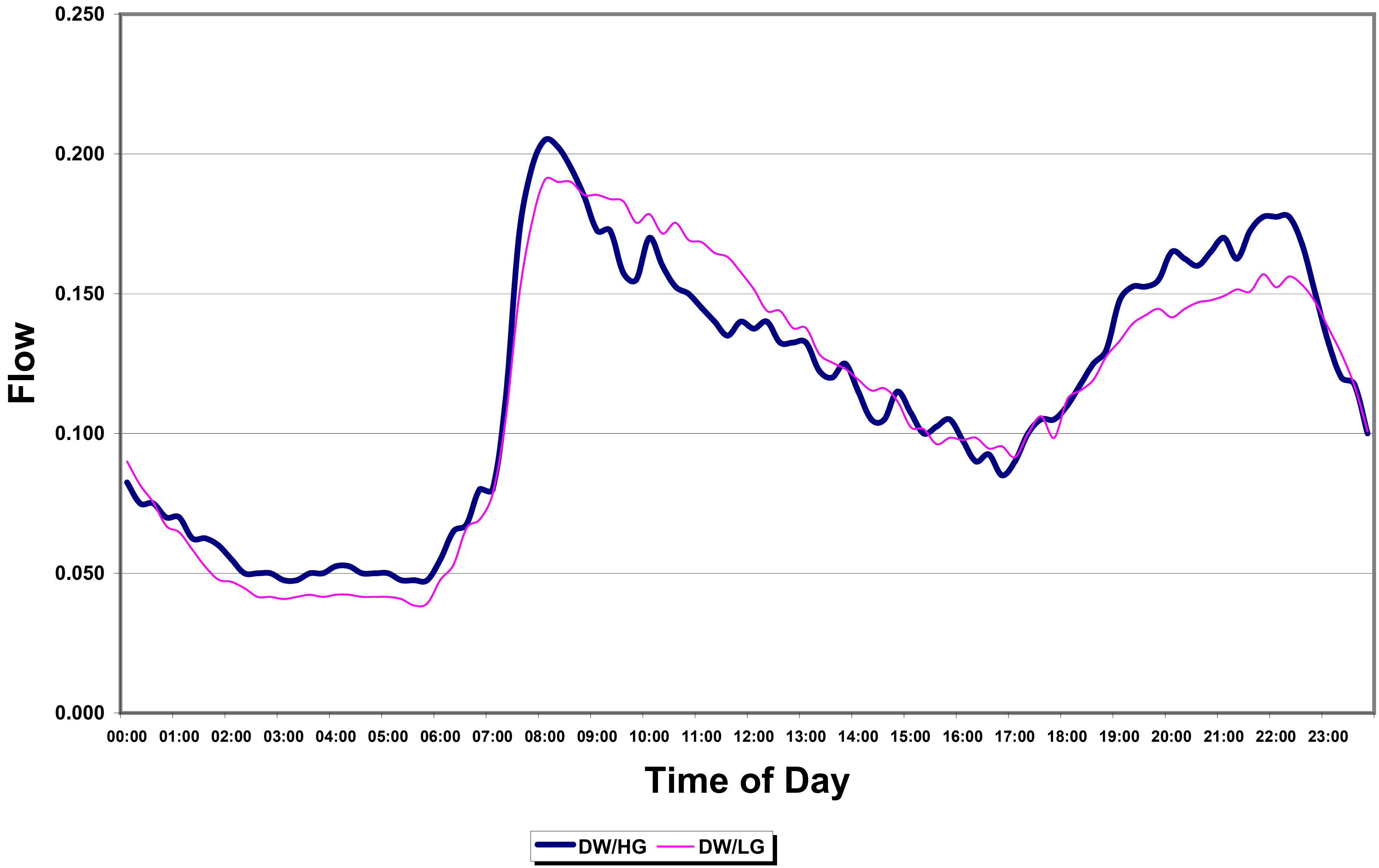
Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.113	
	Avg. Dry Weather Flow (ADDF):	0.113	
	Diurnal Peaking Factor (DPF):	1.741	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.008	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.008	(WWI + DWI, DWI > 0)

F1_232_013_07 - ADDF WEEKDAY DIURNAL CURVES



F1_232_013_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007
Meter Name: F1_232_013_07

Units of Flow: MGD

Date: 09/11/08
Time: 10:12 AM
By: LEC

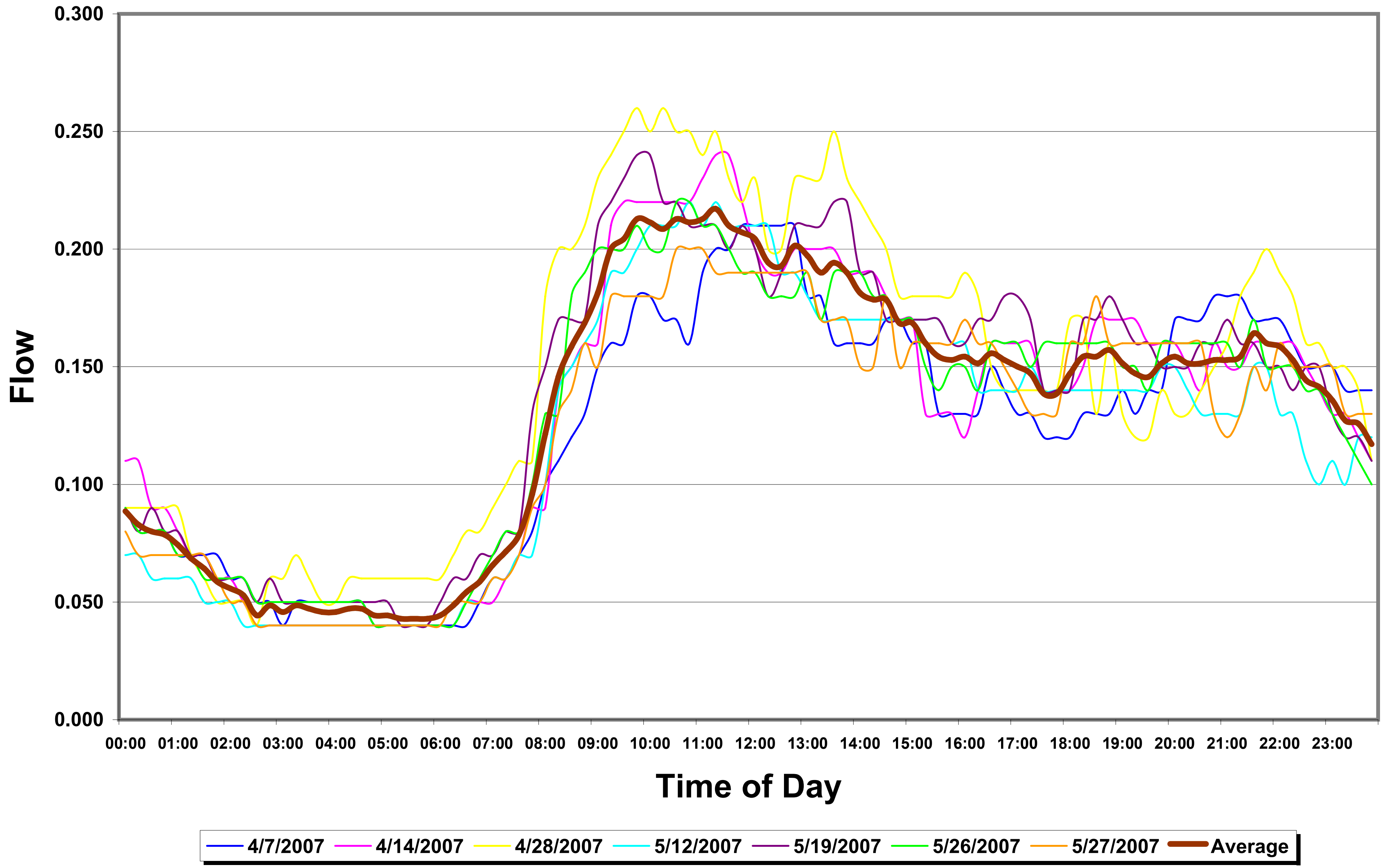
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
07-Apr-07	Sat	0.124	0.210	1.700	0.043	08-Apr-07	0.046
14-Apr-07	Sat	0.131	0.233	1.769	0.040	15-Apr-07	0.037
28-Apr-07	Sat	0.148	0.255	1.728	0.055	21-Apr-07	0.050
12-May-07	Sat	0.122	0.215	1.761	0.040	22-Apr-07	0.047
19-May-07	Sat	0.138	0.233	1.682	0.048	06-May-07	0.043
26-May-07	Sat	0.131	0.215	1.643	0.044		
27-May-07	Sun	0.124	0.198	1.588	0.040		
7		**0.131**	**0.223**	**1.696**	**0.044**	**5**	**0.045**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	**0.131**	
Avg. Dry Weather Flow (ADDF):	**0.131**	
Diurnal Peaking Factor (DPF):	**1.696**	
Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
Wet Weather Infiltration Increase (WWI):	**0.000**	**(DW/HG - DW/LG)**
Total Infiltration (TI):	**0.000**	**(WWI + DWI, DWI > 0)**

F1_232_013_07 - ADDF WEEKEND DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007
Meter Name: F1_232_013_07
Units of Flow: MGD

Date: 09/10/08
Time: 3:28 PM
By: LEC

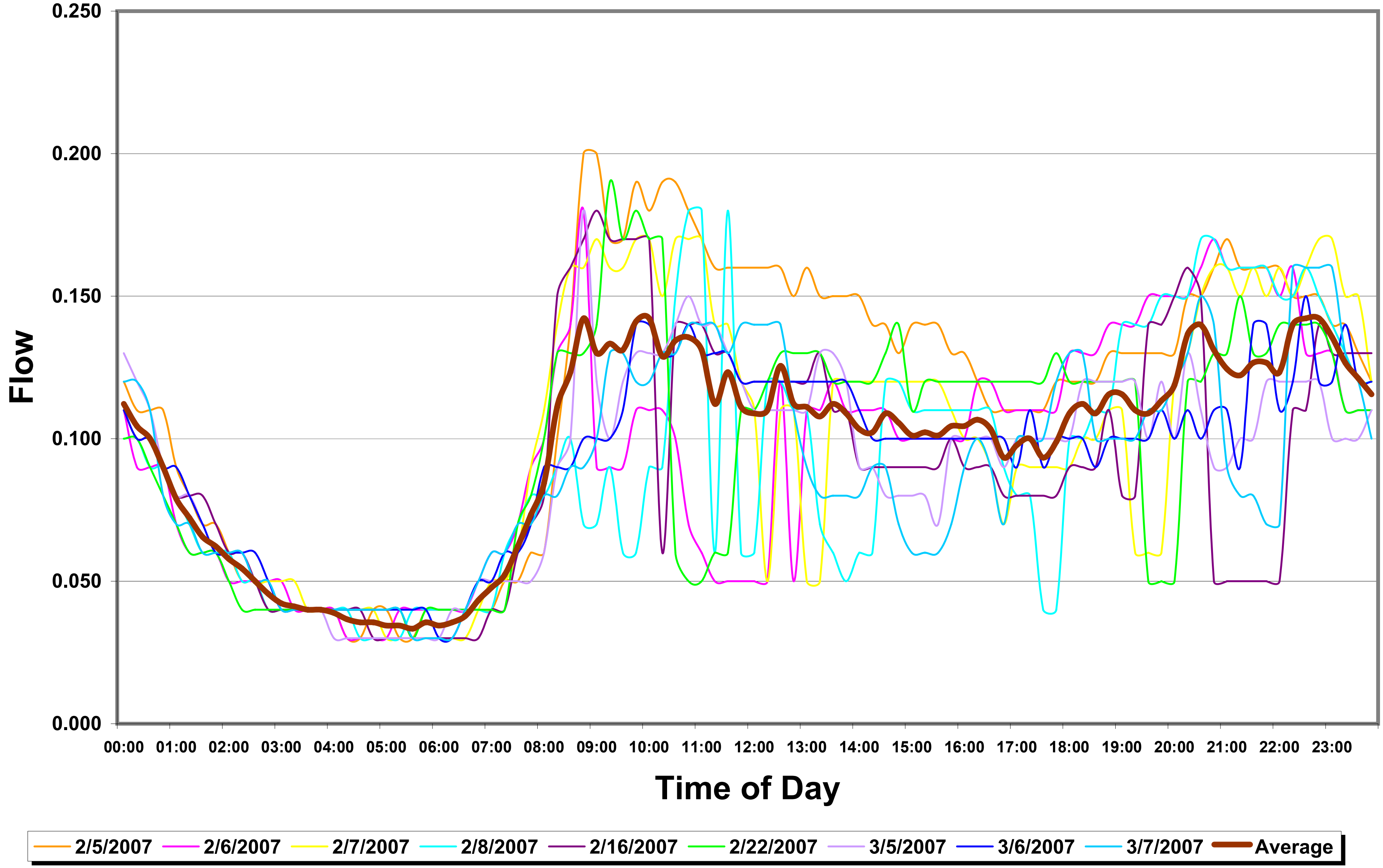
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
05-Feb-07	Mon	0.115	0.188	1.630	0.037	14-Feb-07	0.036
06-Feb-07	Tue	0.095	0.163	1.712	0.037	15-Feb-07	0.041
07-Feb-07	Wed	0.101	0.165	1.636	0.034	20-Feb-07	0.040
08-Feb-07	Thu	0.092	0.165	1.788	0.037	01-Mar-07	0.057
16-Feb-07	Fri	0.091	0.173	1.888	0.033		
22-Feb-07	Thu	0.097	0.178	1.834	0.039		
05-Mar-07	Mon	0.091	0.143	1.565	0.033		
06-Mar-07	Tue	0.093	0.135	1.451	0.038		
07-Mar-07	Wed	0.090	0.160	1.770	0.037		
9		**0.096**	**0.163**	**1.697**	**0.036**	**4**	**0.043**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

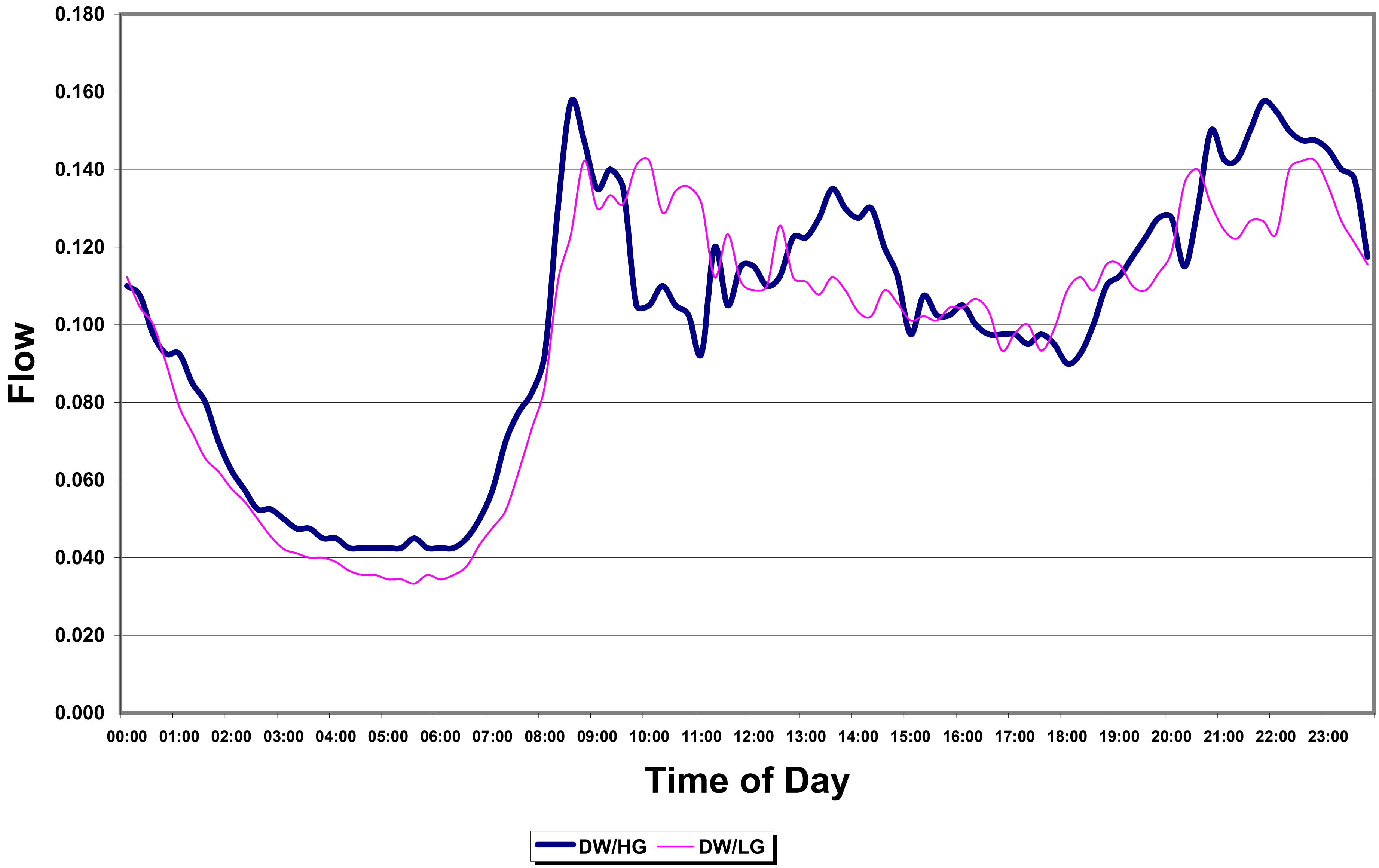
Summary:

Wastewater Production (WWP):	**0.096**	
Avg. Dry Weather Flow (ADDF):	**0.096**	
Diurnal Peaking Factor (DPF):	**1.697**	
Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
Wet Weather Infiltration Increase (WWI):	**0.007**	**(DW/HG - DW/LG)**
Total Infiltration (TI):	**0.007**	**(WWI + DWI, DWI > 0)**

F1_232_013_07 - ADDF WEEKDAY DIURNAL CURVES



F1_232_013_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F1_232_013_07

Source File: Meter_F1_232_013_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: 24 Road 2007
Meter Name: F1_232_013_07
Units of Flow: MGD

Date: 09/10/08
Time: 3:38 PM
By: LEC

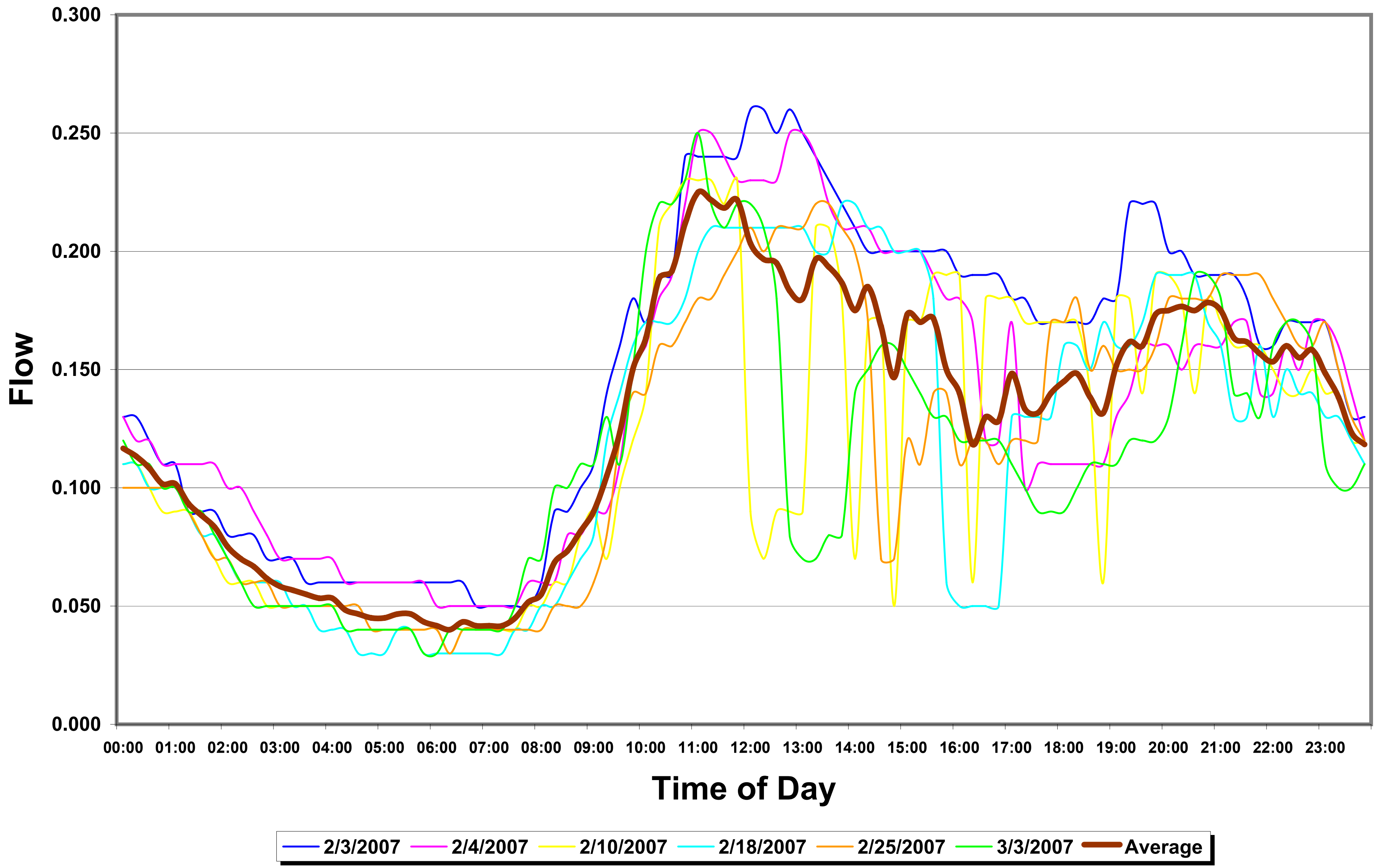
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
03-Feb-07	Sat	0.149	0.258	1.723	0.056
04-Feb-07	Sun	0.135	0.243	1.798	0.054
10-Feb-07	Sat	0.118	0.228	1.926	0.039
18-Feb-07	Sun	0.121	0.215	1.784	0.032
25-Feb-07	Sun	0.120	0.215	1.793	0.039
03-Mar-07	Sat	0.112	0.230	2.046	0.038
6 Count		**0.126 Avg.**	**0.231 Avg.**	**1.845 Avg.**	**0.043 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:

Wastewater Production (WWP):	**0.126**
Avg. Dry Weather Flow (ADDF):	**0.126**
Diurnal Peaking Factor (DPF):	**1.845**

F1_232_013_07 - ADDF WEEKEND DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_07

Source File: Meter_C1_261_024_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2007 **Units of Flow:** MGD
Meter Name: C1_261_024_07

Date: 09/10/08
Time: 1:43 PM
By: LEC

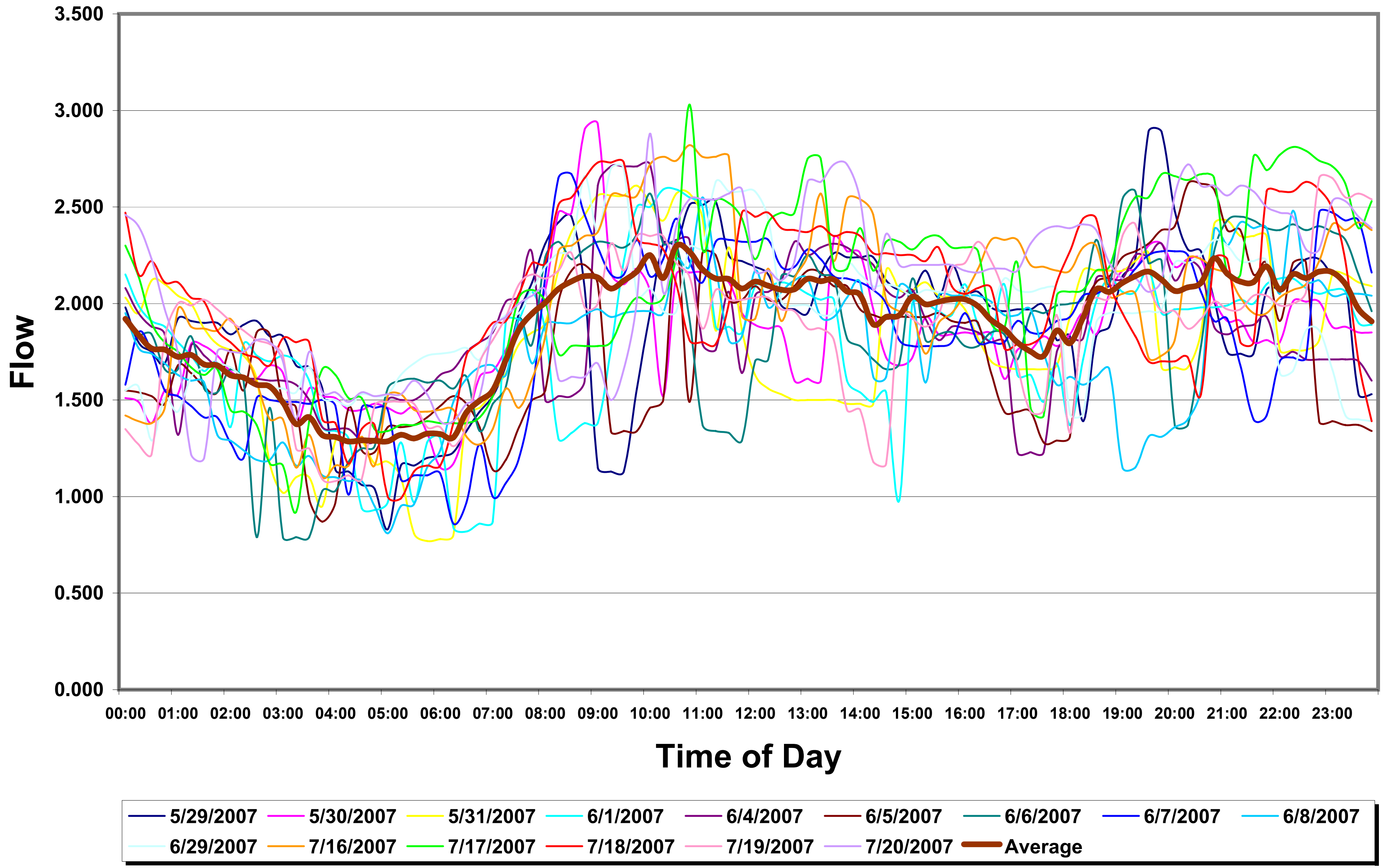
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
29-May-07	Tue	1.900	2.635	1.387	1.162	24-Jul-07	1.372
30-May-07	Wed	1.847	2.693	1.457	1.398	25-Jul-07	1.310
31-May-07	Thu	1.824	2.573	1.410	1.044	07-Aug-07	1.494
01-Jun-07	Fri	1.782	2.558	1.435	1.030	28-Aug-07	1.396
04-Jun-07	Mon	1.874	2.713	1.447	1.448		
05-Jun-07	Tue	1.759	2.558	1.454	1.266		
06-Jun-07	Wed	1.852	2.425	1.310	1.128		
07-Jun-07	Thu	1.842	2.518	1.367	1.143		
08-Jun-07	Fri	1.744	2.375	1.362	1.067		
29-Jun-07	Fri	1.933	2.608	1.349	1.550		
16-Jul-07	Mon	1.980	2.775	1.402	1.305		
17-Jul-07	Tue	2.058	2.778	1.350	1.365		
18-Jul-07	Wed	2.024	2.710	1.339	1.268		
19-Jul-07	Thu	1.874	2.605	1.390	1.293		
20-Jul-07	Fri	2.099	2.675	1.274	1.505		
15 Count		**1.893 Avg.**	**2.613 Avg.**	**1.382 Avg.**	**1.265 Avg.**	**4 Count**	**1.393 Avg.**

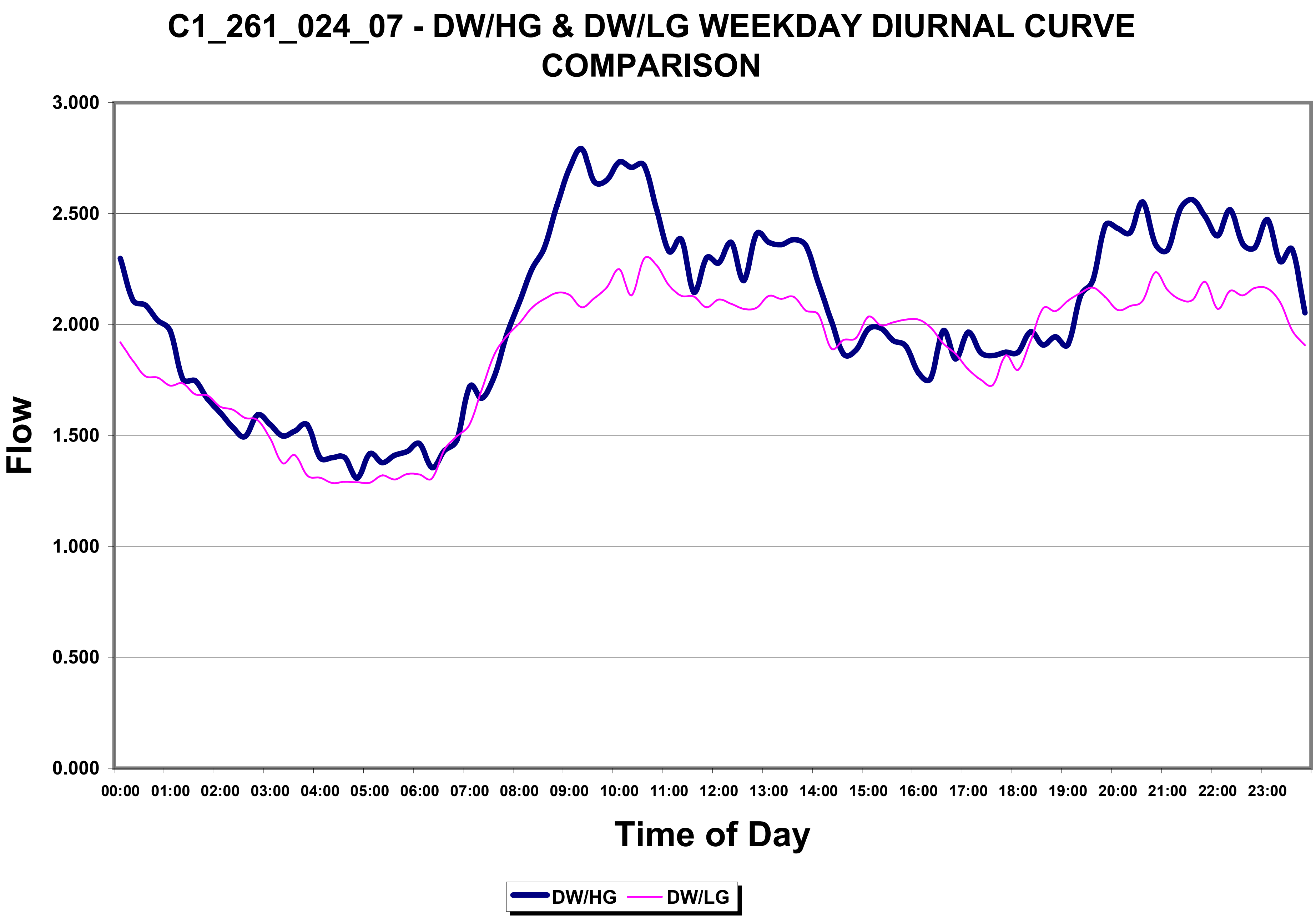
Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	1.893	
Avg. Dry Weather Flow (ADDF):	1.893	
Diurnal Peaking Factor (DPF):	1.382	
Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
Wet Weather Infiltration Increase (WWI):	0.128	(DW/HG - DW/LG)
Total Infiltration (TI):	0.128	(WWI + DWI, DWI > 0)

C1_261_024_07 - ADDF WEEKDAY DIURNAL CURVES




C1_261_024_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON
Flow
3.000
2.500
2.000
1.500
1.000
0.500
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_07

Source File: Meter_C1_261_024_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2007 **Units of Flow:** MGD
Meter Name: C1_261_024_07

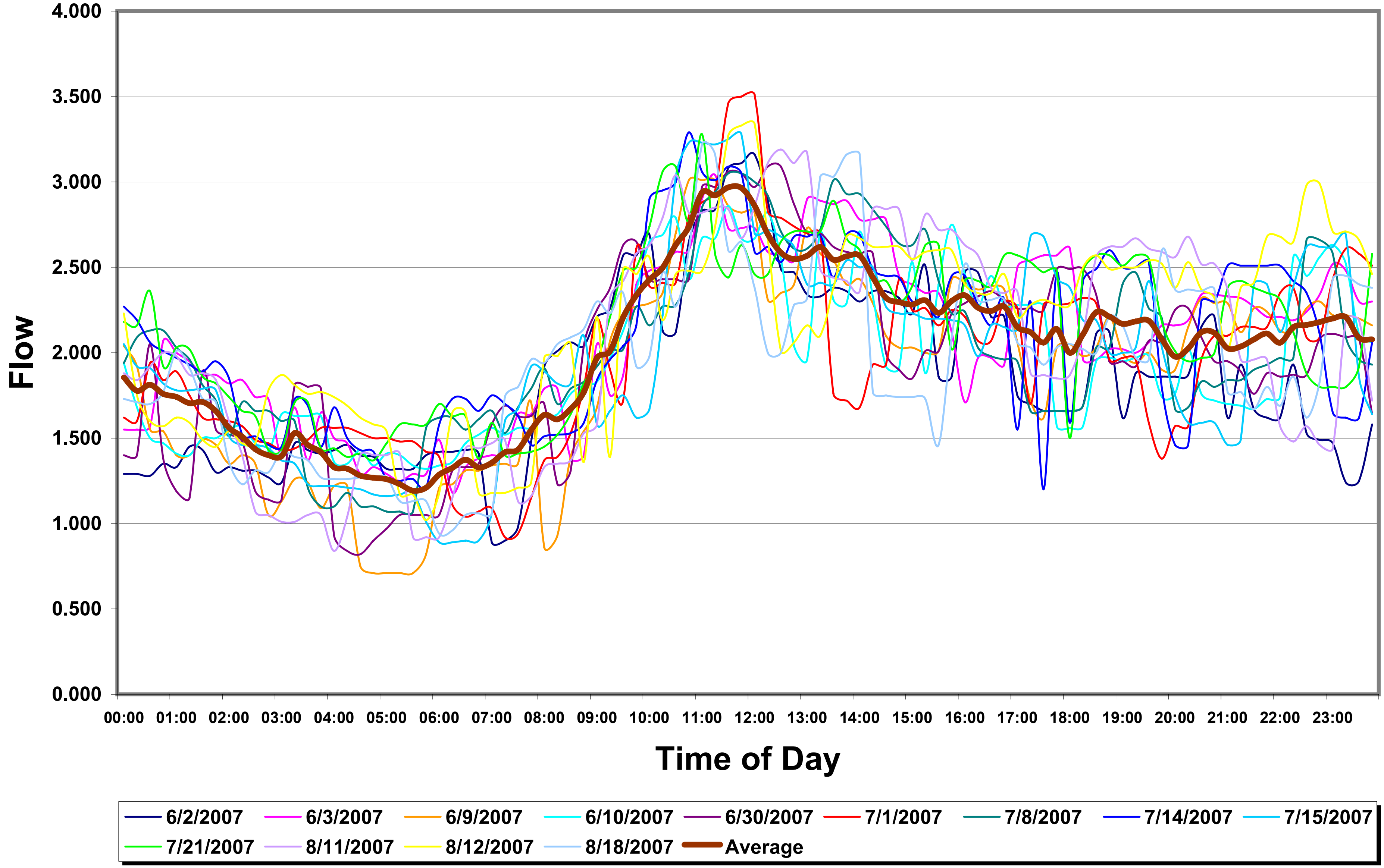
Date: 09/10/08
Time: 1:58 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
02-Jun-07	Sat	1.851	3.060	1.653	1.267
03-Jun-07	Sun	2.074	2.888	1.392	1.328
09-Jun-07	Sat	1.886	2.973	1.576	0.964
10-Jun-07	Sun	1.952	2.755	1.412	1.387
30-Jun-07	Sat	1.961	3.050	1.555	1.054
01-Jul-07	Sun	1.972	3.355	1.701	1.198
08-Jul-07	Sun	2.027	3.010	1.485	1.230
14-Jul-07	Sat	2.093	3.113	1.487	1.444
15-Jul-07	Sun	1.975	3.245	1.643	1.062
21-Jul-07	Sat	2.129	3.050	1.433	1.497
11-Aug-07	Sat	2.032	3.145	1.548	1.113
12-Aug-07	Sun	2.145	3.170	1.478	1.281
18-Aug-07	Sat	1.942	3.095	1.594	1.128
13		**2.003**	**3.070**	**1.535**	**1.227**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:	**Wastewater Production (WWP):**	**2.003**
	Avg. Dry Weather Flow (ADDF):	**2.003**
	Diurnal Peaking Factor (DPF):	**1.535**

C1_261_024_07 - ADDF WEEKEND DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_08

Source File: Meter_C1_261_024_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2008 **Units of Flow:** MGD
Meter Name: C1_261_024_08

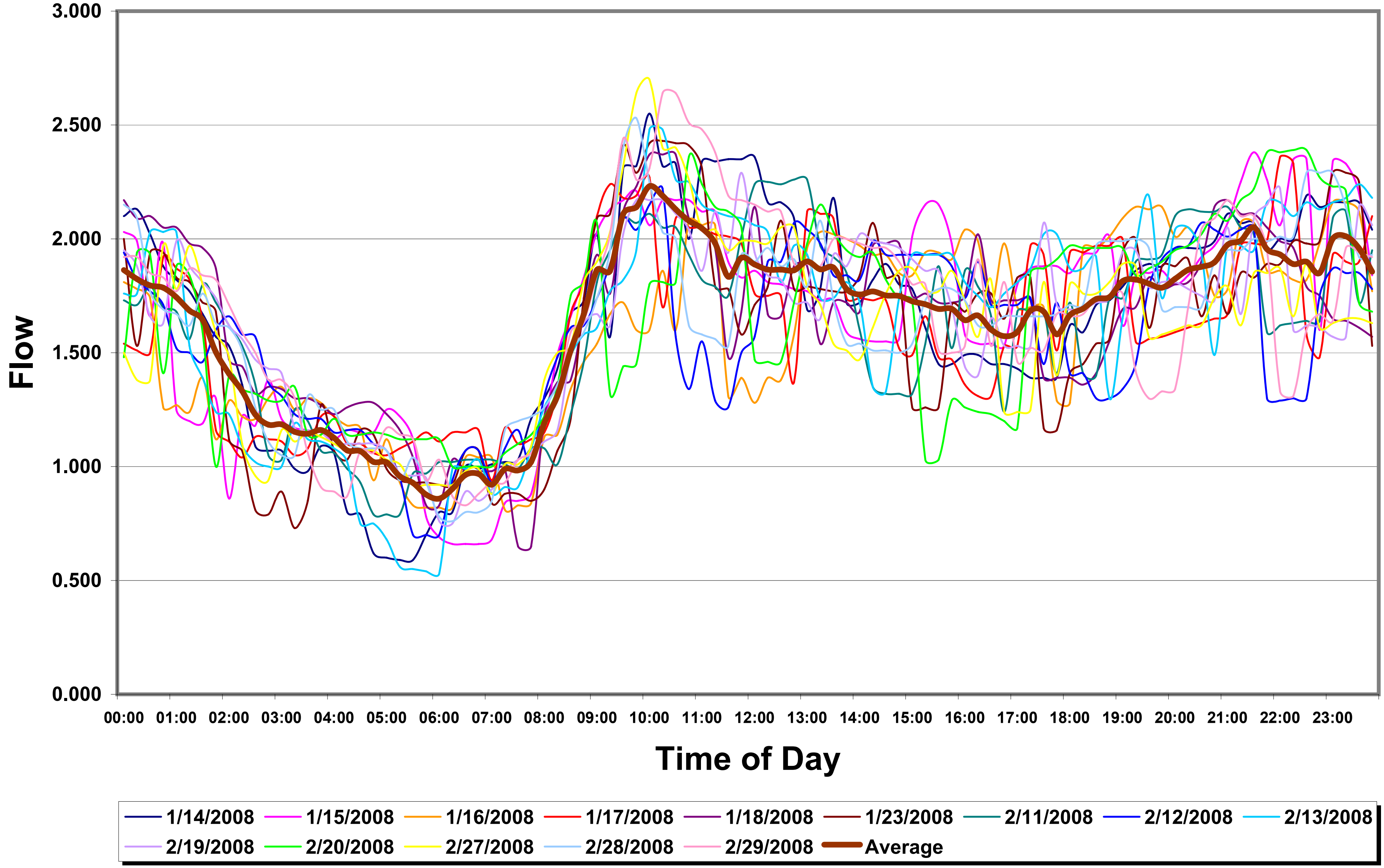
Date: 09/10/08
Time: 2:32 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
14-Jan-08	Mon	1.654	2.380	1.439	0.774	08-Jan-08	1.017
15-Jan-08	Tue	1.653	2.263	1.369	0.851	10-Jan-08	0.835
16-Jan-08	Wed	1.592	2.125	1.335	0.912	29-Jan-08	0.918
17-Jan-08	Thu	1.610	2.220	1.379	1.097	31-Jan-08	1.031
18-Jan-08	Fri	1.651	2.335	1.414	0.945	05-Feb-08	1.009
23-Jan-08	Wed	1.594	2.420	1.518	0.928	25-Feb-08	1.074
11-Feb-08	Mon	1.602	2.253	1.406	0.947	26-Feb-08	0.971
12-Feb-08	Tue	1.579	2.125	1.346	0.948		
13-Feb-08	Wed	1.642	2.368	1.442	0.763		
19-Feb-08	Tue	1.636	2.155	1.317	0.931		
20-Feb-08	Wed	1.643	2.385	1.452	1.077		
27-Feb-08	Wed	1.597	2.535	1.588	0.972		
28-Feb-08	Thu	1.637	2.303	1.406	0.937		
29-Feb-08	Fri	1.666	2.568	1.541	0.989		
14		**1.625**	**2.317**	**1.425**	**0.934**	**7**	**0.979**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

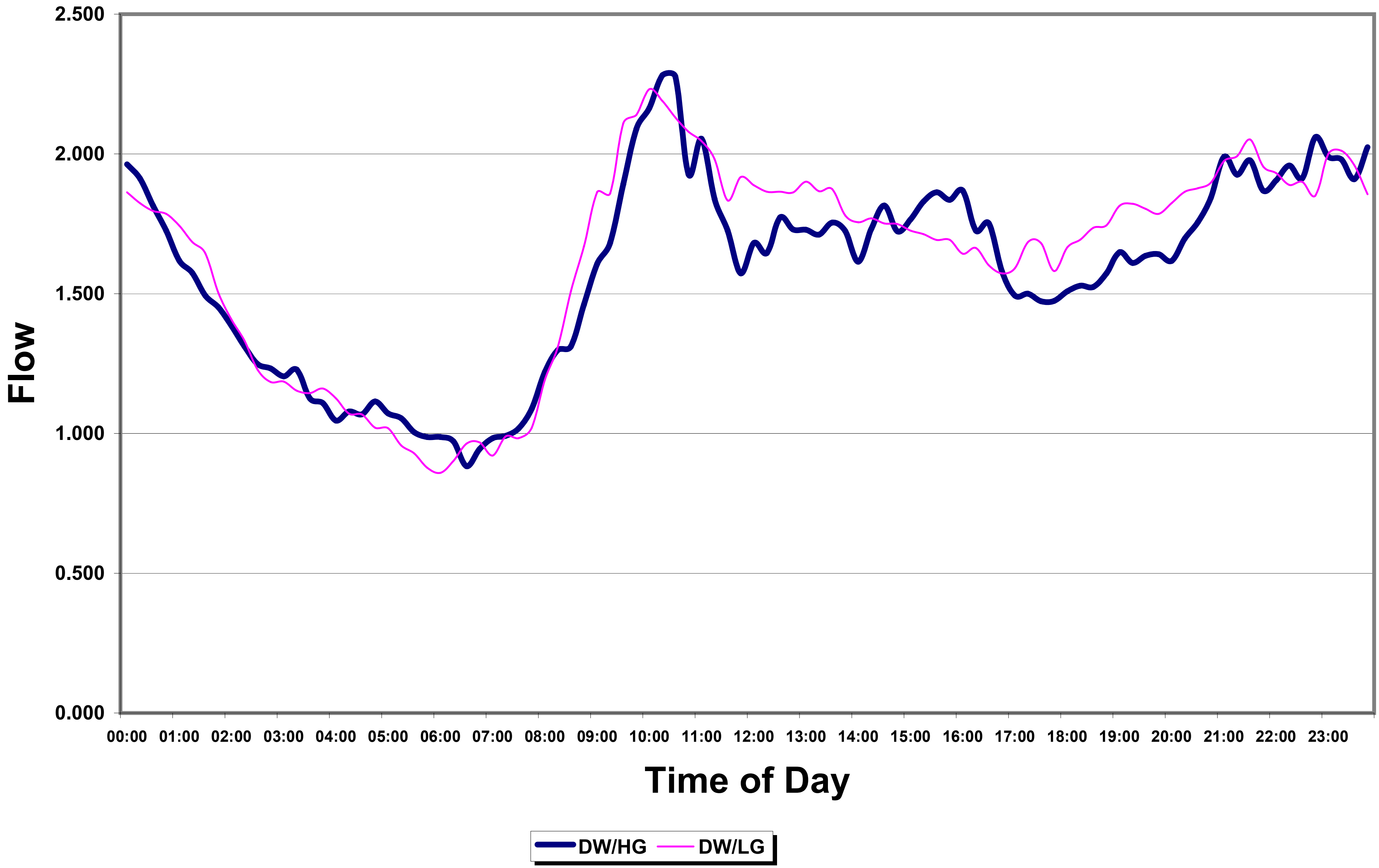
Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	1.625	
	Avg. Dry Weather Flow (ADDF):	1.625	
	Diurnal Peaking Factor (DPF):	1.425	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.046	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.046	(WWI + DWI, DWI > 0)

C1_261_024_08 - ADDF WEEKDAY DIURNAL CURVES



C1_261_024_08 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_C1_261_024_08

Source File: Meter_C1_261_024_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Orchard Mesa 2008 **Units of Flow:** MGD
Meter Name: C1_261_024_08

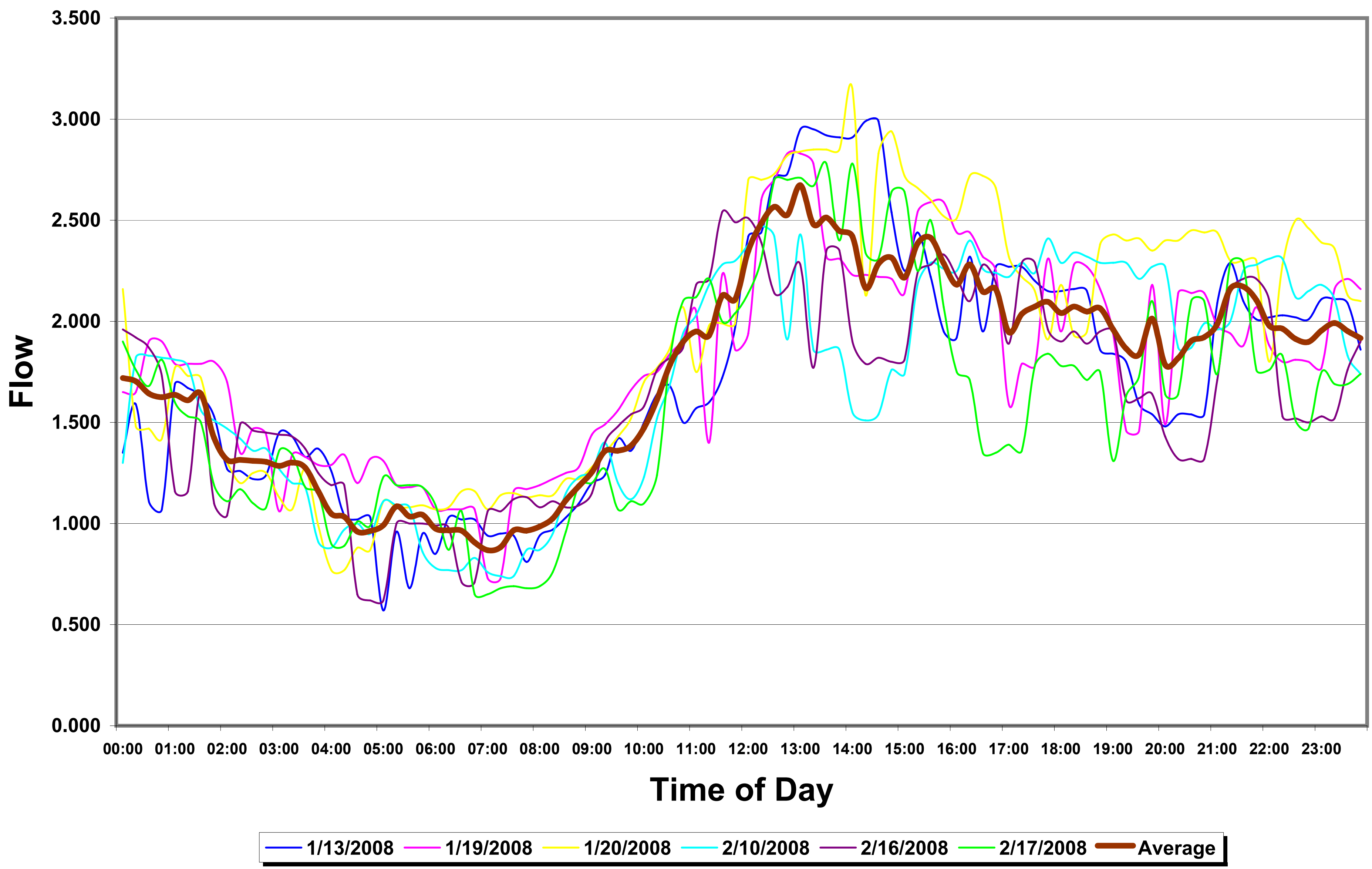
Date: 09/10/08
Time: 2:37 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
13-Jan-08	Sun	1.722	2.950	1.713	0.893
19-Jan-08	Sat	1.794	2.785	1.552	1.068
20-Jan-08	Sun	1.904	2.925	1.536	0.996
10-Feb-08	Sun	1.709	2.393	1.400	0.835
16-Feb-08	Sat	1.641	2.483	1.512	0.867
17-Feb-08	Sun	1.620	2.715	1.676	0.830
6 Count		**1.732 Avg.**	**2.708 Avg.**	**1.565 Avg.**	**0.915 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:	**Wastewater Production (WWP):**	**1.732**
	Avg. Dry Weather Flow (ADDF):	**1.732**
	Diurnal Peaking Factor (DPF):	**1.565**

C1_261_024_08 - ADDF WEEKEND DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007 **Units of Flow:** MGD
Meter Name: E3_241_034_07

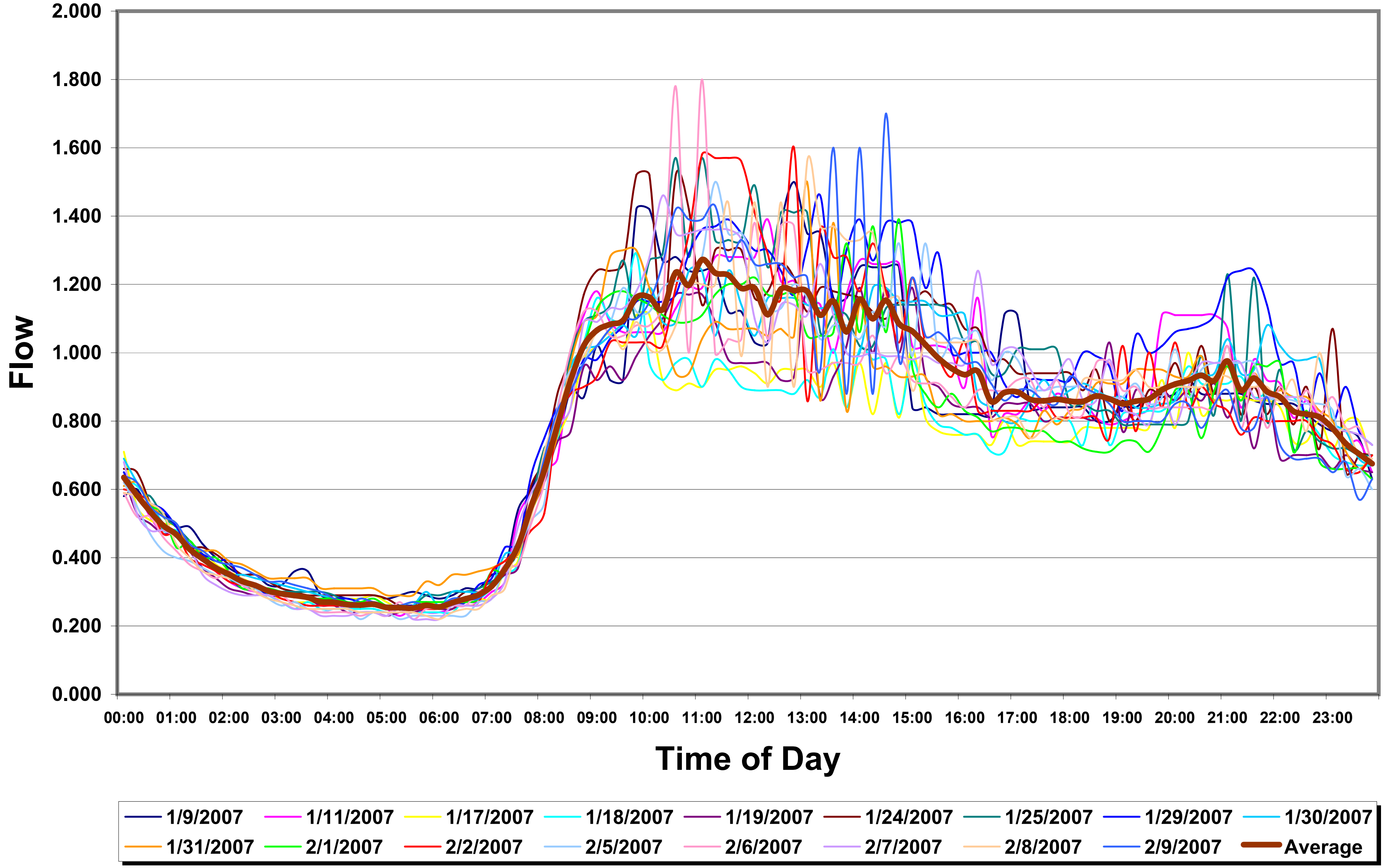
Date: 09/11/08
Time: 2:31 PM
By: LEC

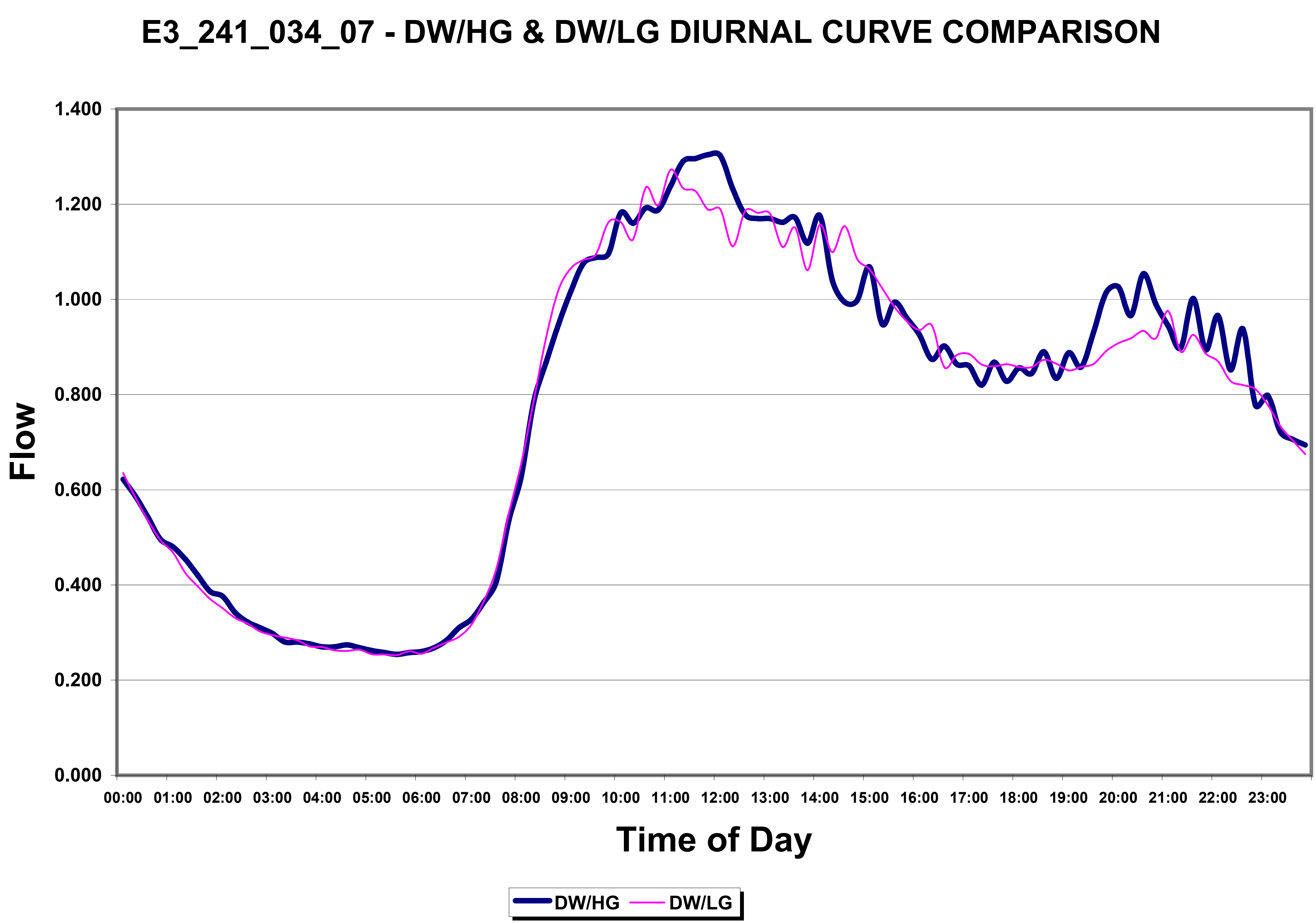
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
09-Jan-07	Tue	0.781	1.393	1.783	0.289	15-Jan-07	0.270
11-Jan-07	Thu	0.786	1.308	1.664	0.255	22-Jan-07	0.277
17-Jan-07	Wed	0.686	1.075	1.566	0.268	13-Feb-07	0.262
18-Jan-07	Thu	0.694	1.163	1.674	0.247	20-Feb-07	0.280
19-Jan-07	Fri	0.709	1.153	1.625	0.248	01-Mar-07	0.242
24-Jan-07	Wed	0.818	1.408	1.720	0.278		
25-Jan-07	Thu	0.810	1.438	1.775	0.279		
29-Jan-07	Mon	0.848	1.368	1.613	0.267		
30-Jan-07	Tue	0.782	1.193	1.525	0.273		
31-Jan-07	Wed	0.759	1.268	1.671	0.313		
01-Feb-07	Thu	0.742	1.220	1.644	0.271		
02-Feb-07	Fri	0.775	1.570	2.027	0.256		
05-Feb-07	Mon	0.778	1.370	1.760	0.234		
06-Feb-07	Tue	0.754	1.430	1.897	0.243		
07-Feb-07	Wed	0.778	1.380	1.773	0.234		
08-Feb-07	Thu	0.776	1.408	1.813	0.241		
09-Feb-07	Fri	0.782	1.408	1.799	0.270		
17 Count		**0.768 Avg.**	**1.326 Avg.**	**1.725 Avg.**	**0.263 Avg.**	**5 Count**	**0.266 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.768	
	Avg. Dry Weather Flow (ADDF):	0.768	
	Diurnal Peaking Factor (DPF):	1.725	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.003	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.003	(WWI + DWI, DWI > 0)

E3_241_034_07 - ADDF WEEKDAY DIURNAL CURVES




E3_241_034_07 - DW/HG & DW/LG DIURNAL CURVE COMPARISON
Flow
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007 **Units of Flow:** MGD
Meter Name: E3_241_034_07

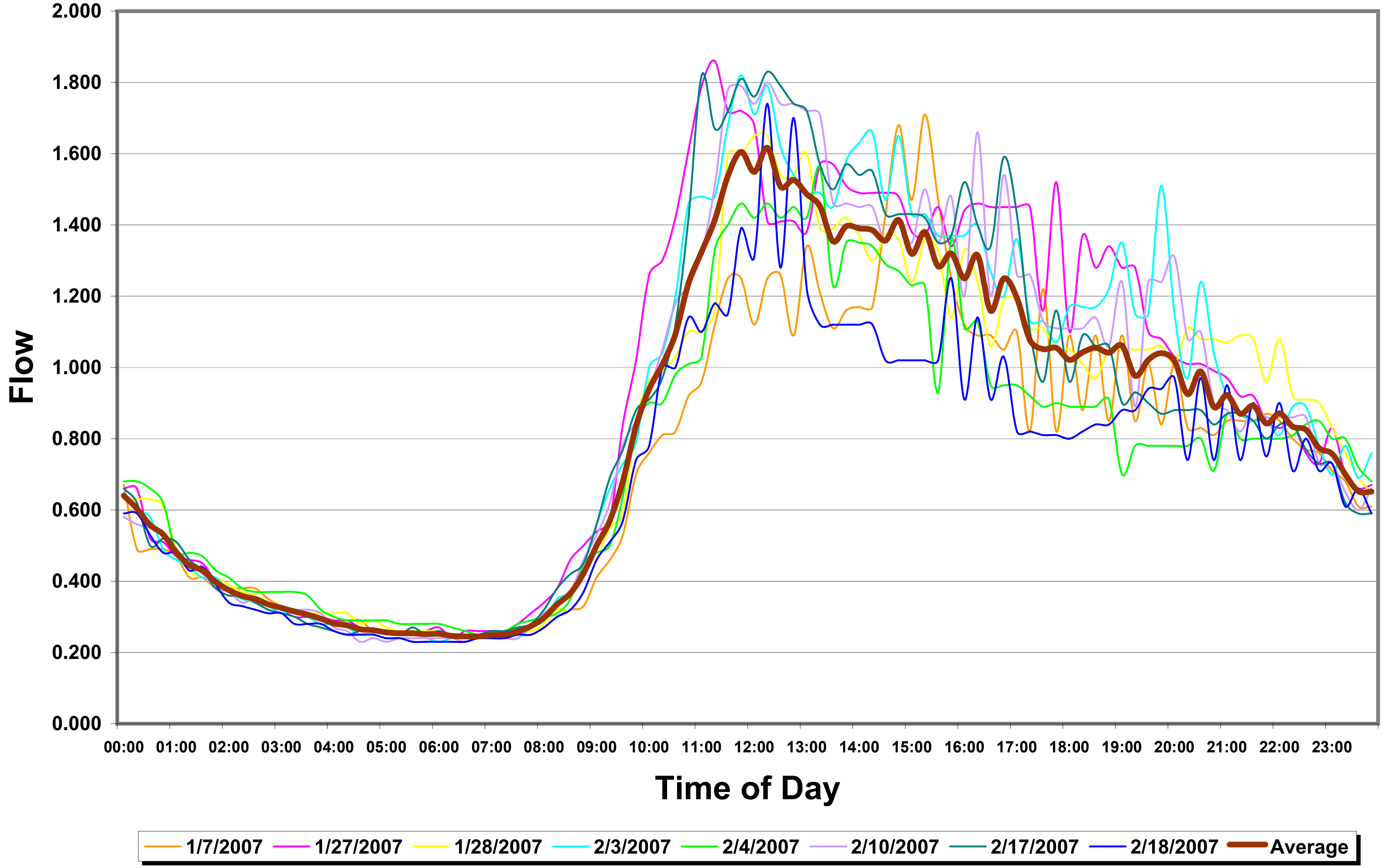
Date: 09/11/08
Time: 2:36 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
07-Jan-07	Sun	0.744	1.583	2.126	0.250	06-Jan-07	0.315
27-Jan-07	Sat	0.903	1.773	1.962	0.259	14-Jan-07	0.269
28-Jan-07	Sun	0.833	1.625	1.952	0.256	24-Feb-07	0.244
03-Feb-07	Sat	0.882	1.750	1.985	0.240		
04-Feb-07	Sun	0.762	1.463	1.919	0.273		
10-Feb-07	Sat	0.870	1.778	2.044	0.238		
17-Feb-07	Sat	0.860	1.798	2.091	0.256		
18-Feb-07	Sun	0.712	1.508	2.116	0.238		
8 Count		**0.821 Avg.**	**1.659 Avg.**	**2.024 Avg.**	**0.251 Avg.**	**3 Count**	**0.276 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.821**	
	Avg. Dry Weather Flow (ADDF):	**0.821**	
	Diurnal Peaking Factor (DPF):	**2.024**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**0.025**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**0.025**	**(WWI + DWI, DWI > 0)**

E3_241_034_07 - ADDF WEEKEND DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

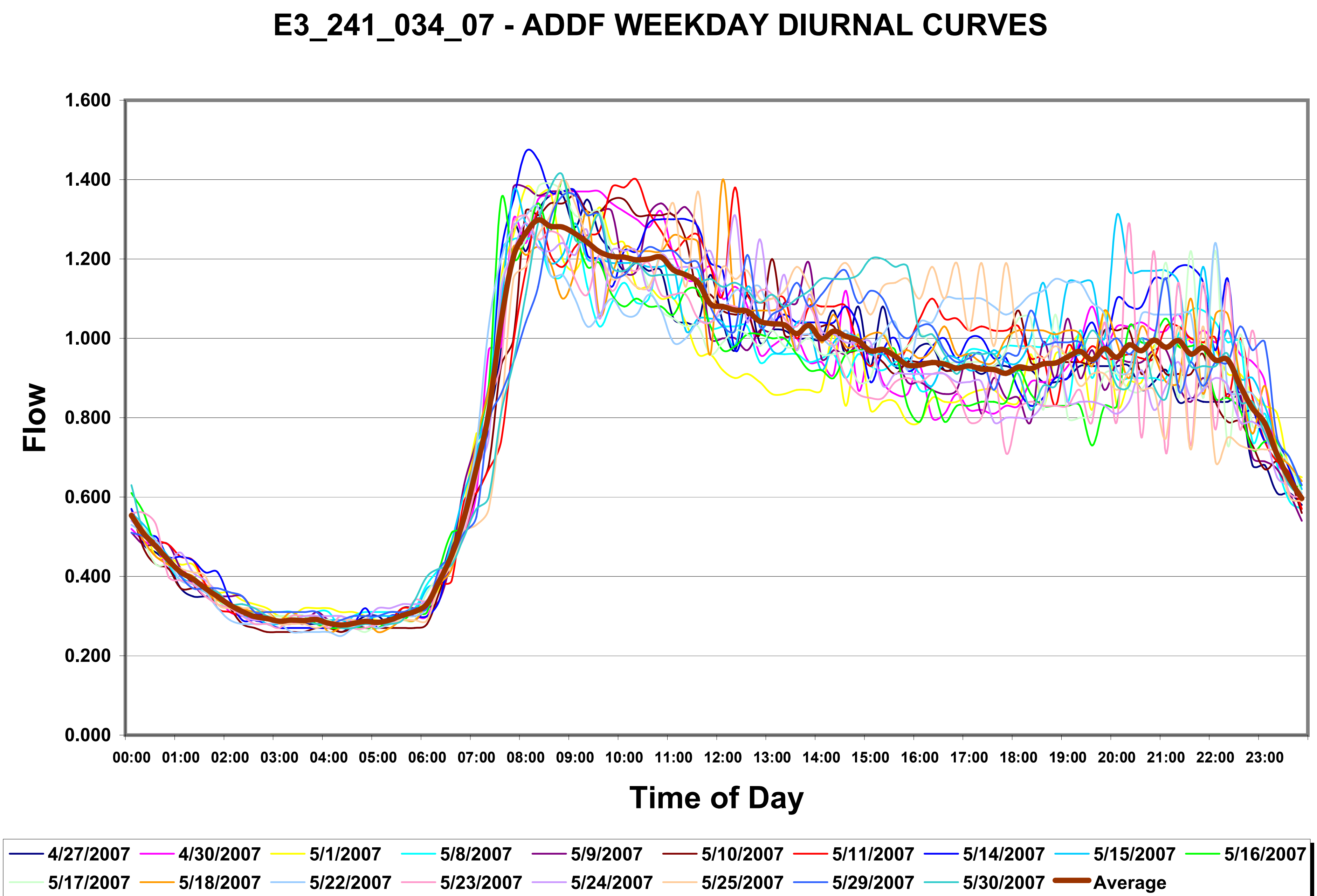
Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007
Units of Flow: MGD
Meter Name: E3_241_034_07

Date: 09/12/08
Time: 6:47 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
27-Apr-07	Fri	0.798	1.338	1.676	0.285	06-Apr-07	0.253
30-Apr-07	Mon	0.822	1.370	1.666	0.285	10-Apr-07	0.252
01-May-07	Tue	0.789	1.343	1.702	0.308	13-Apr-07	0.268
08-May-07	Tue	0.804	1.243	1.546	0.304	17-Apr-07	0.263
09-May-07	Wed	0.814	1.373	1.685	0.284	24-Apr-07	0.313
10-May-07	Thu	0.812	1.340	1.650	0.266	25-Apr-07	0.290
11-May-07	Fri	0.838	1.370	1.635	0.284		
14-May-07	Mon	0.851	1.415	1.662	0.280		
15-May-07	Tue	0.841	1.275	1.516	0.290		
16-May-07	Wed	0.785	1.320	1.682	0.284		
17-May-07	Thu	0.809	1.363	1.685	0.286		
18-May-07	Fri	0.830	1.243	1.498	0.283		
22-May-07	Tue	0.833	1.280	1.537	0.269		
23-May-07	Wed	0.790	1.280	1.619	0.284		
24-May-07	Thu	0.798	1.245	1.560	0.297		
25-May-07	Fri	0.831	1.328	1.598	0.283		
29-May-07	Tue	0.839	1.335	1.592	0.303		
30-May-07	Wed	0.827	1.333	1.611	0.283		
18		**0.817**	**1.322**	**1.618**	**0.287**	**6**	**0.273**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.817**	
	Avg. Dry Weather Flow (ADDF):	**0.817**	
	Diurnal Peaking Factor (DPF):	**1.618**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**-0.013**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**-0.013**	**(WWI + DWI, DWI > 0)**


E3_241_034_07 - ADDF WEEKDAY DIURNAL CURVES
Flow
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
4/27/2007 4/30/2007 5/1/2007 5/8/2007 5/9/2007 5/10/2007 5/11/2007 5/14/2007 5/15/2007 5/16/2007
5/17/2007 5/18/2007 5/22/2007 5/23/2007 5/24/2007 5/25/2007 5/29/2007 5/30/2007 Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_E3_241_034_07

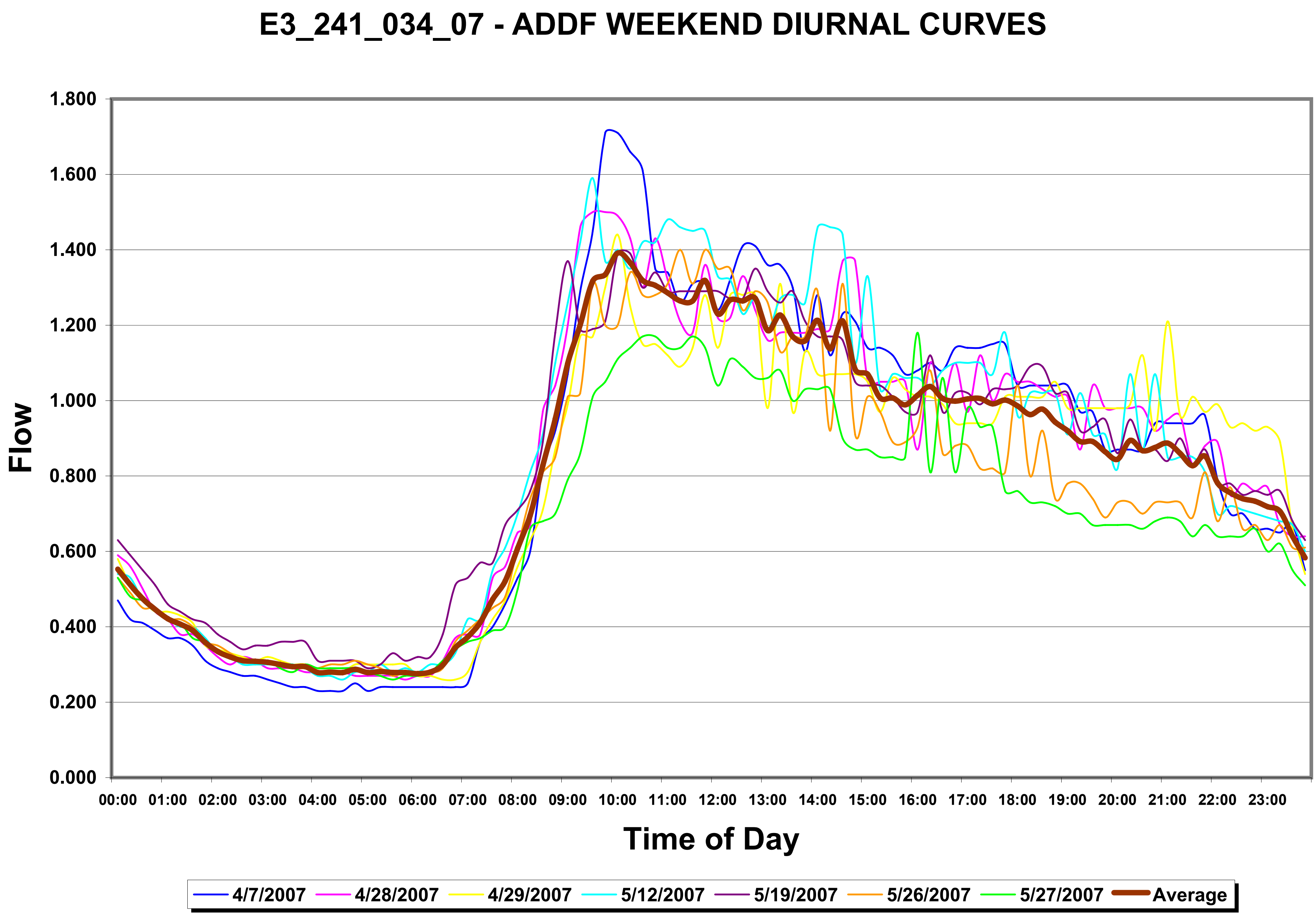
Source File: Meter_E3_241_034_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Paradise Hills 2007 **Units of Flow:** MGD
Meter Name: E3_241_034_07

Date: 09/12/08
Time: 6:53 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
07-Apr-07	Sat	0.823	1.673	2.033	0.238	22-Apr-07	0.275
28-Apr-07	Sat	0.830	1.488	1.793	0.274	06-May-07	0.294
29-Apr-07	Sun	0.798	1.290	1.616	0.283		
12-May-07	Sat	0.847	1.460	1.724	0.283		
19-May-07	Sat	0.836	1.355	1.622	0.319		
26-May-07	Sat	0.753	1.365	1.814	0.290		
27-May-07	Sun	0.681	1.155	1.695	0.281		
7 Count		**0.795 Avg.**	**1.398 Avg.**	**1.757 Avg.**	**0.281 Avg.**	**2 Count**	**0.285 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	0.795	
	Avg. Dry Weather Flow (ADDF):	0.795	
	Diurnal Peaking Factor (DPF):	1.757	
	Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
	Wet Weather Infiltration Increase (WWI):	0.003	(DW/HG - DW/LG)
	Total Infiltration (TI):	0.003	(WWI + DWI, DWI > 0)


E3_241_034_07 - ADDF WEEKEND DIURNAL CURVES
Flow
1.800
1.600
1.400
1.200
1.000
0.800
0.600
0.400
0.200
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
4/7/2007
4/28/2007
4/29/2007
5/12/2007
5/19/2007
5/26/2007
5/27/2007
Average

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_07

Source File: Meter_D1_252_010_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2007 **Units of Flow:** MGD
Meter Name: D1_252_010_07

Date: 09/10/08
Time: 9:14 AM
By: LEC

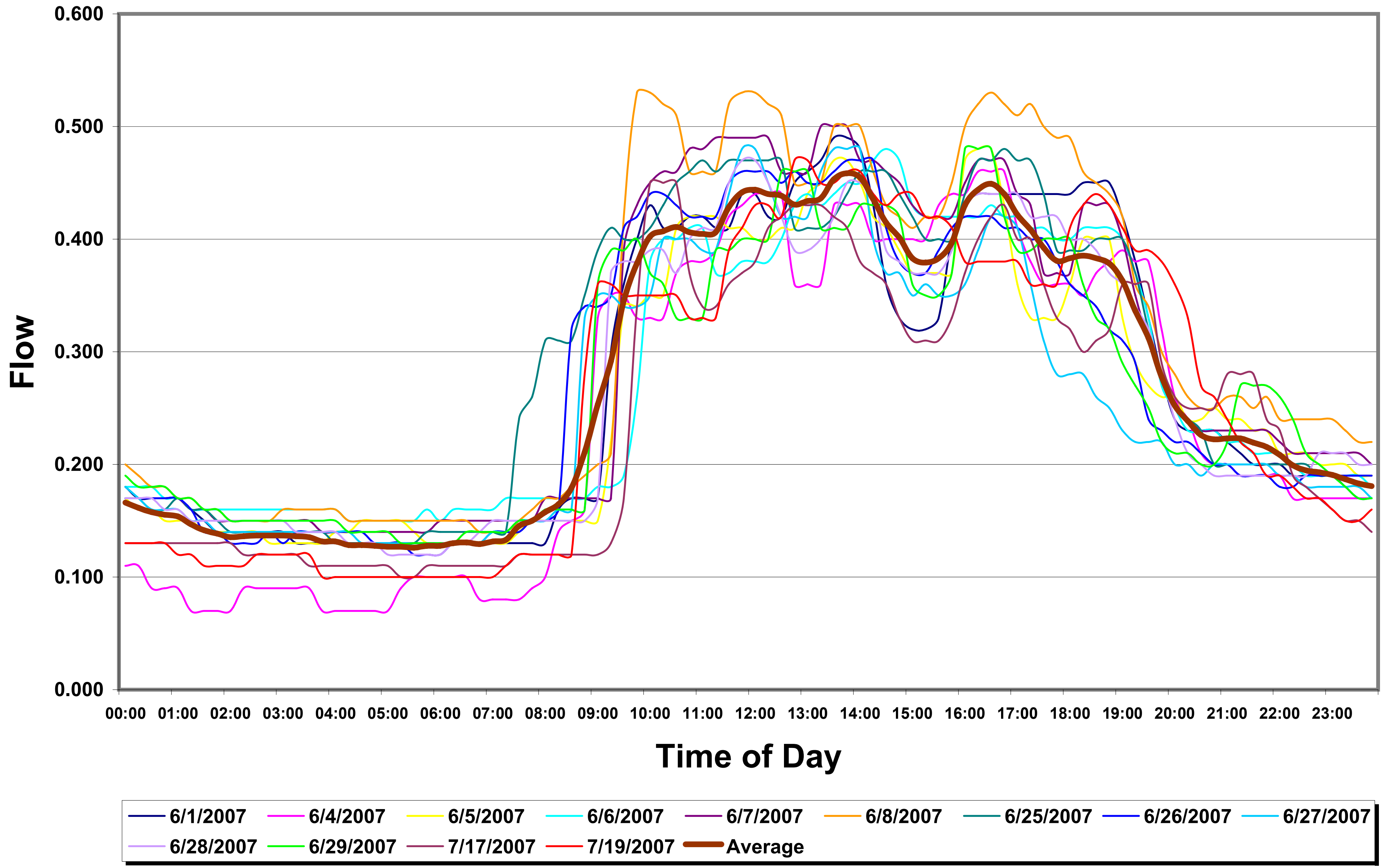
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
01-Jun-07	Fri	0.274	0.483	1.761	0.130	12-Jun-07	0.135
04-Jun-07	Mon	0.245	0.455	1.855	0.080	13-Jun-07	0.189
05-Jun-07	Tue	0.265	0.465	1.757	0.136	14-Jun-07	0.160
06-Jun-07	Wed	0.274	0.468	1.703	0.154	23-Jul-07	0.123
07-Jun-07	Thu	0.291	0.493	1.695	0.143	24-Jul-07	0.184
08-Jun-07	Fri	0.311	0.525	1.691	0.148	25-Jul-07	0.143
25-Jun-07	Mon	0.292	0.473	1.617	0.134		
26-Jun-07	Tue	0.273	0.468	1.712	0.130		
27-Jun-07	Wed	0.256	0.475	1.856	0.132		
28-Jun-07	Thu	0.269	0.460	1.710	0.128		
29-Jun-07	Fri	0.269	0.465	1.731	0.136		
17-Jul-07	Tue	0.243	0.430	1.769	0.108		
19-Jul-07	Thu	0.262	0.460	1.755	0.100		
13 Count		**0.271 Avg.**	**0.471 Avg.**	**1.739 Avg.**	**0.128 Avg.**	**6 Count**	**0.156 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

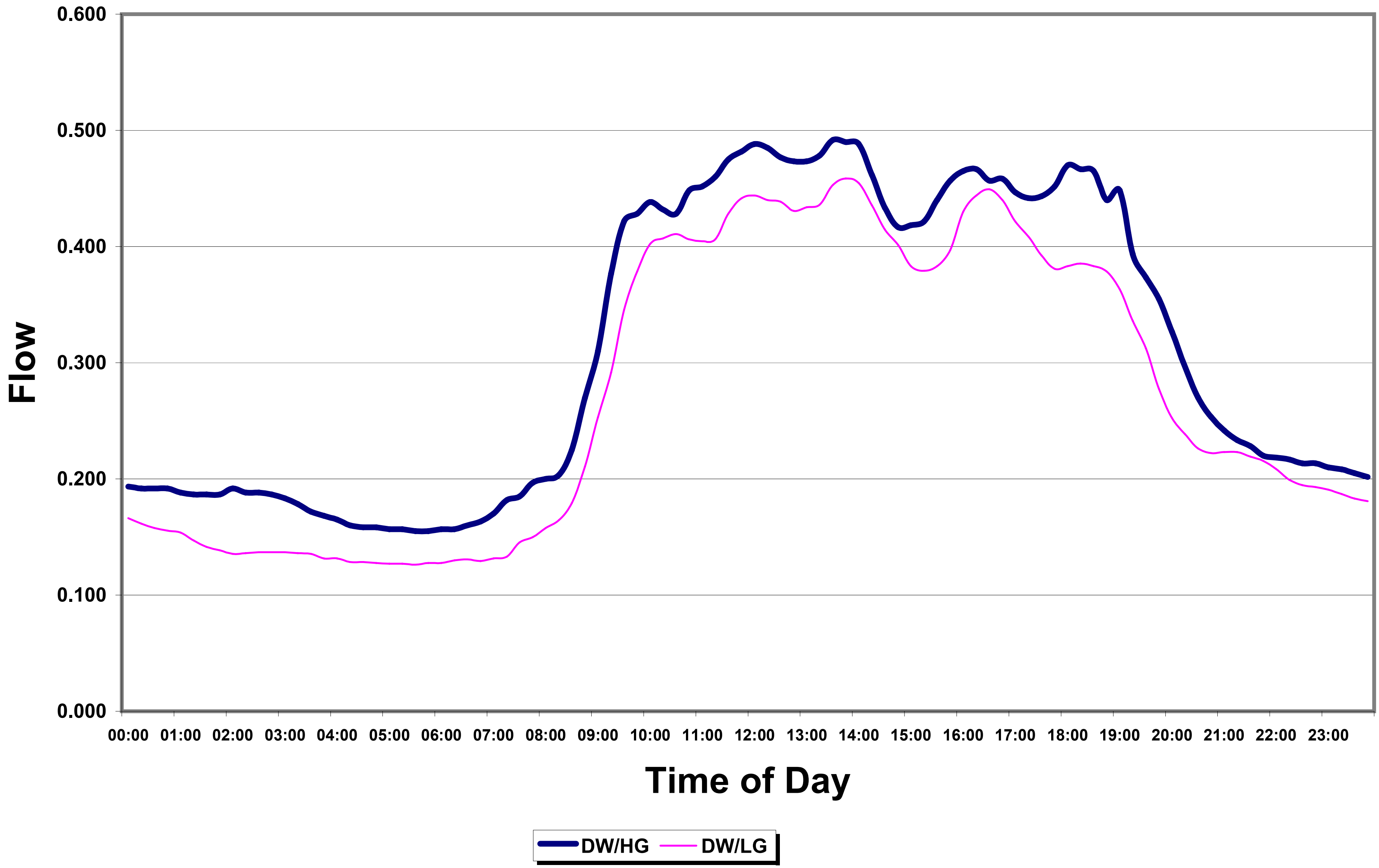
Summary:

Wastewater Production (WWP):	0.271	
Avg. Dry Weather Flow (ADDF):	0.271	
Diurnal Peaking Factor (DPF):	1.739	
Dry Weather Infiltration (DWI):	0	(ADDF - WWP)
Wet Weather Infiltration Increase (WWI):	0.028	(DW/HG - DW/LG)
Total Infiltration (TI):	0.028	(WWI + DWI, DWI > 0)

D1_252_010_07 - ADDF WEEKDAY DIURNAL CURVES



D1_252_010_07 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_07

Source File: Meter_D1_252_010_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2007 **Units of Flow:** MGD
Meter Name: D1_252_010_07

Date: 09/10/08
Time: 9:35 AM
By: LEC

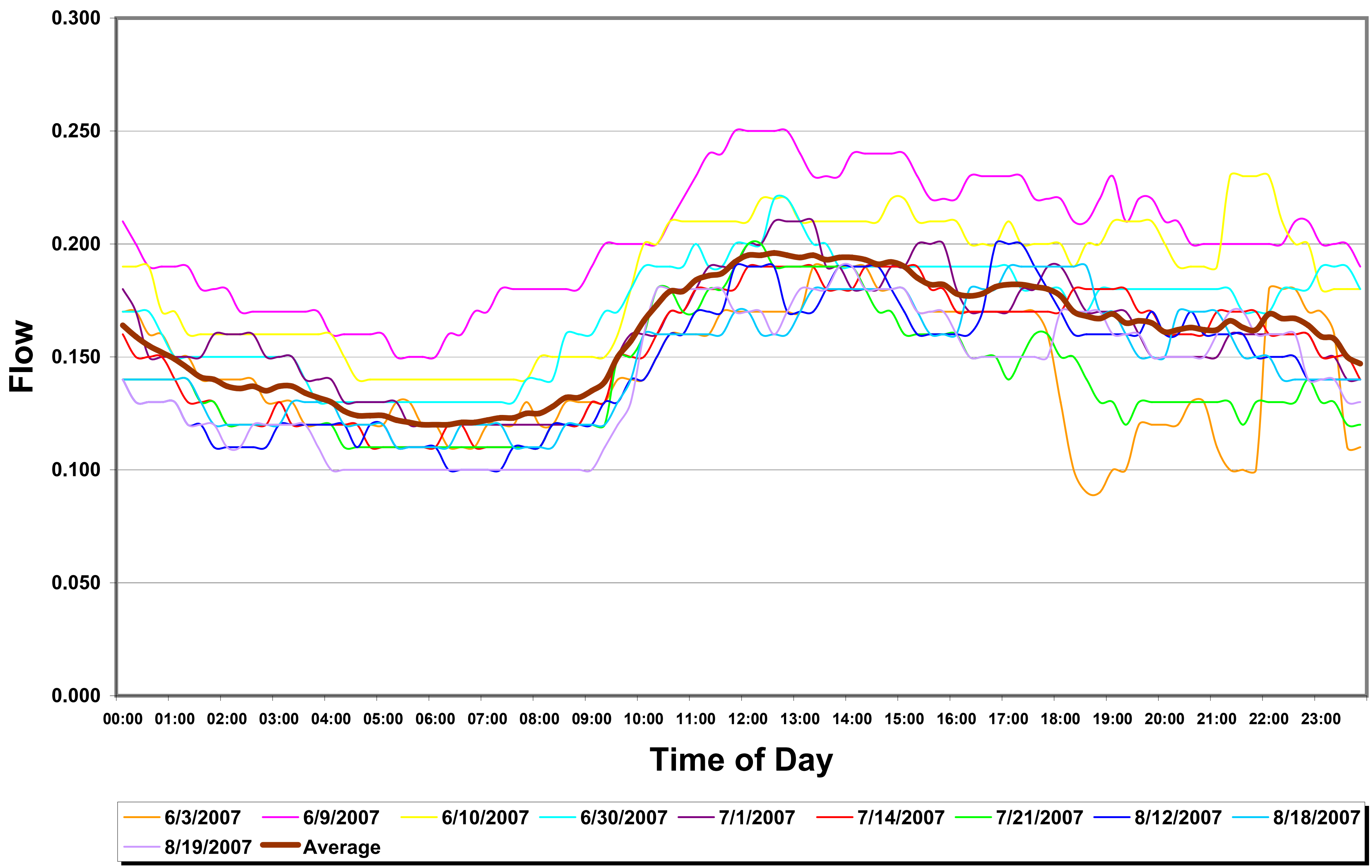
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
03-Jun-07	Sun	0.143	0.190	1.328	0.111
09-Jun-07	Sat	0.202	0.250	1.238	0.158
10-Jun-07	Sun	0.184	0.230	1.247	0.140
30-Jun-07	Sat	0.170	0.213	1.252	0.130
01-Jul-07	Sun	0.159	0.210	1.319	0.120
14-Jul-07	Sat	0.152	0.190	1.247	0.112
21-Jul-07	Sat	0.141	0.195	1.387	0.110
12-Aug-07	Sun	0.146	0.198	1.352	0.106
18-Aug-07	Sat	0.148	0.190	1.285	0.113
19-Aug-07	Sun	0.141	0.185	1.308	0.100
10		**0.159**	**0.205**	**1.296**	**0.120**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:

Wastewater Production (WWP):	**0.159**
Avg. Dry Weather Flow (ADDF):	**0.159**
Diurnal Peaking Factor (DPF):	**1.296**

D1_252_010_07 - ADDF WEEKEND DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_08

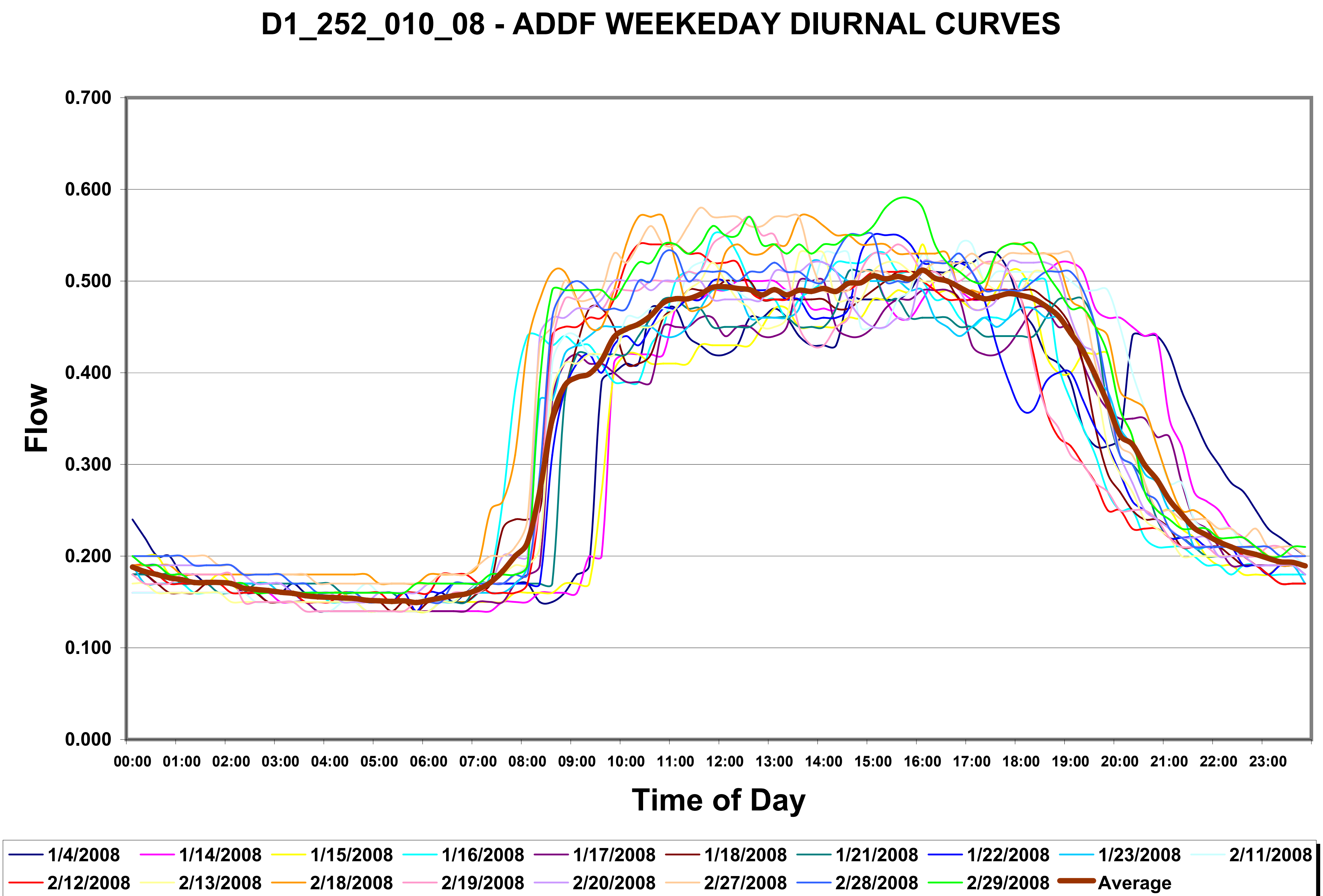
Source File: Meter_D1_252_010_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2008
Units of Flow: MGD
Meter Name: D1_252_010_08

Date: 09/10/08
Time: 9:51 AM
By: LEC

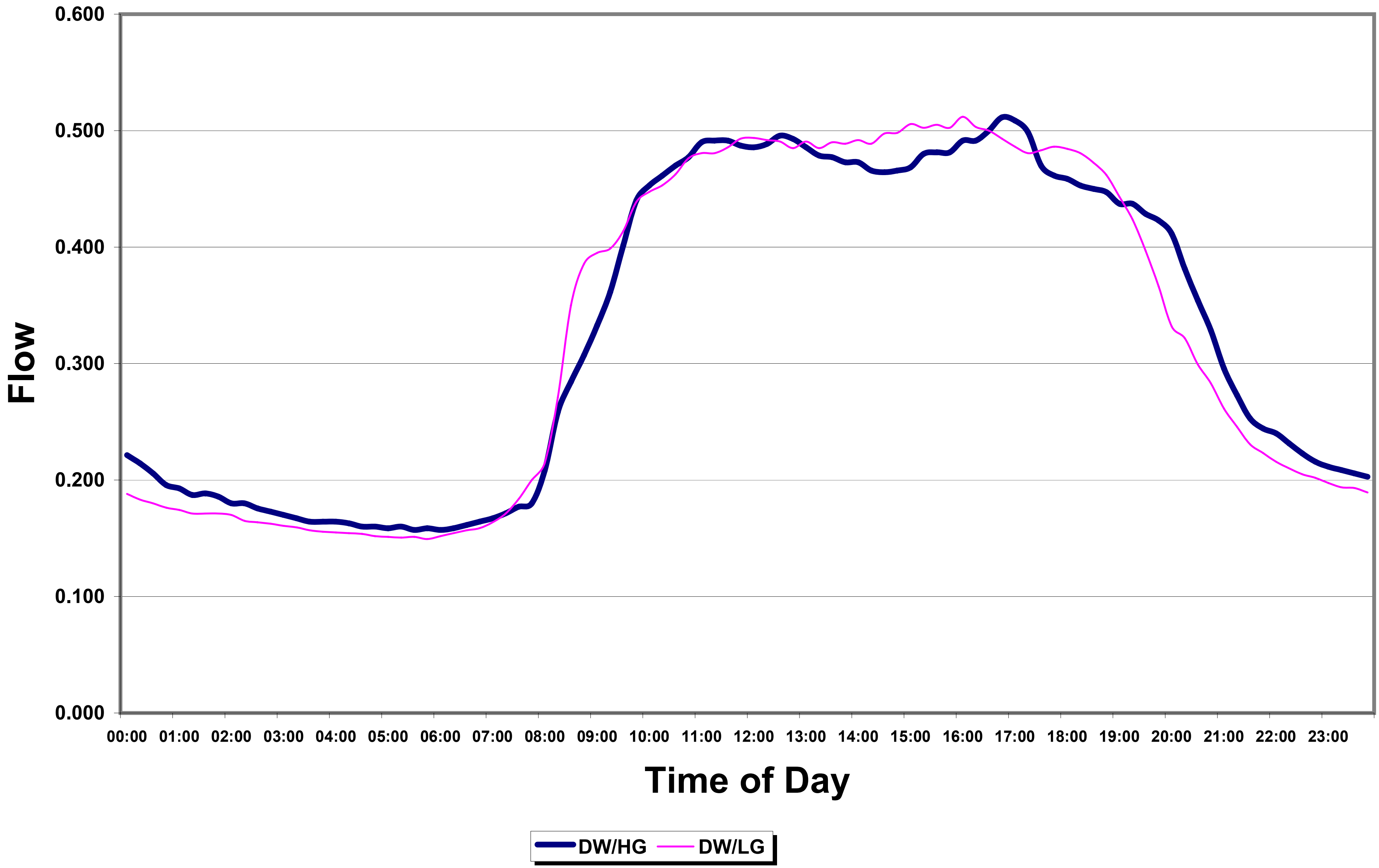
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
04-Jan-08	Fri	0.316	0.525	1.661	0.153	08-Jan-08	0.157
14-Jan-08	Mon	0.317	0.515	1.625	0.144	10-Jan-08	0.160
15-Jan-08	Tue	0.298	0.503	1.689	0.148	11-Jan-08	0.176
16-Jan-08	Wed	0.321	0.535	1.669	0.145	29-Jan-08	0.173
17-Jan-08	Thu	0.308	0.488	1.581	0.140	31-Jan-08	0.150
18-Jan-08	Fri	0.316	0.510	1.613	0.148	15-Feb-08	0.155
21-Jan-08	Mon	0.310	0.503	1.622	0.156	22-Feb-08	0.148
22-Jan-08	Tue	0.312	0.548	1.753	0.152		
23-Jan-08	Wed	0.319	0.513	1.605	0.153		
11-Feb-08	Mon	0.334	0.523	1.563	0.151		
12-Feb-08	Tue	0.319	0.540	1.694	0.157		
13-Feb-08	Wed	0.319	0.518	1.625	0.145		
18-Feb-08	Mon	0.363	0.563	1.548	0.177		
19-Feb-08	Tue	0.321	0.558	1.737	0.143		
20-Feb-08	Wed	0.333	0.520	1.560	0.158		
27-Feb-08	Wed	0.358	0.573	1.600	0.172		
28-Feb-08	Thu	0.341	0.545	1.597	0.155		
29-Feb-08	Fri	0.354	0.585	1.653	0.160		
18		**0.326**	**0.531**	**1.633**	**0.153**	**7**	**0.160**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.326**	
	Avg. Dry Weather Flow (ADDF):	**0.326**	
	Diurnal Peaking Factor (DPF):	**1.633**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**0.007**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**0.007**	**(WWI + DWI, DWI > 0)**


D1_252_010_08 - ADDF WEEKEDAY DIURNAL CURVES
Flow
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
1/4/2008 1/14/2008 1/15/2008 1/16/2008 1/17/2008 1/18/2008 1/21/2008 1/22/2008 1/23/2008 2/11/2008
2/12/2008 2/13/2008 2/18/2008 2/19/2008 2/20/2008 2/27/2008 2/28/2008 2/29/2008 Average

D1_252_010_08 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_D1_252_010_08

Source File: Meter_D1_252_010_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: River Trunk 2008
Units of Flow: MGD
Meter Name: D1_252_010_08

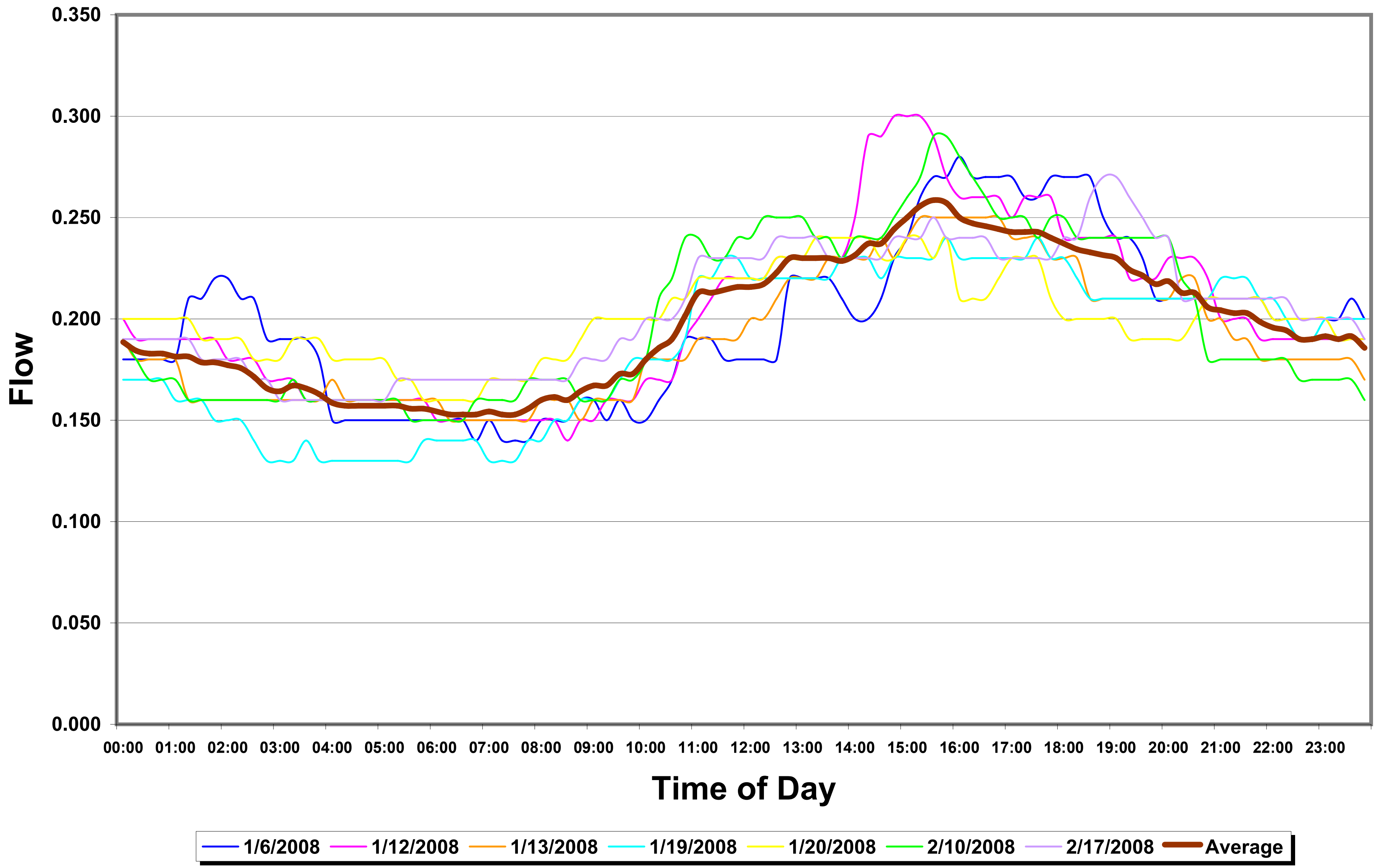
Date: 09/10/08
Time: 10:04 AM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow
06-Jan-08	Sun	0.198	0.273	1.373	0.147
12-Jan-08	Sat	0.202	0.298	1.471	0.149
13-Jan-08	Sun	0.190	0.250	1.313	0.153
19-Jan-08	Sat	0.187	0.233	1.246	0.131
20-Jan-08	Sun	0.201	0.240	1.195	0.167
10-Feb-08	Sun	0.200	0.283	1.410	0.156
17-Feb-08	Sun	0.205	0.265	1.293	0.163
7		**0.198**	**0.263**	**1.329**	**0.152**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater

Summary:		
	Wastewater Production (WWP):	**0.198**
	Avg. Dry Weather Flow (ADDF):	**0.198**
	Diurnal Peaking Factor (DPF):	**1.329**

D1_252_010_08 - ADDF WEEKEND DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_07

Source File: Meter_F3_202_007_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2007
Meter Name: F3_202_007_07
Units of Flow: MGD

Date: 09/11/08
Time: 12:52 PM
By: LEC

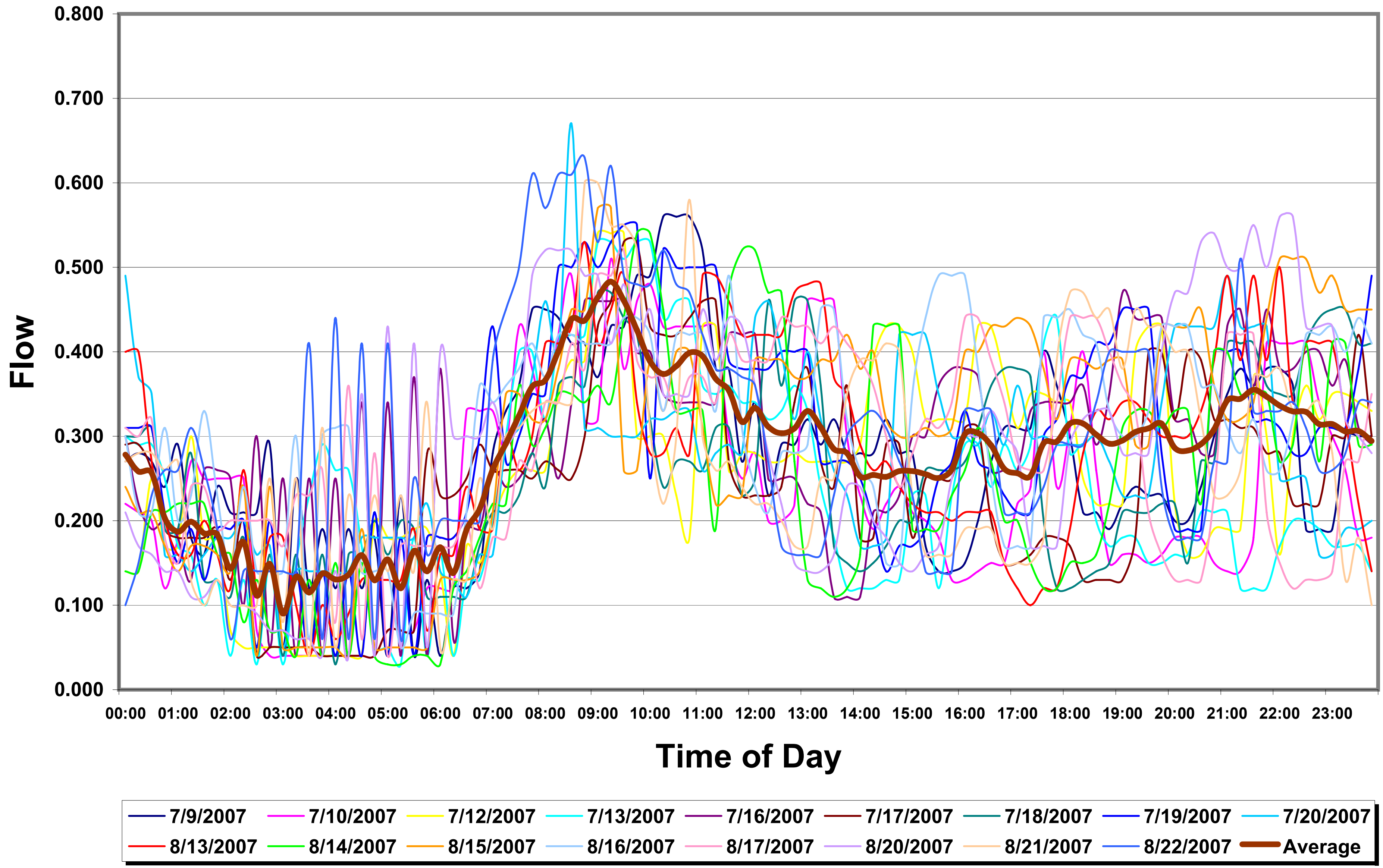
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
09-Jul-07	Mon	0.276	0.550	1.992	0.123	24-Jul-07	0.107
10-Jul-07	Tue	0.243	0.458	1.882	0.048	25-Jul-07	0.113
12-Jul-07	Thu	0.260	0.503	1.934	0.058	07-Aug-07	0.128
13-Jul-07	Fri	0.238	0.525	2.204	0.120	28-Aug-07	0.073
16-Jul-07	Mon	0.290	0.460	1.587	0.163	29-Aug-07	0.060
17-Jul-07	Tue	0.246	0.488	1.984	0.048		
18-Jul-07	Wed	0.256	0.450	1.759	0.112		
19-Jul-07	Thu	0.294	0.533	1.809	0.103		
20-Jul-07	Fri	0.279	0.475	1.703	0.150		
13-Aug-07	Mon	0.282	0.470	1.667	0.111		
14-Aug-07	Tue	0.249	0.495	1.986	0.063		
15-Aug-07	Wed	0.304	0.510	1.675	0.061		
16-Aug-07	Thu	0.311	0.478	1.535	0.151		
17-Aug-07	Fri	0.290	0.473	1.628	0.159		
20-Aug-07	Mon	0.293	0.543	1.851	0.084		
21-Aug-07	Tue	0.274	0.575	2.095	0.137		
22-Aug-07	Wed	0.301	0.605	2.007	0.182		
17 Count		**0.276 Avg.**	**0.505 Avg.**	**1.841 Avg.**	**0.110 Avg.**	**5 Count**	**0.096 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:

Wastewater Production (WWP):	**0.276**	
Avg. Dry Weather Flow (ADDF):	**0.276**	
Diurnal Peaking Factor (DPF):	**1.841**	
Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
Wet Weather Infiltration Increase (WWI):	**-0.014**	**(DW/HG - DW/LG)**
Total Infiltration (TI):	**-0.014**	**(WWI + DWI, DWI > 0)**

F3_202_007_07 - ADDF WEEKDAY DIURNAL CURVES



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_07

Source File: Meter_F3_202_007_07
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2007 **Units of Flow:** MGD
Meter Name: F3_202_007_07

Date: 09/11/08
Time: 12:58 PM
By: LEC

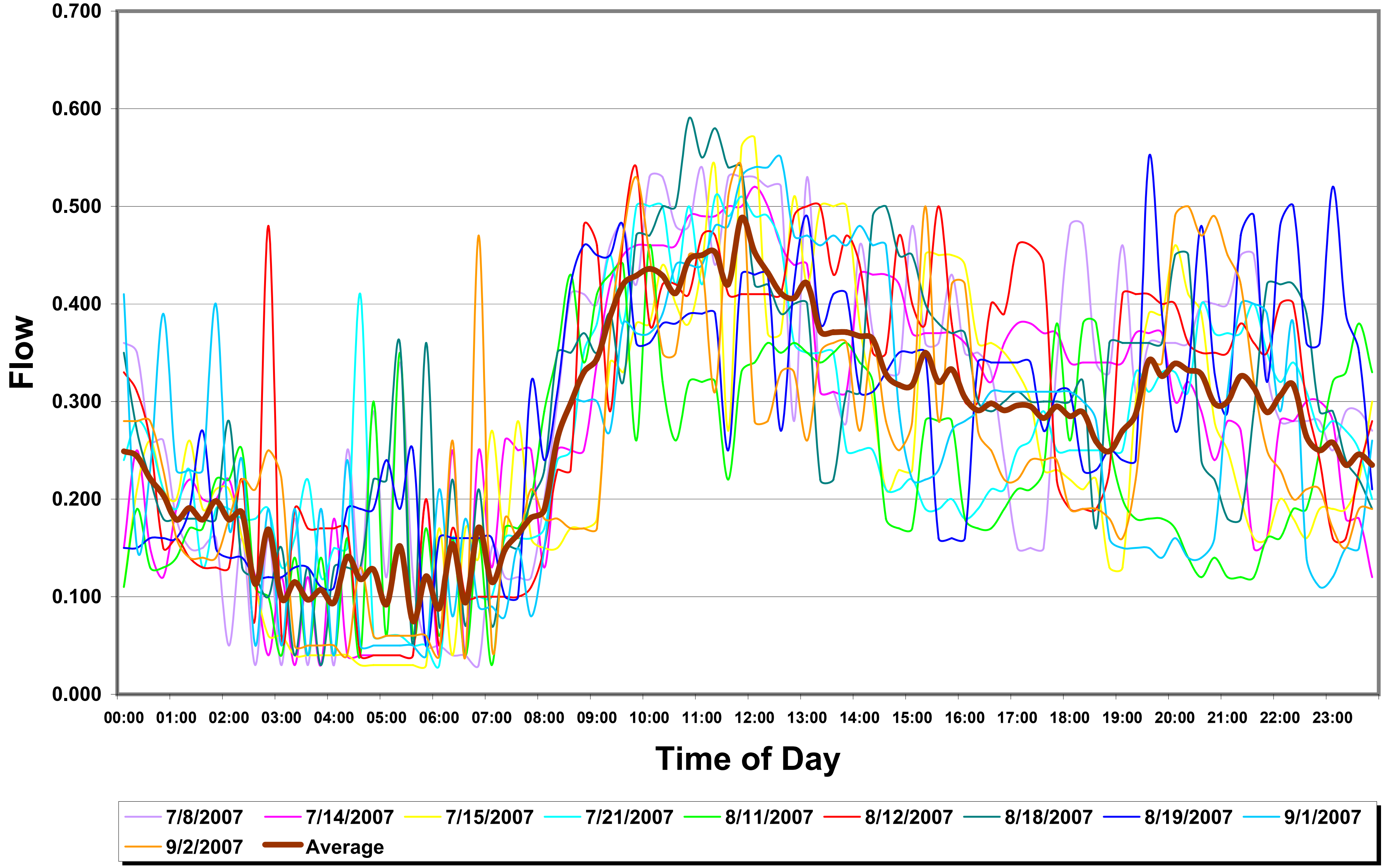
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
08-Jul-07	Sun	0.300	0.528	1.760	0.108	07-Jul-07	0.155
14-Jul-07	Sat	0.280	0.505	1.802	0.063	29-Jul-07	0.110
15-Jul-07	Sun	0.253	0.485	1.918	0.037	04-Aug-07	0.118
21-Jul-07	Sat	0.267	0.500	1.871	0.091	25-Aug-07	0.154
11-Aug-07	Sat	0.227	0.405	1.783	0.118	26-Aug-07	0.129
12-Aug-07	Sun	0.295	0.480	1.629	0.085		
18-Aug-07	Sat	0.298	0.565	1.894	0.128		
19-Aug-07	Sun	0.290	0.460	1.585	0.138		
01-Sep-07	Sat	0.262	0.540	2.059	0.085		
02-Sep-07	Sun	0.255	0.488	1.911	0.059		
10		**0.273**	**0.496**	**1.821**	**0.091**	**5**	**0.133**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

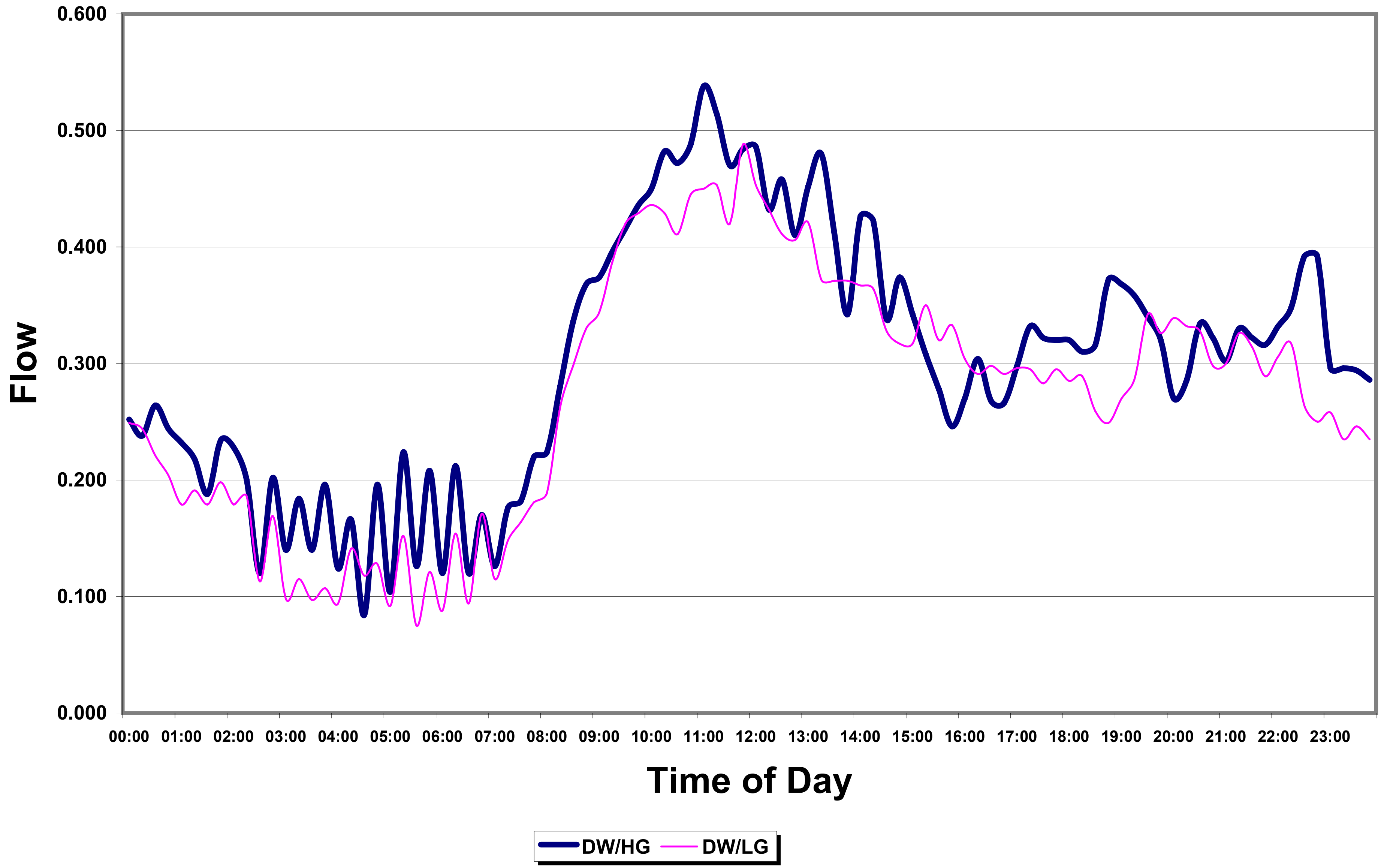
Summary:

Wastewater Production (WWP):	**0.273**	
Avg. Dry Weather Flow (ADDF):	**0.273**	
Diurnal Peaking Factor (DPF):	**1.821**	
Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
Wet Weather Infiltration Increase (WWI):	**0.042**	**(DW/HG - DW/LG)**
Total Infiltration (TI):	**0.042**	**(WWI + DWI, DWI > 0)**

F3_202_007_07 - ADDF WEEKEND DIURNAL CURVES



F3_202_007_07 - DW/HG & DW/LG WEEKEND DIURNAL CURVE COMPARISON



WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_08

Source File: Meter_F3_202_007_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2008 **Units of Flow:** MGD
Meter Name: F3_202_007_08

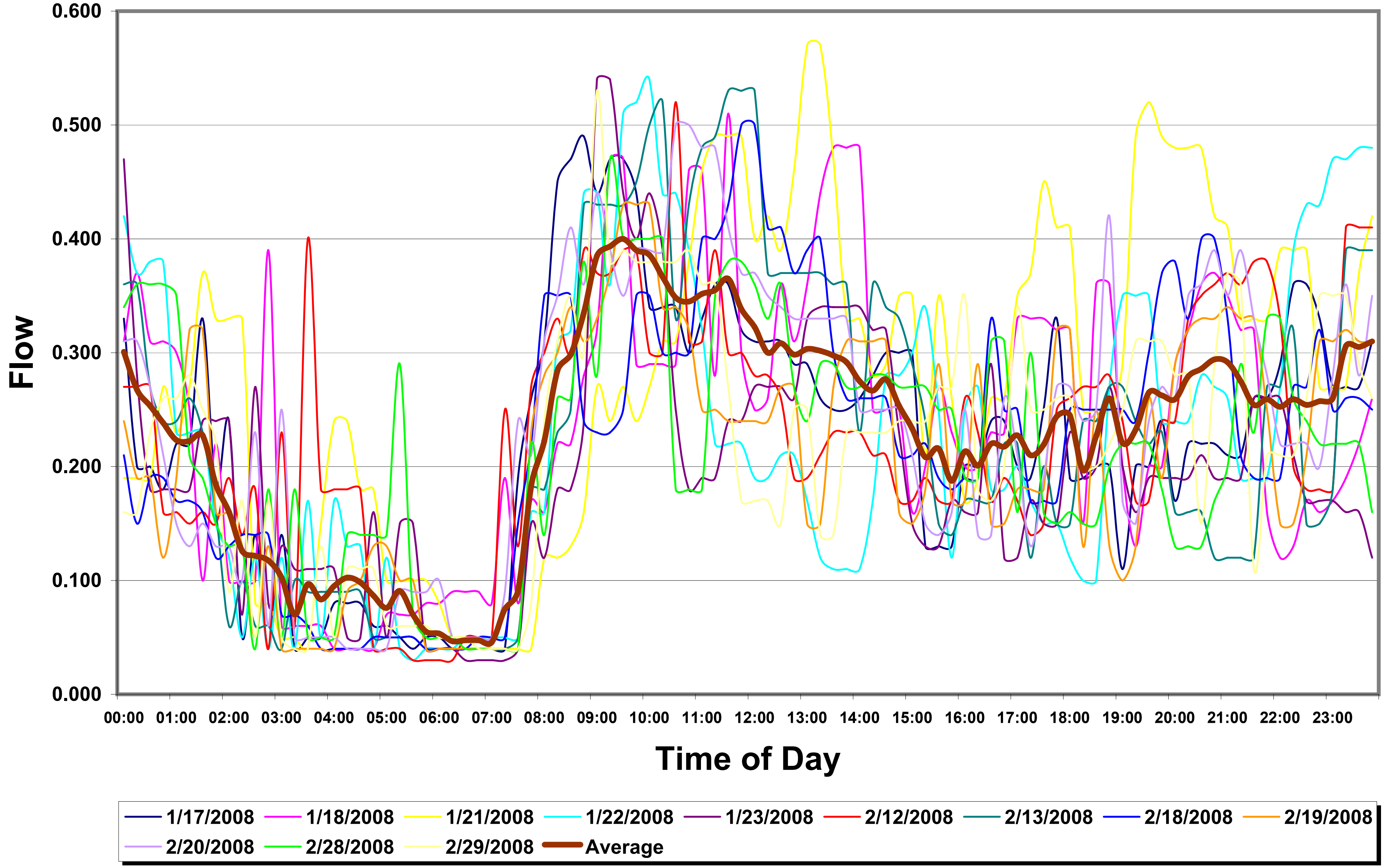
Date: 09/11/08
Time: 1:05 PM
By: LEC

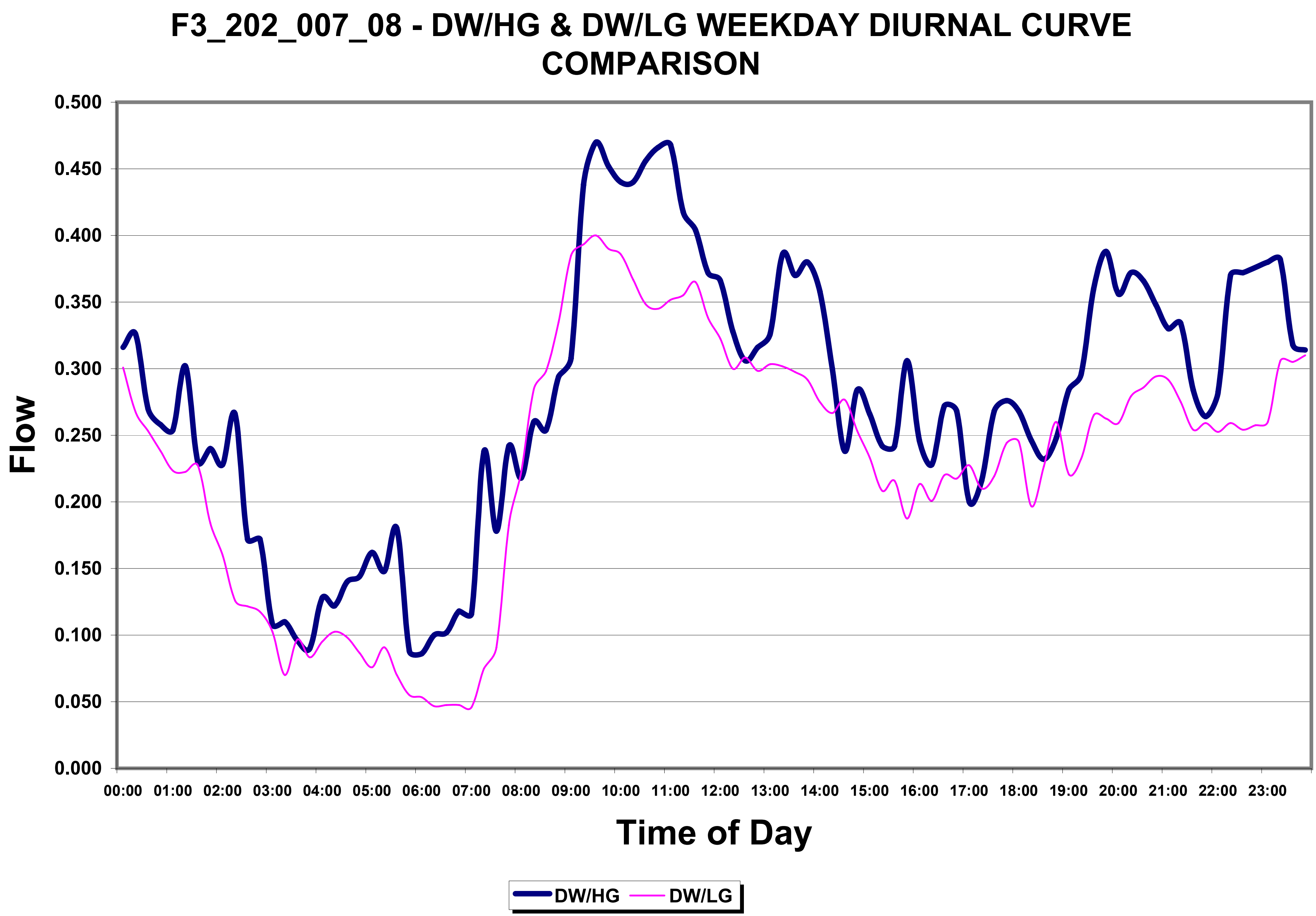
(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
17-Jan-08	Thu	0.227	0.468	2.063	0.049	08-Jan-08	0.113
18-Jan-08	Fri	0.237	0.470	1.982	0.058	10-Jan-08	0.046
21-Jan-08	Mon	0.281	0.518	1.840	0.066	11-Jan-08	0.097
22-Jan-08	Tue	0.229	0.503	2.192	0.050	29-Jan-08	0.157
23-Jan-08	Wed	0.200	0.480	2.395	0.065	31-Jan-08	0.113
12-Feb-08	Tue	0.230	0.383	1.663	0.063		
13-Feb-08	Wed	0.232	0.520	2.242	0.044		
18-Feb-08	Mon	0.226	0.460	2.036	0.043		
19-Feb-08	Tue	0.211	0.415	1.963	0.065		
20-Feb-08	Wed	0.242	0.490	2.025	0.061		
28-Feb-08	Thu	0.219	0.418	1.908	0.083		
29-Feb-08	Fri	0.219	0.420	1.922	0.053		
12 Count		**0.229 Avg.**	**0.462 Avg.**	**2.019 Avg.**	**0.058 Avg.**	**5 Count**	**0.105 Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.229**	
	Avg. Dry Weather Flow (ADDF):	**0.229**	
	Diurnal Peaking Factor (DPF):	**2.019**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**0.047**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**0.047**	**(WWI + DWI, DWI > 0)**

F3_202_007_08 - ADDF WEEKDAY DIURNAL CURVES




F3_202_007_08 - DW/HG & DW/LG WEEKDAY DIURNAL CURVE COMPARISON
Flow
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00
Time of Day
DW/HG
DW/LG

WASTEWATER PRODUCTION AND INFILTRATION WORKSHEET
FILENAME : FLO1_F3_202_007_08

Source File: Meter_F3_202_007_08
Client Name: Wastwater Basin Study Update
Project No: 160319
Subsystem: Tiara Rado 2008 **Units of Flow:** MGD
Meter Name: F3_202_007_08

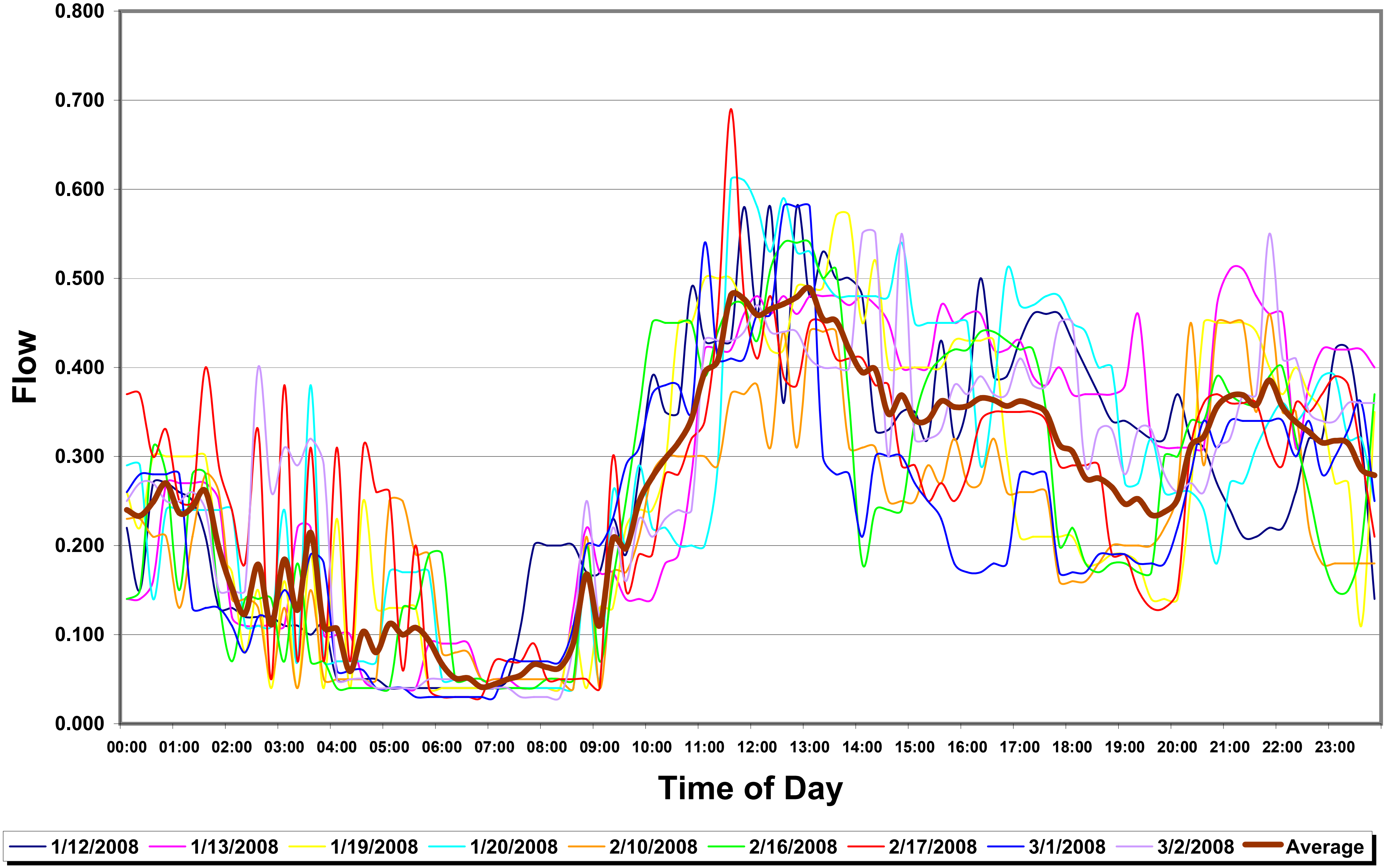
Date: 09/11/08
Time: 1:12 PM
By: LEC

(1) DW/LG Data Date	(2) Day	(3) Avg. Dry Weather Flow	(4) Peak Hourly Dry Weather Flow	(5) Diurnal Peaking Factor	(6) DW/LG Lowest 3-Hour Flow	(7) DW/HG Data Date	(8) DW/HG Lowest 3-Hour Flow
12-Jan-08	Sat	0.276	0.523	1.896	0.043	06-Jan-08	0.101
13-Jan-08	Sun	0.288	0.493	1.711	0.059	09-Feb-08	0.044
19-Jan-08	Sat	0.265	0.530	1.998	0.046	24-Feb-08	0.060
20-Jan-08	Sun	0.285	0.583	2.042	0.053		
10-Feb-08	Sun	0.224	0.428	1.910	0.067		
16-Feb-08	Sat	0.255	0.533	2.088	0.061		
17-Feb-08	Sun	0.265	0.515	1.940	0.051		
01-Mar-08	Sat	0.229	0.550	2.397	0.038		
02-Mar-08	Sun	0.278	0.488	1.755	0.040		
9		**0.263**	**0.516**	**1.971**	**0.051**	**3**	**0.068**
Count		**Avg.**	**Avg.**	**Avg.**	**Avg.**	**Count**	**Avg.**

Note: DW/LG = Dry Weather/Low Groundwater
DW/HG = Dry Weather/High Groundwater

Summary:			
	Wastewater Production (WWP):	**0.263**	
	Avg. Dry Weather Flow (ADDF):	**0.263**	
	Diurnal Peaking Factor (DPF):	**1.971**	
	Dry Weather Infiltration (DWI):	**0**	**(ADDF - WWP)**
	Wet Weather Infiltration Increase (WWI):	**0.018**	**(DW/HG - DW/LG)**
	Total Infiltration (TI):	**0.018**	**(WWI + DWI, DWI > 0)**

F3_202_007_08 - ADDF WEEKEND DIURNAL CURVES



Appendix 3B

Large Producers

Appendix TM3B - Large Producers

Winter Water Usage

Large Producers Loaded into Model

Name	Location	Basin	Loading Manhole	Flow (mgd)
Ute Water				
State of CO-Regional	2800 D Rd	CGVSD	C4_271_021	0.020
Grand Rivers Partners	2931 North Av	Fruitvale	C3_271_011	0.016
Mesa County School	2935 North Av	Fruitvale	C3_271_011	0.013
Safeway	681 Horizon Dr	Horizon Drive	F3_262_074	0.020
Grand Conjunction	743 Horizon Dr	Horizon Drive	G1_271_041	0.056
Lupinski-Staislove-Best Value	718 Horizon Dr	Horizon Drive	G1_272_045	0.026
Orange Coast	2790 Crossroads Bl	Horizon Drive	G2_272_055	0.017
La Quinta	2761 Crossroads Bl	Horizon Drive	G2_272_055	0.014
Holiday Inn	749 Horizon Dr	Horizon Drive	G2_272_080	0.024
BH55 LLC	750 Horizon Dr	Horizon Drive	G2_272_080	0.021
Commons #1	2825 Quincy Ln	Orchard Mesa	B2_272_027	0.014
Coventry Club	256 Coventry Pl	Orchard Mesa	B2_272_027	0.013
Western Hill Mobile	2713 B 1/2 Rd	Orchard Mesa	B3_262_031	0.049
Grand Mesa Center	2464 US Hwy 6 and 50	Paradise Hills	E3_241_034	0.017
Westgate Inn	2210 US Hwy 6 and 50	River Road North	G1_221_010	0.015
Wal-mart Stores	2545 Rimrock Av	River Road North B	D4_251_005	0.031
B J Services	2403 River Rd	River Road South	E4_241_005	0.047
United Co Mesa County	2273 River Rd	River Road South	F4_222_013	0.021
			Subtotal	**0.436**
City of Grand Junction Water				
	2825 PATTERSON RD	15th Street	F1_271_101	0.011
	1501 PATTERSON RD	15th Street	F1_271_103	0.008
	1441 PATTERSON RD	15th Street	F1_271_103	0.008
	2260 13TH ST	15th Street	E3_271_068	0.005
	1800 MAIN ST	Colorado Avenue	D2_271_075	0.010
	200 ROOD AV	Colorado Avenue	D1_261_001	0.013
	805 MAIN ST	Colorado Avenue	D1_262_040	0.008
	2601 BELFORD AV	Colorado Avenue	D1_271_054	0.012
	215 RICE ST	Colorado Avenue	D2_252_057	0.052
	400 WHITE AV	Colorado Avenue	D3_261_075	0.015
	2635 7TH ST	Grand Avenue	D3_261_010	0.065
	1251 3RD ST	Grand Avenue	D3_261_010	0.013
	241 NORTH AV	Grand Avenue	D3_261_010	0.010
	1154 2ND ST	Grand Avenue	D3_261_010	0.007
	120 NORTH AV	Grand Avenue	D3_261_010	0.004
	246 BELFORD AV	Grand Avenue	D3_261_010	0.004
	1400 5TH ST	Grand Avenue	D3_261_075	0.004
	445 CHIPETA AV	Grand Avenue	D3_261_075	0.005
	1110 6TH ST	Grand Avenue	D3_261_075	0.004
	2021 12TH ST	Grand Avenue	D3_262_017	0.014
	1151 ELM AV	Grand Avenue	D3_262_017	0.013
	999 BOOKCLIFF AV	Grand Avenue	D3_262_017	0.011
	1140 WALNUT AV	Grand Avenue	D3_262_017	0.007
	1120 MESA AV	Grand Avenue	D3_262_017	0.009

Name	Location	Basin	Loading Manhole	Flow (mgd)
	1130 MESA AV	Grand Avenue	D3_262_017	0.004
	2150 COLLEGE PL	Grand Avenue	D3_262_017	0.006
	2531 12TH ST	Grand Avenue	D3_262_017	0.005
	960 BOOKCLIFF AV	Grand Avenue	D3_262_017	0.005
	1251 BOOKCLIFF AV	Grand Avenue	D3_262_017	0.004
	709 NORTH AV	Grand Avenue	D3_262_017	0.004
	730 7TH ST	Grand Avenue	D3_262_018	0.005
	1200 HOUSTON AV	Grand Avenue	D3_262_042	0.009
	940 10TH ST	Grand Avenue	D3_271_013	0.015
	1030 TELLER AV	Grand Avenue	D3_271_013	0.008
	1222 ELM AV	Grand Avenue	D3_271_013	0.005
	1241 ELM AV	Grand Avenue	D3_271_013	0.005
	666 PATTERSON RD	Horizon Drive	F1_261_064	0.005
	601 HORIZON PL	Horizon Drive	F1_261_089	0.011
	2501 LITTLE BOOKCLIFF DR	Horizon Drive	F1_261_106	0.013
	710 WELLINGTON AV	Horizon Drive	F1_261_106	0.011
	1104 BOOKCLIFF AV	Horizon Drive	F1_261_106	0.005
	2525 8TH ST	Horizon Drive	F1_261_106	0.004
	935 NORTHERN WY	Horizon Drive	F1_261_106	0.005
	1100 PATTERSON RD	Horizon Drive	F1_261_106	0.005
	2692 US HWY 50	Orchard Mesa	B3_262_027	0.004
	1975 BARCELONA WY	Orchard Mesa	B4_262_024	0.008
	287 27 RD	Orchard Mesa	B4_262_037	0.005
	2736 UNAWEEP AV	Orchard Mesa	B4_271_147	0.007
	669 US HWY 50	Orchard Mesa	C1_261_060	0.005
	1550 US HWY 50	Orchard Mesa	C2_261_013	0.011
	305 UTE AV	Orchard Mesa	D1_261_003	0.012
	830 INDEPENDENT AV	River Road North B	D4_251_005	0.023
	125 FRANKLIN AV	River Road North B	D4_251_005	0.009
	702 9TH ST	River Trunk	C3_261_021	0.060
	636 SOUTH AV	River Trunk	D1_262_001	0.004
	2121 NORTH AV	Roode Avenue	D2_271_039	0.030
	1600 NORTH AV	Roode Avenue	D2_271_039	0.010
	1306 25TH ST	Roode Avenue	D2_271_039	0.005
	1810 NORTH AV	Roode Avenue	D2_271_039	0.004
	1328 WINTERS AV	South Side	C3_271_003	0.004
	2320 I70 BUSINESS LP	South Side	C4_271_021	0.007
			Subtotal	**0.649**
			Total	**1.09**

Appendix 4A

Wet Weather Diurnal Patterns

Appendix TM4A
Wet Weather Diurnal Patterns

Determination of Wet Weather Diurnal Pattern (K=0.002)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year storm in H2OMap Sewer GIS. A peaking factor will be established for each 15-minutes invterval. These will be superimposed over the dry weather diurnal pattern to coincide with the peak dry weather flow

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour storm	0.63 in	K =	0.002	
5-year, 6-hour storm	0.73 in	ADF =	8.08 mgd	
		A =	11750 acres	(assume 1/2 of land contributes)
		Q = K x I x A		

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to 360 minutes per the Urban Storm Drainage manual.

Time (min.)	6-hour %	5-year Storm Depth (in.)		
0.63 inches for 5-year storm				
5	0.004	0.00252		
10	0.003	0.00189	Intensity (1st 15 min)	0.02772 in/hr
15	0.004	0.00252	Inflow Contribution	0.420166 mgd
20	0.004	0.00252		
25	0.003	0.00189	Intensity (2nd 15 min)	0.02772 in/hr
30	0.004	0.00252	Inflow Contribution	0.420166 mgd
35	0.004	0.00252		
40	0.003	0.00189	Intensity (3rd 15 min)	0.02772 in/hr
45	0.004	0.00252	Inflow Contribution	0.420166 mgd
50	0.003	0.00189		
55	0.004	0.00252	Intensity (4th 15 min)	0.02772 in/hr
60	0.004	0.00252	Inflow Contribution	0.420166 mgd
65	0.045	0.02835		
70	0.110	0.0693	Intensity (5th 15 min)	0.87444 in/hr
75	0.192	0.12096	Inflow Contribution	13.25432 mgd
80	0.155	0.09765		
85	0.096	0.06048	Intensity (6th 15 min)	0.84924 in/hr
90	0.086	0.05418	Inflow Contribution	12.87236 mgd
95	0.064	0.04032		
100	0.055	0.03465	Intensity (7th 15 min)	0.41328 in/hr
105	0.045	0.02835	Inflow Contribution	6.264292 mgd
110	0.037	0.02331		
115	0.018	0.01134	Intensity (8th 15 min)	0.16128 in/hr
120	0.009	0.00567	Inflow Contribution	2.444602 mgd
125	0.004	0.00252		
130	0.004	0.00252	Intensity (9th 15 min)	0.02772 in/hr
135	0.003	0.00189	Inflow Contribution	0.420166 mgd
140	0.004	0.00252		
145	0.003	0.00189	Intensity (10th 15 min)	0.02772 in/hr
150	0.004	0.00252	Inflow Contribution	0.420166 mgd
155	0.004	0.00252		
160	0.003	0.00189	Intensity (11th 15 min)	0.02772 in/hr
165	0.004	0.00252	Inflow Contribution	0.420166 mgd
170	0.004	0.00252		

175	0.003	0.00189	Intensity (12th 15 min)	0.02772	in/hr
180	0.004	0.00252	Inflow Contribution	0.420166	mgd
Remaining 0.1 inches for 6 hour storm.					
185		0.0029			
190		0.0029	Intensity (13th 15 min)	0.0348	in/hr
195		0.0029	Inflow Contribution	0.527481	mgd
200		0.0029			
205		0.0029	Intensity (14th 15 min)	0.0348	in/hr
210		0.0029	Inflow Contribution	0.527481	mgd
215		0.0029			
220		0.0029	Intensity (15th 15 min)	0.0348	in/hr
225		0.0029	Inflow Contribution	0.527481	mgd
230		0.0029			
235		0.0029	Intensity (16th 15 min)	0.0348	in/hr
240		0.0029	Inflow Contribution	0.527481	mgd
245		0.0029			
250		0.0029	Intensity (17th 15 min)	0.0348	in/hr
255		0.0029	Inflow Contribution	0.527481	mgd
260		0.0029			
265		0.0029	Intensity (18th 15 min)	0.0348	in/hr
270		0.0029	Inflow Contribution	0.527481	mgd
275		0.0029			
280		0.0029	Intensity (19th 15 min)	0.0348	in/hr
285		0.0029	Inflow Contribution	0.527481	mgd
290		0.0029			
295		0.0029	Intensity (20th 15 min)	0.0348	in/hr
300		0.0029	Inflow Contribution	0.527481	mgd
305		0.0029			
310		0.0029	Intensity (21st 15 min)	0.0348	in/hr
315		0.0029	Inflow Contribution	0.527481	mgd
320		0.0029			
325		0.0029	Intensity (22nd 15 min)	0.0348	in/hr
330		0.0029	Inflow Contribution	0.527481	mgd
335		0.0029			
340		0.0029	Intensity (23rd 15 min)	0.0348	in/hr
345		0.0029	Inflow Contribution	0.527481	mgd
350		0.0029			
355		0.0029	Intensity (24th 15 min)	0.0348	in/hr
360		0.0029	Inflow Contribution	0.527481	mgd
Total:		**0.73**			

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event.

Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

Storm Interval	Time	Target Flow (mgd)	Adjusted PF
1st 15 min	7:30	7.43	0.92
2nd 15 min	7:45	9.53	1.18
3rd 15 min	8:00	14.45	1.79
4th 15 min	8:15	15.15	1.88
5th 15 min	8:30	27.98	3.46
6th 15 min	8:45	27.60	3.42
7th 15 min	9:00	20.29	2.51
8th 15 min	9:15	16.47	2.04
9th 15 min	9:30	13.74	1.70
10th 15 min	9:45	13.74	1.70
11th 15 min	10:00	13.04	1.61
12th 15 min	10:15	13.04	1.61
13th 15 min	10:30	12.45	1.54
14th 15 min	10:45	11.75	1.45

15th 15 min	11:00	11.93	1.48
16th 15 min	11:15	13.15	1.63
17th 15 min	11:30	11.75	1.45
18th 15 min	11:45	12.45	1.54
19th 15 min	12:00	11.75	1.45
20th 15 min	12:15	11.75	1.45
21st 15 min	12:30	12.45	1.54
22nd 15 min	12:45	12.45	1.54
23rd 15 min	13:00	11.05	1.37
24th 15 min	13:15	11.05	1.37

Determination of Wet Weather Diurnal Pattern (K=0.004)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year storm in H2OMap Sewer GIS. A peaking factor will be established for each 15-minutes invterval. These will be superimposed over the dry weather diurnal pattern to coincide with the peak dry weather flow

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour storm	0.63 in	K =	0.004		
5-year, 6-hour storm	0.73 in	ADF =	8.08 mgd		
		A =	11750 acres	(assume 1/2 of land contributes)	
		Q = K x I x A			

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to 360 minutes per the Urban Storm Drainage manual.

Time (min.)	**6-hour %**	**5-year Storm Depth (in.)**			
0.63 inches for 5-year storm					
5	0.004	0.00252			
10	0.003	0.00189	Intensity (1st 15 min)	0.02772	in/hr
15	0.004	0.00252	Inflow Contribution	0.840332	mgd
20	0.004	0.00252			
25	0.003	0.00189	Intensity (2nd 15 min)	0.02772	in/hr
30	0.004	0.00252	Inflow Contribution	0.840332	mgd
35	0.004	0.00252			
40	0.003	0.00189	Intensity (3rd 15 min)	0.02772	in/hr
45	0.004	0.00252	Inflow Contribution	0.840332	mgd
50	0.003	0.00189			
55	0.004	0.00252	Intensity (4th 15 min)	0.02772	in/hr
60	0.004	0.00252	Inflow Contribution	0.840332	mgd
65	0.045	0.02835			
70	0.110	0.0693	Intensity (5th 15 min)	0.87444	in/hr
75	0.192	0.12096	Inflow Contribution	26.50865	mgd
80	0.155	0.09765			
85	0.096	0.06048	Intensity (6th 15 min)	0.84924	in/hr
90	0.086	0.05418	Inflow Contribution	25.74471	mgd
95	0.064	0.04032			
100	0.055	0.03465	Intensity (7th 15 min)	0.41328	in/hr
105	0.045	0.02835	Inflow Contribution	12.52858	mgd
110	0.037	0.02331			
115	0.018	0.01134	Intensity (8th 15 min)	0.16128	in/hr
120	0.009	0.00567	Inflow Contribution	4.889203	mgd
125	0.004	0.00252			
130	0.004	0.00252	Intensity (9th 15 min)	0.02772	in/hr
135	0.003	0.00189	Inflow Contribution	0.840332	mgd
140	0.004	0.00252			
145	0.003	0.00189	Intensity (10th 15 min)	0.02772	in/hr
150	0.004	0.00252	Inflow Contribution	0.840332	mgd
155	0.004	0.00252			
160	0.003	0.00189	Intensity (11th 15 min)	0.02772	in/hr
165	0.004	0.00252	Inflow Contribution	0.840332	mgd
170	0.004	0.00252			
175	0.003	0.00189	Intensity (12th 15 min)	0.02772	in/hr

180	0.004	0.00252	Inflow Contribution	0.840332	mgd
Remaining 0.1 inches for 6 hour storm.					
185		0.0029			
190		0.0029	Intensity (13th 15 min)	0.0348	in/hr
195		0.0029	Inflow Contribution	1.054962	mgd
200		0.0029			
205		0.0029	Intensity (14th 15 min)	0.0348	in/hr
210		0.0029	Inflow Contribution	1.054962	mgd
215		0.0029			
220		0.0029	Intensity (15th 15 min)	0.0348	in/hr
225		0.0029	Inflow Contribution	1.054962	mgd
230		0.0029			
235		0.0029	Intensity (16th 15 min)	0.0348	in/hr
240		0.0029	Inflow Contribution	1.054962	mgd
245		0.0029			
250		0.0029	Intensity (17th 15 min)	0.0348	in/hr
255		0.0029	Inflow Contribution	1.054962	mgd
260		0.0029			
265		0.0029	Intensity (18th 15 min)	0.0348	in/hr
270		0.0029	Inflow Contribution	1.054962	mgd
275		0.0029			
280		0.0029	Intensity (19th 15 min)	0.0348	in/hr
285		0.0029	Inflow Contribution	1.054962	mgd
290		0.0029			
295		0.0029	Intensity (20th 15 min)	0.0348	in/hr
300		0.0029	Inflow Contribution	1.054962	mgd
305		0.0029			
310		0.0029	Intensity (21st 15 min)	0.0348	in/hr
315		0.0029	Inflow Contribution	1.054962	mgd
320		0.0029			
325		0.0029	Intensity (22nd 15 min	0.0348	in/hr
330		0.0029	Inflow Contribution	1.054962	mgd
335		0.0029			
340		0.0029	Intensity (23rd 15 min)	0.0348	in/hr
345		0.0029	Inflow Contribution	1.054962	mgd
350		0.0029			
355		0.0029	Intensity (24th 15 min)	0.0348	in/hr
360		0.0029	Inflow Contribution	1.054962	mgd
Total:		**0.73**			

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event.

Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

Storm Interval	Time	Target Flow (mgd)	Adjusted PF
1st 15 min	7:30	7.85	0.97
2nd 15 min	7:45	9.95	1.23
3rd 15 min	8:00	14.87	1.84
4th 15 min	8:15	15.57	1.93
5th 15 min	8:30	41.24	5.10
6th 15 min	8:45	40.47	5.01
7th 15 min	9:00	26.56	3.29
8th 15 min	9:15	18.92	2.34
9th 15 min	9:30	14.16	1.75
10th 15 min	9:45	14.16	1.75
11th 15 min	10:00	13.46	1.67
12th 15 min	10:15	13.46	1.67
13th 15 min	10:30	12.98	1.61
14th 15 min	10:45	12.28	1.52
15th 15 min	11:00	11.93	1.48
16th 15 min	11:15	13.68	1.69
17th 15 min	11:30	12.28	1.52
18th 15 min	11:45	12.98	1.61
19th 15 min	12:00	12.28	1.52
20th 15 min	12:15	12.28	1.52
21st 15 min	12:30	12.98	1.61
22nd 15 min	12:45	12.98	1.61
23rd 15 min	13:00	11.58	1.43
24th 15 min	13:15	11.58	1.43

Determination of Wet Weather Diurnal Pattern (K=0.010)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year storm in H2OMap Sewer GIS. A peaking factor will be established for each 15-minutes invterval. These will be superimposed over the dry weather diurnal pattern to coincide with the peak dry weather flow

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour storm	0.63 in	K =	0.01		
5-year, 6-hour storm	0.73 in	ADF =	8.08 mgd		
		A =	11750 acres		(assume 1/2 of land contributes)
		Q = K x I x A			

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to 360 minutes per the Urban Storm Drainage manual.

Time (min.)	6-hour %	5-year Storm Depth (in.)			
0.63 inches for 5-year storm					
5	0.004	0.00252			
10	0.003	0.00189	Intensity (1st 15 min)	0.02772	in/hr
15	0.004	0.00252	Inflow Contribution	2.10083	mgd
20	0.004	0.00252			
25	0.003	0.00189	Intensity (2nd 15 min)	0.02772	in/hr
30	0.004	0.00252	Inflow Contribution	2.10083	mgd
35	0.004	0.00252			
40	0.003	0.00189	Intensity (3rd 15 min)	0.02772	in/hr
45	0.004	0.00252	Inflow Contribution	2.10083	mgd
50	0.003	0.00189			
55	0.004	0.00252	Intensity (4th 15 min)	0.02772	in/hr
60	0.004	0.00252	Inflow Contribution	2.10083	mgd
65	0.045	0.02835			
70	0.110	0.0693	Intensity (5th 15 min)	0.87444	in/hr
75	0.192	0.12096	Inflow Contribution	66.27162	mgd
80	0.155	0.09765			
85	0.096	0.06048	Intensity (6th 15 min)	0.84924	in/hr
90	0.086	0.05418	Inflow Contribution	64.36178	mgd
95	0.064	0.04032			
100	0.055	0.03465	Intensity (7th 15 min)	0.41328	in/hr
105	0.045	0.02835	Inflow Contribution	31.32146	mgd
110	0.037	0.02331			
115	0.018	0.01134	Intensity (8th 15 min)	0.16128	in/hr
120	0.009	0.00567	Inflow Contribution	12.22301	mgd
125	0.004	0.00252			
130	0.004	0.00252	Intensity (9th 15 min)	0.02772	in/hr
135	0.003	0.00189	Inflow Contribution	2.10083	mgd
140	0.004	0.00252			
145	0.003	0.00189	Intensity (10th 15 min)	0.02772	in/hr
150	0.004	0.00252	Inflow Contribution	2.10083	mgd
155	0.004	0.00252			
160	0.003	0.00189	Intensity (11th 15 min)	0.02772	in/hr
165	0.004	0.00252	Inflow Contribution	2.10083	mgd
170	0.004	0.00252			
175	0.003	0.00189	Intensity (12th 15 min)	0.02772	in/hr

180	0.004	0.00252	Inflow Contribution	2.10083	mgd

Remaining 0.1 inches for 6 hour storm.			
185	0.0029		
190	0.0029	Intensity (13th 15 min)	0.0348 in/hr
195	0.0029	Inflow Contribution	2.637405 mgd
200	0.0029		
205	0.0029	Intensity (14th 15 min)	0.0348 in/hr
210	0.0029	Inflow Contribution	2.637405 mgd
215	0.0029		
220	0.0029	Intensity (15th 15 min)	0.0348 in/hr
225	0.0029	Inflow Contribution	2.637405 mgd
230	0.0029		
235	0.0029	Intensity (16th 15 min)	0.0348 in/hr
240	0.0029	Inflow Contribution	2.637405 mgd
245	0.0029		
250	0.0029	Intensity (17th 15 min)	0.0348 in/hr
255	0.0029	Inflow Contribution	2.637405 mgd
260	0.0029		
265	0.0029	Intensity (18th 15 min)	0.0348 in/hr
270	0.0029	Inflow Contribution	2.637405 mgd
275	0.0029		
280	0.0029	Intensity (19th 15 min)	0.0348 in/hr
285	0.0029	Inflow Contribution	2.637405 mgd
290	0.0029		
295	0.0029	Intensity (20th 15 min)	0.0348 in/hr
300	0.0029	Inflow Contribution	2.637405 mgd
305	0.0029		
310	0.0029	Intensity (21st 15 min)	0.0348 in/hr
315	0.0029	Inflow Contribution	2.637405 mgd
320	0.0029		
325	0.0029	Intensity (22nd 15 min	0.0348 in/hr
330	0.0029	Inflow Contribution	2.637405 mgd
335	0.0029		
340	0.0029	Intensity (23rd 15 min)	0.0348 in/hr
345	0.0029	Inflow Contribution	2.637405 mgd
350	0.0029		
355	0.0029	Intensity (24th 15 min)	0.0348 in/hr
360	0.0029	Inflow Contribution	2.637405 mgd
Total:	**0.73**		

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event.

Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

Storm Interval	Time	Target Flow (mgd)	Adjusted PF
1st 15 min	7:30	9.11	1.13
2nd 15 min	7:45	11.22	1.39
3rd 15 min	8:00	16.13	2.00
4th 15 min	8:15	16.83	2.08
5th 15 min	8:30	81.00	10.02
6th 15 min	8:45	79.09	9.79
7th 15 min	9:00	45.35	5.61
8th 15 min	9:15	26.25	3.25
9th 15 min	9:30	15.42	1.91
10th 15 min	9:45	15.42	1.91
11th 15 min	10:00	14.72	1.82
12th 15 min	10:15	14.72	1.82
13th 15 min	10:30	14.56	1.80
14th 15 min	10:45	13.86	1.72
15th 15 min	11:00	11.93	1.48
16th 15 min	11:15	15.26	1.89
17th 15 min	11:30	13.86	1.72
18th 15 min	11:45	14.56	1.80
19th 15 min	12:00	13.86	1.72
20th 15 min	12:15	13.86	1.72
21st 15 min	12:30	14.56	1.80
22nd 15 min	12:45	14.56	1.80
23rd 15 min	13:00	13.16	1.63
24th 15 min	13:15	13.16	1.63

Determination of Wet Weather Diurnal Pattern (K=0.012)

Methodology: Using the Rationale Method, develop two separate peaking factors to mimic a 6-hour, 5-year

1. Determine inflow contribution to system.

source
a.Mesa County/City of Grand Junction Stormwater Management Manual (SWMM)
b.Urban Storm Drainage Criteria Manual Volume 1 (Urban Drainage and Flood Control Dist. Denver, CO)

5-year, 3-hour s	0.63	in	K =	0.012		
5-year, 6-hour s	0.73	in	ADF =	8.08	mgd	
			A =	11750	acres	(assume 1/2 of land contributes)
			Q = K x I x A			

Table 606 (Mesa County) difference between 3-hr and 6-hr spread evenly from 185 to
360 minutes per the Urban Storm Drainage manual.

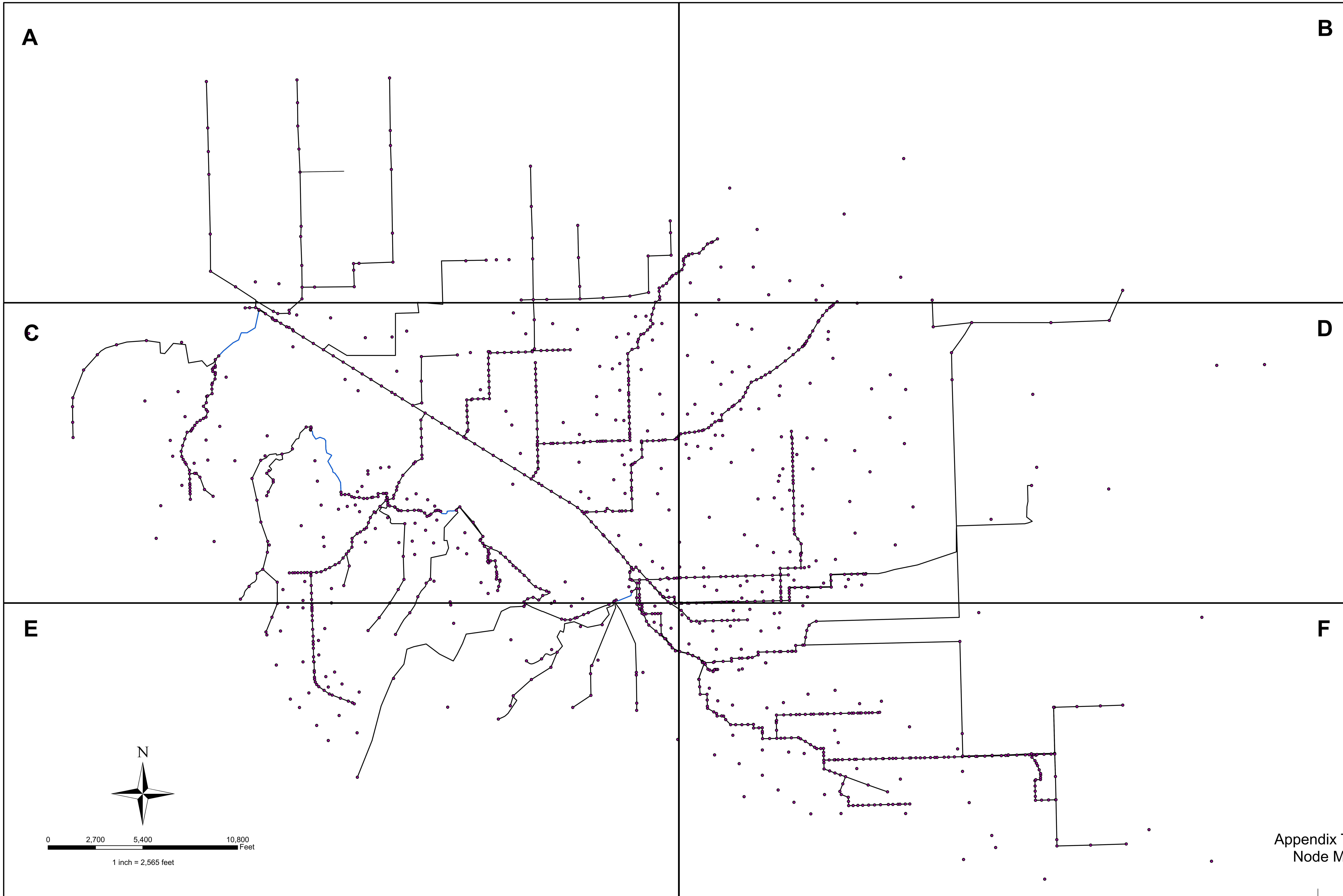
Time (min.)	**5-year Storm Depth (in.)**			
0.63 inches for 5-year storm				
5	0.00252			
10	0.00189	Intensity (1st 15 min)	0.02772	in/hr
15	0.00252	Inflow Contribution	2.520995	mgd
20	0.00252			
25	0.00189	Intensity (2nd 15 min)	0.02772	in/hr
30	0.00252	Inflow Contribution	2.520995	mgd
35	0.00252			
40	0.00189	Intensity (3rd 15 min)	0.02772	in/hr
45	0.00252	Inflow Contribution	2.520995	mgd
50	0.00189			
55	0.00252	Intensity (4th 15 min)	0.02772	in/hr
60	0.00252	Inflow Contribution	2.520995	mgd
65	0.02835			
70	0.0693	Intensity (5th 15 min)	0.87444	in/hr
75	0.12096	Inflow Contribution	79.52595	mgd
80	0.09765			
85	0.06048	Intensity (6th 15 min)	0.84924	in/hr
90	0.05418	Inflow Contribution	77.23413	mgd
95	0.04032			
100	0.03465	Intensity (7th 15 min)	0.41328	in/hr
105	0.02835	Inflow Contribution	37.58575	mgd
110	0.02331			
115	0.01134	Intensity (8th 15 min)	0.16128	in/hr
120	0.00567	Inflow Contribution	14.66761	mgd
125	0.00252			
130	0.00252	Intensity (9th 15 min)	0.02772	in/hr
135	0.00189	Inflow Contribution	2.520995	mgd
140	0.00252			
145	0.00189	Intensity (10th 15 min)	0.02772	in/hr
150	0.00252	Inflow Contribution	2.520995	mgd
155	0.00252			
160	0.00189	Intensity (11th 15 min)	0.02772	in/hr
165	0.00252	Inflow Contribution	2.520995	mgd
170	0.00252			
175	0.00189	Intensity (12th 15 min)	0.02772	in/hr
180	0.00252	Inflow Contribution	2.520995	mgd

Remaining 0.1 inches for 6 hour storm.				
185	0.0029			
190	0.0029	Intensity (13th 15 min)	0.0348	in/hr
195	0.0029	Inflow Contribution	3.164886	mgd
200	0.0029			
205	0.0029	Intensity (14th 15 min)	0.0348	in/hr
210	0.0029	Inflow Contribution	3.164886	mgd
215	0.0029			
220	0.0029	Intensity (15th 15 min)	0.0348	in/hr
225	0.0029	Inflow Contribution	3.164886	mgd
230	0.0029			
235	0.0029	Intensity (16th 15 min)	0.0348	in/hr
240	0.0029	Inflow Contribution	3.164886	mgd
245	0.0029			
250	0.0029	Intensity (17th 15 min)	0.0348	in/hr
255	0.0029	Inflow Contribution	3.164886	mgd
260	0.0029			
265	0.0029	Intensity (18th 15 min)	0.0348	in/hr
270	0.0029	Inflow Contribution	3.164886	mgd
275	0.0029			
280	0.0029	Intensity (19th 15 min)	0.0348	in/hr
285	0.0029	Inflow Contribution	3.164886	mgd
290	0.0029			
295	0.0029	Intensity (20th 15 min)	0.0348	in/hr
300	0.0029	Inflow Contribution	3.164886	mgd
305	0.0029			
310	0.0029	Intensity (21st 15 min)	0.0348	in/hr
315	0.0029	Inflow Contribution	3.164886	mgd
320	0.0029			
325	0.0029	Intensity (22nd 15 min)	0.0348	in/hr
330	0.0029	Inflow Contribution	3.164886	mgd
335	0.0029			
340	0.0029	Intensity (23rd 15 min)	0.0348	in/hr
345	0.0029	Inflow Contribution	3.164886	mgd
350	0.0029			
355	0.0029	Intensity (24th 15 min)	0.0348	in/hr
360	0.0029	Inflow Contribution	3.164886	mgd
Total:	**0.73**			

2. Determine Peaking Factors to represent 6-hr, 5-year Storm event.

Peak Wet Weather = ADF x Dry Weather Peaking Factor + Inflow (Q)
8:30 a.m. is peak flow, so assume peak of storm (75 min) is at the same time.

Storm Interval	Target Flow (mgd)	Adjusted PF
1st 15 min	9.53	1.18
2nd 15 min	11.64	1.44
3rd 15 min	16.55	2.05
4th 15 min	17.25	2.14
5th 15 min	94.26	11.67
6th 15 min	91.96	11.38
7th 15 min	51.61	6.39
8th 15 min	28.69	3.55
9th 15 min	15.84	1.96
10th 15 min	15.84	1.96
11th 15 min	15.14	1.87
12th 15 min	15.14	1.87
13th 15 min	15.09	1.87
14th 15 min	14.39	1.78
15th 15 min	11.93	1.48
16th 15 min	15.79	1.95
17th 15 min	14.39	1.78
18th 15 min	15.09	1.87
19th 15 min	14.39	1.78
20th 15 min	14.39	1.78
21st 15 min	15.09	1.87
22nd 15 min	15.09	1.87
23rd 15 min	13.69	1.69
24th 15 min	13.69	1.69



Appendix TM4B
Node Map

building a world of difference
BLACK & VEATCH

Appendix TM4B
Node Map A

building a world of difference
BLACK & VEATCH

Appendix TM4B
Node Map B

building a world of difference
BLACK & VEATCH

C
N
0
1,400
2,800
5,600
Feet
1 inch = 1,250 feet
Appendix TM4B
Node Map C
building a world of difference
BLACK & VEATCH

Appendix TM4B
Node Map D

building a world of difference
BLACK & VEATCH

N

0 1,400 2,800 5,600
Feet

1 inch = 1,250 feet

Appendix TM4B
Node Map E

building a world of difference
BLACK & VEATCH

Appendix TM4B
Node Map F

building a world of difference
BLACK & VEATCH

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
132	4,559.77	0.005	0.047				
134	4,555.68	0					
136	4,536.74	0.006					
14	4,640.70	0.008	0.086				
140	4,531.97	0.001	0.026				
1428	4,554.00						
1430	4,555.49						
148	4,532.39						
150	4,661.19	0.008					
152	4,545.00						
154	4,511.00						
48	4,663.66	0.001	0.008				
50	4,662.47	0					
52	4,661.49	0					
54	4,660.60	0					
56	4,661.79	0					
58	4,659.69	0					
60	4,659.26	0.001					
62	4,658.85	0.001					
64	4,659.13	0.001	0.001				
66	4,658.47	0					
68	4,655.95	0					
70	4,655.24	0.001	0.002				
74	4,631.62	0.001					
76	4,624.82	0	0.004				
770	4,621.89	0.003					
772	4,627.37	0.003					
774	4,629.57	0.002	0.006				
776	4,629.63						
778	4,628.22	0					
78	4,622.00	0.001					
780	4,603.69						
80	4,622.00	0					
802	4,537.13		0.037				
804	4,593.40	0.001	0.021	0.81		0.007	
82	4,603.00	0					
B1-272-001	4,656.60		0.03				
B1-272-002	4,657.28						
B1-272-003	4,658.04						
B1-272-005	4,659.62						
B1-272-007	4,660.98						
B1-272-010	4,654.15						
B1-272-012	4,653.42						
B1-272-013	4,650.96						
B1-272-015	4,650.38						
B1-272-016	4,649.85						
B1-281-001	4,662.51						
B1-281-002	4,664.91						
B1-281-004	4,667.12		0.07				
B1-281-005	4,668.75						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B1-281-006	4,670.69						
B1-281-007	4,671.37						
B1-281-009	4,674.29						
B1-281-010	4,675.02		0.048				
B1-292-001	4,714.95		0.009				
B1-292-002	4,714.30						
B1-292-003	4,716.66						
B1-292-004	4,715.14						
B1-292-010	4,714.07						
B1-292-011	4,709.88						
B1-292-012	4,682.02						
B1-292-013	4,699.01						
B1-292-014	4,698.59						
B1-292-015	4,696.92						
B1-292-016	4,697.59						
B2-271-019	4,645.97	0.01	0.068				
B2-271-020	4,646.10						
B2-271-022	4,646.25						
B2-271-031	4,644.88						
B2-272-004	4,648.22	0.003					
B2-272-005	4,646.98						
B2-272-007	4,648.91	0.003					
B2-272-008	4,648.60						
B2-272-009	4,648.92	0.002					
B2-272-014	4,649.54	0.003	0.031				
B2-272-017	4,650.24						
B2-272-021	4,651.87						
B2-272-027	4,650.16	0.032	0.059			0.027	
B2-272-028	4,650.77		0.053				
B2-272-029	4,650.76						
B2-272-030	4,651.79						
B2-272-033	4,650.69	0.005					
B2-281-001	4,656.19						
B2-281-002	4,657.43						
B2-281-003	4,657.95		0.119				
B2-281-004	4,658.60						
B2-281-005	4,660.30						
B2-281-006	4,661.91						
B2-281-013	4,662.47						
B2-281-020	4,654.14						
B2-281-022	4,655.62						
B2-281-027	4,661.75						
B2-281-029	4,656.57						
B2-282-003	4,662.68						
B2-282-036	4,664.58						
B2-282-037	4,666.54						
B2-282-041	4,667.41						
B2-282-046	4,667.67						
B2-282-047	4,669.70						
B2-282-048	4,669.70						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B2-282-051	4,671.31						
B2-282-054	4,673.27		0.217				
B2-291-024	4,679.08						
B2-291-025	4,677.62						
B2-291-026	4,678.53						
B2-291-027	4,677.35						
B2-291-028	4,674.57						
B2-291-029	4,674.37						
B2-291-030	4,673.31						
B2-291-045	4,677.89						
B2-292-001	4,689.27						
B2-292-002	4,687.50						
B2-292-003	4,684.73						
B2-292-004	4,682.86						
B2-292-008	4,682.37						
B2-292-009	4,681.25						
B2-292-010	4,697.86						
B2-292-011	4,682.14						
B2-292-012	4,685.28						
B2-292-017	4,687.54						
B2-292-018	4,689.26						
B2-292-022	4,690.90						
B2-292-023	4,692.04						
B2-292-026	4,681.96						
B2-301-001	4,691.63		0.008				
B3-262-023	4,637.90	0.007					
B3-262-027	4,639.09	0.007					0.004
B3-262-031	4,640.22	0.006	0.045			0.049	
B3-271-003	4,639.60	0.004					
B3-271-006	4,639.29	0.006					
B3-271-018	4,640.18	0.01					
B3-271-026	4,642.09	0.007	0.023				
B3-271-032	4,643.90	0.009					
B3-271-039	4,644.66	0.009					
B3-271-042	4,641.88	0.005					
B3-271-045	4,644.45	0.004					
B3-271-054	4,643.99	0.004					
B3-271-058	4,645.44	0.008					
B3-271-059	4,645.04	0.003					
B3-271-063	4,644.83	0.003					
B4-261-014	4,615.35	0.006					
B4-262-001	4,626.61	0.005	0.019				
B4-262-011	4,624.94	0.007	0.028				
B4-262-016	4,633.29	0.007					
B4-262-022	4,633.48	0.007	0.021				
B4-262-024	4,632.42	0.006					0.008
B4-262-028	4,634.70	0.002					
B4-262-030	4,635.77	0.006					
B4-262-031	4,635.58	0.002					
B4-262-036	4,639.18	0.002					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B4-262-037	4,639.15	0.005					0.005
B4-262-038	4,638.96	0.007					
B4-262-044	4,628.65	0.005					
B4-262-114	4,636.36	0.002					
B4-271-001	4,639.11	0.002					
B4-271-011	4,641.78	0.009					
B4-271-028	4,646.15	0.007					
B4-271-033	4,646.99	0.008					
B4-271-128	4,639.74	0.005					
B4-271-135	4,639.73	0.006	0.016				
B4-271-138	4,639.45	0.008					
B4-271-143	4,640.50	0.006					
B4-271-145	4,641.45	0.006					
B4-271-146	4,643.18	0.008					
B4-271-147	4,644.70	0.006	0.022				0.007
B4-271-148	4,647.63	0.007					
B4-272-004	4,650.15	0.009	0.071				
B4-272-039	4,651.93	0.005	0.016				
B4-272-040	4,652.26	0.007					
B4-272-044	4,653.41	0.011					
B4-272-048	4,653.82	0.011					
B4-272-086	4,650.62	0.012					
B4-272-091	4,651.17	0.005					
B4-272-092	4,651.27	0.008					
B4-272-093	4,647.86	0.004					
B4-272-094	4,647.89	0.005					
B4-272-095	4,649.15	0.007					
B4-272-096	4,650.63	0.011					
B4-281-054	4,655.65	0.015					
B4-281-057	4,656.77	0.021					
BV-105	4,555.49						
BV-292-013	4,686.36						
C1-221-018	4,855.42	0					
C1-221-019	4,856.62	0.002	0.029				
C1-261-020	4,611.50	0.004	0.012				
C1-261-028	4,607.00	0.004					
C1-261-030	4,607.41	0.002	0.009				
C1-261-058	4,620.88	0.003					
C1-261-060	4,612.10	0.008	0.027				0.005
C1-261-062	4,616.02	0.002					
C1-281-035	4,656.27	0.028	0.195				
C2-221-030	4,856.52	0.001					
C2-221-031	4,840.90	0					
C2-221-032	4,852.13	0					
C2-221-033	4,855.02	0					
C2-221-034	4,856.96	0.001					
C2-221-035	4,854.80	0.004					
C2-221-037	4,853.25	0.001					
C2-221-065	4,852.08	0					
C2-261-001	4,603.22						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C2-261-013	4,572.06	0					0.011
C2-261-024	4,575.01	0					
C3-212-031	4,810.25	0					
C3-221-003	4,835.19	0	0.01				
C3-221-004	4,830.28	0					
C3-221-005	4,821.15	0					
C3-221-006	4,811.19	0					
C3-221-030	4,822.68	0	0.003				
C3-252-001	4,559.32						
C3-252-002	4,561.74						
C3-261-001	4,562.22	0					
C3-261-002	4,563.15	0					
C3-261-004	4,564.51	0					
C3-261-005	4,564.51	0					
C3-261-007	4,563.27	0					
C3-261-008	4,565.25	0					
C3-261-009	4,563.05						
C3-261-010	4,564.47						
C3-261-011	4,563.00						
C3-261-012	4,566.30						
C3-261-013	4,565.68						
C3-261-015	4,565.28	0					
C3-261-019	4,563.78	0					
C3-261-021	4,565.00	0	0.022				0.06
C3-261-031	4,565.76	0					
C3-261-035	4,573.34	0					
C3-261-040	4,566.68	0.001					
C3-261-043	4,571.45	0					
C3-261-050	4,567.28	0					
C3-261-056	4,567.40	0.001	0.017				
C3-261-062	4,567.35	0.001					
C3-261-075	5,000.00	0					
C3-261-076	5,000.00	0					
C3-262-007	4,567.22	0.001					
C3-262-009	4,567.77	0.001					
C3-262-033	4,569.31	0.001					
C3-262-041	4,569.51	0.001					
C3-262-046	4,570.66	0.001					
C3-262-051	4,568.30	0					
C3-262-061	4,572.79	0.002					
C3-262-070	4,577.51	0					
C3-262-071	4,577.15	0.001					
C3-262-074	4,578.59	0.001					
C3-271-001	4,576.86	0.002					
C3-271-003	4,578.37	0.001	0.004				0.004
C3-271-004	4,579.69	0.002					
C3-271-007	4,581.04	0.002					
C3-271-010	4,581.04	0.001					
C3-271-012	4,581.04	0.001					
C4-212-059	4,802.26	0					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C4-212-060	4,790.25	0.001	0.004				
C4-212-061	4,781.59	0					
C4-221-001	4,776.51	0.001					
C4-252-001	4,557.32						
C4-252-002	4,559.28						
C4-252-003	4,560.79						
C4-252-004	4,559.57						
C4-252-005	4,559.66						
C4-252-006	4,557.44						
C4-252-007	4,560.16						
C4-252-008	4,559.21						
D1-212-011	4,757.04	0.001					
D1-212-012	4,751.59	0.001					
D1-212-032	4,767.46	0.001	0.002				
D1-241-009	4,638.64						
D1-242-011	4,631.80	0.001					
D1-242-017	4,645.13	0.001					
D1-242-018	4,656.69	0.002					
D1-242-019	4,661.02	0.005					
D1-242-030	4,631.80	0.001					
D1-242-031	5,000.00	0.001					
D1-251-005	4,663.66	0.002					
D1-251-023	5,000.00	0.002	0.003				
D1-252-001	4,554.94	0					
D1-252-004	4,555.66						
D1-252-005	4,555.31	0					
D1-252-008	4,555.58	0.001					
D1-252-009	4,556.21						
D1-252-010	4,555.57	0.001	0.004				
D1-252-011	4,555.56						
D1-252-015	4,556.52						
D1-252-016	4,557.04	0.001					
D1-252-018	4,556.32						
D1-252-019	4,556.43						
D1-252-023	4,557.57	0.001					
D1-252-031	4,557.39	0.001					
D1-252-036	4,557.63	0.001	0.002				
D1-252-041	4,558.20	0.003					
D1-252-042	4,558.62	0.002	0.007				
D1-252-050	4,585.00						
D1-252-053	4,581.46	0					
D1-252-056	4,581.81	0					
D1-252-057	4,582.88	0.009					
D1-252-059	4,582.91	0.001					
D1-261-001	4,583.74	0	0.053				0.013
D1-261-003	4,588.00		0.056				0.012
D1-261-006	4,583.32	0.004					
D1-261-008	4,584.98	0.005					
D1-261-020	4,588.00	0					
D1-261-021	4,584.67	0.004					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-261-023	4,587.00	0					
D1-261-036	4,586.86	0.006					
D1-261-037	4,589.00	0.001					
D1-261-052	4,588.29	0.006					
D1-261-059	4,588.00	0.001					
D1-261-061	4,588.00	0					
D1-261-075	4,589.51	0.01					
D1-261-084	4,590.00	0.003					
D1-261-103	4,591.22	0.007					
D1-261-116	4,588.00						
D1-261-117	4,591.75	0.01					
D1-261-128	4,590.09	0.015					
D1-262-001	4,589.00						0.004
D1-262-025	4,589.16	0.018					
D1-262-030	4,590.00						
D1-262-040	4,589.76	0.006	0.005				0.008
D1-262-049	4,590.00						
D1-262-067	4,591.72	0.006					
D1-262-079	4,592.00		0.048				
D1-262-088	4,593.50	0.006					
D1-262-100	4,594.93	0.006					
D1-271-017	4,596.81	0.003					
D1-271-051	4,598.99	0.002					
D1-271-054	4,596.12	0.002					0.012
D1-271-055	4,596.12	0.006			0.008		
D1-271-092	4,596.12	0.001					
D2-212-001	4,743.95	0					
D2-212-002	4,742.51	0	0				
D2-212-003	4,733.57	0.001	0				
D2-212-011	4,746.35	0	0.002				
D2-212-012	4,744.03	0					
D2-212-013	4,738.35	0	0.003				
D2-212-014	4,726.24	0.001					
D2-212-025	4,742.51	0					
D2-241-006	4,658.54	0.001	0.002				
D2-241-007	4,655.59	0					
D2-251-004	4,555.68						
D2-251-005	4,555.19						
D2-251-008	4,660.22	0.001	0.039				
D2-251-014	4,657.55	0					
D2-252-002	4,556.35	0.001					
D2-252-004	4,555.49		0				
D2-252-005	4,556.03						
D2-252-006	4,555.69						
D2-252-008	4,557.06						
D2-252-010	4,564.13						
D2-252-011	4,556.07						
D2-252-012	4,555.82	0.002					
D2-252-014	4,556.19	0.001					
D2-252-015	4,556.19						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D2-252-026	4,559.34		0.009				
D2-252-033	4,559.07						
D2-252-039	4,559.94						
D2-252-049	4,570.51						
D2-252-050	4,577.00						
D2-252-052	4,578.00						
D2-252-056	4,579.00						
D2-252-057	4,573.79		0.015				0.052
D2-252-062	4,574.15						
D2-252-067	4,587.00						
D2-252-069	4,577.81	0.003					
D2-252-071	4,575.19						
D2-252-085	4,580.75	0.002					
D2-252-105	4,572.19						
D2-271-017	4,603.11						
D2-271-019	4,601.30						
D2-271-022	4,600.17	0.001					
D2-271-023	4,598.81	0.001					
D2-271-039	4,601.59	0.001	0.297		0.012		0.049
D2-271-042	4,601.00	0.002					
D2-271-043	4,599.90	0.002					
D2-271-045	4,598.99	0.002	0.07				
D2-271-048	4,601.69	0.001					
D2-271-052	4,603.54	0.001					
D2-271-063	4,604.76	0.009					
D2-271-067	4,605.65	0.005					
D2-271-075	4,605.91	0.007					0.01
D2-271-109	4,597.40	0.003					
D2-272-011	4,606.03	0.008					
D2-272-023	4,607.35	0.01					
D2-272-025	4,604.90	0.003					
D2-272-029	4,604.13	0.003					
D2-272-052	4,605.25	0.009					
D2-272-070	4,605.84	0.007					
D2-272-072	4,607.18	0.009					
D2-272-074	4,608.78	0.007					
D2-272-075	4,608.78	0					
D2-281-002	4,608.78	0					
D3-212-001	4,713.00	0	0.001				
D3-212-002	4,710.90	0					
D3-212-003	4,708.13	0					
D3-212-004	4,705.24	0					
D3-212-012	4,702.84	0	0				
D3-212-013	4,698.75	0					
D3-212-017	4,697.20	0					
D3-212-018	4,701.55	0					
D3-212-022	4,716.93	0.001	0.002				
D3-212-023	4,715.72	0	0.001				
D3-221-016	4,695.09	0					
D3-221-021	4,683.00	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D3-221-022	4,683.00	0.001					
D3-221-023	4,683.00	0.001					
D3-221-024	4,683.00	0					
D3-232-001	4,628.13	0	0.012				
D3-232-009	4,644.58	0					
D3-232-015	4,634.34	0					
D3-232-017	4,613.76	0.001					
D3-232-018	4,626.19	0					
D3-241-001	4,650.99	0					
D3-241-002	4,651.19	0					
D3-241-003	4,654.39	0.001					
D3-241-004	4,649.91	0					
D3-241-005	4,650.33	0					
D3-241-006	4,650.09	0.001					
D3-241-007	4,649.00	0					
D3-241-008	4,651.31	0					
D3-241-009	4,652.37	0.001					
D3-251-001	4,555.45						
D3-251-002	4,555.84						
D3-251-004	4,554.87						
D3-251-008	4,553.38						
D3-251-011	4,555.31		0.008				
D3-251-012	4,555.45						
D3-251-013	4,556.46						
D3-251-014	4,559.45	0					
D3-251-015	4,554.87						
D3-251-016	4,548.92						
D3-252-008	4,556.68	0.002					
D3-252-012	4,555.65	0.002					
D3-252-045	4,572.19	0.003					
D3-252-054	4,576.99	0.002					
D3-252-057	5,000.00	0.002					
D3-261-010	4,591.00	0	0.034				0.101
D3-261-014	4,591.00	0.001	0.132				
D3-261-025	4,594.00	0.002					
D3-261-045	4,597.00	0.003					
D3-261-075	4,600.00	0.004	0.036				0.029
D3-261-086	4,602.00	0.007					
D3-261-117	4,607.00	0.002					
D3-261-130	4,608.00	0.004					
D3-262-017	4,609.00	0.007	0.118				0.08
D3-262-018	4,610.00	0.007	0.208				0.005
D3-262-042	4,608.00	0.004					0.009
D3-262-065	4,606.00	0.006					
D3-262-083	4,610.00	0.007					
D3-262-122	4,608.00	0.004					
D3-271-013	4,612.50	0.003	0.015		0.085		0.033
D3-271-019	4,607.81						
D3-271-024	4,605.19						
D3-271-029	4,613.00	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D3-271-038	4,608.37						
D3-271-055	4,610.45	0.002					
D3-271-059	4,611.12						
D3-271-068	4,617.13	0					
D3-271-069	4,616.85						
D3-271-070	4,615.82						
D3-271-072	4,613.27						
D3-271-075	4,617.94						
D3-271-111	4,614.00	0.001					
D3-281-006	4,608.96	0		0.8			
D4-221-004	4,683.00	0.001					
D4-221-005	4,662.00	0.001					
D4-221-008	4,654.90	0.001					
D4-221-009	4,651.00	0.001					
D4-221-010	4,646.00	0.001					
D4-221-011	4,643.00	0.001	0.002				
D4-221-015	4,637.85	0.001					
D4-232-001	4,595.25	0					
D4-232-002	4,575.21	0					
D4-232-003	4,563.00	0					
D4-232-004	4,562.51	0.001					
D4-232-005	4,555.62						
D4-232-006	4,546.99						
D4-232-007	4,539.68		0.005				
D4-232-008	4,539.41						
D4-232-020	4,788.00	0	0.005				
D4-251-001	4,551.09						
D4-251-005	4,552.08		0.187			0.031	0.031
D4-251-008	4,552.54						
D4-251-018	5,000.00						
D4-251-019	5,000.00						
D4-271-014	4,624.56						
D4-271-015	4,622.79						
D4-271-018	4,621.51						
D4-271-021	4,620.89						
E1-221-001	4,639.87	0.001	0.001				
E1-222-004	4,638.00	0.001					
E1-222-005	4,627.00	0.001					
E1-222-006	4,620.00	0.001					
E1-222-007	4,623.00	0					
E1-222-011	4,618.00	0.001					
E1-222-012	4,612.00	0.001					
E1-231-012	4,639.85	0.001	0.002				
E1-232-001	4,537.50						
E1-232-025	4,538.19						
E1-242-001	4,548.46						
E1-242-002	4,548.17						
E1-251-001	4,548.07						
E1-251-002	4,549.16						
E1-251-003	4,549.50	0.005					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E1-251-004	4,548.81	0.003					
E1-251-007	4,550.14	0.003					
E1-251-018	4,552.73	0.003					
E1-251-019	4,553.70	0.001	0.005				
E1-251-020	4,553.70	0.001					
E1-251-021	4,554.64	0.003					
E1-251-023	4,555.81	0.002					
E1-251-025	4,548.17	0.002					
E1-271-068	4,630.77						
E1-271-072	4,627.97						
E1-271-076	4,624.85						
E2-202-016	4,725.54	0.009	0.076				
E2-222-007	4,637.79	0.001	0.002				
E2-222-015	4,603.00	0					
E2-222-016	4,603.00	0					
E2-222-017	4,602.00	0					
E2-222-028	4,637.79	0					
E2-222-029	4,637.79	0					
E2-222-030	4,637.79	0					
E2-222-031	4,637.79	0					
E2-222-036	4,591.00	0.001					
E2-222-037	4,591.00	0					
E2-222-040	4,637.79	0					
E2-222-044	4,598.00	0.001					
E2-222-048	4,637.79	0					
E2-222-050	4,637.79	0	0.015				
E2-222-067	4,603.00	0.001					
E2-222-075	4,610.00	0.001	0.002				
E2-231-002	4,643.10	0.001					
E2-231-005	4,641.90	0.001					
E2-231-006	4,637.10	0.001					
E2-231-013	4,635.95	0.001	0.002				
E2-231-021	4,636.94	0.001					
E2-231-028	4,647.50	0.002					
E2-231-029	4,646.62	0					
E2-231-030	4,645.21	0					
E2-231-031	4,644.31	0					
E2-231-035	4,640.93	0					
E2-231-037	4,640.55	0					
E2-232-013	4,538.60						
E2-232-014	4,555.40						
E2-242-004	4,550.05						
E2-242-011	4,552.87						
E2-242-017	4,552.84						
E2-242-024	4,549.64						
E2-242-034	4,548.66						
E2-251-027	4,550.68	0.005	0.012				
E2-251-058	4,555.97	0.001					
E2-252-192	4,559.30	0					
E2-252-193	4,565.83	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E2-252-194	4,576.19	0.001					
E2-252-196	4,559.47	0.001					
E2-271-076	4,645.81	0.006					
E2-271-078	4,642.38						
E2-271-081	4,639.14						
E2-271-086	4,635.95						
E3-202-008	4,711.83	0	0.002				
E3-202-009	4,718.61	0.001					
E3-202-010	4,713.19	0					
E3-202-011	4,710.71	0					
E3-202-012	4,709.38	0					
E3-202-BV	4,718.07	0					
E3-222-051	4,561.00	0.002					
E3-222-064	4,559.72	0.001	0.003				
E3-222-065	4,558.00	0.001					
E3-231-006	4,552.00	0.002	0.003				
E3-241-015	4,547.53						
E3-241-022	4,547.99						
E3-241-028	4,548.74						
E3-241-034	4,550.68	0.003				0.017	
E3-241-036	4,553.65	0.004					
E3-241-048	4,554.31	0.002	0.017				
E3-241-049	4,555.23	0.007					
E3-242-002	4,549.96						
E3-242-012	4,549.55						
E3-252-001	4,579.49	0	0.001				
E3-252-003	4,578.01	0.001					
E3-252-004	4,581.01	0					
E3-252-084	4,581.28	0.001					
E3-252-085	4,580.53	0					
E3-271-068	4,650.07	0.004					0.005
E3-271-072	4,647.15	0.006					
E3-271-074	4,645.76	0.005	0.016				
E3-271-121	4,664.18	0.002					
E3-271-122	4,664.18	0.002					
E3-271-123	4,654.21	0.004					
E4-202-001	4,701.01	0					
E4-202-002	4,691.43	0					
E4-202-003	4,682.45	0					
E4-202-007	4,681.68	0	0.002				
E4-202-009	4,683.62	0	0.001				
E4-202-013	4,675.41	0					
E4-202-014	4,668.71	0					
E4-231-005	4,549.56						
E4-231-006	4,548.23						
E4-231-007	4,537.67	0.002					
E4-231-008	4,538.95						
E4-232-016	4,544.02						
E4-241-005	4,545.86					0.047	
E4-241-016	4,545.76						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E4-241-075	4,559.77	0					
E4-241-077	4,557.41	0.001					
E4-241-078	4,554.86	0.002					
E4-241-079	4,553.36	0.002	0.075				
E4-241-080	4,553.60	0.002					
E4-241-081	4,560.82	0					
E4-242-014	4,561.53	0.002					
E4-242-029	4,562.46	0.003					
E4-242-034	4,562.86	0.001					
E4-242-036	4,562.95	0.002					
E4-242-045	4,563.48	0.005					
E4-242-057	4,564.49	0.005					
E4-242-062	4,565.50	0.004					
E4-242-069	4,565.79	0.003	0.006				
E4-242-078	4,567.20	0.001					
E4-251-001	4,567.38	0.001					
E4-252-009	4,581.22	0					
E4-252-010	4,581.19	0					
E4-252-011	4,581.87	0.001					
E4-252-013	4,586.51	0					
E4-252-014	4,586.55	0					
E4-252-019	4,586.54	0					
E4-252-021	4,586.49	0.001					
E4-252-023	4,585.78	0.002					
E4-252-033	4,588.12	0.001					
E4-252-035	4,593.09	0.001					
E4-252-037	4,596.23	0					
E4-271-058	4,679.36	0.001					
E4-271-060	4,677.07	0.001					
E4-271-062	4,672.66	0.001					
E4-271-063	4,670.03	0					
E4-271-064	4,668.97	0.001	0.004				
F1-202-005	4,635.52	0					
F1-202-006	4,633.60	0					
F1-202-007	4,631.66	0.001	0.005				
F1-202-008	4,636.08	0.001					
F1-202-009	4,646.60	0	0.007				
F1-202-010	4,657.51	0					
F1-231-001	4,535.76	0.002					
F1-231-002	4,534.29	0.002					
F1-231-003	4,533.00	0.002					
F1-232-001	4,541.76						
F1-232-002	4,542.61						
F1-232-008	4,542.87						
F1-232-012	4,542.90						
F1-232-013	4,543.00	0					
F1-232-014	4,544.35	0.001					
F1-232-017	4,545.30	0.001					
F1-232-019	4,543.99	0.003	0.083				
F1-232-033	4,542.97						

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-232-066	4,542.90						
F1-241-050	4,562.29	0.001					
F1-241-109	4,564.40	0.002					
F1-241-110	4,567.50	0.001					
F1-242-001	4,561.36	0	0.005				
F1-251-003	4,567.58	0.001	0.075				
F1-251-015	4,568.22	0.004					
F1-251-023	4,569.76	0.004	0.023				
F1-251-031	4,570.51	0.002					
F1-251-033	4,571.32	0.001					
F1-251-034	4,571.74	0.005					
F1-251-039	4,574.01	0.008					
F1-251-040	4,576.83	0.004					
F1-251-041	4,576.74	0.003	0.002				
F1-251-044	4,579.14	0.004					
F1-251-047	4,581.16	0.002					
F1-251-048	4,581.18	0.001					
F1-251-049	4,586.77	0.003					
F1-251-050	4,586.77	0.003					
F1-251-068	4,580.49	0.001					
F1-251-106	4,571.32	0.002					
F1-251-108	4,581.83	0.002	0.016				
F1-252-017	4,597.89	0					
F1-252-033	4,599.93	0					
F1-252-039	4,609.51	0.001	0.008				
F1-261-003	4,609.31	0					
F1-261-004	4,609.98	0.001					
F1-261-009	4,607.52	0.001					
F1-261-026	4,607.64	0.002					
F1-261-040	4,608.58	0.001	0.008				
F1-261-048	4,611.41	0.002					
F1-261-058	4,615.25	0.002					
F1-261-064	4,617.47	0.002	0.003				0.005
F1-261-070	4,619.40	0.001					
F1-261-075	4,621.68	0.002	0.027				
F1-261-078	4,625.58	0.001					
F1-261-081	4,626.87	0.001					
F1-261-089	4,630.42	0.001					0.011
F1-261-095	4,635.78	0					
F1-261-097	4,635.78	0					
F1-261-106	4,635.78	0.007	0.066				0.042
F1-271-101	4,680.72	0.007	0.206				0.011
F1-271-103	4,678.53	0.002	0.022				0.017
F2-202-001	4,625.07	0.001					
F2-202-002	4,613.34	0.001					
F2-202-003	4,618.05	0.001					
F2-202-004	4,606.95	0.001					
F2-202-005	4,616.09	0.001					
F2-202-006	4,600.68	0.003					
F2-202-007	4,610.35	0.002					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F2-202-023	4,618.05	0.001					
F2-202-024	4,600.68	0.001					
F2-231-004	4,537.75						
F2-231-010	4,538.23						
F2-231-016	4,539.66						
F2-231-023	4,540.25						
F2-231-024	4,536.76	0.004					
F2-232-002	4,548.42	0					
F2-232-003	4,546.58	0.001					
F2-232-004	4,546.87	0.001	0.002				
F2-232-005	4,546.09	0.001					
F2-232-006	4,544.74	0.001					
F2-232-007	4,548.35	0					
F2-242-055	4,568.60	0					
F2-242-056	4,569.90	0					
F2-251-012	4,594.81	0.002					
F2-251-016	4,590.51	0.005					
F2-251-017	4,588.87	0.004					
F2-251-018	4,586.77	0.002					
F2-251-028	4,593.38	0.003					
F2-252-027	4,587.15	0.002	0.023				
F2-261-053	4,646.02	0.002	0.006				
F2-262-011	4,647.99	0.004	0.017				
F2-262-017	4,647.02	0.001					
F2-262-020	4,651.23	0.001					
F2-262-029	4,651.02	0.002					
F2-262-032	4,658.08	0.003	0.022				
F2-262-038	4,659.40	0.003	0.005				
F3-202-006	4,584.95	0.003					
F3-202-007	4,585.30	0.001	0.009				
F3-211-010	4,579.68	0.005					
F3-211-011	4,579.68	0.001					
F3-211-012	4,573.98	0.002	0.018				
F3-211-013	4,573.89	0.001					
F3-222-007	4,536.73						
F3-222-008	4,537.93						
F3-222-019	4,534.77						
F3-222-020	4,534.77		0.007				
F3-231-015	4,537.75						
F3-232-001	4,549.86						
F3-232-002	4,550.38						
F3-232-003	4,552.62						
F3-232-004	4,558.46	0.001					
F3-232-005	4,557.00	0.001					
F3-232-006	4,555.72	0.001					
F3-232-007	4,555.62	0.001					
F3-241-004	4,571.60	0					
F3-241-005	4,572.40	0.001					
F3-241-006	4,573.10	0.001					
F3-242-010	4,571.00	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F3-242-011	4,571.50	0.001					
F3-251-023	4,603.93	0.003					
F3-251-024	4,597.37	0.002	0.113				
F3-251-082	4,594.99	0.002	0.015				
F3-252-001	4,608.13	0.002					
F3-252-003	4,605.73	0.002	0.021				
F3-262-038	4,659.25	0.004					
F3-262-052	4,662.53	0.002	0.007				
F3-262-057	4,667.06	0.005	0.039				
F3-262-063	4,675.61	0.004					
F3-262-074	4,679.91	0.002				0.02	
F3-271-152	4,680.45	0.002					
F3-271-153	4,679.84	0.001					
F4-0232-BV	4,566.57	0					
F4-211-002	4,569.32	0.001					
F4-211-003	4,560.88	0					
F4-211-004	4,557.38	0					
F4-211-005	4,545.39	0.002					
F4-211-006	4,534.99	0.001					
F4-211-007	4,531.09	0.002					
F4-211-013	4,540.04	0.004					
F4-211-014	4,538.11	0.001					
F4-211-015	4,560.77	0					
F4-221-022	4,534.01						
F4-222-003	4,533.85						
F4-222-013	4,534.75					0.021	
F4-232-004	4,562.39	0					
F4-232-005	4,561.05	0					
F4-232-006	4,559.91	0					
F4-241-002	4,566.47	0					
F4-241-003	4,566.62	0					
F4-241-004	4,567.97	0					
F4-241-005	4,570.14	0.002	0.02				
F4-241-006	4,571.84	0.004					
F4-241-007	4,573.09	0.003					
F4-241-008	4,575.11	0					
F4-241-009	4,573.70	0.001					
F4-241-010	4,573.80	0					
F4-241-011	4,575.00	0					
F4-251-016	4,622.17	0.003					
F4-251-022	4,619.81	0.002					
F4-251-023	4,616.20	0.002	0.006				
F4-252-003	4,613.52	0.002					
F4-252-005	4,617.73	0.002	0.009				
F4-271-034	4,703.96	0.001					
F4-271-069	4,699.58	0.004					
F4-271-070	4,684.67	0.005	0.008				
F4-271-072	4,689.09	0.008					
F4-271-073	4,694.83	0.007					
F4-271-075	4,702.43	0.002					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G1-211-003	4,525.00		0.105				
G1-221-001	4,528.35						
G1-221-005	4,528.52						
G1-221-010	4,529.55					0.015	
G1-221-029	4,527.64						
G1-232-012	4,566.84	0					
G1-241-001	4,566.56	0					
G1-241-002	4,573.55	0.004					
G1-242-001	4,578.93	0.002					
G1-242-006	4,580.63	0.002					
G1-242-014	4,582.77	0.002					
G1-242-025	4,584.18	0.001	0.022				
G1-242-028	4,584.54	0.001					
G1-242-038	4,586.47	0.002					
G1-242-045	4,587.72	0.004	0.011				
G1-252-004	4,629.56	0.001					
G1-252-005	4,623.68	0.003	0.012				
G1-252-006	4,630.58	0.001					
G1-252-007	4,632.94	0.001					
G1-252-008	4,634.84	0.001					
G1-252-009	4,637.04	0.001					
G1-252-011	4,638.26	0.001	0.011				
G1-271-007	4,705.24	0.001	0.004				
G1-271-013	4,705.17	0.001					
G1-271-030	4,706.39	0.004					
G1-271-041	4,709.41	0.003	0.01			0.056	
G1-271-042	4,709.44	0.001					
G1-271-047	4,710.78	0.004					
G1-272-045	4,715.12	0.01				0.026	
G1-272-065	4,718.95	0.006	0.007				
G1-272-066	4,719.38	0.001					
G2-212-001	4,523.96						
G2-212-002	4,524.99						
G2-212-003	4,526.68	0.001					
G2-212-014	4,529.91	0.001					
G2-212-015	4,525.62						
G2-212-032	4,527.22						
G2-212-035	4,526.27						
G2-212-038	4,526.47						
G2-212-041	4,528.13		0.051				
G2-212-047	4,522.78						
G2-252-043	4,631.26	0.001					
G2-252-044	4,633.64	0.001					
G2-252-045	4,639.87	0.001					
G2-252-046	4,637.78	0.002					
G2-252-047	4,649.25	0.001					
G2-272-001	4,719.61	0.003					
G2-272-014	4,721.87	0.007					
G2-272-036	4,724.33	0.005					
G2-272-049	4,727.32	0.001					

Manhole Input Data for Existing System

ID	Rim Elevation (feet)	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6
		(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G2-272-055	4,730.67	0.001	0.049			0.031	
G2-272-068	4,732.77	0.002					
G2-272-080	4,738.67	0.008	0.027			0.045	
G3-211-015	4,522.45		0.013				
G3-211-017	5,000.00						
G3-211-018	5,000.00						
G3-212-006	4,521.80	0.001					
G3-212-007	4,522.94						
G3-252-026	4,654.93	0					
G3-252-027	4,659.06	0					
G3-252-028	4,656.53	0.001					
G3-252-029	4,656.26	0.004					
G3-252-030	4,670.54	0					
G3-252-031	4,675.63	0.002					
G3-252-032	4,676.72	0.001					
G4-252-008	4,676.64		0.038				
G4-261-001	4,672.72	0.001					
G4-261-008	4,685.23	0.001					
G4-261-015	4,682.77	0					
G4-261-016	4,680.50	0.001					
G4-261-017	4,680.57	0.002					
G4-261-018	4,683.13	0.002					
G4-261-020	4,681.65	0.002					
G4-261-021	4,680.57	0.002					
G4-261-029	4,680.57	0.003					
H1-261-006	4,708.26	0.001					
H1-261-008	4,704.71	0					
H1-261-009	4,704.78	0					
H1-261-010	4,699.17	0.001					
H1-261-011	4,695.36	0.004					
H1-261-012	4,689.20	0.001					
H1-261-015	4,689.98	0					
H1-261-025	4,708.22	0					
H1-262-023	4,717.08	0.016	0.11				
SS_1_A	4,580.72						
SS_3	4,582.40						
SS_4	4,583.40						
SS_5	4,583.90	0.001		0.13			
SS_6	4,585.50	0.001					
SS_7	4,588.00	0.001					
SS_8	4,591.00	0.001					

Notes:

1) **For the Dry Weather Scenario, all demands had the "DIURNAL" Pattern.**
2) **For the Wet Weather Scenario, all demands had the "PWWF" Pattern.**

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
0C2-261-013	4,556.99	4,556.74	204.399	21	RCP	River Trunk	Existing
0G1-271-041	4,703.98	4,703.94	8.167	15	RCP	Horizon Drive	Existing
101	4,643.41	4,643.05	144.8	8		Redlands	Existing
103	4,642.86	4,641.41	303.78	8		Redlands	Existing
105	4,641.21	4,639.76	346.62	8		Redlands	Existing
107	4,639.49	4,623.63	270	8		Redlands	Existing
111	4,623.36	4,616.80	123	8		Redlands	Existing
113	4,616.40	4,610.10	74.11	8		Redlands	Existing
115	4,609.90	4,589.98	213.82	8		Redlands	Existing
117	4,589.88	4,586.26	38.47	8		Redlands	Existing
119	4,586.16	4,573.55	134.02	8		Redlands	Existing
121	4,554.58	4,550.81	38.8	8	PVC	Ridges	Existing
123	4,550.52	4,529.41	87.67	8	PVC	Ridges	Existing
125	4,529.21	4,526.59	59.29	8	PVC	Ridges	Existing
127	4,523.59	4,521.66	215.16	8	PVC	Ridges	Existing
135	4,563.21	4,654.16	4,837.11	8	PVC		Existing
137	4,653.88	4,652.58	142.739	8	PVC	Redlands	Existing
139	4,600.86	4,600.67	69.73	24		Orchard Mesa	Existing
141	4,600.67	4,599.47	378.78	24		Orchard Mesa	Existing
143	4,599.47	4,598.75	362.65	24		Orchard Mesa	Existing
145	4,598.75	4,598.15	392.08	24		Orchard Mesa	Existing
147	4,598.15	4,597.06	426.27	24		Orchard Mesa	Existing
153	4,597.06	4,596.34	397.67	24		Orchard Mesa	Existing
155	4,596.34	4,596.31	21.25	24		Orchard Mesa	Existing
157	4,596.31	4,562.75	1,004.50	12		Orchard Mesa	Existing
161	4,523.46	4,521.29	511.1	10		Scenic School	Existing
163	4,577.14	4,576.70	340	30		South Side	Existing
165	4,574.96	4,573.97	303.73	20	RCP	South Side	Existing
167	4,577.61	4,577.24	289	30	PVC	South Side	Existing
169	4,577.71	4,577.61	75	24	PVC	South Side	Existing
171	4,578.21	4,577.81	308	24	PVC	South Side	Existing
173	4,579.82	4,579.23	457	24	PVC	South Side	Existing
175	4,579.23	4,578.73	387	24	PVC	South Side	Existing
177	4,578.73	4,578.21	402	24	PVC	South Side	Existing
45	4,626.78	4,623.67	3.654	8		Scenic	EXST ONLY
57	4,705.13	4,702.55	262.09	10	PVC		Existing
757	4,547.55	4,546.92	334.196	10		Ridges	Existing
759	4,547.55	4,546.92	335.43	8		Ridges	Existing
761	4,546.92	4,546.82	9.951	8		Ridges	Existing
763	4,516.05	4,513.14	145.763	30	RCP	River Road	Existing
773	4,658.97	4,656.78	408	12	VCP	B 1/2 Road	Existing
775	4,656.75	4,655.22	123.2	12	VCP	B 1/2 Road	Existing
777	4,655.22	4,655.09	248.4	12	VCP	B 1/2 Road	Existing
779	4,655.09	4,653.77	333.6	12	VCP	B 1/2 Road	Existing
781	4,653.67	4,652.71	248.5	12	VCP	B 1/2 Road	Existing
785	4,652.64	4,651.67	251	12	VCP	B 1/2 Road	Existing
787	4,651.66	4,650.11	291.592	12	VCP	B 1/2 Road	Existing
789	4,650.44	4,650.15	65.206	12	VCP	B 1/2 Road	Existing
791	4,650.14	4,648.83	396.421	12	VCP	B 1/2 Road	Existing
793	4,648.80	4,647.45	379.463	12		B 1/2 Road	Existing
795	4,647.39	4,646.80	179.547	12		B 1/2 Road	Existing
797	4,646.80	4,646.21	201.687	12	VCP	B 1/2 Road	Existing
799	4,646.11	4,645.05	348	12	VCP	B 1/2 Road	Existing
801	4,644.97	4,644.95	37.1	12	VCP	B 1/2 Road	Existing
803	4,644.57	4,643.61	378.906	12	VCP	B 1/2 Road	Existing
805	4,643.57	4,642.10	324	12	VCP	B 1/2 Road	Existing
807	4,642.00	4,641.40	392	12	VCP	B 1/2 Road	Existing
809	4,641.30	4,639.77	399.077	12	VCP	B 1/2 Road	Existing
811	4,639.71	4,639.39	108.076	12	VCP	B 1/2 Road	Existing
813	4,639.39	4,638.24	293.59	12	VCP	B 1/2 Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
85	4,652.36	4,651.54	204.94	8	PVC	Redlands	Existing
87	4,651.52	4,650.96	218.91	8		Redlands	Existing
889	4,637.21	4,636.52	325	15		Frontage Rd	Existing
89	4,650.53	4,649.68	208.2	8		Redlands	Existing
891	4,636.45	4,635.40	338	15		Frontage Rd	Existing
893	4,635.26	4,634.52	345	15		Frontage Rd	Existing
895	4,634.45	4,633.58	145	15		Frontage Rd	Existing
897	4,633.58	4,633.24	12.52	15		Frontage Rd	Existing
91	4,649.48	4,648.80	161.6	8		Redlands	Existing
93	4,648.55	4,647.31	268.34	8		Redlands	Existing
95	4,647.13	4,645.76	272.44	8		Redlands	Existing
97	4,645.57	4,644.67	196.21	8		Redlands	Existing
99	4,644.46	4,643.51	254.49	8	PVC	Redlands	Existing
B1-272-001	4,646.75	4,646.04	245	12		B Road	Existing
B1-272-002	4,647.88	4,646.82	254	10		B Road	Existing
B1-272-003	4,648.97	4,647.96	271	10		B Road	Existing
B1-272-005	4,650.32	4,649.13	277	10		B Road	Existing
B1-272-007	4,651.33	4,650.34	336	10		B Road	Existing
B1-272-010	4,645.97	4,645.09	235	12		B Road	Existing
B1-281-001	4,652.64	4,651.37	337	10		B Road	Existing
B1-281-002	4,654.03	4,652.72	338	10		B Road	Existing
B1-281-004	4,656.80	4,654.09	450	10		B Road	Existing
B1-281-005	4,658.25	4,656.82	253	10		B Road	Existing
B1-281-006	4,659.90	4,658.31	300	10		B Road	Existing
B1-281-007	4,661.06	4,659.92	105	10		B Road	Existing
B1-281-009	4,664.19	4,661.02	301	10		B Road	Existing
B1-281-010	4,667.56	4,664.70	280	10		B Road	Existing
B1-292-001	4,710.24	4,709.43	401	10		Chipeta	Existing
B1-292-002	4,709.41	4,708.82	396	10		Chipeta	Existing
B1-292-003	4,708.82	4,707.80	401	10		Chipeta	Existing
B1-292-004	4,707.70	4,705.49	218	10		Chipeta	Existing
B1-292-010	4,705.49	4,702.44	293	10		Chipeta	Existing
B1-292-011	4,702.28	4,693.49	291	10		Chipeta	Existing
B1-292-012	4,674.06	4,673.62	302	10		Chipeta	Existing
B1-292-013	4,691.01	4,690.47	87	8		Chipeta	Existing
B1-292-014	4,690.47	4,689.38	266	10		Chipeta	Existing
B1-292-015	4,689.36	4,688.51	106	10		Chipeta	Existing
B1-292-016	4,688.51	4,685.74	145	8		Chipeta	Existing
B2-271-019	4,633.24	4,632.55	252.002	15	VCP	Orchard Mesa	Existing
B2-272-004	4,634.19	4,633.34	302.842	15	VCP	B 1/2 Road	Existing
B2-272-007	4,634.99	4,634.19	289.23	15	VCP	B 1/2 Road	Existing
B2-272-009	4,635.13	4,634.99	49.889	15	VCP	B 1/2 Road	Existing
B2-272-012	4,645.09	4,643.48	430	15		B Road	Existing
B2-272-013	4,643.33	4,642.53	186	15		B Road	Existing
B2-272-014	4,635.43	4,635.13	177.973	15	VCP	B 1/2 Road	Existing
B2-272-015	4,642.50	4,641.11	463	15		B Road	Existing
B2-272-016	4,639.99	4,638.97	440	15		B Road	Existing
B2-272-017	4,638.03	4,637.27	325	15		Frontage Rd	Existing
B2-272-021	4,638.84	4,638.08	316	15		Frontage Rd	Existing
B2-272-027	4,638.22	4,636.76	430	12	VCP	B 1/2 Road	Existing
B2-272-033	4,636.69	4,635.49	208	12	VCP	B 1/2 Road	Existing
B2-282-048	4,660.36	4,658.98	353	12		B 1/2 Road	Existing
B2-282-051	4,661.76	4,660.36	329	12	VCP	B 1/2 Road	Existing
B2-282-054	4,663.80	4,661.80	450	12	VCP	B 1/2 Road	Existing
B2-291-024	4,671.85	4,670.65	135	12	VCP	B 1/2 Road	Existing
B2-291-025	4,670.56	4,667.90	528	12	VCP	B 1/2 Road	Existing
B2-291-026	4,667.87	4,667.72	413	12	VCP	B 1/2 Road	Existing
B2-291-027	4,667.71	4,666.81	443.2	12	VCP	B 1/2 Road	Existing
B2-291-028	4,666.77	4,666.62	78.1	12	VCP	B 1/2 Road	Existing
B2-291-029	4,666.60	4,665.18	299	12	VCP	B 1/2 Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B2-291-030	4,665.03	4,663.80	465	12	VCP	B 1/2 Road	Existing
B2-291-045	4,670.65	4,670.57	248	12	VCP	B 1/2 Road	Existing
B2-292-001	4,681.06	4,679.10	400.9	10		B 1/2 Road	Existing
B2-292-002	4,679.00	4,676.86	400.4	10		B 1/2 Road	Existing
B2-292-003	4,676.86	4,676.36	200.7	10		B 1/2 Road	Existing
B2-292-004	4,676.23	4,675.08	95.7	12		B 1/2 Road	Existing
B2-292-008	4,674.06	4,673.62	501	12		B 1/2 Road	Existing
B2-292-009	4,673.56	4,671.86	503.5	12		B 1/2 Road	Existing
B2-292-010	4,675.08	4,674.72	150.5	12		B 1/2 Road	Existing
B2-292-011	4,676.30	4,675.48	145	8		Chipeta	Existing
B2-292-012	4,677.97	4,676.80	285	8		Chipeta	Existing
B2-292-017	4,680.45	4,679.15	163	8		Chipeta	Existing
B2-292-018	4,682.29	4,680.21	255	8		Chipeta	Existing
B2-292-022	4,684.69	4,682.13	220	8		Chipeta	Existing
B2-292-023	4,685.95	4,684.47	85	8		Chipeta	Existing
B2-292-026	4,674.71	4,674.07	222.8	12		B 1/2 Road	Existing
B2-301-001	4,682.29	4,681.46	213	10		B 1/2 Road	Existing
B3-262-023	4,622.01	4,620.76	319.833	18	VCP	Orchard Mesa	Existing
B3-262-027	4,622.49	4,622.01	404.358	18	VCP	Orchard Mesa	Existing
B3-262-031	4,622.98	4,622.49	407.081	18	VCP	Orchard Mesa	Existing
B3-271-003	4,623.79	4,623.13	234.126	15	VCP	Orchard Mesa	Existing
B3-271-006	4,624.41	4,623.79	220.318	15	VCP	Orchard Mesa	Existing
B3-271-018	4,625.47	4,624.41	378.578	15	VCP	Orchard Mesa	Existing
B3-271-026	4,627.09	4,626.58	149.6	15	VCP	Orchard Mesa	Existing
B3-271-032	4,627.95	4,627.09	304.646	15	VCP	Orchard Mesa	Existing
B3-271-039	4,628.92	4,627.95	346.729	15	VCP	Orchard Mesa	Existing
B3-271-042	4,629.70	4,628.92	278.734	15	VCP	Orchard Mesa	Existing
B3-271-045	4,630.11	4,629.70	143.795	15	VCP	Orchard Mesa	Existing
B3-271-054	4,630.84	4,630.11	225.041	15	VCP	Orchard Mesa	Existing
B3-271-058	4,631.39	4,630.84	158.555	15	VCP	Orchard Mesa	Existing
B3-271-058A	4,632.02	4,631.39	225.434	15	VCP	Orchard Mesa	Existing
B3-271-063	4,632.55	4,632.02	188.895	15	VCP	Orchard Mesa	Existing
B4-261-014	4,608.87	4,607.44	237.8	15		Orchard Mesa	Existing
B4-262-001	4,611.26	4,608.87	398.782	15		Orchard Mesa	Existing
B4-262-011	4,615.11	4,612.98	355.552	18		Orchard Mesa	Existing
B4-262-016	4,617.18	4,615.11	344.761	18	RCP	Orchard Mesa	Existing
B4-262-022	4,619.06	4,617.18	313.273	18	RCP	Orchard Mesa	Existing
B4-262-024	4,619.50	4,619.06	208.903	18	RCP	Orchard Mesa	Existing
B4-262-028	4,619.83	4,619.50	301.71	18	RCP	Orchard Mesa	Existing
B4-262-030	4,620.04	4,619.83	192.158	18	VCP	Orchard Mesa	Existing
B4-262-031	4,620.76	4,620.58	94.76	18	VCP	Orchard Mesa	Existing
B4-262-036	4,625.37	4,625.13	110.831	12	VCP	Unaweep Road	Existing
B4-262-037	4,625.13	4,624.18	428.532	12	VCP	Unaweep Road	Existing
B4-262-038	4,624.18	4,623.16	460.25	12	VCP	Unaweep Road	Existing
B4-262-043	4,612.98	4,611.26	288.279	15		Orchard Mesa	Existing
B4-262-114	4,620.58	4,620.04	209.8	18	VCP	Orchard Mesa	Existing
B4-271-001	4,625.44	4,625.37	28.798	12	VCP	Unaweep Road	Existing
B4-271-011	4,626.58	4,625.47	396.1	15	VCP	Orchard Mesa	Existing
B4-271-028	4,632.08	4,631.64	157.309	12	PVC	Unaweep Road	Existing
B4-271-033	4,633.06	4,632.08	348.762	12	PVC	Unaweep Road	Existing
B4-271-128	4,626.11	4,625.44	304.942	12	VCP	Unaweep Road	Existing
B4-271-135	4,627.28	4,626.11	415.674	12	PVC	Unaweep Road	Existing
B4-271-138	4,628.38	4,627.28	392.386	12	PVC	Unaweep Road	Existing
B4-271-143	4,629.27	4,628.38	315.864	12	PVC	Unaweep Road	Existing
B4-271-145	4,629.82	4,629.27	195.586	12	PVC	Unaweep Road	Existing
B4-271-146	4,630.72	4,629.82	318.521	12	PVC	Unaweep Road	Existing
B4-271-147	4,631.64	4,630.72	325.212	12	PVC	Unaweep Road	Existing
B4-271-148	4,633.50	4,633.06	154.783	12	PVC	Unaweep Road	Existing
B4-272-004	4,635.36	4,634.33	366	12	PVC	Unaweep Road	Existing
B4-272-039	4,639.40	4,639.08	125.854	12	PVC	Unaweep Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B4-272-040	4,639.58	4,639.40	72.652	12	PVC	Unaweep Road	Existing
B4-272-044	4,640.18	4,639.58	241.31	12	PVC	Unaweep Road	Existing
B4-272-048	4,640.59	4,640.18	193.848	12	PVC	Unaweep Road	Existing
B4-272-086	4,636.41	4,635.36	372.542	12	PVC	Unaweep Road	Existing
B4-272-091	4,638.20	4,637.73	167.7	12	PVC	Unaweep Road	Existing
B4-272-092	4,639.08	4,638.49	237.1	12	PVC	Unaweep Road	Existing
B4-272-093	4,634.28	4,633.50	276.7	12	PVC	Unaweep Road	Existing
B4-272-094	4,634.33	4,634.28	18.6	12	PVC	Unaweep Road	Existing
B4-272-095	4,638.49	4,638.20	104.5	12	PVC	Unaweep Road	Existing
B4-272-096	4,637.73	4,636.41	468.3	12	PVC	Unaweep Road	Existing
B4-281-054	4,641.06	4,640.59	189.453	12	PVC	Unaweep Road	Existing
B4-281-057	4,641.94	4,641.06	320.62	12	PVC	Unaweep Road	Existing
BV-100	4,540.00	4,549.55	1,147.16	12		Scenic	Existing
BV-105	4,546.92	4,546.82	9.951	10		Ridges	Existing
BV-292-013	4,678.94	4,678.13	158	8		Chipeta	Existing
C1-221-018	4,846.93	4,846.06	249.9	12	PVC	South Camp	Existing
C1-221-019	4,847.43	4,846.93	124.148	12	PVC	South Camp	Existing
C1-261-028	4,603.26	4,600.82	408.196	18	VCP	Orchard Mesa	Existing
C1-261-030	4,604.33	4,603.26	178.662	18	VCP	Orchard Mesa	Existing
C1-261-058	4,607.44	4,606.78	110.175	15		Orchard Mesa	Existing
C1-261-060	4,605.22	4,604.33	149.994	18	VCP	Orchard Mesa	Existing
C1-261-062	4,606.78	4,605.22	260.432	15		Orchard Mesa	Existing
C1-281-035	4,642.19	4,641.94	101.155	10	PVC	Unaweep Road	Existing
C2-221-030	4,846.06	4,844.64	479.4	12	PVC	South Camp	Existing
C2-221-031	4,836.04	4,821.72	162.9	12	PVC	South Camp	Existing
C2-221-032	4,840.59	4,839.55	170.7	12	PVC	South Camp	Existing
C2-221-033	4,841.58	4,840.59	368.7	12	PVC	South Camp	Existing
C2-221-034	4,842.57	4,841.58	361.7	12	PVC	South Camp	Existing
C2-221-035	4,843.98	4,842.57	172.1	12	PVC	South Camp	Existing
C2-221-037	4,844.64	4,843.98	502.3	12	PVC	South Camp	Existing
C2-221-065	4,839.55	4,836.04	164.7	12	PVC	South Camp	Existing
C2-261-001A	4,596.31	4,562.75	1,005.71	14	DIP	Orchard Mesa	Existing
C2-261-024	4,557.05	4,556.99	49.5	27	VCP	River Trunk	Existing
C3-212-031	4,796.10	4,792.35	273.3	12	PVC	South Camp	Existing
C3-221-003	4,821.72	4,819.43	114.997	12	PVC	South Camp	Existing
C3-221-004	4,819.43	4,813.83	280.4	12	PVC	South Camp	Existing
C3-221-005	4,811.89	4,801.75	492.3	12	PVC	South Camp	Existing
C3-221-006	4,801.75	4,796.10	342	12	PVC	South Camp	Existing
C3-221-030	4,813.83	4,811.89	97.3	12	PVC	South Camp	Existing
C3-252-002	4,556.31	4,555.59	479.142	30	RCP	South Side	Existing
C3-261-001	4,554.75	4,553.86	725.733	21	CONCRETE	River Trunk	Existing
C3-261-002	4,557.21	4,556.31	471.205	27	olyvinyl chlorid	South Side	Existing
C3-261-004	4,555.11	4,554.75	299.7	21	CONCRETE	River Trunk	Existing
C3-261-005	4,558.11	4,557.21	303.203	27	PVC	South Side	Existing
C3-261-007	4,555.56	4,555.11	363.588	21	RCP	River Trunk	Existing
C3-261-008	4,558.49	4,558.11	365.753	27	PVC	South Side	Existing
C3-261-009	4,558.78	4,558.49	280.834	27	PVC	South Side	Existing
C3-261-010	4,558.86	4,558.78	76.621	27	PVC	South Side	Existing
C3-261-011	4,555.94	4,555.56	310.78	21	RCP	River Trunk	Existing
C3-261-012	4,558.88	4,558.86	17.843	30	RCP	South Side	Existing
C3-261-012A	3	3	46.018	21	PVC		Existing
C3-261-013	4,560.28	4,558.88	92.693	20	RCP	South Side	Existing
C3-261-015	4,556.22	4,555.94	227.894	21	RCP	River Trunk	Existing
C3-261-019	4,556.59	4,556.22	309.3	21	RCP	River Trunk	Existing
C3-261-021	4,556.74	4,556.59	123.197	21	RCP	River Trunk	Existing
C3-261-031	4,561.71	4,560.78	518.568	20	RCP	South Side	Existing
C3-261-035	4,557.14	4,557.05	74.4	27	VCP	River Trunk	Existing
C3-261-040	4,561.85	4,561.71	77.933	20	RCP	South Side	Existing
C3-261-043	4,557.18	4,557.14	31.718	27	VCP	River Trunk	Existing
C3-261-050	4,557.37	4,557.34	28	10	VCP	River Trunk	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
C3-261-056	4,557.50	4,557.37	80.918	10	VCP	River Trunk	Existing
C3-261-062	4,562.74	4,561.85	490.491	20	RCP	South Side	Existing
C3-261-075	4,557.34	4,557.24	13	12	PVC	River Trunk	Existing
C3-261-076	4,557.24	4,557.18	44.4	10	VCP	River Trunk	Existing
C3-262-007	4,563.98	4,563.70	154.554	20	RCP	South Side	Existing
C3-262-009	4,563.60	4,562.74	478.88	20	RCP	South Side	Existing
C3-262-033	4,564.91	4,564.08	463.661	20	RCP	South Side	Existing
C3-262-041	4,565.58	4,564.91	154.9	20	RCP	South Side	Existing
C3-262-046	4,566.92	4,565.58	319.406	20	RCP	South Side	Existing
C3-262-051	4,567.21	4,566.92	61.434	20	RCP	South Side	Existing
C3-262-061	4,568.19	4,567.21	206.673	20	RCP	South Side	Existing
C3-262-070	4,570.48	4,570.07	158.03	20	RCP	South Side	Existing
C3-262-071	4,570.07	4,568.19	373.756	20	RCP	South Side	Existing
C3-262-074	4,571.47	4,570.48	500.889	20	RCP	South Side	Existing
C3-271-001	4,572.32	4,571.47	421.48	20	RCP	South Side	Existing
C3-271-003	4,572.91	4,572.32	295.102	20	RCP	South Side	Existing
C3-271-004	4,573.07	4,572.91	77.966	20	RCP	South Side	Existing
C3-271-007	4,573.87	4,573.07	401.374	20	RCP	South Side	Existing
C3-271-010	4,575.40	4,575.16	28	20	RCP	South Side	Existing
C3-271-012	4,576.65	4,575.60	111	20	RCP	South Side	Existing
C4-212-059	4,792.35	4,780.23	489.901	12	PVC	South Camp	Existing
C4-212-060	4,776.84	4,772.96	226	12	PVC	South Camp	Existing
C4-212-061	4,770.23	4,764.84	299.9	12	PVC	South Camp	Existing
C4-221-001	4,764.84	4,751.11	391.4	12	PVC	South Camp	Existing
C4-221-011	4,772.96	4,770.23	159.3	12	PVC	South Camp	Existing
C4-252-001	4,552.80	4,552.03	536.838	30	RCP	South Side	Existing
C4-252-002	4,552.35	4,551.70	533.459	21	RCP	River Trunk	Existing
C4-252-003	4,555.59	4,554.87	297.594	30	RCP	South Side	Existing
C4-252-004	4,552.79	4,552.35	360.57	21	RCP	River Trunk	Existing
C4-252-005	4,554.19	4,553.57	346.893	30	RCP	South Side	Existing
C4-252-006	4,553.57	4,552.80	311.862	30	RCP	South Side	Existing
C4-252-007	4,553.86	4,553.32	441.554	21	RCP	River Trunk	Existing
C4-252-007A	4,553.32	4,552.79	436.699	21	RCP	River Trunk	Existing
C4-252-008	4,554.87	4,554.19	377.462	30	RCP	South Side	Existing
D1-212-011	4,745.82	4,738.58	284	12	PVC	South Camp	Existing
D1-212-012	4,738.58	4,733.37	274.602	12	PVC	South Camp	Existing
D1-212-032	4,751.11	4,745.82	500.7	12	PVC	South Camp	Existing
D1-242-011	4,625.05	4,620.05	124.968	10	PVC	Ridges	Existing
D1-242-017	4,635.90	4,625.71	275	10	PVC	Ridges	Existing
D1-242-018	4,648.75	4,636.15	294.478	10	PVC	Ridges	Existing
D1-242-019	4,652.05	4,648.85	199.457	12	PVC	Ridges	Existing
D1-242-030	4,619.95	4,600.75	399.963	10	PVC	Ridges	Existing
D1-242-031	4,600.00	4,586.00	293.724	10	PVC	Ridges	Existing
D1-242-031A	4,598.00	4,586.00	295.397	8	PVC	Ridges	Existing
D1-251-001	4,582.38	4,581.56	267.2	21		South Avenue	Existing
D1-251-005	4,586.00	4,556.00	1,267.13	10	PVC	Ridges	Existing
D1-251-005A	4,586.00	4,556.00	1,268.05	8	PVC	Ridges	Existing
D1-251-005B	4,556.00	4,551.00	343.186	10	PVC	Ridges	Existing
D1-252-001	4,549.53	4,548.08	371.427	30	RCP	South Side	Existing
D1-252-004	4,550.10	4,549.53	309.337	30	RCP	South Side	Existing
D1-252-005	4,548.94	4,548.69	201.72	24	VCP	River Trunk	Existing
D1-252-008	4,549.09	4,548.94	126.018	24	VCP	River Trunk	Existing
D1-252-008A	4,549.28	4,549.09	158.194	24	VCP	River Trunk	Existing
D1-252-009	4,550.62	4,550.10	292.478	30	RCP	South Side	Existing
D1-252-010	4,549.50	4,549.28	173.25	21	VCP	River Trunk	Existing
D1-252-011	4,549.87	4,549.50	310.091	21	VCP	River Trunk	Existing
D1-252-015	4,550.86	4,550.62	133.43	30	RCP	South Side	Existing
D1-252-018	4,551.45	4,550.86	398.159	30	RCP	South Side	Existing
D1-252-019	4,552.03	4,551.45	260.038	30	RCP	South Side	Existing
D1-252-023	4,550.29	4,549.87	343.449	21	VCP	River Trunk	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D1-252-031	4,550.50	4,550.29	167.247	21	VCP	River Trunk	Existing
D1-252-036	4,550.70	4,550.50	164.131	21	VCP	River Trunk	Existing
D1-252-041	4,550.89	4,550.70	161.278	21	VCP	River Trunk	Existing
D1-252-042	4,551.70	4,550.89	662.626	21	VCP	River Trunk	Existing
D1-252-050	4,572.48	4,572.14	176.234	27	VCP	South Avenue	Existing
D1-252-053	4,564.58	4,564.29	272	24	RCP	Colorado Avenue	Existing
D1-252-056	4,564.84	4,564.67	83	24	RCP	Colorado Avenue	Existing
D1-252-057	4,565.78	4,564.84	223.762	24	RCP	Colorado Avenue	Existing
D1-252-059	4,565.89	4,565.78	27.158	24	RCP	Colorado Avenue	Existing
D1-261-001	4,566.50	4,566.09	77.506	24	PVC	Colorado Avenue	Existing
D1-261-003	4,573.60	4,572.48	723.306	27	VCP	South Avenue	Existing
D1-261-006	4,567.95	4,566.50	51.594	24	RCP	Colorado Avenue	Existing
D1-261-008	4,569.50	4,567.95	302.547	24	RCP	Colorado Avenue	Existing
D1-261-020	4,574.54	4,573.60	606.866	27	VCP	South Avenue	Existing
D1-261-021	4,570.00	4,569.50	99.515	24	RCP	Colorado Avenue	Existing
D1-261-023	4,577.36	4,577.02	233.241	27	VCP	South Avenue	Existing
D1-261-036	4,571.70	4,570.00	422.792	24	RCP	Colorado Avenue	Existing
D1-261-037	4,577.85	4,577.36	301.563	27	VCP	South Avenue	Existing
D1-261-052	4,572.10	4,571.70	440.734	24	RCP	Colorado Avenue	Existing
D1-261-059	4,578.49	4,577.85	481.274	27	VCP	South Avenue	Existing
D1-261-061	4,578.59	4,578.49	9.6	27	VCP	South Avenue	Existing
D1-261-075	4,573.00	4,572.10	445.227	24	RCP	Colorado Avenue	Existing
D1-261-084	4,579.30	4,578.59	471.5	27	VCP	South Avenue	Existing
D1-261-103	4,575.00	4,573.00	515.7	24	RCP	Colorado Avenue	Existing
D1-261-116	4,580.97	4,580.52	312.518	21	VCP	South Avenue	Existing
D1-261-116A	4,580.52	4,579.80	482.521	21	VCP	South Avenue	Existing
D1-261-117	4,575.50	4,575.00	54.284	24	RCP	Colorado Avenue	Existing
D1-261-128	4,575.80	4,575.50	267.746	24	RCP	Colorado Avenue	Existing
D1-262-025	4,576.00	4,575.80	380	24	RCP	Colorado Avenue	Existing
D1-262-030	4,581.56	4,580.97	380.677	21	VCP	South Avenue	Existing
D1-262-040	4,576.50	4,576.00	264.434	24	RCP	Colorado Avenue	Existing
D1-262-067	4,578.20	4,576.50	502.758	24	RCP	Colorado Avenue	Existing
D1-262-079	4,583.87	4,582.38	495.739	21	VCP	South Avenue	Existing
D1-262-088	4,579.00	4,578.20	461.496	24	RCP	Colorado Avenue	Existing
D1-262-100	4,580.00	4,579.00	489.507	24	RCP	Colorado Avenue	Existing
D1-271-018	4,581.55	4,580.67	455.198	24	RCP	Colorado Avenue	Existing
D1-271-051	4,585.43	4,585.36	8.462	21	PVC	Colorado Avenue	Existing
D1-271-054	4,585.36	4,581.71	457.7	24	RCP	Colorado Avenue	Existing
D1-271-055	4,580.63	4,580.00	537.1	24	RCP	Colorado Avenue	Existing
D1-271-092	4,581.71	4,581.55	19.4	24	RCP	Colorado Avenue	Existing
D2-212-001	4,731.19	4,729.46	91.02	12	PVC	South Camp	Existing
D2-212-002	4,729.46	4,729.13	21.7	12	PVC	South Camp	Existing
D2-212-003	4,722.94	4,714.33	363.5	12	PVC	South Camp	Existing
D2-212-011	4,733.37	4,731.40	104.468	12	PVC	South Camp	Existing
D2-212-012	4,731.40	4,731.19	11.086	12	PVC	South Camp	Existing
D2-212-013	4,726.69	4,722.94	249.903	12	PVC	South Camp	Existing
D2-212-014	4,714.33	4,706.40	496.1	12	PVC	South Camp	Existing
D2-212-025	4,729.13	4,726.69	163	8	PVC	South Camp	Existing
D2-241-006	4,648.54	4,645.54	239.276	8	PVC	Scenic School	Existing
D2-241-007	4,645.54	4,641.85	302.842	8	PVC	Scenic School	Existing
D2-241-012	4,623.78	4,652.25	2,398.70	10	PVC	Scenic	EXST ONLY
D2-251-004	4,544.90	4,544.75	72.455	48	RCP	River Road	Existing
D2-251-005	4,545.26	4,544.90	17.81	48	RCP	River Road	Existing
D2-251-008	4,550.50	4,545.06	380	12		Ridges	Existing
D2-251-014	4,556.00	4,551.00	344.531	8	PVC	Ridges	Existing
D2-251-014A	4,551.00	4,550.50	3.246	12		Ridges	Existing
D2-252-002	4,548.08	4,547.05	523.849	30	RCP	South Side	Existing
D2-252-004	4,547.05	4,545.56	310.878	30	RCP	South Side	Existing
D2-252-005	4,545.56	4,545.26	318.46	48	RCP	River Road	Existing
D2-252-006	4,546.44	4,545.56	128.248	24	VCP	River Trunk	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D2-252-008	4,546.82	4,546.44	330.165	24	VCP	River Trunk	Existing
D2-252-010	4,548.43	4,546.82	327.541	24	VCP	River Trunk	Existing
D2-252-011	4,549.30	4,547.05	433.714	27	PVC	Grand Avenue	Existing
D2-252-012	4,548.67	4,548.43	179.711	24	VCP	River Trunk	Existing
D2-252-014	4,548.69	4,548.67	180.728	24	VCP	River Trunk	Existing
D2-252-015	4,550.85	4,550.25	11.283	27	PVC	Grand Avenue	Existing
D2-252-026	4,551.69	4,550.85	423.546	30	VCP	Grand Avenue	Existing
D2-252-033	4,551.00	4,547.10	912.627	24	PVC	Colorado Avenue	Existing
D2-252-039	4,552.50	4,551.00	395.765	24	PVC	Colorado Avenue	Existing
D2-252-049	4,556.50	4,552.50	402.686	24	PVC	Colorado Avenue	Existing
D2-252-050	4,569.00	4,563.00	1,108.44	24	VCP	South Avenue	Existing
D2-252-052	4,569.41	4,569.00	206.443	27	VCP	South Avenue	Existing
D2-252-056	4,571.64	4,569.41	22.862	27	VCP	South Avenue	Existing
D2-252-057	4,559.50	4,556.50	278.866	24	PVC	Colorado Avenue	Existing
D2-252-062	4,559.77	4,559.50	68.9	24	PVC	Colorado Avenue	Existing
D2-252-067	4,572.14	4,571.64	400.1	27	VCP	South Avenue	Existing
D2-252-069	4,562.72	4,559.87	278.964	24	RCP	Colorado Avenue	Existing
D2-252-071	4,572.57	4,562.82	298.414	27	VCP	Grand Avenue	Existing
D2-252-085	4,564.19	4,562.81	299.202	24	RCP	Colorado Avenue	Existing
D2-252-105	4,553.17	4,551.69	749.5	24	VCP	Grand Avenue	Existing
D2-271-017	4,590.64	4,588.08	351.518	15	PVC	15th Street	Existing
D2-271-019	4,588.08	4,586.34	238.423	15	PVC	15th Street	Existing
D2-271-022	4,586.34	4,585.45	122.114	15	PVC	15th Street	Existing
D2-271-023	4,585.45	4,583.64	247.8	15	PVC	15th Street	Existing
D2-271-039	4,591.68	4,589.83	154.586	18	PVC	Colorado Avenue	Existing
D2-271-042	4,589.83	4,588.61	153.504	21	RCP	Colorado Avenue	Existing
D2-271-043	4,588.61	4,586.86	218.809	21	RCP	Colorado Avenue	Existing
D2-271-045	4,586.86	4,585.43	179.022	21	PVC	Colorado Avenue	Existing
D2-271-048	4,594.65	4,594.60	30.635	15	VCP	Rood Avenue	Existing
D2-271-052	4,595.09	4,594.65	298.414	15	VCP	Rood Avenue	Existing
D2-271-063	4,595.66	4,595.09	375.396	15	VCP	Rood Avenue	Existing
D2-271-067	4,596.06	4,595.66	330.821	15	VCP	Rood Avenue	Existing
D2-271-075	4,596.17	4,596.06	88.527	15	VCP	Rood Avenue	Existing
D2-271-109	4,583.64	4,582.30	183.2	15	PVC	15th Street	Existing
D2-272-011	4,597.00	4,596.17	678.337	15	VCP	Rood Avenue	Existing
D2-272-023	4,598.93	4,598.42	331.313	15	VCP	Rood Avenue	Existing
D2-272-025	4,598.42	4,597.89	368.902	15	VCP	Rood Avenue	Existing
D2-272-029	4,597.89	4,597.00	602.667	15	VCP	Rood Avenue	Existing
D2-272-052	4,600.00	4,598.93	778.278	15	VCP	Rood Avenue	Existing
D2-272-070	4,600.60	4,600.00	403.899	15	VCP	Rood Avenue	Existing
D2-272-072	4,601.12	4,600.60	346.401	15	VCP	Rood Avenue	Existing
D2-272-074	4,601.53	4,601.12	322.916	15	VCP	Rood Avenue	Existing
D2-272-075	4,601.57	4,601.53	26.502	15	VCP	Rood Avenue	Existing
D2-281-002	4,601.72	4,601.57	100.171	15	VCP	Rood Avenue	Existing
D3-212-001	4,702.89	4,702.53	126.57	8	PVC	Goat Wash	Existing
D3-212-002	4,702.47	4,698.00	354.55	8	PVC	Goat Wash	Existing
D3-212-003	4,697.82	4,691.93	351.26	8	PVC	Goat Wash	Existing
D3-212-004	4,691.93	4,689.60	184.762	8	PVC	Goat Wash	Existing
D3-212-012	4,689.60	4,687.50	166.263	8	PVC	Goat Wash	Existing
D3-212-013	4,687.50	4,684.81	212.938	8	PVC	Goat Wash	Existing
D3-212-017	4,689.93	4,684.20	66.8	12	PVC	South Camp	Existing
D3-212-018	4,690.94	4,689.93	120.6	12	PVC	South Camp	Existing
D3-212-022	4,706.40	4,690.94	499.2	12	PVC	South Camp	Existing
D3-212-023	4,703.43	4,702.89	186.9	8	PVC	Goat Wash	Existing
D3-221-016	4,684.72	4,680.30	311.272	12	PVC	Goat Wash	Existing
D3-221-021	4,663.43	4,658.80	353.85	12	PVC	Goat Wash	Existing
D3-221-022	4,672.04	4,669.22	271.125	12	PVC	Goat Wash	Existing
D3-221-023	4,677.90	4,672.08	271.37	12	PVC	Goat Wash	Existing
D3-221-024	4,680.25	4,678.00	266.008	12	PVC	Goat Wash	Existing
D3-232-001	4,621.48	4,620.08	114.767	8	PVC	Scenic School	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D3-232-001A	4,620.28	4,620.08	16.5	8	PVC	Scenic School	Existing
D3-232-009	4,622.35	4,621.48	71.045	8	PVC	Scenic School	Existing
D3-232-017	4,608.64	4,593.30	184.5	8	PVC	Scenic School	Existing
D3-232-018	4,620.08	4,610.69	88.61	8	PVC	Scenic School	Existing
D3-241-001	4,641.85	4,640.95	73.702	8	PVC	Scenic School	Existing
D3-241-002	4,640.95	4,638.42	207.066	8	PVC	Scenic School	Existing
D3-241-003	4,638.42	4,636.83	130.642	8	PVC	Scenic School	Existing
D3-241-004	4,636.83	4,634.94	154.75	8	PVC	Scenic School	Existing
D3-241-005	4,633.39	4,629.78	296.578	8	PVC	Scenic School	Existing
D3-241-005A	4,629.78	4,629.64	11.185	8	PVC	Scenic School	Existing
D3-241-006	4,629.64	4,625.45	343.711	8	PVC	Scenic School	Existing
D3-241-007	4,625.45	4,622.35	254.233	8	PVC	Scenic School	Existing
D3-241-009	4,634.94	4,633.39	126.674	8	PVC	Scenic School	Existing
D3-251-001	4,542.85	4,542.41	454.116	54	RCP	River Road	Existing
D3-251-002	4,543.23	4,542.85	414.428	54	RCP	River Road	Existing
D3-251-004	4,544.59	4,543.96	394	48	RCP	River Road	Existing
D3-251-008	4,543.80	4,543.63	234.094	48	RCP	River Road	Existing
D3-251-011	4,544.75	4,544.65	13.054	48	RCP	River Road	Existing
D3-251-012	4,543.63	4,543.62	24.764	48	RCP	River Road	Existing
D3-251-013	4,543.62	4,543.23	340.89	54	RCP	River Road	Existing
D3-251-014	4,545.76	4,545.63	145.304	24	PVC	Colorado Avenue	Existing
D3-251-015	4,544.65	4,544.59	38.1	48	RCP	River Road	Existing
D3-251-016	4,543.96	4,543.80	48.1	48	RCP	River Road	Existing
D3-252-008	4,546.00	4,545.76	218.35	24	PVC	Colorado Avenue	Existing
D3-252-012	4,547.10	4,546.00	303.63	24	PVC	Colorado Avenue	Existing
D3-252-045	4,562.82	4,560.20	113.75	24	PVC	Grand Avenue	Existing
D3-252-045A	4,560.14	4,553.17	411.8	24	PVC	Grand Avenue	Existing
D3-252-057	4,577.57	4,572.57	153.11	27	VCP	Grand Avenue	Existing
D3-261-010	4,584.00	4,577.57	196.964	27	VCP	Grand Avenue	Existing
D3-261-014	4,585.03	4,585.00	7.905	27	VCP	Grand Avenue	Existing
D3-261-025	4,586.31	4,585.03	345.646	27	VCP	Grand Avenue	Existing
D3-261-045	4,588.09	4,586.31	479.864	27	VCP	Grand Avenue	Existing
D3-261-075	4,590.00	4,588.09	504.234	27	VCP	Grand Avenue	Existing
D3-261-086	4,593.11	4,592.00	286.508	24	VCP	Grand Avenue	Existing
D3-261-117	4,595.78	4,593.11	681.486	24	VCP	Grand Avenue	Existing
D3-261-130	4,596.52	4,595.78	297.66	24	VCP	Grand Avenue	Existing
D3-262-017	4,597.50	4,596.52	391.37	24	VCP	Grand Avenue	Existing
D3-262-018	4,598.50	4,597.50	273.749	24	VCP	Grand Avenue	Existing
D3-262-042	4,599.50	4,598.50	468.023	24	VCP	Grand Avenue	Existing
D3-262-065	4,600.39	4,599.54	472	18	VCP	Grand Avenue	Existing
D3-262-083	4,601.61	4,600.39	482.816	18	VCP	Grand Avenue	Existing
D3-262-122	4,599.54	4,599.50	22.8	18	DIP	Grand Avenue	Existing
D3-271-013	4,603.00	4,601.61	542.184	18	VCP	Grand Avenue	Existing
D3-271-019	4,595.79	4,593.35	334.757	15	PVC	15th Street	Existing
D3-271-024	4,593.35	4,590.64	371.362	15	PVC	15th Street	Existing
D3-271-029	4,604.18	4,603.00	464.186	18	VCP	Grand Avenue	Existing
D3-271-038	4,599.05	4,595.79	445.686	15	PVC	15th Street	Existing
D3-271-055	4,601.95	4,599.05	397.208	15	PVC	15th Street	Existing
D3-271-059	4,602.09	4,601.95	19.942	15	PVC	15th Street	Existing
D3-271-068	4,610.32	4,609.63	95.022	15	PVC	15th Street	Existing
D3-271-069	4,609.63	4,607.45	298.119	15	PVC	15th Street	Existing
D3-271-070	4,607.45	4,604.42	415.97	15	PVC	15th Street	Existing
D3-271-072	4,604.42	4,602.09	318.094	15	PVC	15th Street	Existing
D3-271-075	4,610.76	4,610.32	59.991	15	PVC	15th Street	Existing
D3-271-111	4,605.40	4,604.18	441.6	18	VCP	Grand Avenue	Existing
D3-281-006	4,601.78	4,601.72	37.589	15	VCP	Rood Avenue	Existing
D4-221-004	4,658.76	4,654.62	251.838	12	PVC	Goat Wash	Existing
D4-221-005	4,654.52	4,650.54	350.65	12	PVC	Goat Wash	Existing
D4-221-008	4,650.44	4,645.81	300.612	12	PVC	Goat Wash	Existing
D4-221-009	4,640.75	4,637.90	198.99	15	PVC	Goat Wash	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D4-221-010	4,637.77	4,631.55	298.775	15	PVC	Goat Wash	Existing
D4-221-011	4,631.45	4,630.16	300.24	15	PVC	Goat Wash	Existing
D4-232-001	4,593.08	4,572.75	126.5	8	PVC	Scenic School	Existing
D4-232-002	4,572.53	4,554.95	141.3	8	PVC	Scenic School	Existing
D4-232-003	4,554.74	4,551.59	111.5	8	PVC	Scenic School	Existing
D4-232-004	4,551.41	4,549.55	131.2	8	PVC	Scenic School	Existing
D4-232-005	4,547.40	4,543.02	294.03	8	PVC	Scenic School	Existing
D4-232-006	4,542.82	4,533.87	422.7	8	PVC	Scenic School	Existing
D4-232-007	4,533.69	4,533.27	71.2	8	PVC	Scenic School	Existing
D4-232-008	4,526.81	4,524.29	205.6	8	PVC	Scenic School	Existing
D4-251-001	4,541.56	4,541.03	564.16	54	RCP	River Road	Existing
D4-251-005	4,541.81	4,541.60	480.618	54	RCP	River Road	Existing
D4-251-008	4,542.29	4,541.81	571.671	54	RCP	River Road	Existing
D4-251-018	4,542.41	4,542.29	125.788	54	RCP	River Road	Existing
D4-251-019	4,541.60	4,541.56	91.184	54	RCP	River Road	Existing
D4-271-014	4,620.92	4,619.45	201.031	15	PVC	15th Street	Existing
D4-271-015	4,619.45	4,616.97	339.939	15	PVC	15th Street	Existing
D4-271-018	4,616.97	4,614.52	335.413	15	PVC	15th Street	Existing
D4-271-021	4,614.52	4,610.76	515.485	15	PVC	15th Street	Existing
E1-221-001	4,630.05	4,629.03	200.12	15	PVC	Goat Wash	Existing
E1-221-001A	4,628.98	4,626.63	403.702	15	PVC	Goat Wash	Existing
E1-222-004	4,626.53	4,616.86	202.35	14	DIP	Goat Wash	Existing
E1-222-005	4,616.76	4,611.53	275.05	15	PVC	Goat Wash	Existing
E1-222-006	4,611.53	4,609.83	157.276	15	PVC	Goat Wash	Existing
E1-222-007	4,609.72	4,606.39	307.041	15	PVC	Goat Wash	Existing
E1-222-011	4,606.39	4,599.71	311.698	18	PVC	Goat Wash	Existing
E1-222-012	4,599.62	4,597.21	392.36	18	PVC	Goat Wash	Existing
E1-231-012	4,627.63	4,623.16	231.896	8	PVC	Connected Lakes	Existing
E1-232-001	4,524.29	4,527.07	982.8	6	PVC	Connected Lakes	Existing
E1-232-025	4,527.07	4,532.08	1,164.80	6	PVC	Connected Lakes	Existing
E1-242-001	4,538.07	4,537.93	164.394	54	RCP	River Road	Existing
E1-242-002	4,539.59	4,539.31	123.689	24		Horizon Drive	Existing
E1-251-001	4,540.69	4,538.07	625.102	54	RCP	River Road	Existing
E1-251-002	4,541.03	4,540.69	421.218	54	RCP	River Road	Existing
E1-251-003	4,540.76	4,539.90	516.239	24		Horizon Drive	Existing
E1-251-004	4,541.65	4,540.89	508.531	24		Horizon Drive	Existing
E1-251-007	4,543.10	4,542.09	361.751	24	CONCRETE	Horizon Drive	Existing
E1-251-018	4,544.60	4,543.17	379.857	24	CONCRETE	Horizon Drive	Existing
E1-251-019	4,545.14	4,544.64	131.2	24	CONCRETE	Horizon Drive	Existing
E1-251-020	4,545.20	4,545.14	21.386	24	CONCRETE	Horizon Drive	Existing
E1-251-021	4,545.79	4,545.20	200.146	24	CONCRETE	Horizon Drive	Existing
E1-251-023	4,546.77	4,545.79	326.95	24	CONCRETE	Horizon Drive	Existing
E1-251-025	4,539.90	4,539.74	99.122	24		Horizon Drive	Existing
E1-271-068	4,628.02	4,625.04	408.4	15	PVC	15th Street	Existing
E1-271-072	4,625.04	4,621.79	444.9	15	PVC	15th Street	Existing
E1-271-076	4,621.79	4,620.92	119.097	15	PVC	15th Street	Existing
E2-202-016	4,711.65	4,705.93	307.8	8	PVC		Existing
E2-222-015	4,567.50	4,559.61	337.25	18	PVC	Goat Wash	Existing
E2-222-016	4,570.44	4,567.89	9.98	12		Goat Wash	Existing
E2-222-017	4,579.68	4,572.72	83.02	18	PVC	Goat Wash	Existing
E2-222-028	4,593.04	4,591.61	73.964	8	PVC	Connected Lakes	Existing
E2-222-028A	4,596.12	4,593.14	154.521	8	PVC	Connected Lakes	Existing
E2-222-029	4,591.51	4,587.75	194.799	8	PVC	Connected Lakes	Existing
E2-222-030	4,587.65	4,586.97	35.03	8	PVC	Connected Lakes	Existing
E2-222-031	4,586.87	4,581.37	285.36	8	PVC	Connected Lakes	Existing
E2-222-036	4,559.30	4,555.83	176.628	18	PVC	Goat Wash	Existing
E2-222-037	4,555.76	4,548.93	333.084	18	PVC	Goat Wash	Existing
E2-222-040	4,571.36	4,567.89	163.213	8	PVC	Connected Lakes	Existing
E2-222-044	4,590.76	4,588.22	496.38	18	PVC	Goat Wash	Existing
E2-222-048	4,581.27	4,578.95	120.146	8	PVC	Connected Lakes	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E2-222-050	4,578.85	4,571.46	129.166	8	PVC	Connected Lakes	Existing
E2-222-067	4,595.73	4,590.82	434.11	18	PVC	Goat Wash	Existing
E2-222-075	4,597.10	4,596.10	86.953	18	PVC	Goat Wash	Existing
E2-231-002	4,603.37	4,596.22	370.312	12		Connected Lakes	Existing
E2-231-005	4,610.62	4,603.47	373.362	12		Connected Lakes	Existing
E2-231-006	4,615.27	4,610.72	235.57	12		Connected Lakes	Existing
E2-231-013	4,618.13	4,615.37	143.27	8	PVC	Connected Lakes	Existing
E2-231-021	4,623.06	4,618.23	249.903	8	PVC	Connected Lakes	Existing
E2-231-028	4,641.17	4,639.85	122.9	8	PVC	Connected Lakes	Existing
E2-231-029	4,639.69	4,638.76	95.054	8	PVC	Connected Lakes	Existing
E2-231-030	4,638.52	4,637.71	107.945	8	PVC	Connected Lakes	Existing
E2-231-031	4,637.60	4,632.91	315.864	8	PVC	Connected Lakes	Existing
E2-231-035	4,632.81	4,630.49	120.573	8	PVC	Connected Lakes	Existing
E2-231-037	4,630.39	4,627.73	137.563	8	PVC	Connected Lakes	Existing
E2-232-013	4,532.08	4,533.39	305.8	6	PVC	Connected Lakes	Existing
E2-232-014	4,533.39	4,643.59	1,085.30	6	PVC	Connected Lakes	Existing
E2-242-004	4,536.23	4,535.65	633.926	54	RCP	River Road	Existing
E2-242-011	4,536.71	4,536.23	604.045	54	RCP	River Road	Existing
E2-242-017	4,537.01	4,536.71	596.271	54	RCP	River Road	Existing
E2-242-024	4,537.65	4,537.01	552.418	54	RCP	River Road	Existing
E2-242-034	4,537.93	4,537.65	346.991	54	RCP	River Road	Existing
E2-251-027	4,542.09	4,541.72	192.634	24		Horizon Drive	Existing
E2-251-058	4,547.27	4,547.03	36.867	24	CONCRETE	Horizon Drive	Existing
E2-252-192	4,557.18	4,548.58	654	18	PVC	Horizon Drive	Existing
E2-252-193	4,565.18	4,557.37	475.1	18	PVC	Horizon Drive	Existing
E2-252-194	4,567.93	4,565.18	167.9	18	PVC	Horizon Drive	Existing
E2-252-196	4,557.37	4,557.18	11.8	18	PVC	Horizon Drive	Existing
E2-271-073	4,640.61	4,637.43	435.912	15	PVC	15th Street	Existing
E2-271-077	4,637.43	4,634.50	401.8	15	PVC	15th Street	Existing
E2-271-081	4,634.50	4,631.30	437.4	15	PVC	15th Street	Existing
E2-271-086	4,631.30	4,628.02	450.2	15	PVC	15th Street	Existing
E3-202-008	4,702.45	4,700.84	163.377	10	PVC		Existing
E3-202-008A	4,700.74	4,699.77	98.498	10	PVC		Existing
E3-202-009	4,705.83	4,705.23	61.23	10	PVC		Existing
E3-202-011	4,699.64	4,696.85	263.614	10	PVC		Existing
E3-202-012	4,696.79	4,687.93	301.465	10	PVC		Existing
E3-222-051	4,546.11	4,544.70	465.366	18	PVC	Goat Wash	Existing
E3-222-051A	4,547.31	4,546.11	274.16	18	PVC	Goat Wash	Existing
E3-222-065	4,548.83	4,547.41	187.682	18	PVC	Goat Wash	Existing
E3-231-006	4,544.56	4,542.00	900.02	21		Goat Wash	Existing
E3-241-015	4,533.01	4,531.11	896.457	54	RCP	River Road	Existing
E3-241-022	4,534.22	4,533.01	657.05	54	RCP	River Road	Existing
E3-241-028	4,534.67	4,534.22	444.899	54	RCP	River Road	Existing
E3-241-034	4,537.66	4,536.64	203.95	18	DI	24 1/2 Road	Existing
E3-241-036	4,539.03	4,537.66	247.017	18	PVC	24 1/2 Road	Existing
E3-241-048	4,541.05	4,540.95	36.539	18	PVC	24 1/2 Road	Existing
E3-241-049	4,540.95	4,539.03	252.56	18		24 1/2 Road	Existing
E3-242-002	4,535.29	4,534.67	508.006	54	RCP	River Road	Existing
E3-242-012	4,535.65	4,535.29	210.281	54	RCP	River Road	Existing
E3-252-001	4,576.93	4,575.97	435.978	18	CIP	Horizon Drive	Existing
E3-252-003	4,575.97	4,575.03	422.07	18	CIP	Horizon Drive	Existing
E3-252-004	4,575.03	4,574.81	13.5	18	PVC	Horizon Drive	Existing
E3-252-084	4,574.81	4,567.93	418.9	18	PVC	Horizon Drive	Existing
E3-252-085	4,577.07	4,576.93	62.9	18	PVC	Horizon Drive	Existing
E3-271-068	4,645.72	4,643.65	282.3	15	PVC	15th Street	Existing
E3-271-072	4,643.65	4,641.84	247.2	15	PVC	15th Street	Existing
E3-271-074	4,641.84	4,640.61	168.9	15	PVC	15th Street	Existing
E3-271-121	4,649.80	4,647.68	289.8	15	PVC	15th Street	Existing
E3-271-122	4,649.90	4,649.80	21	15	PVC	15th Street	Existing
E3-271-123	4,647.68	4,645.72	268.5	15	PVC	15th Street	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E4-202-001	4,687.84	4,682.01	194.078	12	PVC		Existing
E4-202-002	4,681.87	4,674.32	398.454	12	PVC		Existing
E4-202-003	4,674.21	4,671.73	131.626	12	PVC		Existing
E4-202-007	4,667.94	4,664.29	186.042	12	PVC		Existing
E4-202-009	4,671.73	4,668.17	189.387	12	PVC		Existing
E4-202-013	4,664.14	4,658.33	295.528	12	PVC		Existing
E4-202-014	4,656.10	4,646.58	340.628	12	PVC		Existing
E4-231-005	4,542.00	4,539.69	145.009	21	DIP	Goat Wash	Existing
E4-231-006	4,539.27	4,532.41	428.663	21	DIP	Goat Wash	Existing
E4-231-007	4,531.58	4,530.60	501.23	20	DIP	Goat Wash	Existing
E4-231-008	4,532.18	4,531.58	197.882	20	DIP	Goat Wash	Existing
E4-232-016	4,529.10	4,528.53	572.95	54	RCP	River Road	Existing
E4-241-005	4,529.85	4,529.10	673.974	54	RCP	River Road	Existing
E4-241-016	4,531.11	4,529.85	543.693	54	RCP	River Road	Existing
E4-241-075	4,547.08	4,544.15	241.703	18	PVC	24 1/2 Road	Existing
E4-241-077	4,544.15	4,543.11	355.847	18	PVC	24 1/2 Road	Existing
E4-241-078	4,543.11	4,541.95	306.418	18	PVC	24 1/2 Road	Existing
E4-241-079	4,541.95	4,541.82	54.874	18	PVC	24 1/2 Road	Existing
E4-241-080	4,541.82	4,541.05	326.852	18	PVC	24 1/2 Road	Existing
E4-241-081	4,547.62	4,547.08	97.941	18		24 1/2 Road	Existing
E4-242-014	4,549.43	4,547.75	383.727	18	PVC	Paradise Hills	Existing
E4-242-029	4,550.42	4,549.43	380.382	18	PVC	Paradise Hills	Existing
E4-242-034	4,550.83	4,550.42	114.866	18	PVC	Paradise Hills	Existing
E4-242-036	4,550.91	4,550.83	20.664	18	PVC	Paradise Hills	Existing
E4-242-045	4,551.79	4,550.91	246.164	18	PVC	Paradise Hills	Existing
E4-242-057	4,552.92	4,551.79	378.446	18	PVC	Paradise Hills	Existing
E4-242-062	4,554.02	4,552.92	380.218	18	PVC	Paradise Hills	Existing
E4-242-069	4,554.85	4,554.02	378.84	18	PVC	Paradise Hills	Existing
E4-242-078	4,555.69	4,554.85	339.382	18	PVC	Paradise Hills	Existing
E4-251-001	4,555.79	4,555.69	38.606	18	PVC	Paradise Hills	Existing
E4-252-009	4,577.14	4,577.07	32.4	18	PVC	Horizon Drive	Existing
E4-252-010	4,577.18	4,577.14	21.09	18	PVC	Horizon Drive	Existing
E4-252-011	4,577.52	4,577.18	153.865	18	PVC	Horizon Drive	Existing
E4-252-013	4,581.79	4,581.35	74.39	18	RCP	Horizon Drive	Existing
E4-252-014	4,581.34	4,581.22	21.484	18	PVC	Horizon Drive	Existing
E4-252-019	4,581.14	4,580.06	386.843	18	PVC	Horizon Drive	Existing
E4-252-021	4,579.99	4,578.73	440.93	18	PVC	Horizon Drive	Existing
E4-252-023	4,578.66	4,577.52	502.758	18	PVC	Horizon Drive	Existing
E4-252-033	4,583.11	4,581.79	328.689	18	RCP	Horizon Drive	Existing
E4-252-035	4,587.99	4,583.11	328.853	18	RCP	Horizon Drive	Existing
E4-252-037	4,590.20	4,587.99	339.546	18	RCP	Horizon Drive	Existing
E4-271-058	4,665.16	4,664.59	291.395	15	PVC	15th Street	Existing
E4-271-060	4,664.59	4,662.15	295.725	15	PVC	15th Street	Existing
E4-271-062	4,662.15	4,659.19	261.908	15	PVC	15th Street	Existing
E4-271-063	4,659.19	4,656.13	209.297	15	PVC	15th Street	Existing
E4-271-064	4,651.17	4,649.90	227.6	15	PVC	15th Street	Existing
F1-202-005	4,624.27	4,622.35	106.797	15	PVC		Existing
F1-202-006	4,626.01	4,624.39	79.966	14	DIP		Existing
F1-202-007	4,622.23	4,616.37	206.542	15	PVC		Existing
F1-202-008	4,628.00	4,626.13	224.057	15	PVC		Existing
F1-202-009	4,636.50	4,628.11	399.701	12	PVC		Existing
F1-202-010	4,646.50	4,636.58	400.455	12	PVC		Existing
F1-231-001	4,528.61	4,527.96	499.675	21	PVC	Goat Wash	Existing
F1-231-001A	4,529.72	4,528.61	499.05	20	DIP	Goat Wash	Existing
F1-231-002	4,530.60	4,529.72	500.42	20	DIP	Goat Wash	Existing
F1-232-001	4,526.89	4,526.32	528.047	54	RCP	River Road	Existing
F1-232-002	4,527.37	4,526.89	536.214	54	RCP	River Road	Existing
F1-232-008	4,530.29	4,530.09	24.2	15	PVC	24 Road	Existing
F1-232-012	4,527.92	4,527.77	152.5	54	RCP	River Road	Existing
F1-232-013	4,531.41	4,530.37	346.368	15	PVC	24 Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F1-232-014	4,533.42	4,533.25	29.454	15	PVC	24 Road	Existing
F1-232-017	4,533.11	4,531.82	401.242	15	PVC	24 Road	Existing
F1-232-019	4,531.76	4,531.43	108.699	15	PVC	24 Road	Existing
F1-232-033	4,528.53	4,527.92	581.216	54	RCP	River Road	Existing
F1-232-066	4,527.77	4,527.37	421.9	54	RCP	River Road	Existing
F1-241-050	4,552.55	4,549.66	223.434	15	PVC	24 1/2 Road	Existing
F1-241-109	4,553.53	4,552.55	465	15	PVC	24 1/2 Road	Existing
F1-241-110	4,554.75	4,553.71	470.8	15	PVC	24 1/2 Road	Existing
F1-242-001	4,549.66	4,547.62	158.293	15	PVC	24 1/2 Road	Existing
F1-251-003	4,555.90	4,555.79	45.953	18	PVC	Paradise Hills	Existing
F1-251-015	4,557.63	4,555.90	358.012	15	PVC	Paradise Hills	Existing
F1-251-023	4,559.69	4,557.63	391.271	15	PVC	Paradise Hills	Existing
F1-251-031	4,561.00	4,559.69	158.358	15	PVC	Paradise Hills	Existing
F1-251-033	4,561.58	4,561.00	121.7	15	VCP	Paradise Hills	Existing
F1-251-034	4,562.43	4,561.89	139.3	15	VCP	Paradise Hills	Existing
F1-251-039	4,564.24	4,562.43	344.859	15	VCP	Paradise Hills	Existing
F1-251-040	4,565.92	4,564.24	346.106	15	VCP	Paradise Hills	Existing
F1-251-041	4,566.47	4,565.92	108.666	15	VCP	Paradise Hills	Existing
F1-251-044	4,567.63	4,566.47	228.911	15	VCP	Paradise Hills	Existing
F1-251-047	4,569.24	4,567.63	339.218	15	VCP	Paradise Hills	Existing
F1-251-048	4,571.12	4,570.21	156.948	15	VCP	Paradise Hills	Existing
F1-251-049	4,572.58	4,571.60	219.6	15	VCP	Paradise Hills	Existing
F1-251-050	4,574.53	4,572.58	329.017	15	PVC	Paradise Hills	Existing
F1-251-068	4,570.21	4,569.24	168.1	15	VCP	Paradise Hills	Existing
F1-251-106	4,561.89	4,561.58	79.3	15	VCP	Paradise Hills	Existing
F1-251-108	4,571.60	4,571.12	107.6	12		Paradise Hills	Existing
F1-252-017	4,592.37	4,590.20	209.067	18	RCP	Horizon Drive	Existing
F1-252-033	4,593.99	4,592.37	156.1	18	RCP	Horizon Drive	Existing
F1-252-039	4,598.44	4,593.99	545.1	18	RCP	Horizon Drive	Existing
F1-261-003	4,601.05	4,600.19	48.5	15	RCP	Horizon Drive	Existing
F1-261-004	4,600.19	4,598.44	112.8	18	RCP	Horizon Drive	Existing
F1-261-009	4,602.40	4,601.34	152.586	15	RCP	Horizon Drive	Existing
F1-261-026	4,603.63	4,602.40	176.4	15	RCP	Horizon Drive	Existing
F1-261-040	4,605.33	4,603.63	245	15	RCP	Horizon Drive	Existing
F1-261-048	4,607.00	4,605.33	241.9	15	RCP	Horizon Drive	Existing
F1-261-058	4,610.87	4,607.30	309.206	15	RCP	Horizon Drive	Existing
F1-261-064	4,613.31	4,610.91	239.998	15	RCP	Horizon Drive	Existing
F1-261-070	4,615.23	4,613.31	191.814	15	RCP	Horizon Drive	Existing
F1-261-075	4,615.99	4,615.23	100.106	15	RCP	Horizon Drive	Existing
F1-261-078	4,618.31	4,615.99	304.515	15	RCP	Horizon Drive	Existing
F1-261-081	4,620.40	4,619.21	215.201	15	RCP	Horizon Drive	Existing
F1-261-089	4,621.95	4,620.40	281.654	15	RCP	Horizon Drive	Existing
F1-261-095	4,624.44	4,623.16	229.141	15	RCP	Horizon Drive	Existing
F1-261-097	4,624.85	4,624.44	73.767	15	RCP	Horizon Drive	Existing
F1-261-106	4,625.38	4,624.85	96.038	15	RCP	Horizon Drive	Existing
F1-271-101	4,666.06	4,665.41	331.4	15	VCP	15th Street	Existing
F1-271-103	4,665.41	4,665.16	83.7	15	PVC	15th Street	Existing
F2-202-001	4,616.31	4,613.21	209.986	15	PVC		Existing
F2-202-002	4,604.15	4,599.43	331.51	15	PVC		Existing
F2-202-003	4,610.41	4,607.10	214.118	15	PVC		Existing
F2-202-004	4,597.01	4,593.69	252.855	15	PVC		Existing
F2-202-005	4,606.99	4,604.26	165.148	15	PVC		Existing
F2-202-006	4,593.41	4,585.36	264.204	15	PVC		Existing
F2-202-007	4,599.29	4,597.14	129.593	15	PVC		Existing
F2-202-023	4,613.03	4,610.44	218.907	15	PVC		Existing
F2-202-024	4,585.27	4,578.45	354.306	15	PVC		Existing
F2-231-004	4,524.32	4,523.89	701.526	54	RCP	River Road	Existing
F2-231-010	4,525.21	4,524.32	831.316	54	RCP	River Road	Existing
F2-231-016	4,525.73	4,525.21	492.361	54	RCP	River Road	Existing
F2-231-023	4,526.32	4,525.73	610.769	54	RCP	River Road	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F2-231-024	4,527.82	4,527.40	464.874	21	PVC	Goat Wash	Existing
F2-232-002	4,537.77	4,536.80	323.736	15	PVC	24 Road	Existing
F2-232-003	4,536.76	4,535.92	287.951	15	PVC	24 Road	Existing
F2-232-004	4,535.89	4,535.82	24.042	15	PVC	24 Road	Existing
F2-232-005	4,535.76	4,534.87	326.196	15	PVC	24 Road	Existing
F2-232-006	4,534.71	4,533.58	344.695	15	PVC	24 Road	Existing
F2-232-007	4,538.55	4,538.01	257.185	15	PVC	24 Road	Existing
F2-242-055	4,555.85	4,554.92	455	15	PVC	24 1/2 Road	Existing
F2-242-056	4,557.08	4,556.03	434.7	15	PVC	24 1/2 Road	Existing
F2-251-012	4,583.65	4,583.39	37.851	15	PVC	Paradise Hills	Existing
F2-251-016	4,581.40	4,579.28	324.064	15	PVC	Paradise Hills	Existing
F2-251-017	4,579.28	4,577.52	248.854	15	PVC	Paradise Hills	Existing
F2-251-018	4,576.98	4,574.53	320.095	15	PVC	Paradise Hills	Existing
F2-251-028	4,583.39	4,581.40	285.885	15	PVC	Paradise Hills	Existing
F2-252-027	4,577.52	4,576.98	76.522	15	PVC	Paradise Hills	Existing
F2-261-053	4,635.22	4,630.88	317.242	15	RCP	Horizon Drive	Existing
F2-262-011	4,640.09	4,635.32	502.594	15	RCP	Horizon Drive	Existing
F2-262-017	4,644.05	4,640.09	263.515	15	RCP	Horizon Drive	Existing
F2-262-020	4,646.00	4,644.05	130.282	15	RCP	Horizon Drive	Existing
F2-262-029	4,650.32	4,646.00	408.262	15	RCP	Horizon Drive	Existing
F2-262-032	4,651.58	4,650.32	299.694	15	RCP	Horizon Drive	Existing
F2-262-038	4,655.55	4,653.48	291.494	15	RCP	Horizon Drive	Existing
F3-202-006	4,578.39	4,577.44	64.452	15	PVC		Existing
F3-202-007	4,577.44	4,573.23	286.902	15	PVC		Existing
F3-211-010	4,573.13	4,568.35	259.579	15	PVC		Existing
F3-211-011	4,567.19	4,563.42	253.38	15	PVC		Existing
F3-211-012	4,563.08	4,561.63	90.79	15	PVC		Existing
F3-211-013	4,561.45	4,557.41	280.014	15	PVC		Existing
F3-222-007	4,522.40	4,521.71	701.166	54	RCP	River Road	Existing
F3-222-008	4,523.05	4,522.40	694.179	54	RCP	River Road	Existing
F3-222-008A	4,523.59	4,523.05	478.3	54	RCP	River Road	Existing
F3-222-019	4,521.71	4,521.18	595.681	54	RCP	River Road	Existing
F3-231-015	4,523.89	4,523.59	478.3	54	RCP	River Road	Existing
F3-232-001	4,538.86	4,538.60	76.227	15	PVC	24 Road	Existing
F3-232-002	4,539.70	4,538.93	323.998	15	PVC	24 Road	Existing
F3-232-003	4,540.54	4,539.72	319.242	15	PVC	24 Road	Existing
F3-232-004	4,548.18	4,546.81	339	16	HDPE	24 Road	Existing
F3-232-005	4,546.75	4,545.78	342.7	16	HDPE	24 Road	Existing
F3-232-006	4,545.74	4,544.53	294.9	16	HDPE	24 Road	Existing
F3-232-007	4,544.53	4,540.56	330.3	15	PVC	24 Road	Existing
F3-241-004	4,559.45	4,559.19	27.9	15	PVC	24 1/2 Road	Existing
F3-241-005	4,560.25	4,559.60	309	15	PVC	24 1/2 Road	Existing
F3-241-006	4,561.28	4,560.44	339.5	15	PVC	24 1/2 Road	Existing
F3-242-010	4,558.20	4,557.28	444.8	15	PVC	24 1/2 Road	Existing
F3-242-011	4,559.03	4,558.38	304.6	15	PVC	24 1/2 Road	Existing
F3-251-023	4,590.13	4,587.17	444.571	15	PVC	Paradise Hills	Existing
F3-251-024	4,585.33	4,583.65	324.392	15	PVC	Paradise Hills	Existing
F3-251-082	4,587.17	4,585.33	130.938	15	PVC	Paradise Hills	Existing
F3-252-001	4,593.68	4,592.21	150.027	15	PVC	Paradise Hills	Existing
F3-252-003	4,592.21	4,590.13	212.839	15	PVC	Paradise Hills	Existing
F3-262-038	4,659.00	4,655.55	301.662	15	RCP	Horizon Drive	Existing
F3-262-052	4,660.53	4,659.00	369.623	15	RCP	Horizon Drive	Existing
F3-262-057	4,664.20	4,660.53	327.869	15	RCP	Horizon Drive	Existing
F3-262-063	4,672.06	4,665.70	301.202	15	RCP	Horizon Drive	Existing
F3-271-152	4,675.11	4,673.60	300.514	15	RCP	Horizon Drive	Existing
F3-271-152A	4,673.60	4,672.36	293.2	15	RCP	Horizon Drive	Existing
F3-271-153	4,675.60	4,675.26	20.2	15	PVC	Horizon Drive	Existing
F4-0232-BV	4,552.06	4,551.69	317.28	12		24 Road	Existing
F4-211-002	4,556.72	4,551.06	252.56	15	PVC		Existing
F4-211-003	4,544.08	4,543.65	21.976	15	PVC		Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F4-211-004	4,538.94	4,527.02	159.9	15	PVC		Existing
F4-211-005	4,526.75	4,523.36	133.463	15	PVC		Existing
F4-211-006	4,517.22	4,516.63	93.04	15	PVC		Existing
F4-211-007	4,516.33	4,511.16	344.892	15	PVC		Existing
F4-211-013	4,523.75	4,519.02	99.45	15	PVC		Existing
F4-211-014	4,518.73	4,517.70	106.895	15	PVC		Existing
F4-211-015	4,543.65	4,541.94	87.543	15	PVC		Existing
F4-221-022	4,519.88	4,519.04	670.202	54	RCP	River Road	Existing
F4-222-003	4,520.51	4,519.88	671.416	54	RCP	River Road	Existing
F4-222-013	4,521.18	4,520.51	603.094	54	RCP	River Road	Existing
F4-232-004	4,551.59	4,551.15	352.6	12	PVC	24 Road	Existing
F4-232-005	4,551.10	4,549.36	308	12	HDPE	24 Road	Existing
F4-232-006	4,549.28	4,548.22	336.6	16	HDPE	24 Road	Existing
F4-241-002	4,558.40	4,557.49	81.5	10	PVC	24 Road	Existing
F4-241-003	4,560.16	4,558.53	405.014	10	PVC	24 Road	Existing
F4-241-004	4,561.33	4,560.16	394.781	10	PVC	24 Road	Existing
F4-241-005	4,562.70	4,561.33	399.963	10	PVC	24 Road	Existing
F4-241-006	4,565.23	4,562.70	400.357	10	PVC	24 Road	Existing
F4-241-007	4,566.91	4,565.23	399.734	10	PVC	24 Road	Existing
F4-241-008	4,568.35	4,566.91	387.401	10	PVC	24 Road	Existing
F4-241-009	4,562.23	4,561.47	351.5	15	PVC	24 1/2 Road	Existing
F4-241-010	4,563.15	4,562.45	300	15	PVC	24 1/2 Road	Existing
F4-241-011	4,564.41	4,563.36	350	15	PVC	24 1/2 Road	Existing
F4-251-016	4,605.10	4,601.99	346.138	15	PVC	Paradise Hills	Existing
F4-251-022	4,601.99	4,599.02	349.287	15	PVC	Paradise Hills	Existing
F4-251-023	4,599.02	4,596.44	347.188	15	PVC	Paradise Hills	Existing
F4-252-003	4,596.44	4,593.68	367.786	15	PVC	Paradise Hills	Existing
F4-252-005	4,608.55	4,605.10	352.928	15	PVC	Paradise Hills	Existing
F4-271-034	4,700.50	4,699.60	93.054	15	RCP	Horizon Drive	Existing
F4-271-034A	4,699.51	4,698.60	104.1	15	RCP	Horizon Drive	Existing
F4-271-069	4,696.03	4,692.78	410	15	PVC	Horizon Drive	Existing
F4-271-070	4,680.25	4,675.60	487.7	15	PVC	Horizon Drive	Existing
F4-271-072	4,684.12	4,681.27	601.5	15	PVC	Horizon Drive	Existing
F4-271-073	4,691.57	4,685.07	573.1	15	PVC	Horizon Drive	Existing
F4-271-075	4,698.60	4,696.09	288.8	15	RCP	Horizon Drive	Existing
G1-211-001	4,507.06	4,515.66	3,785.00	12	DIP		Existing
G1-211-003	4,504.06	4,503.70	286.8	15	PVC		Existing
G1-221-001	4,516.73	4,516.37	663.61	54	RCP	River Road	Existing
G1-221-005	4,517.71	4,516.73	679.583	54	RCP	River Road	Existing
G1-221-010	4,518.56	4,517.71	678.534	54	RCP	River Road	Existing
G1-221-029	4,519.04	4,518.56	656.197	54	RCP	River Road	Existing
G1-232-012	4,552.92	4,552.15	388.96	12		24 Road	Existing
G1-241-001	4,557.49	4,554.47	74.11	12	PVC	24 Road	Existing
G1-241-002	4,568.73	4,568.45	59.204	10	PVC	24 Road	Existing
G1-242-001	4,570.26	4,568.83	502.365	10	PVC	24 Road	Existing
G1-242-006	4,571.33	4,570.26	338.988	10	PVC	24 Road	Existing
G1-242-014	4,572.57	4,571.33	324.818	10	PVC	24 Road	Existing
G1-242-025	4,573.81	4,572.57	303.367	10	PVC	24 Road	Existing
G1-242-028	4,573.88	4,573.81	17.876	10	PVC	24 Road	Existing
G1-242-038	4,574.89	4,573.88	340.89	10	PVC	24 Road	Existing
G1-242-045	4,575.95	4,574.89	334.396	10	PVC	24 Road	Existing
G1-252-004	4,614.01	4,610.79	319.997	12	PVC	Paradise Hills	Existing
G1-252-005	4,610.79	4,608.55	354.666	15	PVC	Paradise Hills	Existing
G1-252-006	4,615.08	4,614.01	165.574	12	PVC	Paradise Hills	Existing
G1-252-007	4,616.78	4,615.08	299.53	12	PVC	Paradise Hills	Existing
G1-252-008	4,617.98	4,616.78	170.134	12	PVC	Paradise Hills	Existing
G1-252-009	4,620.11	4,617.98	310.157	12	PVC	Paradise Hills	Existing
G1-252-011	4,621.45	4,620.11	231.896	12	PVC	Paradise Hills	Existing
G1-271-007	4,700.96	4,700.50	47.954	15	RCP	Horizon Drive	Existing
G1-271-013	4,702.45	4,700.96	155.242	15	RCP	Horizon Drive	Existing

Pipe Input Data from Existing System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
G1-271-030	4,703.94	4,702.45	263.253	15	RCP	Horizon Drive	Existing
G1-271-042	4,704.45	4,703.98	92.726	15	RCP	Horizon Drive	Existing
G1-271-047	4,710.11	4,705.74	312.814	15	RCP	Horizon Drive	Existing
G1-272-045	4,713.46	4,710.19	588.76	15	RCP	Horizon Drive	Existing
G1-272-065	4,713.80	4,713.46	61.828	15	RCP	Horizon Drive	Existing
G1-272-066	4,713.99	4,713.80	34.243	15	RCP	Horizon Drive	Existing
G2-212-001	4,511.84	4,511.66	433.386	54	RCP	River Road	Existing
G2-212-002	4,512.35	4,512.14	80.065	54	RCP	River Road	Existing
G2-212-002A	4,512.14	4,511.84	445.326	54	RCP	River Road	Existing
G2-212-014A	4,516.55	4,513.85	145.763	18	RCP	River Road	Existing
G2-212-015	4,515.25	4,515.05	87.97	54	RCP	River Road	Existing
G2-212-032	4,515.90	4,515.45	384.9	54	RCP	River Road	Existing
G2-212-035	4,516.04	4,515.90	143.992	54	RCP	River Road	Existing
G2-212-038	4,516.31	4,516.04	241.638	54	RCP	River Road	Existing
G2-212-041	4,516.37	4,516.31	85.641	54	RCP	River Road	Existing
G2-212-047	4,515.45	4,515.25	293.6	54	RCP	River Road	Existing
G2-252-043	4,624.69	4,623.00	234.356	12	PVC	Paradise Hills	Existing
G2-252-044	4,626.85	4,624.69	348.074	12	PVC	Paradise Hills	Existing
G2-252-045	4,623.00	4,621.45	231.404	12	PVC	Paradise Hills	Existing
G2-252-046	4,629.20	4,626.85	356.962	12	PVC	Paradise Hills	Existing
G2-252-047	4,636.54	4,629.20	355.814	12	PVC	Paradise Hills	Existing
G2-272-014	4,715.85	4,713.99	357.684	15	RCP	Horizon Drive	Existing
G2-272-036	4,720.62	4,718.80	363.686	15	RCP	Horizon Drive	Existing
G2-272-049	4,721.87	4,720.62	247.902	15	RCP	Horizon Drive	Existing
G2-272-055	4,724.49	4,724.00	123.886	15	RCP	Horizon Drive	Existing
G2-272-068	4,724.93	4,724.49	111.717	15	RCP	Horizon Drive	Existing
G2-272-080	4,731.50	4,727.50	342	15	RCP	Horizon Drive	Existing
G3-211-015	4,511.57	4,511.17	336.364	54	RCP	River Road	Existing
G3-211-018	4,511.17	4,510.87	256.89	54	RCP	River Road	Existing
G3-212-006	4,515.66	4,514.91	32.997	15	PVC		Existing
G3-212-007	4,511.66	4,511.57	231.076	54	RCP	River Road	Existing
G3-252-026	4,642.80	4,639.47	305.106	12	PVC	Paradise Hills	Existing
G3-252-027	4,650.29	4,642.80	189.617	12	PVC	Paradise Hills	Existing
G3-252-028	4,639.47	4,638.48	164.295	12	PVC	Paradise Hills	Existing
G3-252-029	4,638.48	4,636.54	299.53	12	PVC	Paradise Hills	Existing
G3-252-030	4,657.84	4,650.29	240.621	12	PVC	Paradise Hills	Existing
G3-252-031	4,659.59	4,657.84	252.101	12	PVC	Paradise Hills	Existing
G3-252-032	4,661.34	4,659.59	313.765	12	PVC	Paradise Hills	Existing
G4-252-008	4,662.47	4,661.34	158.588	12	PVC	Paradise Hills	Existing
G4-252-008A	4,663.19	4,662.47	102.303	12	PVC	Paradise Hills	Existing
G4-261-008	4,679.32	4,677.37	178.662	8	PVC	Paradise Hills	Existing
G4-261-015	4,677.17	4,676.45	180.334	8	PVC	Paradise Hills	Existing
G4-261-016	4,676.25	4,675.92	121.524	8	PVC	Paradise Hills	Existing
G4-261-017	4,675.82	4,669.37	214.2	12	PVC	Paradise Hills	Existing
G4-261-018	4,667.52	4,666.30	195.652	12	PVC	Paradise Hills	Existing
G4-261-020	4,666.30	4,664.93	200.736	12	PVC	Paradise Hills	Existing
G4-261-021	4,664.93	4,663.19	228.485	12	PVC	Paradise Hills	Existing
G4-261-029	4,669.37	4,667.52	313.8	12	PVC	Paradise Hills	Existing
H1-261-006	4,701.96	4,701.33	74.3	10	PVC	Paradise Hills	Existing
H1-261-008	4,697.93	4,697.73	6	10	PVC	Paradise Hills	Existing
H1-261-009	4,697.63	4,692.71	360.308	8	PVC	Paradise Hills	Existing
H1-261-010	4,692.71	4,689.30	350.074	8	PVC	Paradise Hills	Existing
H1-261-011	4,688.00	4,682.72	388.483	8	PVC	Paradise Hills	Existing
H1-261-012	4,682.52	4,680.37	208.5	8	PVC	Paradise Hills	Existing
H1-261-015	4,680.17	4,679.52	66.3	8	PVC	Paradise Hills	Existing
H1-261-025	4,701.02	4,698.18	225.5	10	PVC	Paradise Hills	Existing
H1-262-023	4,705.38	4,701.96	335.675	10	PVC	Paradise Hills	Existing

Notes:

1) All gravity lines have an "n-value" of 0.013

2) All force mains have a "C-value" of 110

Wet Well Input Information Existing System Scenarios

ID	Description	Type	Bottom Elevation	Minimum Level	Maximum Level	Initial Level	Diameter
			(feet)	(feet)	(feet)	(feet)	(feet)
9000	Connected Lakes LS	0: Cylindrical	4,518.81	0	25	0.5	6
9002	Ridges LS	0: Cylindrical	4,613.17	2.6	18	2.7	8
9006	Lime Kiln Gulch LS	0: Cylindrical	4,516.82	0	15.5	0.5	6
9008	Rosevale LS	0: Cylindrical	4,530.00	0	15	3	6
9010	Tiara Rado LS	0: Cylindrical	4,487.25	1	24	1	8

Pump Input Information Existing System Scenarios

ID	Description	Pump Type	Pump Capacity
			(mgd)
5008	Ridges Pump #1	0: Constant Capacity	0.429
5010	Ridges Pump #2	0: Constant Capacity	0.429
5016	Redlands Village Pump #1	0: Constant Capacity	0.279
5018	Redlands Village Pump #2	0: Constant Capacity	0.279
5020	Rosevale Pump #1	0: Constant Capacity	0.684
5022	Rosevale Pump #2	0: Constant Capacity	0.684
5024	Tiara Rado Pump #1	0: Constant Capacity	3.27
5026	Tiara Rado Pump #2	0: Constant Capacity	3.27
5038	Connected Lakes Pump #1	0: Constant Capacity	0.212
5040	Connected Lakes Pump #2	0: Constant Capacity	0.212

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.052	08:00 hr	0.83	0.148	0.084	0.015
0G1-271-041	G1-271-042	G1-271-041	0.426	08:29 hr	2.656	0.32	0.256	0.144
101	64	66	0.308	44:00 hr	1.918	0.447	0.67	0.79
103	66	68	0.308	43:58 hr	2.476	0.361	0.541	0.57
105	68	70	0.308	43:59 hr	2.354	0.375	0.563	0.608
107	70	74	0.312	43:59 hr	6.21	0.183	0.274	0.164
111	74	76	0.313	43:59 hr	6.006	0.188	0.281	0.173
1127	14	9002	0.171	07:59 hr	13.336	0.071	0.106	0.024
113	76	78	0.318	43:59 hr	7.124	0.168	0.252	0.139
115	78	80	0.319	43:59 hr	7.367	0.164	0.247	0.133
117	80	82	0.319	43:59 hr	7.394	0.164	0.246	0.133
119	82	E2-222-016	0.319	43:59 hr	7.392	0.164	0.246	0.133
121	132	134	0.094	07:59 hr	5.224	0.09	0.134	0.039
123	134	136	0.094	07:58 hr	7.176	0.072	0.108	0.025
125	136	9006	0.105	07:58 hr	4.092	0.114	0.172	0.064
127	140	9006	0.048	07:56 hr	1.854	0.115	0.173	0.065
137	150	48	0.293	07:46 hr	3.111	0.29	0.435	0.392
139	C1-261-020	770	2.924	10:15 hr	3.516	0.857	0.429	0.382
141	770	772	2.927	10:17 hr	3.717	0.823	0.411	0.355
143	772	774	2.929	10:30 hr	3.129	0.939	0.469	0.448
145	774	776	2.939	10:33 hr	2.842	1.015	0.507	0.513
147	776	778	2.937	10:32 hr	3.439	0.875	0.437	0.396
153	778	780	2.934	10:33 hr	3.025	0.965	0.482	0.47
155	780	C2-261-001	2.933	10:42 hr	2.756	1.038	0.519	0.532
157	C2-261-001	C3-261-013	1.376	10:43 hr	7.434	0.393	0.393	0.326
161	802	9000	0.067	08:04 hr	1.528	0.152	0.182	0.073
163	SS_3	C3-271-012	1.758	08:33 hr	2.298	0.726	0.29	0.184
165	SS_1_A	C3-271-007	1.751	08:32 hr	3.302	0.67	0.402	0.34
167	SS_4	SS_3	1.764	08:31 hr	2.291	0.729	0.292	0.186
169	SS_5	SS_4	1.767	08:30 hr	2.365	0.791	0.395	0.33
171	SS_6	SS_5	1.532	08:31 hr	2.253	0.737	0.369	0.29
173	804	SS_8	1.529	08:12 hr	2.247	0.738	0.369	0.29
175	SS_8	SS_7	1.53	08:19 hr	2.248	0.738	0.369	0.29
177	SS_7	SS_6	1.532	08:30 hr	2.25	0.738	0.369	0.291
57	E3-202-BV	E3-202-010	0.157	08:15 hr	2.636	0.188	0.225	0.111
757	1428	BV-105	0.39	21:50 hr	1.851	0.481	0.578	0.633
759	1428	1430	0.296	21:51 hr	1.695	0.482	0.722	0.872
761	1430	D2-252-004	0.294	21:59 hr	3.23	0.283	0.424	0.375
763	G2-212-014	G2-212-003	11.45	37:58 hr	10.394	0.947	0.379	0.305
773	B2-282-047	B2-282-046	0.409	08:30 hr	2.745	0.335	0.335	0.242
775	B2-282-046	B2-282-041	0.408	08:29 hr	3.705	0.269	0.269	0.159
777	B2-282-041	B2-282-037	0.406	08:32 hr	1.148	0.658	0.658	0.769
779	B2-282-037	B2-282-036	0.406	08:45 hr	2.453	0.362	0.362	0.28
781	B2-282-036	B2-282-003	0.406	08:46 hr	2.431	0.364	0.364	0.283
785	B2-282-003	B2-281-013	0.404	08:45 hr	2.429	0.363	0.363	0.282
787	B2-281-013	B2-281-027	0.404	08:46 hr	2.725	0.333	0.333	0.24
789	B2-281-027	B2-281-006	0.403	08:49 hr	2.554	0.349	0.349	0.262
791	B2-281-006	B2-281-005	0.404	09:01 hr	2.294	0.378	0.378	0.304
793	B2-281-005	B2-281-004	0.403	09:01 hr	2.355	0.37	0.37	0.293
795	B2-281-004	B2-281-003	0.402	09:01 hr	2.287	0.378	0.378	0.304
797	B2-281-003	B2-281-002	0.607	09:00 hr	2.443	0.492	0.492	0.486
799	B2-281-002	B2-281-029	0.606	09:01 hr	2.479	0.485	0.485	0.475
801	B2-281-029	B2-281-001	0.603	08:58 hr	1.188	1	1	1.125
803	B2-281-001	B2-281-022	0.604	09:04 hr	2.311	0.512	0.512	0.52
805	B2-281-022	B2-281-020	0.601	09:10 hr	2.867	0.432	0.432	0.387
807	B2-281-020	B2-272-030	0.601	09:20 hr	1.905	0.596	0.596	0.666
809	B2-272-030	B2-272-029	0.6	09:17 hr	2.692	0.452	0.452	0.419
811	B2-272-029	B2-272-028	0.599	09:24 hr	2.445	0.486	0.486	0.477
813	B2-272-028	B2-272-027	0.686	09:26 hr	2.809	0.485	0.485	0.475
85	48	50	0.308	08:01 hr	2.314	0.381	0.571	0.622
87	50	52	0.309	08:13 hr	1.941	0.443	0.664	0.78
889	B2-272-008	B2-272-005	0.259	09:12 hr	1.694	0.309	0.248	0.134

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
89	52	54	0.309	08:16 hr	2.333	0.379	0.568	0.617
891	B2-272-005	B2-271-022	0.259	09:16 hr	1.94	0.281	0.225	0.111
893	B2-271-022	B2-271-031	0.258	09:16 hr	1.698	0.308	0.246	0.133
895	B2-271-031	B2-271-020	0.258	09:30 hr	2.446	0.239	0.191	0.08
897	B2-271-020	B2-271-019	0.258	09:29 hr	4.158	0.165	0.132	0.037
91	54	56	0.307	08:15 hr	2.358	0.374	0.561	0.605
93	56	58	0.305	08:16 hr	2.439	0.362	0.543	0.573
95	58	60	0.304	43:55 hr	2.517	0.352	0.528	0.548
97	60	62	0.305	43:53 hr	2.432	0.362	0.543	0.574
99	62	64	0.306	43:55 hr	2.249	0.387	0.581	0.639
B1-272-001	B1-272-001	B1-272-010	0.263	08:43 hr	1.943	0.312	0.312	0.212
B1-272-002	B1-272-002	B1-272-001	0.211	08:43 hr	2.114	0.272	0.326	0.23
B1-272-003	B1-272-003	B1-272-002	0.212	08:40 hr	2.03	0.28	0.336	0.244
B1-272-005	B1-272-005	B1-272-003	0.212	08:32 hr	2.139	0.271	0.325	0.228
B1-272-007	B1-272-007	B1-272-005	0.213	08:31 hr	1.869	0.3	0.36	0.277
B1-272-010	B1-272-010	B1-272-012	0.263	08:45 hr	2.129	0.292	0.292	0.186
B1-281-001	B1-281-001	B1-272-007	0.214	08:32 hr	2.046	0.281	0.338	0.246
B1-281-002	B1-281-002	B1-281-001	0.215	08:30 hr	2.067	0.28	0.336	0.243
B1-281-004	B1-281-004	B1-281-002	0.214	08:19 hr	2.421	0.249	0.299	0.195
B1-281-005	B1-281-005	B1-281-004	0.087	08:15 hr	1.823	0.161	0.193	0.081
B1-281-006	B1-281-006	B1-281-005	0.087	08:13 hr	1.783	0.163	0.196	0.084
B1-281-007	B1-281-007	B1-281-006	0.087	08:13 hr	2.297	0.137	0.165	0.059
B1-281-009	B1-281-009	B1-281-007	0.087	08:01 hr	2.271	0.138	0.166	0.06
B1-281-010	B1-281-010	B1-281-009	0.087	07:58 hr	2.243	0.139	0.167	0.06
B1-292-001	B1-292-001	B1-292-002	0.016	08:00 hr	0.769	0.091	0.109	0.025
B1-292-002	B1-292-002	B1-292-003	0.016	08:21 hr	0.695	0.099	0.119	0.03
B1-292-003	B1-292-003	B1-292-004	0.016	08:20 hr	0.836	0.087	0.104	0.023
B1-292-004	B1-292-004	B1-292-010	0.016	08:14 hr	1.338	0.061	0.074	0.011
B1-292-010	B1-292-010	B1-292-011	0.016	08:19 hr	1.356	0.061	0.074	0.011
B1-292-011	B1-292-011	B1-292-012	0.015	08:15 hr	1.946	0.047	0.056	0.006
B1-292-012	B1-292-012	B1-292-013	0.016	08:33 hr	0.686	0.099	0.118	0.03
B1-292-013	B1-292-013	B1-292-014	0.016	08:25 hr	1.16	0.073	0.109	0.025
B1-292-014	B1-292-014	B1-292-015	0.016	08:29 hr	0.975	0.076	0.091	0.017
B1-292-015	B1-292-015	B1-292-016	0.015	08:26 hr	1.223	0.064	0.077	0.012
B1-292-016	B1-292-016	B2-292-023	0.015	08:26 hr	1.708	0.055	0.083	0.014
B2-271-019	B2-271-019	B3-271-059	1.341	09:31 hr	2.9	0.707	0.565	0.612
B2-272-004	B2-272-004	B2-271-019	0.954	09:30 hr	2.691	0.573	0.458	0.43
B2-272-007	B2-272-007	B2-272-004	0.95	09:29 hr	2.676	0.573	0.459	0.431
B2-272-009	B2-272-009	B2-272-007	0.946	09:28 hr	2.685	0.57	0.456	0.427
B2-272-012	B1-272-012	B1-272-013	0.263	08:48 hr	2.08	0.27	0.216	0.103
B2-272-013	B1-272-013	B1-272-015	0.262	08:56 hr	2.183	0.261	0.209	0.095
B2-272-014	B2-272-014	B2-272-009	0.944	09:30 hr	2.212	0.662	0.53	0.551
B2-272-015	B1-272-015	B1-272-016	0.261	08:55 hr	1.921	0.285	0.228	0.114
B2-272-016	B1-272-016	B2-272-021	0.261	09:02 hr	1.752	0.304	0.243	0.13
B2-272-017	B2-272-017	B2-272-008	0.26	09:14 hr	1.756	0.303	0.242	0.128
B2-272-021	B2-272-021	B2-272-017	0.26	09:00 hr	1.773	0.3	0.24	0.127
B2-272-027	B2-272-027	B2-272-033	0.88	09:30 hr	2.826	0.59	0.59	0.654
B2-272-033	B2-272-033	B2-272-014	0.888	09:30 hr	3.466	0.504	0.504	0.506
B2-282-048	B2-282-048	B2-282-047	0.411	08:32 hr	2.45	0.365	0.365	0.285
B2-282-051	B2-282-051	B2-282-048	0.411	08:28 hr	2.527	0.357	0.357	0.273
B2-282-054	B2-282-054	B2-282-051	0.412	08:30 hr	2.568	0.353	0.353	0.267
B2-291-024	B2-291-024	B2-291-045	0.03	09:15 hr	1.514	0.082	0.082	0.014
B2-291-025	B2-291-025	B2-291-026	0.029	09:06 hr	1.229	0.092	0.092	0.018
B2-291-026	B2-291-026	B2-291-027	0.029	09:24 hr	0.491	0.174	0.174	0.066
B2-291-027	B2-291-027	B2-291-028	0.029	09:32 hr	0.898	0.115	0.115	0.028
B2-291-028	B2-291-028	B2-291-029	0.029	09:42 hr	0.883	0.117	0.117	0.029
B2-291-029	B2-291-029	B2-291-030	0.029	09:44 hr	1.211	0.094	0.094	0.018
B2-291-030	B2-291-030	B2-282-054	0.029	09:33 hr	0.979	0.107	0.107	0.024
B2-291-045	B2-291-045	B2-291-025	0.029	09:05 hr	0.471	0.179	0.179	0.07
B2-292-001	B2-292-001	B2-292-002	0.014	08:01 hr	1.01	0.07	0.084	0.014
B2-292-002	B2-292-002	B2-292-003	0.014	08:02 hr	1.037	0.068	0.081	0.014
B2-292-003	B2-292-003	B2-292-004	0.014	08:02 hr	0.788	0.08	0.096	0.019

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B2-292-004	B2-292-004	B2-292-010	0.014	08:14 hr	1.345	0.054	0.054	0.006
B2-292-008	B2-292-008	B2-292-009	0.03	08:59 hr	0.673	0.142	0.142	0.043
B2-292-009	B2-292-009	B2-291-024	0.029	08:54 hr	1.072	0.102	0.102	0.022
B2-292-010	B2-292-010	B2-292-026	0.03	08:46 hr	0.958	0.112	0.112	0.026
B2-292-011	B2-292-011	B2-292-010	0.016	08:45 hr	1.125	0.075	0.112	0.026
B2-292-012	B2-292-012	B2-292-011	0.016	08:47 hr	1.009	0.081	0.122	0.031
B2-292-017	B2-292-017	BV-292-013	0.016	08:41 hr	1.272	0.069	0.104	0.022
B2-292-018	B2-292-018	B2-292-017	0.016	08:38 hr	1.28	0.069	0.103	0.022
B2-292-022	B2-292-022	B2-292-018	0.015	08:29 hr	1.44	0.062	0.094	0.018
B2-292-023	B2-292-023	B2-292-022	0.015	08:27 hr	1.654	0.057	0.085	0.015
B2-292-026	B2-292-026	B2-292-008	0.03	09:00 hr	1.023	0.107	0.107	0.024
B2-301-001	B2-301-001	B2-292-001	0.014	07:55 hr	0.932	0.074	0.088	0.016
B3-262-023	B3-262-023	B4-262-031	2.649	10:01 hr	3.928	0.857	0.571	0.622
B3-262-027	B3-262-027	B3-262-023	2.639	09:50 hr	2.31	1.5	1	1.125
B3-262-031	B3-262-031	B3-262-027	2.625	09:47 hr	2.299	1.5	1	1.112
B3-271-003	B3-271-003	B3-262-031	1.488	09:56 hr	2.998	0.749	0.599	0.671
B3-271-006	B3-271-006	B3-271-003	1.481	09:46 hr	2.994	0.747	0.598	0.668
B3-271-018	B3-271-018	B3-271-006	1.474	09:47 hr	2.992	0.745	0.596	0.664
B3-271-026	B3-271-026	B4-271-011	1.448	09:44 hr	3.211	0.692	0.554	0.592
B3-271-032	B3-271-032	B3-271-026	1.401	09:44 hr	2.964	0.72	0.576	0.63
B3-271-039	B3-271-039	B3-271-032	1.388	09:34 hr	2.947	0.717	0.574	0.627
B3-271-042	B3-271-042	B3-271-039	1.376	09:31 hr	2.942	0.713	0.571	0.621
B3-271-045	B3-271-045	B3-271-042	1.37	09:30 hr	2.96	0.707	0.566	0.613
B3-271-054	B3-271-054	B3-271-045	1.366	09:31 hr	3.108	0.678	0.542	0.573
B3-271-058	B3-271-058	B3-271-054	1.361	09:30 hr	3.185	0.663	0.53	0.552
B3-271-058A	B3-271-063	B3-271-058	1.349	09:31 hr	2.927	0.705	0.564	0.609
B3-271-063	B3-271-059	B3-271-063	1.345	09:31 hr	2.93	0.703	0.562	0.606
B4-261-014	B4-261-014	C1-261-058	2.825	10:15 hr	4.603	0.903	0.723	0.872
B4-262-001	B4-262-001	B4-261-014	2.818	10:16 hr	4.603	0.901	0.721	0.87
B4-262-011	B4-262-011	B4-262-044	2.778	10:16 hr	4.675	0.774	0.516	0.527
B4-262-016	B4-262-016	B4-262-011	2.726	10:12 hr	4.656	0.765	0.51	0.517
B4-262-022	B4-262-022	B4-262-016	2.716	10:01 hr	4.649	0.764	0.509	0.516
B4-262-024	B4-262-024	B4-262-022	2.676	10:01 hr	3.074	1.069	0.713	0.857
B4-262-028	B4-262-028	B4-262-024	2.66	10:03 hr	2.329	1.5	1	1.182
B4-262-030	B4-262-030	B4-262-028	2.659	10:00 hr	2.328	1.5	1	1.182
B4-262-031	B4-262-031	B4-262-114	2.651	09:59 hr	2.937	1.106	0.737	0.894
B4-262-036	B4-262-036	B4-262-037	0.965	09:19 hr	2.416	0.734	0.734	0.889
B4-262-037	B4-262-037	B4-262-038	0.981	09:27 hr	2.422	0.744	0.744	0.903
B4-262-038	B4-262-038	B3-262-031	0.993	09:35 hr	2.425	0.752	0.752	0.914
B4-262-043	B4-262-044	B4-262-001	2.785	10:15 hr	4.593	0.893	0.714	0.859
B4-262-114	B4-262-114	B4-262-030	2.653	10:00 hr	3.334	0.986	0.657	0.768
B4-271-001	B4-271-001	B4-262-036	0.962	09:15 hr	2.421	0.73	0.73	0.883
B4-271-011	B4-271-011	B3-271-018	1.46	09:46 hr	2.986	0.74	0.592	0.658
B4-271-028	B4-271-028	B4-271-147	0.818	08:58 hr	2.585	0.597	0.597	0.667
B4-271-033	B4-271-033	B4-271-028	0.805	08:47 hr	2.576	0.591	0.591	0.657
B4-271-128	B4-271-128	B4-271-001	0.96	09:17 hr	2.416	0.731	0.731	0.884
B4-271-135	B4-271-135	B4-271-128	0.954	09:18 hr	2.667	0.664	0.664	0.779
B4-271-138	B4-271-138	B4-271-135	0.918	09:04 hr	2.648	0.646	0.646	0.749
B4-271-143	B4-271-143	B4-271-138	0.909	09:03 hr	2.642	0.641	0.641	0.742
B4-271-145	B4-271-145	B4-271-143	0.899	09:01 hr	2.638	0.637	0.637	0.734
B4-271-146	B4-271-146	B4-271-145	0.89	09:01 hr	2.632	0.632	0.632	0.726
B4-271-147	B4-271-147	B4-271-146	0.878	09:00 hr	2.623	0.626	0.626	0.717
B4-271-148	B4-271-148	B4-271-033	0.794	08:46 hr	2.568	0.586	0.586	0.648
B4-272-004	B4-272-004	B4-272-094	0.767	08:35 hr	2.547	0.573	0.573	0.626
B4-272-039	B4-272-039	B4-272-092	0.56	08:29 hr	2.261	0.491	0.491	0.484
B4-272-040	B4-272-040	B4-272-039	0.522	08:27 hr	2.196	0.475	0.475	0.458
B4-272-044	B4-272-044	B4-272-040	0.511	08:31 hr	2.205	0.466	0.466	0.443
B4-272-048	B4-272-048	B4-272-044	0.49	08:23 hr	2.042	0.478	0.478	0.464
B4-272-086	B4-272-086	B4-272-004	0.629	08:34 hr	2.43	0.508	0.508	0.513
B4-272-091	B4-272-091	B4-272-096	0.594	08:31 hr	2.395	0.491	0.491	0.485
B4-272-092	B4-272-092	B4-272-095	0.574	08:31 hr	2.273	0.498	0.498	0.497
B4-272-093	B4-272-093	B4-271-148	0.784	08:47 hr	2.56	0.581	0.581	0.64

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B4-272-094	B4-272-094	B4-272-093	0.776	08:44 hr	2.547	0.579	0.579	0.636
B4-272-095	B4-272-095	B4-272-091	0.585	08:29 hr	2.379	0.488	0.488	0.479
B4-272-096	B4-272-096	B4-272-086	0.613	08:34 hr	2.413	0.5	0.5	0.5
B4-281-054	B4-281-054	B4-272-048	0.47	08:15 hr	2.158	0.444	0.444	0.407
B4-281-057	B4-281-057	B4-281-054	0.444	08:17 hr	2.2	0.419	0.419	0.367
BV-105	BV-105	D2-252-004	0.389	22:00 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.016	08:41 hr	1.087	0.077	0.115	0.028
C1-221-018	C1-221-018	C2-221-030	0.056	07:59 hr	1.32	0.139	0.139	0.041
C1-221-019	C1-221-019	C1-221-018	0.056	07:55 hr	1.385	0.133	0.133	0.038
C1-261-028	C1-261-028	C1-261-020	2.905	10:16 hr	4.726	0.795	0.53	0.551
C1-261-030	C1-261-030	C1-261-028	2.9	10:15 hr	4.72	0.795	0.53	0.551
C1-261-058	C1-261-058	C1-261-062	2.828	10:15 hr	4.604	0.904	0.723	0.873
C1-261-060	C1-261-060	C1-261-030	2.886	10:15 hr	4.709	0.793	0.529	0.549
C1-261-062	C1-261-062	C1-261-060	2.83	10:16 hr	4.604	0.905	0.724	0.873
C1-281-035	C1-281-035	B4-281-057	0.406	08:00 hr	2.081	0.451	0.542	0.571
C2-221-030	C2-221-030	C2-221-037	0.058	08:16 hr	1.259	0.146	0.146	0.046
C2-221-031	C2-221-031	C3-221-003	0.069	08:42 hr	4.343	0.071	0.071	0.01
C2-221-032	C2-221-032	C2-221-065	0.069	08:45 hr	1.705	0.133	0.133	0.038
C2-221-033	C2-221-033	C2-221-032	0.068	08:30 hr	1.274	0.161	0.161	0.057
C2-221-034	C2-221-034	C2-221-033	0.068	08:32 hr	1.283	0.161	0.161	0.056
C2-221-035	C2-221-035	C2-221-034	0.066	08:24 hr	1.872	0.122	0.122	0.032
C2-221-037	C2-221-037	C2-221-035	0.059	08:19 hr	0.95	0.179	0.179	0.07
C2-221-065	C2-221-065	C2-221-031	0.068	08:36 hr	2.642	0.099	0.099	0.02
C2-261-001A	C2-261-001	C3-261-013	1.556	10:43 hr	7.607	0.393	0.337	0.245
C2-261-024	C2-261-024	C2-261-013	0.032	07:57 hr	0.689	0.11	0.049	0.005
C3-212-031	C3-212-031	C4-212-059	0.094	08:43 hr	2.488	0.127	0.127	0.035
C3-221-003	C3-221-003	C3-221-004	0.087	08:39 hr	2.771	0.112	0.112	0.027
C3-221-004	C3-221-004	C3-221-030	0.087	08:30 hr	2.776	0.113	0.113	0.027
C3-221-005	C3-221-005	C3-221-006	0.093	08:31 hr	2.861	0.115	0.115	0.028
C3-221-006	C3-221-006	C3-212-031	0.094	08:39 hr	2.655	0.122	0.122	0.032
C3-221-030	C3-221-030	C3-221-005	0.093	08:42 hr	2.826	0.116	0.116	0.028
C3-252-002	C3-252-002	C4-252-003	4.538	10:34 hr	3.145	1.161	0.465	0.44
C3-261-001	C3-261-001	C3-252-001	0.202	08:36 hr	1.245	0.282	0.161	0.056
C3-261-002	C3-261-002	C3-252-002	4.546	10:33 hr	3.444	1.149	0.511	0.518
C3-261-004	C3-261-004	C3-261-001	0.202	08:30 hr	1.246	0.282	0.161	0.056
C3-261-005	C3-261-005	C3-261-002	4.549	10:31 hr	4.059	1.012	0.45	0.416
C3-261-007	C3-261-007	C3-261-004	0.202	08:30 hr	1.249	0.282	0.161	0.056
C3-261-008	C3-261-008	C3-261-005	4.551	10:31 hr	2.727	1.392	0.619	0.703
C3-261-009	C3-261-009	C3-261-008	4.552	10:30 hr	2.728	1.392	0.618	0.703
C3-261-010	C3-261-010	C3-261-009	4.552	10:28 hr	2.732	1.39	0.618	0.702
C3-261-011	C3-261-011	C3-261-007	0.202	08:19 hr	1.245	0.282	0.161	0.056
C3-261-012	C3-261-012	C3-261-010	4.552	10:27 hr	2.711	1.307	0.523	0.539
C3-261-012A	C3-261-012	C3-261-011	0	00:00 hr	0	0	0	0
C3-261-013	C3-261-013	C3-261-012	4.553	10:30 hr	7.473	0.744	0.447	0.411
C3-261-015	C3-261-015	C3-261-011	0.202	08:16 hr	1.245	0.282	0.161	0.056
C3-261-019	C3-261-019	C3-261-015	0.202	08:14 hr	1.245	0.282	0.161	0.056
C3-261-021	C3-261-021	C3-261-019	0.202	08:09 hr	1.245	0.282	0.161	0.056
C3-261-031	C3-261-031	C3-261-013	1.753	09:35 hr	2.65	0.793	0.476	0.459
C3-261-035	C3-261-035	C2-261-024	0.032	07:58 hr	0.692	0.11	0.049	0.005
C3-261-040	C3-261-040	C3-261-031	1.753	09:30 hr	2.651	0.792	0.475	0.459
C3-261-043	C3-261-043	C3-261-035	0.032	07:54 hr	0.691	0.109	0.049	0.005
C3-261-050	C3-261-050	C3-261-075	0.032	07:56 hr	0.791	0.144	0.173	0.065
C3-261-056	C3-261-056	C3-261-050	0.032	07:51 hr	0.868	0.134	0.161	0.056
C3-261-062	C3-261-062	C3-261-040	1.752	09:22 hr	2.661	0.79	0.474	0.456
C3-261-075	C3-261-075	C3-261-076	0.032	07:58 hr	1.477	0.088	0.088	0.016
C3-261-076	C3-261-076	C3-261-043	0.032	07:58 hr	0.793	0.144	0.173	0.065
C3-262-007	C3-262-007	C3-262-009	1.758	09:15 hr	2.662	0.792	0.475	0.458
C3-262-009	C3-262-009	C3-261-062	1.758	09:19 hr	2.653	0.794	0.476	0.46
C3-262-033	C3-262-033	C3-262-007	1.758	09:17 hr	2.65	0.795	0.477	0.461
C3-262-041	C3-262-041	C3-262-033	1.756	09:13 hr	3.663	0.622	0.373	0.296
C3-262-046	C3-262-046	C3-262-041	1.757	09:02 hr	3.623	0.627	0.376	0.301
C3-262-051	C3-262-051	C3-262-046	1.756	09:00 hr	3.781	0.607	0.364	0.283

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C3-262-061	C3-262-061	C3-262-051	1.758	09:01 hr	3.788	0.607	0.364	0.283
C3-262-070	C3-262-070	C3-262-071	1.759	09:00 hr	3.033	0.717	0.43	0.385
C3-262-071	C3-262-071	C3-262-061	1.759	09:01 hr	3.87	0.597	0.358	0.275
C3-262-074	C3-262-074	C3-262-070	1.761	09:01 hr	2.751	0.773	0.464	0.439
C3-271-001	C3-271-001	C3-262-074	1.765	08:49 hr	2.773	0.77	0.462	0.436
C3-271-003	C3-271-003	C3-271-001	1.768	08:47 hr	2.77	0.771	0.463	0.437
C3-271-004	C3-271-004	C3-271-003	1.754	08:45 hr	2.767	0.767	0.46	0.433
C3-271-007	C3-271-007	C3-271-004	1.753	08:47 hr	2.756	0.769	0.462	0.436
C3-271-010	C3-271-010	SS_1_A	1.751	08:30 hr	4.684	0.518	0.311	0.21
C3-271-012	C3-271-012	C3-271-010	1.75	08:30 hr	4.852	0.505	0.303	0.2
C4-212-059	C4-212-059	C4-212-060	0.094	08:40 hr	3.059	0.111	0.111	0.026
C4-212-060	C4-212-060	D4-232-020	0.103	08:43 hr	2.766	0.126	0.126	0.034
C4-212-061	C4-212-061	C4-221-001	0.112	08:42 hr	2.883	0.13	0.13	0.036
C4-221-001	C4-221-001	D1-212-032	0.113	08:42 hr	3.654	0.111	0.111	0.026
C4-221-011	D4-232-020	C4-212-061	0.111	08:44 hr	2.834	0.131	0.131	0.037
C4-252-001	C4-252-001	D1-252-019	4.526	10:50 hr	3.089	1.175	0.47	0.45
C4-252-002	C4-252-002	D1-252-042	0.2	09:05 hr	1.241	0.28	0.16	0.056
C4-252-003	C4-252-003	C4-252-008	4.538	10:46 hr	3.748	1.016	0.407	0.347
C4-252-004	C4-252-004	C4-252-002	0.2	09:02 hr	1.242	0.281	0.161	0.056
C4-252-005	C4-252-005	C4-252-006	4.533	10:46 hr	3.352	1.105	0.442	0.403
C4-252-006	C4-252-006	C4-252-001	4.53	10:46 hr	3.774	1.01	0.404	0.343
C4-252-007	C3-252-001	C4-252-007	0.202	08:49 hr	1.245	0.282	0.161	0.056
C4-252-007A	C4-252-007	C4-252-004	0.2	08:49 hr	1.243	0.281	0.16	0.056
C4-252-008	C4-252-008	C4-252-005	4.536	10:47 hr	3.363	1.103	0.441	0.402
D1-212-011	D1-212-011	D1-212-012	0.119	08:45 hr	3.321	0.123	0.123	0.032
D1-212-012	D1-212-012	D2-212-011	0.12	08:52 hr	3.004	0.133	0.133	0.038
D1-212-032	D1-212-032	D1-212-011	0.119	08:54 hr	2.436	0.152	0.152	0.05
D1-242-011	D1-242-011	D1-242-030	0.441	33:00 hr	5.852	0.222	0.266	0.155
D1-242-017	D1-242-017	D1-242-011	0.441	09:15 hr	5.693	0.226	0.272	0.161
D1-242-018	D1-242-018	D1-242-017	0.441	33:00 hr	5.993	0.218	0.262	0.15
D1-242-019	D1-242-019	D1-242-018	0.439	09:00 hr	4.144	0.262	0.262	0.15
D1-242-030	D1-242-030	D1-242-031	0.44	09:16 hr	6.242	0.212	0.254	0.142
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.437	09:15 hr	5.982	0.24	0.36	0.277
D1-251-001	D1-262-049	D1-262-030	0.087	08:11 hr	1.337	0.151	0.086	0.015
D1-251-005	D1-251-023	D1-251-005	0.236	09:20 hr	4.054	0.185	0.222	0.108
D1-251-005A	D1-251-023	D1-251-005	0.202	09:21 hr	3.968	0.185	0.277	0.168
D1-251-005B	D1-251-005	D2-251-014	0.216	09:16 hr	3.327	0.2	0.24	0.126
D1-252-001	D1-252-001	D2-252-002	4.511	11:01 hr	4.453	0.89	0.356	0.272
D1-252-004	D1-252-004	D1-252-001	4.516	11:02 hr	3.387	1.093	0.437	0.396
D1-252-005	D1-252-005	D2-252-014	0.236	09:30 hr	1.284	0.292	0.146	0.046
D1-252-008	D1-252-008	D1-252-005	0.236	09:30 hr	1.284	0.292	0.146	0.046
D1-252-008A	D1-252-010	D1-252-008	0.234	09:29 hr	1.28	0.291	0.146	0.046
D1-252-009	D1-252-009	D1-252-004	4.518	11:01 hr	3.343	1.104	0.442	0.403
D1-252-010	D1-252-011	D1-252-010	0.227	09:31 hr	1.288	0.299	0.171	0.063
D1-252-011	D1-252-016	D1-252-011	0.227	09:30 hr	1.289	0.299	0.171	0.063
D1-252-015	D1-252-015	D1-252-009	4.52	11:00 hr	3.358	1.101	0.44	0.401
D1-252-018	D1-252-018	D1-252-015	4.523	11:02 hr	3.126	1.164	0.465	0.442
D1-252-019	D1-252-019	D1-252-018	4.524	11:01 hr	3.634	1.038	0.415	0.36
D1-252-023	D1-252-023	D1-252-016	0.225	09:31 hr	1.287	0.297	0.17	0.063
D1-252-031	D1-252-031	D1-252-023	0.224	09:20 hr	1.284	0.296	0.169	0.062
D1-252-036	D1-252-036	D1-252-031	0.222	09:15 hr	1.281	0.296	0.169	0.062
D1-252-041	D1-252-041	D1-252-036	0.218	09:16 hr	1.275	0.293	0.167	0.061
D1-252-042	D1-252-042	D1-252-041	0.214	09:12 hr	1.266	0.29	0.166	0.06
D1-252-050	D1-252-050	D2-252-067	0.219	08:45 hr	1.449	0.244	0.109	0.025
D1-252-053	D1-252-053	D2-252-085	3.129	10:17 hr	2.513	1.179	0.589	0.654
D1-252-056	D1-252-056	D1-252-053	3.13	10:15 hr	3.22	0.967	0.483	0.472
D1-252-057	D1-252-057	D1-252-056	3.133	10:16 hr	4.197	0.791	0.395	0.33
D1-252-059	D1-252-059	D1-252-057	3.12	10:15 hr	4.137	0.797	0.398	0.334
D1-261-001	D1-261-001	D1-252-059	3.12	10:15 hr	4.559	0.741	0.371	0.293
D1-261-003	D1-261-003	D1-252-050	0.219	08:36 hr	1.343	0.258	0.114	0.028
D1-261-006	D1-261-006	D1-261-001	3.022	10:14 hr	8.221	0.474	0.237	0.123

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-261-008	D1-261-008	D1-261-006	3.021	10:16 hr	4.467	0.735	0.367	0.288
D1-261-020	D1-261-020	D1-261-003	0.101	08:49 hr	1.064	0.178	0.079	0.013
D1-261-021	D1-261-021	D1-261-008	3.014	10:15 hr	4.432	0.738	0.369	0.29
D1-261-023	D1-261-023	D1-261-020	0.102	08:46 hr	1.043	0.181	0.081	0.013
D1-261-036	D1-261-036	D1-261-021	3.012	10:16 hr	4.087	0.783	0.392	0.324
D1-261-037	D1-261-037	D1-261-023	0.101	08:39 hr	1.08	0.176	0.078	0.012
D1-261-052	D1-261-052	D1-261-036	3.007	10:18 hr	2.339	1.211	0.605	0.681
D1-261-059	D1-261-059	D1-261-037	0.099	08:32 hr	1.003	0.183	0.082	0.014
D1-261-061	D1-261-061	D1-261-059	0.099	08:29 hr	2.05	0.113	0.05	0.005
D1-261-075	D1-261-075	D1-261-052	2.999	10:03 hr	3.17	0.947	0.473	0.455
D1-261-084	D1-261-084	D1-261-061	0.098	08:29 hr	1.044	0.177	0.079	0.013
D1-261-103	D1-261-103	D1-261-075	2.993	10:02 hr	4.026	0.788	0.394	0.328
D1-261-116	D1-262-001	D1-261-116	0.094	08:21 hr	1.051	0.188	0.107	0.024
D1-261-116A	D1-261-116	D1-261-084	0.095	08:33 hr	1.065	0.186	0.107	0.024
D1-261-117	D1-261-117	D1-261-103	2.983	09:59 hr	5.5	0.625	0.313	0.212
D1-261-128	D1-261-128	D1-261-117	2.972	10:01 hr	2.531	1.123	0.562	0.606
D1-262-025	D1-262-025	D1-261-128	2.952	10:01 hr	1.868	1.453	0.726	0.878
D1-262-030	D1-262-030	D1-262-001	0.087	08:14 hr	1.052	0.177	0.101	0.021
D1-262-040	D1-262-040	D1-262-025	2.926	09:57 hr	3.073	0.951	0.476	0.459
D1-262-067	D1-262-067	D1-262-040	2.904	09:48 hr	3.799	0.805	0.402	0.341
D1-262-079	D1-262-079	D1-262-049	0.087	08:01 hr	1.326	0.152	0.087	0.015
D1-262-088	D1-262-088	D1-262-067	2.901	09:48 hr	2.968	0.971	0.485	0.475
D1-262-100	D1-262-100	D1-262-088	2.895	09:48 hr	3.153	0.925	0.462	0.437
D1-271-018	D1-271-017	D1-271-055	2.883	09:33 hr	3.086	0.937	0.469	0.447
D1-271-051	D1-271-051	D1-271-054	2.284	09:29 hr	4.885	0.596	0.341	0.25
D1-271-054	D1-271-054	D1-271-092	2.307	09:31 hr	4.859	0.568	0.284	0.176
D1-271-055	D1-271-055	D1-262-100	2.895	09:36 hr	2.56	1.089	0.545	0.577
D1-271-092	D1-271-092	D1-271-017	2.305	09:29 hr	4.858	0.568	0.284	0.176
D2-212-001	D2-212-001	D2-212-002	0.124	08:54 hr	3.032	0.135	0.135	0.039
D2-212-002	D2-212-002	D2-212-025	0.124	08:58 hr	2.796	0.143	0.143	0.044
D2-212-003	D2-212-003	D2-212-014	0.132	09:00 hr	3.335	0.132	0.132	0.037
D2-212-011	D2-212-011	D2-212-012	0.124	08:59 hr	3.032	0.135	0.135	0.039
D2-212-012	D2-212-012	D2-212-001	0.124	08:54 hr	3.029	0.135	0.135	0.039
D2-212-013	D2-212-013	D2-212-003	0.13	08:58 hr	2.83	0.146	0.146	0.046
D2-212-014	D2-212-014	D3-212-022	0.132	08:54 hr	2.907	0.145	0.145	0.045
D2-212-025	D2-212-025	D2-212-013	0.125	08:59 hr	2.934	0.162	0.244	0.13
D2-241-006	D2-241-006	D2-241-007	0.005	07:53 hr	1.072	0.037	0.056	0.006
D2-241-007	D2-241-007	D3-241-001	0.006	07:44 hr	1.074	0.038	0.057	0.006
D2-251-004	D2-251-004	D3-251-011	6.739	35:15 hr	3.815	1.079	0.27	0.159
D2-251-005	D2-251-005	D2-251-004	5.129	35:14 hr	7.87	0.538	0.134	0.039
D2-251-008	D2-251-008	9008	0.449	33:01 hr	4.005	0.273	0.273	0.163
D2-251-014	D1-251-005	D2-251-014	0.185	09:16 hr	3.244	0.2	0.3	0.196
D2-251-014A	D2-251-014	D2-251-008	0.381	32:59 hr	8.832	0.14	0.14	0.042
D2-252-002	D2-252-002	D2-252-004	4.511	11:16 hr	3.467	1.073	0.429	0.383
D2-252-004	D2-252-004	D2-252-005	4.965	11:16 hr	4.925	0.887	0.355	0.27
D2-252-005	D2-252-005	D2-251-005	5.156	35:17 hr	2.668	1.151	0.288	0.18
D2-252-006	D2-252-006	D2-252-005	0.238	09:43 hr	2.353	0.194	0.097	0.02
D2-252-008	D2-252-008	D2-252-006	0.238	09:44 hr	1.26	0.298	0.149	0.048
D2-252-010	D2-252-010	D2-252-008	0.239	09:42 hr	2.097	0.21	0.105	0.023
D2-252-011	D2-252-011	D2-251-004	1.92	08:59 hr	3.906	0.554	0.246	0.133
D2-252-012	D2-252-012	D2-252-010	0.24	09:45 hr	1.33	0.288	0.144	0.045
D2-252-014	D2-252-014	D2-252-012	0.236	09:39 hr	0.549	0.529	0.264	0.153
D2-252-015	D2-252-015	D2-252-011	1.92	08:58 hr	8.878	0.313	0.139	0.041
D2-252-026	D2-252-026	D2-252-015	1.923	08:48 hr	2.743	0.682	0.273	0.163
D2-252-033	D2-252-033	D3-252-012	3.219	10:34 hr	4.254	0.799	0.399	0.336
D2-252-039	D2-252-039	D2-252-033	3.222	10:32 hr	4.073	0.826	0.413	0.357
D2-252-049	D2-252-049	D2-252-039	3.222	10:30 hr	5.776	0.638	0.319	0.221
D2-252-050	D2-252-050	D2-252-026	0.218	08:58 hr	2.109	0.197	0.098	0.02
D2-252-052	D2-252-052	D2-252-050	0.219	09:00 hr	1.464	0.243	0.108	0.024
D2-252-056	D2-252-056	D2-252-052	0.218	08:48 hr	5.677	0.097	0.043	0.003
D2-252-057	D2-252-057	D2-252-049	3.223	10:29 hr	5.943	0.625	0.313	0.212
D2-252-062	D2-252-062	D2-252-057	3.13	10:29 hr	4.091	0.805	0.403	0.341

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-252-067	D2-252-067	D2-252-056	0.218	08:47 hr	1.244	0.271	0.12	0.031
D2-252-069	D2-252-069	D2-252-062	3.131	10:30 hr	5.787	0.624	0.312	0.211
D2-252-071	D3-252-054	D2-252-071	1.697	08:30 hr	7.212	0.331	0.147	0.047
D2-252-085	D2-252-085	D2-252-069	3.127	10:29 hr	4.34	0.77	0.385	0.314
D2-252-105	D2-252-105	D2-252-026	1.694	08:37 hr	2.697	0.696	0.348	0.26
D2-271-017	D2-271-017	D2-271-019	0.566	09:22 hr	3.294	0.336	0.269	0.158
D2-271-019	D2-271-019	D2-271-022	0.567	09:30 hr	3.295	0.337	0.269	0.159
D2-271-022	D2-271-022	D2-271-023	0.568	09:28 hr	3.297	0.337	0.27	0.159
D2-271-023	D2-271-023	D2-271-109	0.569	09:29 hr	3.299	0.337	0.27	0.159
D2-271-039	D2-271-039	D2-271-042	2.16	09:30 hr	5.644	0.554	0.369	0.29
D2-271-042	D2-271-042	D2-271-043	2.163	09:30 hr	4.826	0.578	0.33	0.236
D2-271-043	D2-271-043	D2-271-045	2.165	09:30 hr	4.829	0.578	0.331	0.236
D2-271-045	D2-271-045	D1-271-051	2.282	09:30 hr	4.9	0.595	0.34	0.249
D2-271-048	D2-271-048	D2-271-039	1.569	09:30 hr	2.33	0.989	0.792	0.967
D2-271-052	D2-271-052	D2-271-048	1.569	09:32 hr	2.32	0.994	0.795	0.972
D2-271-063	D2-271-063	D2-271-052	1.57	09:20 hr	2.343	0.985	0.788	0.963
D2-271-067	D2-271-067	D2-271-063	1.562	09:19 hr	1.97	1.25	1	1.073
D2-271-075	D2-271-075	D2-271-067	1.555	09:15 hr	1.96	1.25	1	1.054
D2-271-109	D2-271-109	D1-271-017	0.574	09:29 hr	3.307	0.338	0.271	0.16
D2-272-011	D2-272-011	D2-271-075	1.529	09:10 hr	1.928	1.25	1	1.044
D2-272-023	D2-272-023	D2-272-025	1.521	08:47 hr	2.351	0.95	0.76	0.926
D2-272-025	D2-272-025	D2-272-029	1.521	08:49 hr	2.278	0.981	0.785	0.959
D2-272-029	D2-272-029	D2-272-011	1.518	09:03 hr	2.307	0.967	0.773	0.944
D2-272-052	D2-272-052	D2-272-023	1.507	08:40 hr	2.23	0.993	0.794	0.971
D2-272-070	D2-272-070	D2-272-052	1.498	08:33 hr	2.31	0.952	0.762	0.928
D2-272-072	D2-272-072	D2-272-070	1.486	08:32 hr	2.319	0.941	0.753	0.916
D2-272-074	D2-272-074	D2-272-072	1.469	08:18 hr	2.144	1.008	0.806	0.985
D2-272-075	D2-272-075	D2-272-074	1.457	08:13 hr	2.319	0.924	0.739	0.896
D2-281-002	D2-281-002	D2-272-075	1.458	08:08 hr	2.311	0.927	0.742	0.9
D3-212-001	D3-212-001	D3-212-002	0.003	07:42 hr	0.545	0.041	0.061	0.007
D3-212-002	D3-212-002	D3-212-003	0.003	07:41 hr	0.905	0.029	0.043	0.003
D3-212-003	D3-212-003	D3-212-004	0.004	08:03 hr	1.091	0.031	0.046	0.004
D3-212-004	D3-212-004	D3-212-012	0.004	07:57 hr	0.99	0.033	0.049	0.005
D3-212-012	D3-212-012	D3-212-013	0.004	07:58 hr	0.99	0.033	0.049	0.005
D3-212-013	D3-212-013	D3-221-016	0.004	08:01 hr	1.008	0.034	0.051	0.005
D3-212-017	D3-212-017	D3-221-016	0.137	08:55 hr	5.295	0.099	0.099	0.02
D3-212-018	D3-212-018	D3-212-017	0.137	08:55 hr	2.343	0.173	0.173	0.065
D3-212-022	D3-212-022	D3-212-018	0.137	08:59 hr	3.711	0.126	0.126	0.034
D3-212-023	D3-212-023	D3-212-001	0.001	07:25 hr	0.4	0.025	0.038	0.003
D3-221-016	D3-221-016	D3-221-024	0.142	08:58 hr	2.852	0.154	0.154	0.052
D3-221-021	D3-221-021	D4-221-004	0.145	09:00 hr	2.788	0.159	0.159	0.055
D3-221-022	D3-221-022	D3-221-021	0.144	08:59 hr	2.567	0.168	0.168	0.061
D3-221-023	D3-221-023	D3-221-022	0.144	09:00 hr	3.307	0.141	0.141	0.042
D3-221-024	D3-221-024	D3-221-023	0.142	08:57 hr	2.378	0.175	0.175	0.067
D3-232-001	D3-232-015	D3-232-001	0.013	08:06 hr	1.407	0.058	0.087	0.016
D3-232-001A	D3-232-001	D3-232-018	0.035	08:08 hr	1.878	0.092	0.138	0.041
D3-232-009	D3-232-009	D3-232-015	0.013	08:04 hr	1.405	0.058	0.087	0.015
D3-232-017	D3-232-017	D4-232-001	0.038	08:13 hr	3.76	0.06	0.09	0.017
D3-232-018	D3-232-018	D3-232-017	0.036	08:09 hr	4.029	0.055	0.083	0.014
D3-241-001	D3-241-001	D3-241-002	0.006	07:49 hr	1.108	0.04	0.06	0.007
D3-241-002	D3-241-002	D3-241-003	0.006	07:45 hr	1.123	0.041	0.061	0.007
D3-241-003	D3-241-003	D3-241-004	0.007	07:46 hr	1.171	0.044	0.065	0.008
D3-241-004	D3-241-004	D3-241-008	0.008	07:56 hr	1.214	0.046	0.069	0.01
D3-241-005	D3-241-009	D3-241-005	0.011	08:06 hr	1.308	0.052	0.078	0.012
D3-241-005A	D3-241-005	D3-241-006	0.011	08:08 hr	1.323	0.053	0.079	0.013
D3-241-006	D3-241-006	D3-241-007	0.013	08:07 hr	1.38	0.056	0.084	0.015
D3-241-007	D3-241-007	D3-232-009	0.014	08:15 hr	1.412	0.058	0.087	0.016
D3-241-009	D3-241-008	D3-241-009	0.009	07:59 hr	1.249	0.048	0.072	0.011
D3-251-001	D3-251-001	D4-251-018	9.856	35:17 hr	3.2	1.529	0.34	0.249
D3-251-002	D3-251-002	D3-251-001	9.869	35:17 hr	3.14	1.552	0.345	0.256
D3-251-004	D3-251-004	D3-251-016	6.746	35:17 hr	3.484	1.152	0.288	0.181
D3-251-008	D3-251-008	D3-251-012	6.722	35:16 hr	2.618	1.414	0.354	0.268

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-251-011	D3-251-011	D3-251-015	6.75	35:14 hr	6.005	0.784	0.196	0.084
D3-251-012	D3-251-012	D3-251-013	9.883	35:15 hr	2.335	2.066	0.517	0.528
D3-251-013	D3-251-013	D3-251-002	9.879	35:16 hr	3.402	1.465	0.326	0.229
D3-251-014	D3-251-014	D3-251-012	3.218	10:45 hr	2.323	1.29	0.645	0.748
D3-251-015	D3-251-015	D3-251-004	6.749	35:15 hr	3.482	1.153	0.288	0.181
D3-251-016	D3-251-016	D3-251-008	6.728	35:15 hr	4.514	0.956	0.239	0.125
D3-252-008	D3-252-008	D3-251-014	3.22	10:45 hr	2.58	1.181	0.591	0.656
D3-252-012	D3-252-012	D3-252-008	3.219	10:46 hr	4.005	0.836	0.418	0.365
D3-252-045	D2-252-071	D3-252-045	1.696	08:30 hr	6.47	0.374	0.187	0.076
D3-252-045A	D3-252-045	D2-252-105	1.699	08:30 hr	5.806	0.403	0.202	0.089
D3-252-057	D3-252-057	D3-252-054	1.694	08:30 hr	7.207	0.331	0.147	0.047
D3-261-010	D3-261-010	D3-252-057	1.693	08:30 hr	7.207	0.331	0.147	0.047
D3-261-014	D3-261-014	D3-261-010	1.446	08:29 hr	3.182	0.524	0.233	0.119
D3-261-025	D3-261-025	D3-261-014	1.215	08:43 hr	3.036	0.479	0.213	0.099
D3-261-045	D3-261-045	D3-261-025	1.216	08:32 hr	3.036	0.479	0.213	0.099
D3-261-075	D3-261-075	D3-261-045	1.216	08:32 hr	3.059	0.477	0.212	0.098
D3-261-086	D3-261-086	D3-261-075	1.094	08:31 hr	3.032	0.467	0.234	0.12
D3-261-117	D3-261-117	D3-261-086	1.087	08:33 hr	3.035	0.465	0.232	0.119
D3-261-130	D3-261-130	D3-261-117	1.085	08:31 hr	2.585	0.52	0.26	0.148
D3-262-017	D3-262-017	D3-261-130	1.079	08:32 hr	2.581	0.519	0.259	0.147
D3-262-018	D3-262-018	D3-262-017	0.706	08:30 hr	2.611	0.382	0.191	0.08
D3-262-042	D3-262-042	D3-262-018	0.306	08:30 hr	1.687	0.29	0.145	0.045
D3-262-065	D3-262-065	D3-262-122	0.276	08:21 hr	1.596	0.314	0.209	0.096
D3-262-083	D3-262-083	D3-262-065	0.265	08:16 hr	1.778	0.283	0.188	0.078
D3-262-122	D3-262-122	D3-262-042	0.283	08:29 hr	1.607	0.317	0.212	0.098
D3-271-013	D3-271-013	D3-262-083	0.252	08:03 hr	1.76	0.274	0.183	0.073
D3-271-019	D3-271-019	D3-271-024	0.569	09:16 hr	3.297	0.337	0.27	0.159
D3-271-024	D3-271-024	D2-271-017	0.568	09:17 hr	3.296	0.337	0.269	0.159
D3-271-029	D3-271-029	D3-271-013	0.004	07:48 hr	0.518	0.041	0.027	0.001
D3-271-038	D3-271-038	D3-271-019	0.569	09:15 hr	3.299	0.337	0.27	0.159
D3-271-055	D3-271-055	D3-271-038	0.571	09:16 hr	3.302	0.338	0.27	0.16
D3-271-059	D3-271-059	D3-271-055	0.567	09:12 hr	3.299	0.336	0.269	0.158
D3-271-068	D3-271-068	D3-271-069	0.569	08:59 hr	3.297	0.337	0.27	0.159
D3-271-069	D3-271-069	D3-271-070	0.569	09:00 hr	3.298	0.337	0.27	0.159
D3-271-070	D3-271-070	D3-271-072	0.568	09:02 hr	3.297	0.337	0.269	0.159
D3-271-072	D3-271-072	D3-271-059	0.568	09:12 hr	3.297	0.337	0.269	0.159
D3-271-075	D3-271-075	D3-271-068	0.569	08:59 hr	3.299	0.337	0.27	0.159
D3-271-111	D3-271-111	D3-271-029	0.002	07:58 hr	0.446	0.031	0.02	0.001
D3-281-006	D3-281-006	D2-281-002	1.458	08:01 hr	2.376	0.903	0.723	0.872
D4-221-004	D4-221-004	D4-221-005	0.146	09:14 hr	3.029	0.151	0.151	0.049
D4-221-005	D4-221-005	D4-221-008	0.146	09:01 hr	2.66	0.166	0.166	0.06
D4-221-008	D4-221-008	D4-221-009	0.148	09:09 hr	2.97	0.154	0.154	0.052
D4-221-009	D4-221-009	D4-221-010	0.149	09:08 hr	2.817	0.148	0.118	0.03
D4-221-010	D4-221-010	D4-221-011	0.15	09:12 hr	3.219	0.136	0.109	0.025
D4-221-011	D4-221-011	D4-221-015	0.155	09:11 hr	1.868	0.201	0.161	0.056
D4-232-001	D4-232-001	D4-232-002	0.038	08:03 hr	4.729	0.051	0.077	0.012
D4-232-002	D4-232-002	D4-232-003	0.039	08:11 hr	4.366	0.055	0.083	0.014
D4-232-003	D4-232-003	D4-232-004	0.039	08:17 hr	2.61	0.079	0.119	0.03
D4-232-004	D4-232-004	D4-232-005	0.04	08:06 hr	2.064	0.095	0.142	0.043
D4-232-005	D4-232-005	D4-232-006	0.041	08:25 hr	2.112	0.094	0.141	0.043
D4-232-006	D4-232-006	D4-232-007	0.041	08:22 hr	2.386	0.086	0.13	0.036
D4-232-007	D4-232-007	D4-232-008	0.05	08:14 hr	1.612	0.13	0.194	0.083
D4-232-008	D4-232-008	9000	0.049	08:13 hr	2.081	0.108	0.162	0.057
D4-251-001	D4-251-001	E1-251-002	10.172	35:33 hr	3.195	1.567	0.348	0.26
D4-251-005	D4-251-005	D4-251-019	10.179	35:32 hr	2.418	1.929	0.429	0.382
D4-251-008	D4-251-008	D4-251-005	9.837	35:19 hr	3.039	1.586	0.352	0.266
D4-251-018	D4-251-018	D4-251-008	9.842	35:15 hr	3.193	1.53	0.34	0.249
D4-251-019	D4-251-019	D4-251-001	10.174	35:30 hr	2.421	1.927	0.428	0.381
D4-271-014	D4-271-014	D4-271-015	0.573	08:58 hr	3.305	0.338	0.271	0.16
D4-271-015	D4-271-015	D4-271-018	0.572	08:58 hr	3.303	0.338	0.27	0.16
D4-271-018	D4-271-018	D4-271-021	0.572	09:01 hr	3.304	0.338	0.271	0.16
D4-271-021	D4-271-021	D3-271-075	0.571	09:02 hr	3.303	0.338	0.27	0.16

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-221-001	D4-221-015	E1-221-001	0.155	09:09 hr	1.985	0.193	0.155	0.052
E1-221-001A	E1-221-001	E1-222-004	0.158	09:12 hr	2.093	0.189	0.151	0.05
E1-222-004	E1-222-004	E1-222-005	0.16	09:15 hr	4.43	0.117	0.1	0.021
E1-222-005	E1-222-005	E1-222-006	0.161	09:15 hr	3.187	0.144	0.115	0.028
E1-222-006	E1-222-006	E1-222-007	0.162	09:16 hr	2.62	0.165	0.132	0.037
E1-222-007	E1-222-007	E1-222-011	0.163	09:17 hr	2.626	0.165	0.132	0.037
E1-222-011	E1-222-011	E1-222-012	0.164	09:17 hr	3.258	0.134	0.089	0.016
E1-222-012	E1-222-012	E2-222-075	0.166	09:24 hr	2.112	0.181	0.121	0.031
E1-231-012	E1-231-012	E2-231-021	0.217	08:16 hr	3.761	0.202	0.303	0.199
E1-242-001	E1-242-001	E2-242-034	11.315	35:31 hr	3.175	1.703	0.378	0.304
E1-242-002	E1-242-002	E1-242-001	1.261	10:15 hr	2.606	0.576	0.288	0.181
E1-251-001	E1-251-001	E1-242-001	10.154	35:32 hr	5.452	1.066	0.237	0.123
E1-251-002	E1-251-002	E1-251-001	10.163	35:33 hr	3.023	1.631	0.362	0.281
E1-251-003	E1-251-003	E1-251-025	1.259	10:18 hr	2.33	0.623	0.312	0.211
E1-251-004	E1-251-004	E1-251-003	1.252	10:04 hr	2.241	0.639	0.319	0.221
E1-251-007	E1-251-007	E2-251-027	1.225	10:02 hr	2.786	0.538	0.269	0.158
E1-251-018	E1-251-018	E1-251-007	1.223	10:02 hr	3.097	0.498	0.249	0.136
E1-251-019	E1-251-019	E1-251-018	1.218	10:00 hr	3.107	0.496	0.248	0.135
E1-251-020	E1-251-020	E1-251-019	1.209	09:59 hr	2.829	0.527	0.263	0.152
E1-251-021	E1-251-021	E1-251-020	1.208	10:00 hr	2.824	0.527	0.264	0.152
E1-251-023	E1-251-023	E1-251-021	1.204	10:01 hr	2.843	0.523	0.262	0.15
E1-251-025	E1-251-025	E1-242-002	1.261	10:15 hr	2.329	0.624	0.312	0.211
E1-271-068	E1-271-068	E1-271-072	0.575	08:46 hr	3.309	0.339	0.271	0.161
E1-271-072	E1-271-072	E1-271-076	0.574	08:47 hr	3.306	0.339	0.271	0.16
E1-271-076	E1-271-076	D4-271-014	0.573	08:57 hr	3.304	0.338	0.271	0.16
E2-202-016	E2-202-016	E3-202-009	0.154	07:59 hr	3.365	0.171	0.257	0.144
E2-222-015	E2-222-015	E2-222-036	0.605	33:45 hr	4.969	0.245	0.164	0.058
E2-222-016	E2-222-016	E2-222-015	0.449	43:59 hr	11.079	0.134	0.134	0.038
E2-222-017	E2-222-017	E2-222-016	0.173	09:27 hr	5.329	0.1	0.066	0.009
E2-222-028	E2-222-028	E2-222-029	0.208	08:15 hr	3.718	0.198	0.296	0.191
E2-222-028A	E2-222-007	E2-222-028	0.21	08:15 hr	3.725	0.198	0.297	0.193
E2-222-029	E2-222-029	E2-222-030	0.207	08:15 hr	3.714	0.197	0.296	0.19
E2-222-030	E2-222-030	E2-222-031	0.205	08:15 hr	3.702	0.196	0.294	0.188
E2-222-031	E2-222-031	E2-222-048	0.205	08:16 hr	3.702	0.196	0.294	0.188
E2-222-036	E2-222-036	E2-222-037	0.603	33:45 hr	4.668	0.256	0.17	0.063
E2-222-037	E2-222-037	E3-222-065	0.603	33:45 hr	4.739	0.253	0.169	0.062
E2-222-040	E2-222-040	E2-222-015	0.226	08:15 hr	3.938	0.201	0.301	0.198
E2-222-044	E2-222-044	E2-222-017	0.173	09:25 hr	2.005	0.193	0.129	0.035
E2-222-048	E2-222-048	E2-222-050	0.201	08:15 hr	3.681	0.194	0.291	0.185
E2-222-050	E2-222-050	E2-222-040	0.227	08:15 hr	5.611	0.157	0.235	0.121
E2-222-067	E2-222-067	E2-222-044	0.171	09:22 hr	2.641	0.159	0.106	0.024
E2-222-075	E2-222-075	E2-222-067	0.17	09:21 hr	2.651	0.158	0.105	0.023
E2-231-002	E2-231-002	E2-222-007	0.209	08:16 hr	3.564	0.173	0.173	0.065
E2-231-005	E2-231-005	E2-231-002	0.212	08:16 hr	3.569	0.175	0.175	0.066
E2-231-006	E2-231-006	E2-231-005	0.214	08:15 hr	3.587	0.175	0.175	0.067
E2-231-013	E2-231-013	E2-231-006	0.215	08:15 hr	3.755	0.201	0.302	0.198
E2-231-021	E2-231-021	E2-231-013	0.214	08:16 hr	3.748	0.201	0.301	0.197
E2-231-028	E2-231-028	E2-231-029	0.217	08:00 hr	3.045	0.235	0.353	0.267
E2-231-029	E2-231-029	E2-231-030	0.217	08:15 hr	2.944	0.241	0.362	0.28
E2-231-030	E2-231-030	E2-231-031	0.216	08:14 hr	2.671	0.258	0.388	0.318
E2-231-031	E2-231-031	E2-231-035	0.216	08:16 hr	3.419	0.216	0.324	0.226
E2-231-035	E2-231-035	E2-231-037	0.214	08:15 hr	3.748	0.201	0.301	0.197
E2-231-037	E2-231-037	E1-231-012	0.213	08:15 hr	3.743	0.2	0.3	0.196
E2-242-004	E2-242-004	E3-242-012	11.285	35:50 hr	3.256	1.668	0.371	0.293
E2-242-011	E2-242-011	E2-242-004	11.296	35:49 hr	3.094	1.733	0.385	0.314
E2-242-017	E2-242-017	E2-242-011	11.3	35:49 hr	2.618	1.966	0.437	0.395
E2-242-024	E2-242-024	E2-242-017	11.303	35:33 hr	3.548	1.567	0.348	0.261
E2-242-034	E2-242-034	E2-242-024	11.312	35:32 hr	3.113	1.727	0.384	0.312
E2-251-027	E2-251-027	E1-251-004	1.249	10:00 hr	2.451	0.598	0.299	0.194
E2-251-058	E2-251-058	E1-251-023	1.199	09:58 hr	3.74	0.43	0.215	0.101
E2-252-192	E2-252-192	E2-251-058	1.199	10:01 hr	4.95	0.397	0.265	0.154
E2-252-193	E2-252-193	E2-252-196	1.196	09:52 hr	5.353	0.375	0.25	0.137

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E2-252-194	E2-252-194	E2-252-193	1.195	09:45 hr	5.352	0.375	0.25	0.137
E2-252-196	E2-252-196	E2-252-192	1.198	09:56 hr	5.358	0.375	0.25	0.137
E2-271-073	E2-271-076	E2-271-078	0.581	08:31 hr	3.319	0.341	0.273	0.163
E2-271-077	E2-271-078	E2-271-081	0.578	08:31 hr	3.314	0.34	0.272	0.162
E2-271-081	E2-271-081	E2-271-086	0.577	08:44 hr	3.312	0.34	0.272	0.161
E2-271-086	E2-271-086	E1-271-068	0.577	08:46 hr	3.311	0.339	0.272	0.161
E3-202-008	E3-202-010	E3-202-008	0.157	08:13 hr	2.639	0.188	0.226	0.112
E3-202-008A	E3-202-008	E3-202-011	0.16	08:11 hr	2.654	0.19	0.228	0.114
E3-202-009	E3-202-009	E3-202-BV	0.155	08:01 hr	2.634	0.187	0.224	0.11
E3-202-011	E3-202-011	E3-202-012	0.162	08:16 hr	2.729	0.187	0.225	0.111
E3-202-012	E3-202-012	E4-202-001	0.162	08:19 hr	3.918	0.146	0.175	0.067
E3-222-051	E3-222-051	E3-231-006	0.605	08:33 hr	2.41	0.408	0.272	0.162
E3-222-051A	E3-222-064	E3-222-051	0.606	08:31 hr	2.748	0.372	0.248	0.134
E3-222-065	E3-222-065	E3-222-064	0.602	33:45 hr	3.331	0.323	0.215	0.102
E3-231-006	E3-231-006	E4-231-005	0.606	08:37 hr	2.32	0.393	0.225	0.111
E3-241-015	E3-241-015	E4-241-016	12.449	36:04 hr	4.532	1.407	0.313	0.212
E3-241-022	E3-241-022	E3-241-015	12.453	36:02 hr	4.309	1.46	0.324	0.228
E3-241-028	E3-241-028	E3-241-022	12.456	36:01 hr	3.469	1.712	0.38	0.307
E3-241-034	E3-241-034	E3-241-028	1.3	10:01 hr	3.579	0.533	0.355	0.27
E3-241-036	E3-241-036	E3-241-034	1.269	09:59 hr	3.69	0.511	0.341	0.25
E3-241-048	E3-241-048	E3-241-049	1.252	09:58 hr	2.845	0.614	0.409	0.352
E3-241-049	E3-241-049	E3-241-036	1.264	10:00 hr	4.13	0.47	0.313	0.213
E3-242-002	E3-242-002	E3-241-028	11.279	36:01 hr	3.614	1.544	0.343	0.253
E3-242-012	E3-242-012	E3-242-002	11.28	36:00 hr	4.082	1.413	0.314	0.214
E3-252-001	E3-252-001	E3-252-003	1.194	09:46 hr	2.593	0.636	0.424	0.374
E3-252-003	E3-252-003	E3-252-004	1.195	09:47 hr	2.605	0.634	0.422	0.372
E3-252-004	E3-252-004	E3-252-084	1.193	09:44 hr	5.334	0.375	0.25	0.137
E3-252-084	E3-252-084	E2-252-194	1.195	09:46 hr	5.351	0.375	0.25	0.137
E3-252-085	E3-252-085	E3-252-001	1.193	09:43 hr	2.59	0.636	0.424	0.374
E3-271-068	E3-271-068	E3-271-072	0.526	08:30 hr	3.231	0.324	0.259	0.147
E3-271-072	E3-271-072	E3-271-074	0.536	08:31 hr	3.242	0.327	0.262	0.15
E3-271-074	E3-271-074	E2-271-076	0.572	08:30 hr	3.304	0.338	0.27	0.16
E3-271-121	E3-271-121	E3-271-123	0.505	08:30 hr	3.19	0.317	0.254	0.141
E3-271-122	E3-271-122	E3-271-121	0.5	08:28 hr	2.729	0.352	0.282	0.173
E3-271-123	E3-271-123	E3-271-068	0.511	08:30 hr	3.198	0.319	0.255	0.143
E4-202-001	E4-202-001	E4-202-002	0.163	08:27 hr	3.865	0.138	0.138	0.041
E4-202-002	E4-202-002	E4-202-003	0.163	08:27 hr	3.289	0.154	0.154	0.051
E4-202-003	E4-202-003	E4-202-009	0.163	08:25 hr	3.282	0.154	0.154	0.052
E4-202-007	E4-202-007	E4-202-013	0.169	08:30 hr	3.365	0.155	0.155	0.052
E4-202-009	E4-202-009	E4-202-007	0.165	08:24 hr	3.291	0.155	0.155	0.052
E4-202-013	E4-202-013	E4-202-014	0.169	08:30 hr	3.368	0.155	0.155	0.052
E4-202-014	E4-202-014	F1-202-010	0.169	08:29 hr	3.811	0.143	0.143	0.044
E4-231-005	E4-231-005	E4-231-006	0.604	44:14 hr	4.255	0.257	0.147	0.047
E4-231-006	E4-231-006	E4-231-008	0.604	44:15 hr	4.262	0.257	0.147	0.047
E4-231-007	E4-231-007	F1-231-002	0.605	44:18 hr	2.04	0.439	0.263	0.152
E4-231-008	E4-231-008	E4-231-007	0.603	44:15 hr	2.383	0.392	0.235	0.122
E4-232-016	E4-232-016	F1-232-033	12.502	36:17 hr	3.452	1.723	0.383	0.311
E4-241-005	E4-241-005	E4-232-016	12.506	36:17 hr	3.596	1.672	0.372	0.294
E4-241-016	E4-241-016	E4-241-005	12.438	36:02 hr	4.678	1.374	0.305	0.203
E4-241-075	E4-241-075	E4-241-077	1.097	10:00 hr	4.686	0.388	0.258	0.146
E4-241-077	E4-241-077	E4-241-078	1.097	09:58 hr	2.812	0.561	0.374	0.298
E4-241-078	E4-241-078	E4-241-079	1.101	10:01 hr	3.091	0.525	0.35	0.263
E4-241-079	E4-241-079	E4-241-080	1.22	09:58 hr	2.673	0.631	0.421	0.37
E4-241-080	E4-241-080	E3-241-048	1.224	10:02 hr	2.678	0.632	0.421	0.37
E4-241-081	E4-241-081	E4-241-075	1.096	09:59 hr	3.535	0.474	0.316	0.217
E4-242-014	E4-242-014	E4-241-081	1.073	10:01 hr	3.234	0.498	0.332	0.238
E4-242-029	E4-242-029	E4-242-014	1.069	09:46 hr	2.676	0.571	0.381	0.308
E4-242-034	E4-242-034	E4-242-029	1.066	09:45 hr	3.004	0.523	0.349	0.261
E4-242-036	E4-242-036	E4-242-034	1.064	09:43 hr	3.001	0.523	0.349	0.261
E4-242-045	E4-242-045	E4-242-036	1.062	09:45 hr	3.002	0.522	0.348	0.26
E4-242-057	E4-242-057	E4-242-045	1.055	09:45 hr	2.804	0.547	0.364	0.284
E4-242-062	E4-242-062	E4-242-057	1.049	09:43 hr	2.767	0.549	0.366	0.286

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E4-242-069	E4-242-069	E4-242-062	1.044	09:32 hr	2.498	0.591	0.394	0.328
E4-242-078	E4-242-078	E4-242-069	1.032	09:31 hr	2.603	0.568	0.379	0.305
E4-251-001	E4-251-001	E4-242-078	1.031	09:29 hr	2.645	0.561	0.374	0.298
E4-252-009	E4-252-009	E3-252-085	1.193	09:43 hr	2.589	0.636	0.424	0.375
E4-252-010	E4-252-010	E4-252-009	1.194	09:44 hr	2.585	0.637	0.425	0.375
E4-252-011	E4-252-011	E4-252-010	1.194	09:44 hr	2.595	0.635	0.423	0.374
E4-252-013	E4-252-013	E4-252-014	1.194	09:28 hr	3.714	0.487	0.325	0.228
E4-252-014	E4-252-014	E4-252-019	1.195	09:29 hr	3.639	0.495	0.33	0.235
E4-252-019	E4-252-019	E4-252-021	1.195	09:32 hr	2.83	0.595	0.397	0.332
E4-252-021	E4-252-021	E4-252-023	1.194	09:33 hr	2.854	0.591	0.394	0.328
E4-252-023	E4-252-023	E4-252-011	1.194	09:33 hr	2.62	0.631	0.42	0.369
E4-252-033	E4-252-033	E4-252-013	1.194	09:30 hr	3.23	0.54	0.36	0.277
E4-252-035	E4-252-035	E4-252-033	1.193	09:25 hr	5.16	0.384	0.256	0.144
E4-252-037	E4-252-037	E4-252-035	1.193	09:24 hr	3.843	0.475	0.317	0.217
E4-271-058	E4-271-058	E4-271-060	0.484	08:15 hr	1.965	0.436	0.349	0.261
E4-271-060	E4-271-060	E4-271-062	0.487	08:23 hr	3.294	0.302	0.242	0.128
E4-271-062	E4-271-062	E4-271-063	0.488	08:29 hr	3.686	0.28	0.224	0.11
E4-271-063	E4-271-063	E4-271-064	0.488	08:27 hr	4.038	0.262	0.21	0.096
E4-271-064	E4-271-064	E3-271-122	0.498	08:29 hr	2.884	0.337	0.27	0.159
F1-202-005	F1-202-005	F1-202-007	0.184	08:28 hr	3.249	0.155	0.124	0.033
F1-202-006	F1-202-006	F1-202-005	0.183	08:28 hr	3.416	0.153	0.131	0.037
F1-202-007	F1-202-007	F2-202-001	0.195	08:30 hr	3.882	0.143	0.114	0.028
F1-202-008	F1-202-008	F1-202-006	0.184	08:31 hr	2.483	0.186	0.149	0.048
F1-202-009	F1-202-009	F1-202-008	0.182	08:28 hr	3.52	0.158	0.158	0.054
F1-202-010	F1-202-010	F1-202-009	0.17	08:30 hr	3.657	0.147	0.147	0.047
F1-231-001	F1-231-001	F2-231-024	0.603	44:34 hr	1.754	0.477	0.273	0.163
F1-231-001A	F1-231-003	F1-231-001	0.601	34:18 hr	2.132	0.423	0.254	0.141
F1-231-002	F1-231-002	F1-231-003	0.603	44:19 hr	1.963	0.45	0.27	0.159
F1-232-001	F1-232-001	F2-231-023	12.74	36:32 hr	3.574	1.703	0.378	0.304
F1-232-002	F1-232-002	F1-232-001	12.744	36:32 hr	3.339	1.792	0.398	0.334
F1-232-008	F1-232-008	F1-232-066	0.29	09:29 hr	2.832	0.233	0.187	0.076
F1-232-012	F1-232-012	F1-232-066	12.485	36:15 hr	3.403	1.74	0.387	0.317
F1-232-013	F1-232-013	F1-232-008	0.291	09:31 hr	1.982	0.301	0.241	0.127
F1-232-014	F1-232-014	F1-232-017	0.154	09:47 hr	2.07	0.187	0.15	0.048
F1-232-017	F1-232-017	F1-232-019	0.155	09:49 hr	1.689	0.217	0.173	0.065
F1-232-019	F1-232-019	F1-232-013	0.291	09:30 hr	1.99	0.3	0.24	0.126
F1-232-033	F1-232-033	F1-232-012	12.495	36:18 hr	3.52	1.698	0.377	0.303
F1-232-066	F1-232-066	F1-232-002	12.746	36:31 hr	3.422	1.759	0.391	0.323
F1-241-050	F1-241-050	F1-242-001	0.016	08:31 hr	1.387	0.053	0.043	0.003
F1-241-109	F1-241-109	F1-241-050	0.014	08:24 hr	0.711	0.077	0.061	0.007
F1-241-110	F1-241-110	F1-241-109	0.011	08:27 hr	0.674	0.068	0.055	0.006
F1-242-001	F1-242-001	E4-241-081	0.024	08:21 hr	1.573	0.065	0.052	0.005
F1-251-003	F1-251-003	E4-251-001	1.029	09:29 hr	2.569	0.572	0.382	0.309
F1-251-015	F1-251-015	F1-251-003	0.906	09:32 hr	3.24	0.479	0.383	0.311
F1-251-023	F1-251-023	F1-251-015	0.901	09:31 hr	3.337	0.467	0.373	0.297
F1-251-031	F1-251-031	F1-251-023	0.857	09:30 hr	3.875	0.403	0.323	0.225
F1-251-033	F1-251-033	F1-251-031	0.854	09:30 hr	3.172	0.466	0.373	0.296
F1-251-034	F1-251-034	F1-251-106	0.849	09:29 hr	2.942	0.49	0.392	0.325
F1-251-039	F1-251-039	F1-251-034	0.843	09:31 hr	3.273	0.451	0.361	0.278
F1-251-040	F1-251-040	F1-251-039	0.831	09:32 hr	3.17	0.457	0.365	0.285
F1-251-041	F1-251-041	F1-251-040	0.824	09:28 hr	3.21	0.449	0.36	0.277
F1-251-044	F1-251-044	F1-251-041	0.817	09:31 hr	3.204	0.447	0.358	0.274
F1-251-047	F1-251-047	F1-251-044	0.81	09:30 hr	3.122	0.453	0.363	0.281
F1-251-048	F1-251-048	F1-251-068	0.805	09:30 hr	3.348	0.429	0.343	0.253
F1-251-049	F1-251-049	F1-251-108	0.774	09:29 hr	3.015	0.45	0.36	0.277
F1-251-050	F1-251-050	F1-251-049	0.771	09:29 hr	3.336	0.416	0.333	0.239
F1-251-068	F1-251-068	F1-251-047	0.807	09:30 hr	3.349	0.429	0.343	0.254
F1-251-106	F1-251-106	F1-251-033	0.852	09:29 hr	2.942	0.491	0.393	0.326
F1-251-108	F1-251-108	F1-251-048	0.803	09:28 hr	3.069	0.512	0.512	0.521
F1-252-017	F1-252-017	E4-252-037	1.193	09:15 hr	4.542	0.421	0.281	0.172
F1-252-033	F1-252-033	F1-252-017	1.193	09:15 hr	4.542	0.421	0.281	0.172
F1-252-039	F1-252-039	F1-252-033	1.195	09:17 hr	4.17	0.448	0.299	0.194

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-261-003	F1-261-003	F1-261-004	1.178	09:14 hr	5.574	0.39	0.312	0.211
F1-261-004	F1-261-004	F1-252-039	1.18	09:14 hr	5.225	0.378	0.252	0.139
F1-261-009	F1-261-009	F1-261-003	1.179	09:15 hr	3.974	0.5	0.4	0.338
F1-261-026	F1-261-026	F1-261-009	1.178	09:14 hr	3.974	0.5	0.4	0.337
F1-261-040	F1-261-040	F1-261-026	1.175	09:15 hr	3.963	0.5	0.4	0.337
F1-261-048	F1-261-048	F1-261-040	1.161	09:13 hr	3.949	0.497	0.398	0.333
F1-261-058	F1-261-058	F1-261-048	1.158	09:12 hr	4.753	0.433	0.346	0.258
F1-261-064	F1-261-064	F1-261-058	1.156	09:00 hr	4.51	0.449	0.359	0.276
F1-261-070	F1-261-070	F1-261-064	1.14	09:00 hr	4.493	0.446	0.357	0.272
F1-261-075	F1-261-075	F1-261-070	1.139	09:00 hr	4.069	0.479	0.384	0.312
F1-261-078	F1-261-078	F1-261-075	1.092	09:01 hr	4.021	0.468	0.375	0.299
F1-261-081	F1-261-081	F1-261-078	1.091	09:00 hr	3.575	0.511	0.409	0.351
F1-261-089	F1-261-089	F1-261-081	1.091	09:01 hr	3.575	0.511	0.409	0.351
F1-261-095	F1-261-095	F1-261-089	1.072	09:00 hr	3.57	0.505	0.404	0.343
F1-261-097	F1-261-097	F1-261-095	1.072	08:59 hr	3.568	0.505	0.404	0.343
F1-261-106	F1-261-106	F1-261-097	1.072	09:00 hr	3.571	0.505	0.404	0.343
F1-271-101	F1-271-101	F1-271-103	0.408	08:05 hr	1.873	0.399	0.319	0.22
F1-271-103	F1-271-103	E4-271-058	0.482	08:13 hr	2.286	0.39	0.312	0.211
F2-202-001	F2-202-001	F2-202-023	0.196	08:29 hr	3.094	0.168	0.134	0.039
F2-202-002	F2-202-002	F2-202-007	0.203	08:30 hr	3.083	0.172	0.137	0.041
F2-202-003	F2-202-003	F2-202-005	0.199	08:29 hr	3.158	0.167	0.134	0.038
F2-202-004	F2-202-004	F2-202-006	0.208	08:32 hr	3.02	0.177	0.142	0.043
F2-202-005	F2-202-005	F2-202-002	0.201	08:29 hr	3.24	0.165	0.132	0.037
F2-202-006	F2-202-006	F2-202-024	0.212	08:30 hr	4.079	0.146	0.117	0.029
F2-202-007	F2-202-007	F2-202-004	0.207	08:30 hr	3.274	0.167	0.134	0.038
F2-202-023	F2-202-023	F2-202-003	0.198	08:30 hr	2.87	0.178	0.142	0.044
F2-202-024	F2-202-024	F3-202-006	0.215	08:45 hr	3.488	0.164	0.132	0.037
F2-231-004	F2-231-004	F3-231-015	13.255	36:51 hr	2.946	2.029	0.451	0.418
F2-231-010	F2-231-010	F2-231-004	13.273	36:50 hr	3.598	1.747	0.388	0.319
F2-231-016	F2-231-016	F2-231-010	12.722	36:33 hr	3.555	1.708	0.38	0.306
F2-231-023	F2-231-023	F2-231-016	12.734	36:34 hr	3.432	1.754	0.39	0.321
F2-231-024	F2-231-024	F2-231-010	0.606	34:33 hr	1.542	0.526	0.3	0.196
F2-232-002	F2-232-002	F2-232-003	0.144	09:40 hr	1.611	0.212	0.17	0.063
F2-232-003	F2-232-003	F2-232-004	0.146	09:42 hr	1.601	0.215	0.172	0.064
F2-232-004	F2-232-004	F2-232-005	0.151	09:44 hr	1.616	0.219	0.175	0.067
F2-232-005	F2-232-005	F2-232-006	0.151	09:42 hr	1.582	0.223	0.178	0.069
F2-232-006	F2-232-006	F1-232-014	0.153	09:45 hr	1.694	0.214	0.171	0.064
F2-232-007	F2-232-007	F2-232-002	0.143	09:32 hr	1.419	0.231	0.185	0.075
F2-242-055	F2-242-055	F1-241-110	0.01	08:18 hr	0.621	0.064	0.051	0.005
F2-242-056	F2-242-056	F2-242-055	0.01	08:12 hr	0.659	0.061	0.049	0.005
F2-251-012	F2-251-012	F2-251-028	0.705	09:28 hr	3.445	0.381	0.305	0.202
F2-251-016	F2-251-016	F2-251-017	0.717	09:31 hr	3.388	0.391	0.313	0.212
F2-251-017	F2-251-017	F2-252-027	0.723	09:27 hr	3.491	0.384	0.307	0.205
F2-251-018	F2-251-018	F1-251-050	0.767	09:29 hr	3.652	0.388	0.311	0.209
F2-251-028	F2-251-028	F2-251-016	0.709	09:30 hr	3.451	0.382	0.306	0.203
F2-252-027	F2-252-027	F2-251-018	0.764	09:28 hr	3.544	0.396	0.317	0.217
F2-261-053	F2-261-053	F1-261-106	0.874	09:01 hr	4.667	0.358	0.286	0.179
F2-262-011	F2-262-011	F2-261-053	0.862	09:01 hr	4.078	0.39	0.312	0.211
F2-262-017	F2-262-017	F2-262-011	0.827	09:01 hr	4.749	0.34	0.272	0.161
F2-262-020	F2-262-020	F2-262-017	0.825	09:00 hr	4.745	0.339	0.271	0.161
F2-262-029	F2-262-029	F2-262-020	0.825	09:01 hr	4.188	0.371	0.297	0.192
F2-262-032	F2-262-032	F2-262-029	0.824	09:01 hr	3.001	0.472	0.378	0.303
F2-262-038	F2-262-038	F2-262-032	0.781	09:01 hr	3.574	0.4	0.32	0.221
F3-202-006	F3-202-006	F3-202-007	0.219	08:37 hr	3.188	0.177	0.142	0.043
F3-202-007	F3-202-007	F3-211-010	0.236	08:33 hr	3.262	0.184	0.147	0.047
F3-211-010	F3-211-010	F3-211-011	0.245	08:37 hr	3.571	0.177	0.142	0.043
F3-211-011	F3-211-011	F3-211-012	0.247	08:41 hr	3.323	0.187	0.15	0.048
F3-211-012	F3-211-012	F3-211-013	0.282	08:36 hr	3.543	0.196	0.157	0.053
F3-211-013	F3-211-013	F4-211-002	0.285	08:37 hr	3.427	0.202	0.161	0.057
F3-222-007	F3-222-007	F3-222-019	13.235	37:17 hr	3.492	1.783	0.396	0.331
F3-222-008	F3-222-008	F3-222-007	13.245	37:04 hr	3.43	1.808	0.402	0.34
F3-222-008A	F3-222-020	F3-222-008	13.255	37:02 hr	3.673	1.719	0.382	0.31

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F3-222-019	F3-222-019	F4-222-013	13.232	37:18 hr	3.365	1.832	0.407	0.348
F3-231-015	F3-231-015	F3-222-020	13.253	37:03 hr	2.946	2.029	0.451	0.418
F3-232-001	F3-232-001	F2-232-007	0.143	09:37 hr	1.683	0.205	0.164	0.058
F3-232-002	F3-232-002	F3-232-001	0.143	09:32 hr	1.482	0.224	0.179	0.07
F3-232-003	F3-232-003	F3-232-002	0.143	09:30 hr	1.524	0.22	0.176	0.068
F3-232-004	F3-232-004	F3-232-005	0.14	09:23 hr	1.762	0.191	0.144	0.044
F3-232-005	F3-232-005	F3-232-006	0.142	09:30 hr	1.559	0.21	0.157	0.054
F3-232-006	F3-232-006	F3-232-007	0.142	09:25 hr	1.777	0.192	0.144	0.045
F3-232-007	F3-232-007	F3-232-003	0.144	09:29 hr	2.622	0.152	0.121	0.031
F3-241-004	F3-241-004	F3-242-011	0.006	07:55 hr	0.916	0.036	0.029	0.001
F3-241-005	F3-241-005	F3-241-004	0.005	07:47 hr	0.529	0.049	0.039	0.003
F3-241-006	F3-241-006	F3-241-005	0.004	07:48 hr	0.492	0.039	0.031	0.002
F3-242-010	F3-242-010	F2-242-056	0.009	08:03 hr	0.623	0.064	0.051	0.005
F3-242-011	F3-242-011	F3-242-010	0.008	08:00 hr	0.609	0.06	0.048	0.004
F3-251-023	F3-251-023	F3-251-082	0.484	09:28 hr	3.047	0.318	0.254	0.142
F3-251-024	F3-251-024	F2-251-012	0.701	09:30 hr	3.095	0.41	0.328	0.233
F3-251-082	F3-251-082	F3-251-024	0.512	09:28 hr	4.037	0.271	0.217	0.103
F3-252-001	F3-252-001	F3-252-003	0.442	09:29 hr	3.403	0.276	0.221	0.107
F3-252-003	F3-252-003	F3-251-023	0.48	09:29 hr	3.485	0.287	0.23	0.116
F3-262-038	F3-262-038	F2-262-038	0.767	08:57 hr	4.217	0.35	0.28	0.171
F3-262-052	F3-262-052	F3-262-038	0.761	08:48 hr	2.92	0.454	0.364	0.282
F3-262-057	F3-262-057	F3-262-052	0.746	08:46 hr	4.152	0.347	0.278	0.168
F3-262-063	F3-262-063	F3-262-057	0.67	08:45 hr	5.044	0.28	0.224	0.11
F3-271-152	F3-271-152	F3-262-074	0.627	08:45 hr	2.967	0.39	0.312	0.211
F3-271-152A	F3-262-074	F3-262-063	0.664	08:45 hr	2.833	0.42	0.336	0.244
F3-271-153	F3-271-153	F3-271-152	0.625	08:43 hr	4.561	0.286	0.229	0.115
F4-0232-BV	F4-0232-BV	F4-232-004	0.139	09:04 hr	1.171	0.285	0.285	0.177
F4-211-002	F4-211-002	F4-211-003	0.286	08:38 hr	4.007	0.182	0.145	0.046
F4-211-003	F4-211-003	F4-211-015	0.286	08:39 hr	3.819	0.188	0.151	0.049
F4-211-004	F4-211-004	F4-211-005	0.288	08:42 hr	6.116	0.137	0.109	0.025
F4-211-005	F4-211-005	F4-211-013	0.29	08:41 hr	4.205	0.178	0.142	0.044
F4-211-006	F4-211-006	F4-211-007	0.3	08:42 hr	2.606	0.253	0.203	0.09
F4-211-007	F4-211-007	G1-211-003	0.303	08:43 hr	3.541	0.206	0.165	0.059
F4-211-013	F4-211-013	F4-211-014	0.298	08:42 hr	5.279	0.155	0.124	0.033
F4-211-014	F4-211-014	F4-211-006	0.299	08:42 hr	3.018	0.228	0.183	0.073
F4-211-015	F4-211-015	F4-211-004	0.287	08:40 hr	3.822	0.188	0.151	0.049
F4-221-022	F4-221-022	G1-221-029	13.23	37:32 hr	3.813	1.669	0.371	0.293
F4-222-003	F4-222-003	F4-221-022	13.237	37:19 hr	3.432	1.806	0.401	0.339
F4-222-013	F4-222-013	F4-222-003	13.249	37:18 hr	3.651	1.726	0.384	0.312
F4-232-004	F4-232-004	F4-232-005	0.139	09:07 hr	1.198	0.279	0.279	0.17
F4-232-005	F4-232-005	F4-232-006	0.139	09:13 hr	2.046	0.191	0.191	0.08
F4-232-006	F4-232-006	F3-232-004	0.139	09:14 hr	1.608	0.202	0.152	0.05
F4-241-002	F4-241-002	G1-241-001	0.14	08:59 hr	2.668	0.172	0.207	0.093
F4-241-003	F4-241-003	F4-241-002	0.14	08:59 hr	1.858	0.222	0.267	0.156
F4-241-004	F4-241-004	F4-241-003	0.14	08:47 hr	1.666	0.24	0.289	0.182
F4-241-005	F4-241-005	F4-241-004	0.14	08:33 hr	1.752	0.231	0.278	0.168
F4-241-006	F4-241-006	F4-241-005	0.102	08:39 hr	1.988	0.169	0.203	0.09
F4-241-007	F4-241-007	F4-241-006	0.096	08:33 hr	1.689	0.181	0.218	0.104
F4-241-008	F4-241-008	F4-241-007	0.091	08:31 hr	1.594	0.183	0.219	0.105
F4-241-009	F4-241-009	F3-241-006	0.001	07:44 hr	0.337	0.024	0.019	0.001
F4-241-010	F4-241-010	F4-241-009	0	00:00 hr	0	0	0	0
F4-241-011	F4-241-011	F4-241-010	0	00:00 hr	0	0	0	0
F4-251-016	F4-251-016	F4-251-022	0.42	09:16 hr	3.252	0.275	0.22	0.106
F4-251-022	F4-251-022	F4-251-023	0.422	09:15 hr	3.194	0.279	0.223	0.109
F4-251-023	F4-251-023	F4-252-003	0.435	09:16 hr	3.072	0.293	0.234	0.121
F4-252-003	F4-252-003	F3-252-001	0.438	09:20 hr	3.089	0.293	0.235	0.121
F4-252-005	F4-252-005	F4-251-016	0.415	09:16 hr	3.339	0.267	0.214	0.1
F4-271-034	G1-271-007	F4-271-034	0.569	08:28 hr	3.64	0.314	0.252	0.139
F4-271-034A	F4-271-034	F4-271-075	0.572	08:30 hr	3.518	0.323	0.259	0.147
F4-271-069	F4-271-069	F4-271-073	0.582	08:31 hr	3.419	0.334	0.267	0.156
F4-271-070	F4-271-070	F3-271-153	0.624	08:47 hr	3.726	0.33	0.264	0.153
F4-271-072	F4-271-072	F4-271-070	0.603	08:33 hr	2.873	0.388	0.31	0.209

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F4-271-073	F4-271-073	F4-271-072	0.592	08:32 hr	3.904	0.308	0.246	0.133
F4-271-075	F4-271-075	F4-271-069	0.575	08:30 hr	3.523	0.324	0.259	0.147
G1-211-003	G1-211-003	9010	0.49	08:33 hr	1.677	0.494	0.396	0.33
G1-221-001	G1-221-001	G2-212-041	13.217	37:49 hr	2.804	2.103	0.467	0.445
G1-221-005	G1-221-005	G1-221-001	13.219	37:42 hr	4.011	1.607	0.357	0.273
G1-221-010	G1-221-010	G1-221-005	13.231	37:34 hr	3.812	1.67	0.371	0.293
G1-221-029	G1-221-029	G1-221-010	13.227	37:34 hr	3.132	1.934	0.43	0.384
G1-232-012	G1-232-012	F4-0232-BV	0.14	09:03 hr	1.416	0.249	0.249	0.136
G1-241-001	G1-241-001	G1-232-012	0.14	08:56 hr	4.107	0.119	0.119	0.03
G1-241-002	G1-241-002	F4-241-008	0.091	08:26 hr	1.734	0.172	0.206	0.093
G1-242-001	G1-242-001	G1-241-002	0.085	08:31 hr	1.422	0.189	0.226	0.112
G1-242-006	G1-242-006	G1-242-001	0.081	08:22 hr	1.453	0.179	0.215	0.101
G1-242-014	G1-242-014	G1-242-006	0.078	08:21 hr	1.535	0.168	0.201	0.088
G1-242-025	G1-242-025	G1-242-014	0.074	08:07 hr	1.548	0.161	0.193	0.081
G1-242-028	G1-242-028	G1-242-025	0.032	08:03 hr	1.207	0.107	0.128	0.035
G1-242-038	G1-242-038	G1-242-028	0.03	08:01 hr	1.062	0.113	0.135	0.039
G1-242-045	G1-242-045	G1-242-038	0.027	07:55 hr	1.047	0.104	0.125	0.033
G1-252-004	G1-252-004	G1-252-005	0.372	09:12 hr	3.347	0.271	0.271	0.161
G1-252-005	G1-252-005	F4-252-005	0.396	09:12 hr	2.822	0.291	0.233	0.119
G1-252-006	G1-252-006	G1-252-004	0.37	09:07 hr	2.853	0.303	0.303	0.199
G1-252-007	G1-252-007	G1-252-006	0.37	09:07 hr	2.722	0.313	0.313	0.213
G1-252-008	G1-252-008	G1-252-007	0.367	08:59 hr	2.937	0.295	0.295	0.189
G1-252-009	G1-252-009	G1-252-008	0.367	09:00 hr	2.908	0.297	0.297	0.192
G1-252-011	G1-252-011	G1-252-009	0.367	09:00 hr	2.733	0.31	0.31	0.209
G1-271-007	G1-271-013	G1-271-007	0.561	08:29 hr	3.623	0.312	0.25	0.137
G1-271-013	G1-271-030	G1-271-013	0.559	08:30 hr	3.621	0.311	0.249	0.136
G1-271-030	G1-271-041	G1-271-030	0.552	08:31 hr	2.986	0.354	0.283	0.175
G1-271-042	G1-271-047	G1-271-042	0.424	08:29 hr	2.661	0.319	0.255	0.143
G1-271-047	G1-272-045	G1-271-047	0.417	08:30 hr	3.793	0.245	0.196	0.084
G1-272-045	G1-272-065	G1-272-045	0.351	08:27 hr	2.603	0.283	0.227	0.113
G1-272-065	G1-272-066	G1-272-065	0.328	08:29 hr	2.552	0.274	0.219	0.105
G1-272-066	G2-272-001	G1-272-066	0.327	08:26 hr	2.548	0.273	0.219	0.105
G2-212-001	G2-212-001	G3-212-007	13.239	38:03 hr	2.539	2.276	0.506	0.51
G2-212-002	G2-212-003	G2-212-002	13.242	37:58 hr	4.978	1.375	0.306	0.203
G2-212-002A	G2-212-002	G2-212-001	13.241	38:00 hr	3.039	1.98	0.44	0.4
G2-212-014A	G2-212-014	G2-212-003	1.791	37:50 hr	6.272	0.447	0.298	0.193
G2-212-015	G2-212-015	G2-212-014	13.24	37:57 hr	4.728	1.427	0.317	0.218
G2-212-032	G2-212-032	G2-212-047	13.253	37:47 hr	3.719	1.702	0.378	0.304
G2-212-035	G2-212-035	G2-212-032	13.255	37:45 hr	3.478	1.79	0.398	0.334
G2-212-038	G2-212-038	G2-212-035	13.259	37:45 hr	3.659	1.724	0.383	0.311
G2-212-041	G2-212-041	G2-212-038	13.26	37:45 hr	3.085	1.96	0.436	0.393
G2-212-047	G2-212-047	G2-212-015	13.244	37:46 hr	3.052	1.974	0.439	0.398
G2-252-043	G2-252-043	G2-252-045	0.346	09:00 hr	2.91	0.284	0.284	0.176
G2-252-044	G2-252-044	G2-252-043	0.345	09:01 hr	2.756	0.295	0.295	0.19
G2-252-045	G2-252-045	G1-252-011	0.347	09:01 hr	2.836	0.29	0.29	0.183
G2-252-046	G2-252-046	G2-252-044	0.343	08:55 hr	2.809	0.29	0.29	0.183
G2-252-047	G2-252-047	G2-252-046	0.34	08:52 hr	4.207	0.216	0.216	0.102
G2-272-014	G2-272-014	G2-272-001	0.32	08:18 hr	2.476	0.275	0.22	0.106
G2-272-036	G2-272-036	G2-272-014	0.308	08:16 hr	2.415	0.272	0.218	0.104
G2-272-049	G2-272-049	G2-272-036	0.299	08:14 hr	2.4	0.268	0.214	0.1
G2-272-055	G2-272-055	G2-272-049	0.296	08:10 hr	2.195	0.283	0.227	0.113
G2-272-068	G2-272-068	G2-272-055	0.148	08:00 hr	1.791	0.202	0.161	0.056
G2-272-080	G2-272-080	G2-272-068	0.145	07:59 hr	2.604	0.153	0.123	0.032
G3-211-015	G3-211-015	G3-211-018	15.918	13:46 hr	3.932	1.873	0.416	0.362
G3-211-018	G3-211-018	G3-211-017	15.573	13:46 hr	3.907	1.851	0.411	0.355
G3-212-006	G3-212-006	G3-212-007	3.27	01:30 hr	8.028	0.638	0.511	0.518
G3-212-007	G3-212-007	G3-211-015	16.291	13:47 hr	2.603	2.637	0.586	0.648
G3-252-026	G3-252-026	G3-252-028	0.33	08:45 hr	3.329	0.25	0.25	0.137
G3-252-027	G3-252-027	G3-252-026	0.33	08:42 hr	5.245	0.181	0.181	0.072
G3-252-028	G3-252-028	G3-252-029	0.331	08:44 hr	2.696	0.291	0.291	0.185
G3-252-029	G3-252-029	G2-252-047	0.338	08:46 hr	2.783	0.289	0.289	0.182
G3-252-030	G3-252-030	G3-252-027	0.33	08:43 hr	4.838	0.192	0.192	0.081

Existing System Dry Weather Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G3-252-031	G3-252-031	G3-252-030	0.33	08:41 hr	2.832	0.28	0.28	0.171
G3-252-032	G3-252-032	G3-252-031	0.327	08:31 hr	2.612	0.295	0.295	0.189
G4-252-008	G4-252-008	G3-252-032	0.325	08:30 hr	2.843	0.277	0.277	0.167
G4-252-008A	G4-261-001	G4-252-008	0.259	08:43 hr	2.663	0.247	0.247	0.133
G4-261-008	G4-261-008	G4-261-015	0.242	08:29 hr	3.156	0.248	0.372	0.295
G4-261-015	G4-261-015	G4-261-016	0.242	08:30 hr	2.182	0.329	0.494	0.49
G4-261-016	G4-261-016	G4-261-017	0.243	08:29 hr	1.887	0.371	0.556	0.596
G4-261-017	G4-261-017	G4-261-029	0.245	08:28 hr	4.367	0.168	0.168	0.061
G4-261-018	G4-261-018	G4-261-020	0.252	08:30 hr	2.524	0.251	0.251	0.138
G4-261-020	G4-261-020	G4-261-021	0.255	08:31 hr	2.615	0.247	0.247	0.134
G4-261-021	G4-261-021	G4-261-001	0.258	08:38 hr	2.727	0.242	0.242	0.128
G4-261-029	G4-261-029	G4-261-018	0.25	08:30 hr	2.468	0.254	0.254	0.141
H1-261-006	H1-261-006	H1-261-025	0.231	08:07 hr	2.795	0.237	0.284	0.176
H1-261-008	H1-261-008	H1-261-009	0.231	08:13 hr	4.546	0.168	0.202	0.089
H1-261-009	H1-261-009	H1-261-010	0.231	08:15 hr	3.381	0.228	0.343	0.252
H1-261-010	H1-261-010	H1-261-011	0.232	08:16 hr	2.994	0.25	0.375	0.3
H1-261-011	H1-261-011	H1-261-012	0.239	08:23 hr	3.406	0.233	0.349	0.262
H1-261-012	H1-261-012	H1-261-015	0.241	08:29 hr	3.088	0.252	0.377	0.303
H1-261-015	H1-261-015	G4-261-008	0.241	08:30 hr	3.033	0.255	0.383	0.311
H1-261-025	H1-261-025	H1-261-008	0.231	08:13 hr	3.221	0.214	0.257	0.145
H1-262-023	H1-262-023	H1-261-006	0.229	08:00 hr	2.977	0.225	0.27	0.16

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.282	32:30 hr	1.374	0.332	0.19	0.079
0G1-271-041	G1-271-042	G1-271-041	1.059	32:30 hr	3.426	0.516	0.413	0.357
101	64	66	0.412	32:32 hr	1.826	0.667	1	1.055
103	66	68	0.411	32:33 hr	2.638	0.434	0.651	0.759
105	68	70	0.413	32:48 hr	2.503	0.458	0.686	0.816
107	70	74	0.428	32:44 hr	6.793	0.215	0.323	0.225
111	74	76	0.431	32:43 hr	6.575	0.222	0.332	0.238
1127	14	9002	0.325	32:14 hr	16.167	0.096	0.144	0.045
113	76	78	0.461	32:30 hr	7.923	0.203	0.305	0.202
115	78	80	0.467	32:30 hr	8.216	0.2	0.3	0.195
117	80	82	0.466	32:30 hr	8.244	0.199	0.299	0.194
119	82	E2-222-016	0.467	32:30 hr	8.249	0.199	0.299	0.195
121	132	134	0.179	32:14 hr	6.321	0.122	0.183	0.074
123	134	136	0.179	32:14 hr	8.689	0.098	0.147	0.047
125	136	9006	0.2	32:15 hr	4.94	0.157	0.236	0.122
127	140	9006	0.093	32:16 hr	2.248	0.16	0.24	0.126
137	150	48	0.305	32:15 hr	3.144	0.296	0.445	0.408
139	C1-261-020	770	3.755	34:00 hr	3.751	0.989	0.495	0.491
141	770	772	3.757	34:02 hr	3.969	0.947	0.473	0.455
143	772	774	3.75	34:07 hr	3.328	1.087	0.543	0.574
145	774	776	3.761	34:17 hr	3.013	1.181	0.591	0.656
147	776	778	3.758	34:18 hr	3.664	1.008	0.504	0.507
153	778	780	3.749	34:18 hr	3.212	1.118	0.559	0.601
155	780	C2-261-001	3.736	34:15 hr	2.915	1.208	0.604	0.678
157	C2-261-001	C3-261-013	1.745	34:17 hr	7.919	0.448	0.448	0.414
161	802	9000	0.127	32:20 hr	1.841	0.209	0.251	0.138
163	SS_3	C3-271-012	2.917	32:45 hr	2.647	0.947	0.379	0.305
165	SS_1_A	C3-271-007	2.912	32:46 hr	3.763	0.897	0.538	0.566
167	SS_4	SS_3	2.969	32:33 hr	2.649	0.959	0.384	0.312
169	SS_5	SS_4	2.985	32:30 hr	2.708	1.068	0.534	0.558
171	SS_6	SS_5	2.644	32:33 hr	2.602	1	0.5	0.5
173	804	SS_8	2.878	32:27 hr	2.652	1.054	0.527	0.546
175	SS_8	SS_7	2.843	32:33 hr	2.644	1.046	0.523	0.54
177	SS_7	SS_6	2.757	32:33 hr	2.626	1.027	0.513	0.523
57	E3-202-BV	E3-202-010	0.294	32:31 hr	3.158	0.259	0.31	0.209
757	1428	BV-105	0.39	21:50 hr	1.851	0.481	0.578	0.633
759	1428	1430	0.296	21:51 hr	1.695	0.482	0.722	0.872
761	1430	D2-252-004	0.294	21:59 hr	3.23	0.283	0.424	0.375
763	G2-212-014	G2-212-003	14.407	36:30 hr	11.056	1.074	0.43	0.384
773	B2-282-047	B2-282-046	0.72	32:33 hr	3.199	0.456	0.456	0.426
775	B2-282-046	B2-282-041	0.693	32:30 hr	4.302	0.355	0.355	0.269
777	B2-282-041	B2-282-037	0.675	32:42 hr	1.33	1	1	1.278
779	B2-282-037	B2-282-036	0.674	32:47 hr	2.808	0.479	0.479	0.464
781	B2-282-036	B2-282-003	0.666	32:46 hr	2.774	0.479	0.479	0.464
785	B2-282-003	B2-281-013	0.657	32:46 hr	2.765	0.475	0.475	0.458
787	B2-281-013	B2-281-027	0.648	32:47 hr	3.1	0.431	0.431	0.385
789	B2-281-027	B2-281-006	0.637	32:45 hr	2.889	0.448	0.448	0.413
791	B2-281-006	B2-281-005	0.635	32:49 hr	2.585	0.487	0.487	0.478
793	B2-281-005	B2-281-004	0.633	33:03 hr	2.656	0.476	0.476	0.46
795	B2-281-004	B2-281-003	0.628	33:01 hr	2.573	0.485	0.485	0.474
797	B2-281-003	B2-281-002	0.875	32:38 hr	2.662	0.617	0.617	0.701
799	B2-281-002	B2-281-029	0.875	32:47 hr	2.705	0.609	0.609	0.687
801	B2-281-029	B2-281-001	0.871	32:45 hr	1.716	1	1	1.625
803	B2-281-001	B2-281-022	0.871	32:50 hr	2.512	0.646	0.646	0.749
805	B2-281-022	B2-281-020	0.87	33:02 hr	3.15	0.535	0.535	0.559
807	B2-281-020	B2-272-030	0.866	33:04 hr	2.026	0.785	0.785	0.959
809	B2-272-030	B2-272-029	0.859	33:03 hr	2.944	0.559	0.559	0.601
811	B2-272-029	B2-272-028	0.853	33:13 hr	2.66	0.604	0.604	0.679
813	B2-272-028	B2-272-027	0.951	33:02 hr	3.039	0.592	0.592	0.658
85	48	50	0.394	32:17 hr	2.437	0.449	0.674	0.796
87	50	52	0.396	32:32 hr	1.756	0.667	1	1
889	B2-272-008	B2-272-005	0.388	33:03 hr	1.902	0.38	0.304	0.201

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
89	52	54	0.397	32:31 hr	2.46	0.448	0.672	0.793
891	B2-272-005	B2-271-022	0.388	33:16 hr	2.179	0.345	0.276	0.166
893	B2-271-022	B2-271-031	0.386	33:17 hr	1.906	0.378	0.303	0.199
895	B2-271-031	B2-271-020	0.383	33:15 hr	2.744	0.29	0.232	0.118
897	B2-271-020	B2-271-019	0.382	33:14 hr	4.671	0.2	0.16	0.055
91	54	56	0.398	32:31 hr	2.492	0.444	0.666	0.783
93	56	58	0.398	32:32 hr	2.588	0.43	0.645	0.748
95	58	60	0.397	32:32 hr	2.675	0.417	0.625	0.715
97	60	62	0.398	32:32 hr	2.58	0.431	0.647	0.751
99	62	64	0.4	32:32 hr	2.374	0.466	0.699	0.835
B1-272-001	B1-272-001	B1-272-010	0.42	32:46 hr	2.21	0.4	0.4	0.338
B1-272-002	B1-272-002	B1-272-001	0.35	32:47 hr	2.426	0.357	0.428	0.381
B1-272-003	B1-272-003	B1-272-002	0.353	32:46 hr	2.333	0.37	0.444	0.407
B1-272-005	B1-272-005	B1-272-003	0.356	32:46 hr	2.464	0.358	0.429	0.383
B1-272-007	B1-272-007	B1-272-005	0.362	32:34 hr	2.152	0.402	0.482	0.47
B1-272-010	B1-272-010	B1-272-012	0.418	32:46 hr	2.423	0.373	0.373	0.296
B1-281-001	B1-281-001	B1-272-007	0.377	32:33 hr	2.384	0.383	0.46	0.433
B1-281-002	B1-281-002	B1-281-001	0.39	32:33 hr	2.429	0.387	0.465	0.441
B1-281-004	B1-281-004	B1-281-002	0.396	32:32 hr	2.868	0.345	0.414	0.359
B1-281-005	B1-281-005	B1-281-004	0.16	32:31 hr	2.176	0.218	0.261	0.15
B1-281-006	B1-281-006	B1-281-005	0.163	32:32 hr	2.139	0.224	0.268	0.157
B1-281-007	B1-281-007	B1-281-006	0.163	32:30 hr	2.763	0.187	0.224	0.11
B1-281-009	B1-281-009	B1-281-007	0.164	32:30 hr	2.734	0.189	0.226	0.112
B1-281-010	B1-281-010	B1-281-009	0.166	32:16 hr	2.717	0.191	0.23	0.116
B1-292-001	B1-292-001	B1-292-002	0.03	32:20 hr	0.93	0.124	0.148	0.048
B1-292-002	B1-292-002	B1-292-003	0.031	32:36 hr	0.837	0.134	0.161	0.056
B1-292-003	B1-292-003	B1-292-004	0.028	32:34 hr	0.989	0.113	0.136	0.04
B1-292-004	B1-292-004	B1-292-010	0.028	32:44 hr	1.595	0.081	0.097	0.02
B1-292-010	B1-292-010	B1-292-011	0.028	32:45 hr	1.607	0.08	0.096	0.019
B1-292-011	B1-292-011	B1-292-012	0.028	32:45 hr	2.328	0.062	0.075	0.011
B1-292-012	B1-292-012	B1-292-013	0.027	32:45 hr	0.799	0.126	0.151	0.05
B1-292-013	B1-292-013	B1-292-014	0.027	32:45 hr	1.364	0.094	0.142	0.043
B1-292-014	B1-292-014	B1-292-015	0.026	32:46 hr	1.14	0.097	0.117	0.029
B1-292-015	B1-292-015	B1-292-016	0.026	32:44 hr	1.432	0.082	0.098	0.02
B1-292-016	B1-292-016	B2-292-023	0.026	32:45 hr	1.998	0.071	0.106	0.024
B2-271-019	B2-271-019	B3-271-059	1.804	33:01 hr	3.084	0.864	0.691	0.824
B2-272-004	B2-272-004	B2-271-019	1.296	32:47 hr	2.904	0.687	0.549	0.584
B2-272-007	B2-272-007	B2-272-004	1.295	32:47 hr	2.89	0.689	0.551	0.587
B2-272-009	B2-272-009	B2-272-007	1.289	32:45 hr	2.901	0.684	0.547	0.581
B2-272-012	B1-272-012	B1-272-013	0.415	32:48 hr	2.374	0.34	0.272	0.162
B2-272-013	B1-272-013	B1-272-015	0.407	32:45 hr	2.482	0.325	0.26	0.148
B2-272-014	B2-272-014	B2-272-009	1.285	32:45 hr	2.37	0.808	0.646	0.75
B2-272-015	B1-272-015	B1-272-016	0.404	32:49 hr	2.178	0.355	0.284	0.176
B2-272-016	B1-272-016	B2-272-021	0.403	33:03 hr	1.984	0.379	0.303	0.2
B2-272-017	B2-272-017	B2-272-008	0.395	33:03 hr	1.979	0.374	0.299	0.195
B2-272-021	B2-272-021	B2-272-017	0.4	33:02 hr	2.006	0.374	0.299	0.195
B2-272-027	B2-272-027	B2-272-033	1.197	32:34 hr	2.995	0.735	0.735	0.89
B2-272-033	B2-272-033	B2-272-014	1.203	32:45 hr	3.722	0.608	0.608	0.686
B2-282-048	B2-282-048	B2-282-047	0.743	32:33 hr	2.864	0.509	0.509	0.515
B2-282-051	B2-282-051	B2-282-048	0.758	32:32 hr	2.972	0.502	0.502	0.503
B2-282-054	B2-282-054	B2-282-051	0.764	32:20 hr	3.027	0.498	0.498	0.496
B2-291-024	B2-291-024	B2-291-045	0.044	32:57 hr	1.699	0.098	0.098	0.02
B2-291-025	B2-291-025	B2-291-026	0.044	33:14 hr	1.393	0.112	0.112	0.027
B2-291-026	B2-291-026	B2-291-027	0.043	33:27 hr	0.552	0.212	0.212	0.099
B2-291-027	B2-291-027	B2-291-028	0.043	33:30 hr	1.006	0.138	0.138	0.041
B2-291-028	B2-291-028	B2-291-029	0.043	33:31 hr	0.986	0.14	0.14	0.042
B2-291-029	B2-291-029	B2-291-030	0.043	33:39 hr	1.355	0.113	0.113	0.027
B2-291-030	B2-291-030	B2-282-054	0.043	33:49 hr	1.106	0.13	0.13	0.036
B2-291-045	B2-291-045	B2-291-025	0.044	33:05 hr	0.53	0.219	0.219	0.105
B2-292-001	B2-292-001	B2-292-002	0.027	32:30 hr	1.225	0.095	0.114	0.027
B2-292-002	B2-292-002	B2-292-003	0.027	32:32 hr	1.258	0.092	0.111	0.026
B2-292-003	B2-292-003	B2-292-004	0.025	32:29 hr	0.947	0.108	0.129	0.036

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B2-292-004	B2-292-004	B2-292-010	0.025	32:29 hr	1.597	0.07	0.07	0.01
B2-292-008	B2-292-008	B2-292-009	0.045	32:55 hr	0.764	0.175	0.175	0.066
B2-292-009	B2-292-009	B2-291-024	0.045	33:05 hr	1.226	0.126	0.126	0.034
B2-292-010	B2-292-010	B2-292-026	0.047	32:46 hr	1.094	0.139	0.139	0.041
B2-292-011	B2-292-011	B2-292-010	0.024	32:55 hr	1.285	0.092	0.139	0.041
B2-292-012	B2-292-012	B2-292-011	0.025	33:00 hr	1.163	0.102	0.153	0.051
B2-292-017	B2-292-017	BV-292-013	0.025	32:52 hr	1.463	0.086	0.13	0.036
B2-292-018	B2-292-018	B2-292-017	0.025	32:49 hr	1.478	0.086	0.129	0.036
B2-292-022	B2-292-022	B2-292-018	0.026	32:47 hr	1.68	0.08	0.119	0.03
B2-292-023	B2-292-023	B2-292-022	0.026	32:50 hr	1.938	0.073	0.109	0.025
B2-292-026	B2-292-026	B2-292-008	0.046	32:45 hr	1.16	0.131	0.131	0.037
B2-301-001	B2-301-001	B2-292-001	0.027	32:15 hr	1.127	0.099	0.119	0.03
B3-262-023	B3-262-023	B4-262-031	3.51	33:32 hr	4.162	1.038	0.692	0.825
B3-262-027	B3-262-027	B3-262-023	3.517	33:34 hr	3.079	1.5	1	1.499
B3-262-031	B3-262-031	B3-262-027	3.509	33:32 hr	3.072	1.5	1	1.486
B3-271-003	B3-271-003	B3-262-031	1.947	33:31 hr	3.154	0.908	0.727	0.878
B3-271-006	B3-271-006	B3-271-003	1.941	33:30 hr	3.152	0.906	0.725	0.875
B3-271-018	B3-271-018	B3-271-006	1.932	33:18 hr	3.151	0.903	0.722	0.871
B3-271-026	B3-271-026	B4-271-011	1.909	33:15 hr	3.408	0.831	0.665	0.781
B3-271-032	B3-271-032	B3-271-026	1.861	33:16 hr	3.14	0.874	0.7	0.837
B3-271-039	B3-271-039	B3-271-032	1.846	33:15 hr	3.124	0.872	0.698	0.834
B3-271-042	B3-271-042	B3-271-039	1.835	33:02 hr	3.121	0.868	0.695	0.829
B3-271-045	B3-271-045	B3-271-042	1.83	33:00 hr	3.144	0.86	0.688	0.819
B3-271-054	B3-271-054	B3-271-045	1.828	33:01 hr	3.313	0.82	0.656	0.767
B3-271-058	B3-271-058	B3-271-054	1.824	33:00 hr	3.402	0.8	0.64	0.74
B3-271-058A	B3-271-063	B3-271-058	1.812	33:01 hr	3.113	0.86	0.688	0.819
B3-271-063	B3-271-059	B3-271-063	1.808	33:01 hr	3.116	0.858	0.686	0.816
B4-261-014	B4-261-014	C1-261-058	3.661	34:00 hr	4.616	1.25	1	1.13
B4-262-001	B4-262-001	B4-261-014	3.656	34:01 hr	4.609	1.25	1	1.128
B4-262-011	B4-262-011	B4-262-044	3.612	33:46 hr	4.969	0.912	0.608	0.686
B4-262-016	B4-262-016	B4-262-011	3.567	33:46 hr	4.959	0.904	0.603	0.676
B4-262-022	B4-262-022	B4-262-016	3.564	33:46 hr	4.955	0.904	0.603	0.676
B4-262-024	B4-262-024	B4-262-022	3.526	33:46 hr	3.087	1.5	1	1.129
B4-262-028	B4-262-028	B4-262-024	3.511	33:47 hr	3.074	1.5	1	1.56
B4-262-030	B4-262-030	B4-262-028	3.512	33:45 hr	3.075	1.5	1	1.561
B4-262-031	B4-262-031	B4-262-114	3.502	33:41 hr	3.067	1.5	1	1.181
B4-262-036	B4-262-036	B4-262-037	1.394	33:15 hr	2.746	1	1	1.284
B4-262-037	B4-262-037	B4-262-038	1.407	33:18 hr	2.772	1	1	1.296
B4-262-038	B4-262-038	B3-262-031	1.41	33:20 hr	2.778	1	1	1.298
B4-262-043	B4-262-044	B4-262-001	3.619	34:00 hr	4.562	1.25	1	1.117
B4-262-114	B4-262-114	B4-262-030	3.505	33:44 hr	3.068	1.5	1	1.015
B4-271-001	B4-271-001	B4-262-036	1.391	33:14 hr	2.74	1	1	1.278
B4-271-011	B4-271-011	B3-271-018	1.922	33:17 hr	3.148	0.899	0.719	0.866
B4-271-028	B4-271-028	B4-271-147	1.266	32:46 hr	2.493	1	1	1.033
B4-271-033	B4-271-033	B4-271-028	1.268	32:48 hr	2.498	1	1	1.035
B4-271-128	B4-271-128	B4-271-001	1.388	33:12 hr	2.734	1	1	1.278
B4-271-135	B4-271-135	B4-271-128	1.398	33:04 hr	2.754	1	1	1.142
B4-271-138	B4-271-138	B4-271-135	1.37	33:03 hr	2.698	1	1	1.118
B4-271-143	B4-271-143	B4-271-138	1.362	33:02 hr	2.684	1	1	1.112
B4-271-145	B4-271-145	B4-271-143	1.353	33:00 hr	2.665	1	1	1.104
B4-271-146	B4-271-146	B4-271-145	1.341	32:56 hr	2.642	1	1	1.094
B4-271-147	B4-271-147	B4-271-146	1.341	32:49 hr	2.642	1	1	1.095
B4-271-148	B4-271-148	B4-271-033	1.257	32:46 hr	2.477	1	1	1.026
B4-272-004	B4-272-004	B4-272-094	1.23	32:46 hr	2.424	1	1	1.005
B4-272-039	B4-272-039	B4-272-092	0.993	32:30 hr	2.562	0.713	0.713	0.858
B4-272-040	B4-272-040	B4-272-039	0.927	32:30 hr	2.502	0.685	0.685	0.814
B4-272-044	B4-272-044	B4-272-040	0.925	32:32 hr	2.527	0.677	0.677	0.802
B4-272-048	B4-272-048	B4-272-044	0.901	32:31 hr	2.338	0.71	0.71	0.852
B4-272-086	B4-272-086	B4-272-004	1.04	32:48 hr	2.709	0.707	0.707	0.848
B4-272-091	B4-272-091	B4-272-096	1.009	32:31 hr	2.695	0.692	0.692	0.824
B4-272-092	B4-272-092	B4-272-095	1.005	32:32 hr	2.564	0.721	0.721	0.87
B4-272-093	B4-272-093	B4-271-148	1.25	32:47 hr	2.463	1	1	1.021

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B4-272-094	B4-272-094	B4-272-093	1.241	32:44 hr	2.445	1	1	1.017
B4-272-095	B4-272-095	B4-272-091	1.004	32:31 hr	2.685	0.691	0.691	0.823
B4-272-096	B4-272-096	B4-272-086	1.027	32:35 hr	2.703	0.701	0.701	0.839
B4-281-054	B4-281-054	B4-272-048	0.877	32:31 hr	2.503	0.652	0.652	0.759
B4-281-057	B4-281-057	B4-281-054	0.832	32:31 hr	2.568	0.609	0.609	0.688
BV-105	BV-105	D2-252-004	0.389	22:00 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.026	32:59 hr	1.26	0.097	0.145	0.046
C1-221-018	C1-221-018	C2-221-030	0.306	32:31 hr	2.165	0.322	0.322	0.225
C1-221-019	C1-221-019	C1-221-018	0.31	32:16 hr	2.29	0.312	0.312	0.212
C1-261-028	C1-261-028	C1-261-020	3.74	34:02 hr	5.006	0.933	0.622	0.71
C1-261-030	C1-261-030	C1-261-028	3.737	34:00 hr	5.001	0.934	0.622	0.71
C1-261-058	C1-261-058	C1-261-062	3.662	34:00 hr	4.617	1.25	1	1.13
C1-261-060	C1-261-060	C1-261-030	3.723	34:00 hr	4.991	0.932	0.621	0.708
C1-261-062	C1-261-062	C1-261-060	3.664	34:01 hr	4.619	1.25	1	1.131
C1-281-035	C1-281-035	B4-281-057	0.77	32:16 hr	2.184	0.833	1	1.084
C2-221-030	C2-221-030	C2-221-037	0.309	32:34 hr	2.048	0.338	0.338	0.246
C2-221-031	C2-221-031	C3-221-003	0.292	32:45 hr	6.706	0.141	0.141	0.043
C2-221-032	C2-221-032	C2-221-065	0.295	32:45 hr	2.618	0.274	0.274	0.164
C2-221-033	C2-221-033	C2-221-032	0.301	32:48 hr	1.963	0.342	0.342	0.252
C2-221-034	C2-221-034	C2-221-033	0.301	32:46 hr	1.976	0.34	0.34	0.249
C2-221-035	C2-221-035	C2-221-034	0.298	32:42 hr	2.917	0.255	0.255	0.142
C2-221-037	C2-221-037	C2-221-035	0.3	32:37 hr	1.512	0.414	0.414	0.358
C2-221-065	C2-221-065	C2-221-031	0.293	32:45 hr	4.076	0.199	0.199	0.087
C2-261-001A	C2-261-001	C3-261-013	1.99	34:17 hr	8.141	0.448	0.384	0.313
C2-261-024	C2-261-024	C2-261-013	0.175	32:29 hr	1.153	0.246	0.109	0.025
C3-212-031	C3-212-031	C4-212-059	0.366	32:45 hr	3.721	0.249	0.249	0.135
C3-221-003	C3-221-003	C3-221-004	0.347	32:44 hr	4.184	0.22	0.22	0.106
C3-221-004	C3-221-004	C3-221-030	0.349	32:45 hr	4.189	0.221	0.221	0.107
C3-221-005	C3-221-005	C3-221-006	0.367	32:45 hr	4.301	0.225	0.225	0.111
C3-221-006	C3-221-006	C3-212-031	0.368	32:45 hr	3.98	0.238	0.238	0.124
C3-221-030	C3-221-030	C3-221-005	0.365	32:44 hr	4.245	0.226	0.226	0.112
C3-252-002	C3-252-002	C4-252-003	5.832	34:03 hr	3.348	1.346	0.539	0.566
C3-261-001	C3-261-001	C3-252-001	0.887	32:52 hr	1.912	0.593	0.339	0.247
C3-261-002	C3-261-002	C3-252-002	5.848	34:03 hr	3.654	1.343	0.597	0.667
C3-261-004	C3-261-004	C3-261-001	0.893	32:45 hr	1.916	0.595	0.34	0.249
C3-261-005	C3-261-005	C3-261-002	5.855	34:01 hr	4.328	1.172	0.521	0.535
C3-261-007	C3-261-007	C3-261-004	0.962	32:34 hr	1.96	0.618	0.353	0.268
C3-261-008	C3-261-008	C3-261-005	5.855	34:00 hr	2.851	1.677	0.745	0.905
C3-261-009	C3-261-009	C3-261-008	5.876	33:48 hr	2.853	1.681	0.747	0.908
C3-261-010	C3-261-010	C3-261-009	5.882	33:45 hr	2.859	1.68	0.746	0.907
C3-261-011	C3-261-011	C3-261-007	1.019	32:33 hr	1.987	0.638	0.365	0.284
C3-261-012	C3-261-012	C3-261-010	5.883	33:45 hr	2.877	1.537	0.615	0.697
C3-261-012A	C3-261-012	C3-261-011	0	00:00 hr	0	0	0	0
C3-261-013	C3-261-013	C3-261-012	5.885	33:45 hr	7.977	0.864	0.518	0.531
C3-261-015	C3-261-015	C3-261-011	1.057	32:32 hr	2.007	0.651	0.372	0.295
C3-261-019	C3-261-019	C3-261-015	1.076	32:32 hr	2.016	0.657	0.376	0.3
C3-261-021	C3-261-021	C3-261-019	1.083	32:30 hr	2.019	0.66	0.377	0.302
C3-261-031	C3-261-031	C3-261-013	2.586	33:32 hr	2.909	1.005	0.603	0.677
C3-261-035	C3-261-035	C2-261-024	0.175	32:29 hr	1.157	0.245	0.109	0.025
C3-261-040	C3-261-040	C3-261-031	2.588	33:15 hr	2.911	1.005	0.603	0.677
C3-261-043	C3-261-043	C3-261-035	0.175	32:28 hr	1.159	0.245	0.109	0.025
C3-261-050	C3-261-050	C3-261-075	0.176	32:24 hr	1.284	0.343	0.412	0.355
C3-261-056	C3-261-056	C3-261-050	0.179	32:15 hr	1.425	0.322	0.386	0.316
C3-261-062	C3-261-062	C3-261-040	2.635	33:19 hr	2.934	1.014	0.608	0.686
C3-261-075	C3-261-075	C3-261-076	0.176	32:29 hr	2.448	0.199	0.199	0.087
C3-261-076	C3-261-076	C3-261-043	0.176	32:30 hr	1.286	0.343	0.412	0.356
C3-262-007	C3-262-007	C3-262-009	2.667	33:15 hr	2.94	1.023	0.614	0.695
C3-262-009	C3-262-009	C3-261-062	2.661	33:19 hr	2.928	1.024	0.614	0.696
C3-262-033	C3-262-033	C3-262-007	2.678	33:05 hr	2.929	1.03	0.618	0.702
C3-262-041	C3-262-041	C3-262-033	2.692	33:00 hr	4.104	0.788	0.473	0.454
C3-262-046	C3-262-046	C3-262-041	2.72	33:02 hr	4.068	0.8	0.48	0.466
C3-262-051	C3-262-051	C3-262-046	2.722	33:00 hr	4.251	0.773	0.464	0.439

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C3-262-061	C3-262-061	C3-262-051	2.736	33:01 hr	4.264	0.774	0.465	0.441
C3-262-070	C3-262-070	C3-262-071	2.765	33:00 hr	3.397	0.935	0.561	0.604
C3-262-071	C3-262-071	C3-262-061	2.756	33:01 hr	4.366	0.765	0.459	0.431
C3-262-074	C3-262-074	C3-262-070	2.778	33:03 hr	3.069	1.021	0.612	0.693
C3-271-001	C3-271-001	C3-262-074	2.815	32:49 hr	3.102	1.023	0.614	0.695
C3-271-003	C3-271-003	C3-271-001	2.86	32:47 hr	3.108	1.035	0.621	0.708
C3-271-004	C3-271-004	C3-271-003	2.849	32:45 hr	3.108	1.032	0.619	0.704
C3-271-007	C3-271-007	C3-271-004	2.89	32:48 hr	3.105	1.045	0.627	0.718
C3-271-010	C3-271-010	SS_1_A	2.917	32:44 hr	5.393	0.68	0.408	0.349
C3-271-012	C3-271-012	C3-271-010	2.917	32:45 hr	5.591	0.662	0.397	0.333
C4-212-059	C4-212-059	C4-212-060	0.366	32:46 hr	4.587	0.215	0.215	0.101
C4-212-060	C4-212-060	D4-232-020	0.39	32:45 hr	4.101	0.242	0.242	0.129
C4-212-061	C4-212-061	C4-221-001	0.419	32:44 hr	4.257	0.248	0.248	0.135
C4-221-001	C4-221-001	D1-212-032	0.423	32:46 hr	5.411	0.211	0.211	0.098
C4-221-011	D4-232-020	C4-212-061	0.417	32:43 hr	4.181	0.251	0.251	0.138
C4-252-001	C4-252-001	D1-252-019	5.783	34:19 hr	3.283	1.359	0.543	0.574
C4-252-002	C4-252-002	D1-252-042	0.774	33:06 hr	1.841	0.552	0.316	0.216
C4-252-003	C4-252-003	C4-252-008	5.807	34:13 hr	3.999	1.167	0.467	0.444
C4-252-004	C4-252-004	C4-252-002	0.804	33:03 hr	1.859	0.563	0.322	0.224
C4-252-005	C4-252-005	C4-252-006	5.801	34:16 hr	3.57	1.274	0.51	0.516
C4-252-006	C4-252-006	C4-252-001	5.793	34:16 hr	4.027	1.159	0.463	0.439
C4-252-007	C3-252-001	C4-252-007	0.846	32:50 hr	1.887	0.578	0.331	0.236
C4-252-007A	C4-252-007	C4-252-004	0.821	33:04 hr	1.871	0.569	0.325	0.229
C4-252-008	C4-252-008	C4-252-005	5.805	34:16 hr	3.582	1.271	0.509	0.515
D1-212-011	D1-212-011	D1-212-012	0.44	32:45 hr	4.888	0.233	0.233	0.119
D1-212-012	D1-212-012	D2-212-011	0.441	32:45 hr	4.405	0.252	0.252	0.139
D1-212-032	D1-212-032	D1-212-011	0.438	32:46 hr	3.568	0.291	0.291	0.185
D1-242-011	D1-242-011	D1-242-030	0.459	32:27 hr	5.92	0.227	0.272	0.162
D1-242-017	D1-242-017	D1-242-011	0.456	32:25 hr	5.749	0.23	0.276	0.167
D1-242-018	D1-242-018	D1-242-017	0.453	32:15 hr	6.039	0.221	0.265	0.154
D1-242-019	D1-242-019	D1-242-018	0.446	32:15 hr	4.164	0.264	0.264	0.153
D1-242-030	D1-242-030	D1-242-031	0.463	32:30 hr	6.332	0.217	0.261	0.149
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.466	32:30 hr	6.089	0.248	0.372	0.295
D1-251-001	D1-262-049	D1-262-030	0.164	32:31 hr	1.617	0.204	0.117	0.029
D1-251-005	D1-251-023	D1-251-005	0.26	32:34 hr	4.168	0.194	0.233	0.119
D1-251-005A	D1-251-023	D1-251-005	0.222	32:34 hr	4.072	0.194	0.291	0.184
D1-251-005B	D1-251-005	D2-251-014	0.26	32:31 hr	3.508	0.219	0.263	0.152
D1-252-001	D1-252-001	D2-252-002	5.732	34:31 hr	4.753	1.013	0.405	0.345
D1-252-004	D1-252-004	D1-252-001	5.743	34:32 hr	3.603	1.255	0.502	0.503
D1-252-005	D1-252-005	D2-252-014	0.736	33:31 hr	1.794	0.512	0.256	0.144
D1-252-008	D1-252-008	D1-252-005	0.74	33:30 hr	1.795	0.513	0.257	0.144
D1-252-008A	D1-252-010	D1-252-008	0.742	33:31 hr	1.796	0.514	0.257	0.145
D1-252-009	D1-252-009	D1-252-004	5.751	34:31 hr	3.556	1.269	0.508	0.513
D1-252-010	D1-252-011	D1-252-010	0.737	33:31 hr	1.814	0.538	0.308	0.206
D1-252-011	D1-252-016	D1-252-011	0.743	33:32 hr	1.818	0.54	0.309	0.207
D1-252-015	D1-252-015	D1-252-009	5.754	34:30 hr	3.571	1.265	0.506	0.51
D1-252-018	D1-252-018	D1-252-015	5.758	34:31 hr	3.32	1.342	0.537	0.563
D1-252-019	D1-252-019	D1-252-018	5.759	34:29 hr	3.872	1.189	0.476	0.459
D1-252-023	D1-252-023	D1-252-016	0.742	33:19 hr	1.818	0.54	0.309	0.207
D1-252-031	D1-252-031	D1-252-023	0.75	33:16 hr	1.824	0.543	0.31	0.209
D1-252-036	D1-252-036	D1-252-031	0.758	33:16 hr	1.829	0.546	0.312	0.212
D1-252-041	D1-252-041	D1-252-036	0.762	33:16 hr	1.833	0.547	0.313	0.212
D1-252-042	D1-252-042	D1-252-041	0.769	33:21 hr	1.837	0.55	0.314	0.214
D1-252-050	D1-252-050	D2-252-067	0.348	32:31 hr	1.666	0.305	0.136	0.04
D1-252-053	D1-252-053	D2-252-085	4.063	34:16 hr	2.646	1.415	0.707	0.849
D1-252-056	D1-252-056	D1-252-053	4.066	34:15 hr	3.432	1.131	0.566	0.613
D1-252-057	D1-252-057	D1-252-056	4.068	34:15 hr	4.498	0.914	0.457	0.428
D1-252-059	D1-252-059	D1-252-057	4.055	34:14 hr	4.434	0.922	0.461	0.435
D1-261-001	D1-261-001	D1-252-059	4.055	34:15 hr	4.893	0.855	0.428	0.38
D1-261-003	D1-261-003	D1-252-050	0.358	32:35 hr	1.556	0.326	0.145	0.045
D1-261-006	D1-261-006	D1-261-001	3.953	34:14 hr	8.882	0.542	0.271	0.161

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-261-008	D1-261-008	D1-261-006	3.95	34:16 hr	4.802	0.85	0.425	0.376
D1-261-020	D1-261-020	D1-261-003	0.162	32:50 hr	1.226	0.223	0.099	0.02
D1-261-021	D1-261-021	D1-261-008	3.942	34:14 hr	4.765	0.854	0.427	0.379
D1-261-023	D1-261-023	D1-261-020	0.164	32:46 hr	1.206	0.228	0.101	0.021
D1-261-036	D1-261-036	D1-261-021	3.938	34:16 hr	4.389	0.909	0.454	0.424
D1-261-037	D1-261-037	D1-261-023	0.166	32:47 hr	1.257	0.223	0.099	0.021
D1-261-052	D1-261-052	D1-261-036	3.947	34:05 hr	2.459	1.475	0.737	0.894
D1-261-059	D1-261-059	D1-261-037	0.166	32:47 hr	1.172	0.234	0.104	0.023
D1-261-061	D1-261-061	D1-261-059	0.166	32:44 hr	2.401	0.144	0.064	0.008
D1-261-075	D1-261-075	D1-261-052	3.957	34:03 hr	3.393	1.117	0.558	0.6
D1-261-084	D1-261-084	D1-261-061	0.165	32:43 hr	1.221	0.226	0.101	0.021
D1-261-103	D1-261-103	D1-261-075	3.953	34:02 hr	4.334	0.92	0.46	0.433
D1-261-116	D1-262-001	D1-261-116	0.17	32:33 hr	1.255	0.249	0.143	0.044
D1-261-116A	D1-261-116	D1-261-084	0.164	32:34 hr	1.256	0.243	0.139	0.041
D1-261-117	D1-261-117	D1-261-103	3.944	34:00 hr	5.946	0.724	0.362	0.28
D1-261-128	D1-261-128	D1-261-117	3.931	34:01 hr	2.686	1.354	0.677	0.801
D1-262-025	D1-262-025	D1-261-128	3.916	33:53 hr	1.929	2	1	1.164
D1-262-030	D1-262-030	D1-262-001	0.162	32:32 hr	1.268	0.239	0.136	0.04
D1-262-040	D1-262-040	D1-262-025	3.909	33:46 hr	3.298	1.132	0.566	0.613
D1-262-067	D1-262-067	D1-262-040	3.898	33:47 hr	4.105	0.949	0.475	0.457
D1-262-079	D1-262-079	D1-262-049	0.165	32:18 hr	1.609	0.206	0.118	0.029
D1-262-088	D1-262-088	D1-262-067	3.902	33:47 hr	3.188	1.162	0.581	0.639
D1-262-100	D1-262-100	D1-262-088	3.899	33:47 hr	3.395	1.103	0.552	0.588
D1-271-018	D1-271-017	D1-271-055	3.938	33:33 hr	3.332	1.129	0.565	0.611
D1-271-051	D1-271-051	D1-271-054	3.093	33:29 hr	5.309	0.702	0.401	0.339
D1-271-054	D1-271-054	D1-271-092	3.116	33:31 hr	5.29	0.664	0.332	0.238
D1-271-055	D1-271-055	D1-262-100	3.925	33:35 hr	2.736	1.331	0.665	0.782
D1-271-092	D1-271-092	D1-271-017	3.103	33:29 hr	5.284	0.662	0.331	0.237
D2-212-001	D2-212-001	D2-212-002	0.45	32:44 hr	4.43	0.254	0.254	0.142
D2-212-002	D2-212-002	D2-212-025	0.451	32:44 hr	4.079	0.27	0.27	0.159
D2-212-003	D2-212-003	D2-212-014	0.469	32:45 hr	4.853	0.245	0.245	0.132
D2-212-011	D2-212-011	D2-212-012	0.451	32:45 hr	4.431	0.254	0.254	0.142
D2-212-012	D2-212-012	D2-212-001	0.449	32:44 hr	4.426	0.254	0.254	0.141
D2-212-013	D2-212-013	D2-212-003	0.466	32:45 hr	4.116	0.275	0.275	0.165
D2-212-014	D2-212-014	D3-212-022	0.471	32:47 hr	4.224	0.272	0.272	0.161
D2-212-025	D2-212-025	D2-212-013	0.451	32:45 hr	4.187	0.322	0.483	0.471
D2-241-006	D2-241-006	D2-241-007	0.029	32:15 hr	1.796	0.084	0.125	0.033
D2-241-007	D2-241-007	D3-241-001	0.033	32:25 hr	1.847	0.089	0.134	0.038
D2-251-004	D2-251-004	D3-251-011	10.379	33:00 hr	4.311	1.349	0.337	0.245
D2-251-005	D2-251-005	D2-251-004	6.479	34:30 hr	8.439	0.602	0.151	0.049
D2-251-008	D2-251-008	9008	0.611	32:31 hr	4.372	0.32	0.32	0.221
D2-251-014	D1-251-005	D2-251-014	0.221	32:31 hr	3.414	0.22	0.329	0.234
D2-251-014A	D2-251-014	D2-251-008	0.481	32:44 hr	9.472	0.157	0.157	0.053
D2-252-002	D2-252-002	D2-252-004	5.72	34:33 hr	3.687	1.228	0.491	0.485
D2-252-004	D2-252-004	D2-252-005	6.144	34:31 hr	5.22	0.995	0.398	0.334
D2-252-005	D2-252-005	D2-251-005	6.547	34:32 hr	2.854	1.302	0.326	0.229
D2-252-006	D2-252-006	D2-252-005	0.707	33:45 hr	3.261	0.327	0.164	0.058
D2-252-008	D2-252-008	D2-252-006	0.711	33:47 hr	1.737	0.511	0.255	0.143
D2-252-010	D2-252-010	D2-252-008	0.712	33:45 hr	2.905	0.356	0.178	0.069
D2-252-011	D2-252-011	D2-251-004	7.05	32:46 hr	5.59	1.109	0.493	0.488
D2-252-012	D2-252-012	D2-252-010	0.712	33:42 hr	1.833	0.492	0.246	0.133
D2-252-014	D2-252-014	D2-252-012	0.715	33:31 hr	0.745	0.957	0.478	0.463
D2-252-015	D2-252-015	D2-252-011	7.059	32:45 hr	13.016	0.594	0.264	0.153
D2-252-026	D2-252-026	D2-252-015	7.169	32:47 hr	3.905	1.405	0.562	0.606
D2-252-033	D2-252-033	D3-252-012	4.127	34:20 hr	4.544	0.917	0.459	0.431
D2-252-039	D2-252-039	D2-252-033	4.141	34:17 hr	4.349	0.951	0.476	0.459
D2-252-049	D2-252-049	D2-252-039	4.15	34:16 hr	6.196	0.729	0.365	0.284
D2-252-050	D2-252-050	D2-252-026	0.339	32:50 hr	2.41	0.243	0.122	0.031
D2-252-052	D2-252-052	D2-252-050	0.34	32:45 hr	1.672	0.3	0.133	0.038
D2-252-056	D2-252-056	D2-252-052	0.341	32:44 hr	6.508	0.119	0.053	0.005
D2-252-057	D2-252-057	D2-252-049	4.155	34:16 hr	6.38	0.714	0.357	0.273
D2-252-062	D2-252-062	D2-252-057	4.052	34:15 hr	4.379	0.93	0.465	0.442

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-252-067	D2-252-067	D2-252-056	0.343	32:34 hr	1.425	0.337	0.15	0.048
D2-252-069	D2-252-069	D2-252-062	4.058	34:16 hr	6.221	0.715	0.358	0.274
D2-252-071	D3-252-054	D2-252-071	7.185	32:30 hr	10.989	0.679	0.302	0.198
D2-252-085	D2-252-085	D2-252-069	4.059	34:16 hr	4.654	0.889	0.445	0.408
D2-252-105	D2-252-105	D2-252-026	6.939	32:37 hr	3.418	2	1	1.064
D2-271-017	D2-271-017	D2-271-019	0.847	33:17 hr	3.692	0.414	0.331	0.237
D2-271-019	D2-271-019	D2-271-022	0.84	33:16 hr	3.684	0.412	0.33	0.235
D2-271-022	D2-271-022	D2-271-023	0.838	33:15 hr	3.681	0.412	0.329	0.234
D2-271-023	D2-271-023	D2-271-109	0.836	33:16 hr	3.679	0.411	0.329	0.234
D2-271-039	D2-271-039	D2-271-042	2.981	33:30 hr	6.154	0.66	0.44	0.401
D2-271-042	D2-271-042	D2-271-043	2.98	33:30 hr	5.272	0.686	0.392	0.325
D2-271-043	D2-271-043	D2-271-045	2.979	33:30 hr	5.273	0.686	0.392	0.325
D2-271-045	D2-271-045	D1-271-051	3.094	33:30 hr	5.327	0.7	0.4	0.337
D2-271-048	D2-271-048	D2-271-039	2.372	33:30 hr	2.99	1.25	1	1.462
D2-271-052	D2-271-052	D2-271-048	2.38	33:32 hr	3.001	1.25	1	1.474
D2-271-063	D2-271-063	D2-271-052	2.394	33:20 hr	3.019	1.25	1	1.468
D2-271-067	D2-271-067	D2-271-063	2.429	33:19 hr	3.063	1.25	1	1.669
D2-271-075	D2-271-075	D2-271-067	2.433	33:15 hr	3.067	1.25	1	1.648
D2-271-109	D2-271-109	D1-271-017	0.837	33:15 hr	3.68	0.411	0.329	0.234
D2-272-011	D2-272-011	D2-271-075	2.411	33:11 hr	3.04	1.25	1	1.647
D2-272-023	D2-272-023	D2-272-025	2.545	32:49 hr	3.209	1.25	1	1.55
D2-272-025	D2-272-025	D2-272-029	2.479	33:03 hr	3.125	1.25	1	1.562
D2-272-029	D2-272-029	D2-272-011	2.468	33:07 hr	3.111	1.25	1	1.534
D2-272-052	D2-272-052	D2-272-023	2.543	32:50 hr	3.206	1.25	1	1.638
D2-272-070	D2-272-070	D2-272-052	2.644	32:35 hr	3.333	1.25	1	1.638
D2-272-072	D2-272-072	D2-272-070	2.719	32:33 hr	3.429	1.25	1	1.677
D2-272-074	D2-272-074	D2-272-072	2.745	32:32 hr	3.461	1.25	1	1.84
D2-272-075	D2-272-075	D2-272-074	2.737	32:30 hr	3.45	1.25	1	1.683
D2-281-002	D2-281-002	D2-272-075	2.744	32:19 hr	3.46	1.25	1	1.694
D3-212-001	D3-212-001	D3-212-002	0.019	32:16 hr	0.935	0.096	0.144	0.044
D3-212-002	D3-212-002	D3-212-003	0.02	32:26 hr	1.606	0.07	0.104	0.023
D3-212-003	D3-212-003	D3-212-004	0.022	32:30 hr	1.813	0.067	0.101	0.021
D3-212-004	D3-212-004	D3-212-012	0.022	32:28 hr	1.649	0.072	0.109	0.025
D3-212-012	D3-212-012	D3-212-013	0.021	32:28 hr	1.637	0.072	0.108	0.024
D3-212-013	D3-212-013	D3-221-016	0.022	32:29 hr	1.66	0.073	0.11	0.025
D3-212-017	D3-212-017	D3-221-016	0.477	32:45 hr	7.689	0.18	0.18	0.071
D3-212-018	D3-212-018	D3-212-017	0.479	32:45 hr	3.367	0.324	0.324	0.227
D3-212-022	D3-212-022	D3-212-018	0.481	32:46 hr	5.377	0.232	0.232	0.118
D3-212-023	D3-212-023	D3-212-001	0.01	32:16 hr	0.771	0.07	0.105	0.023
D3-221-016	D3-221-016	D3-221-024	0.496	32:46 hr	4.11	0.288	0.288	0.18
D3-221-021	D3-221-021	D4-221-004	0.487	32:46 hr	3.97	0.291	0.291	0.184
D3-221-022	D3-221-022	D3-221-021	0.49	32:46 hr	3.662	0.31	0.31	0.208
D3-221-023	D3-221-023	D3-221-022	0.492	32:46 hr	4.748	0.258	0.258	0.145
D3-221-024	D3-221-024	D3-221-023	0.494	32:46 hr	3.407	0.328	0.328	0.232
D3-232-001	D3-232-015	D3-232-001	0.069	32:30 hr	2.291	0.127	0.191	0.079
D3-232-001A	D3-232-001	D3-232-018	0.185	32:29 hr	3.044	0.21	0.315	0.215
D3-232-009	D3-232-009	D3-232-015	0.069	32:30 hr	2.296	0.127	0.191	0.08
D3-232-017	D3-232-017	D4-232-001	0.197	32:29 hr	6.151	0.133	0.2	0.087
D3-232-018	D3-232-018	D3-232-017	0.188	32:29 hr	6.607	0.123	0.184	0.074
D3-241-001	D3-241-001	D3-241-002	0.036	32:29 hr	1.886	0.092	0.139	0.041
D3-241-002	D3-241-002	D3-241-003	0.038	32:29 hr	1.927	0.096	0.143	0.044
D3-241-003	D3-241-003	D3-241-004	0.044	32:30 hr	2.005	0.102	0.153	0.051
D3-241-004	D3-241-004	D3-241-008	0.046	32:30 hr	2.033	0.104	0.156	0.053
D3-241-005	D3-241-009	D3-241-005	0.055	32:30 hr	2.149	0.114	0.171	0.064
D3-241-005A	D3-241-005	D3-241-006	0.057	32:29 hr	2.164	0.116	0.174	0.066
D3-241-006	D3-241-006	D3-241-007	0.066	32:32 hr	2.268	0.125	0.188	0.077
D3-241-007	D3-241-007	D3-232-009	0.069	32:31 hr	2.291	0.127	0.191	0.079
D3-241-009	D3-241-008	D3-241-009	0.048	32:28 hr	2.064	0.107	0.16	0.056
D3-251-001	D3-251-001	D4-251-018	12.759	33:17 hr	3.435	1.756	0.39	0.322
D3-251-002	D3-251-002	D3-251-001	12.851	33:04 hr	3.376	1.788	0.397	0.333
D3-251-004	D3-251-004	D3-251-016	10.385	33:01 hr	3.932	1.444	0.361	0.279
D3-251-008	D3-251-008	D3-251-012	10.339	33:01 hr	2.939	1.789	0.447	0.412

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-251-011	D3-251-011	D3-251-015	10.394	32:59 hr	6.812	0.972	0.243	0.13
D3-251-012	D3-251-012	D3-251-013	12.994	33:00 hr	2.488	2.453	0.613	0.695
D3-251-013	D3-251-013	D3-251-002	12.978	33:02 hr	3.669	1.693	0.376	0.301
D3-251-014	D3-251-014	D3-251-012	4.117	34:31 hr	2.411	1.567	0.784	0.957
D3-251-015	D3-251-015	D3-251-004	10.394	33:00 hr	3.93	1.445	0.361	0.279
D3-251-016	D3-251-016	D3-251-008	10.363	33:00 hr	5.11	1.191	0.298	0.193
D3-252-008	D3-252-008	D3-251-014	4.123	34:31 hr	2.709	1.403	0.702	0.84
D3-252-012	D3-252-012	D3-252-008	4.126	34:31 hr	4.273	0.962	0.481	0.468
D3-252-045	D2-252-071	D3-252-045	7.121	32:30 hr	9.748	0.778	0.389	0.32
D3-252-045A	D3-252-045	D2-252-105	7.117	32:31 hr	8.708	0.846	0.423	0.373
D3-252-057	D3-252-057	D3-252-054	7.188	32:30 hr	10.991	0.679	0.302	0.198
D3-261-010	D3-261-010	D3-252-057	7.204	32:30 hr	10.999	0.68	0.302	0.199
D3-261-014	D3-261-014	D3-261-010	5.883	32:30 hr	4.692	1.104	0.491	0.484
D3-261-025	D3-261-025	D3-261-014	5.107	32:46 hr	4.543	1.014	0.451	0.418
D3-261-045	D3-261-045	D3-261-025	5.114	32:33 hr	4.545	1.015	0.451	0.418
D3-261-075	D3-261-075	D3-261-045	5.393	32:33 hr	4.643	1.04	0.462	0.437
D3-261-086	D3-261-086	D3-261-075	4.903	32:31 hr	4.578	1.043	0.522	0.537
D3-261-117	D3-261-117	D3-261-086	5.193	32:34 hr	4.657	1.077	0.539	0.566
D3-261-130	D3-261-130	D3-261-117	5.311	32:31 hr	3.932	1.263	0.631	0.725
D3-262-017	D3-262-017	D3-261-130	5.377	32:32 hr	3.942	1.273	0.637	0.734
D3-262-018	D3-262-018	D3-262-017	3.44	32:31 hr	4.089	0.865	0.432	0.388
D3-262-042	D3-262-042	D3-262-018	1.417	32:34 hr	2.639	0.621	0.31	0.209
D3-262-065	D3-262-065	D3-262-122	1.392	32:34 hr	2.505	0.734	0.489	0.482
D3-262-083	D3-262-083	D3-262-065	1.424	32:34 hr	2.858	0.675	0.45	0.416
D3-262-122	D3-262-122	D3-262-042	1.298	32:30 hr	2.46	0.705	0.47	0.45
D3-271-013	D3-271-013	D3-262-083	1.378	32:22 hr	2.849	0.659	0.44	0.4
D3-271-019	D3-271-019	D3-271-024	0.856	33:16 hr	3.701	0.416	0.333	0.239
D3-271-024	D3-271-024	D2-271-017	0.852	33:16 hr	3.697	0.415	0.332	0.238
D3-271-029	D3-271-029	D3-271-013	0.026	32:29 hr	0.885	0.093	0.062	0.008
D3-271-038	D3-271-038	D3-271-019	0.859	33:17 hr	3.706	0.417	0.334	0.24
D3-271-055	D3-271-055	D3-271-038	0.859	33:12 hr	3.707	0.417	0.334	0.24
D3-271-059	D3-271-059	D3-271-055	0.856	33:13 hr	3.707	0.416	0.333	0.239
D3-271-068	D3-271-068	D3-271-069	0.884	33:00 hr	3.735	0.423	0.339	0.247
D3-271-069	D3-271-069	D3-271-070	0.882	33:01 hr	3.734	0.423	0.338	0.247
D3-271-070	D3-271-070	D3-271-072	0.875	33:02 hr	3.726	0.421	0.337	0.245
D3-271-072	D3-271-072	D3-271-059	0.863	33:01 hr	3.712	0.418	0.335	0.241
D3-271-075	D3-271-075	D3-271-068	0.884	33:00 hr	3.737	0.423	0.339	0.247
D3-271-111	D3-271-111	D3-271-029	0.014	32:19 hr	0.756	0.068	0.045	0.004
D3-281-006	D3-281-006	D2-281-002	2.763	32:16 hr	3.484	1.25	1	1.652
D4-221-004	D4-221-004	D4-221-005	0.487	32:58 hr	4.306	0.274	0.274	0.164
D4-221-005	D4-221-005	D4-221-008	0.489	33:01 hr	3.777	0.302	0.302	0.199
D4-221-008	D4-221-008	D4-221-009	0.49	33:00 hr	4.215	0.28	0.28	0.171
D4-221-009	D4-221-009	D4-221-010	0.49	33:00 hr	4.013	0.264	0.211	0.098
D4-221-010	D4-221-010	D4-221-011	0.491	33:00 hr	4.583	0.241	0.193	0.081
D4-221-011	D4-221-011	D4-221-015	0.5	33:02 hr	2.631	0.361	0.289	0.182
D4-232-001	D4-232-001	D4-232-002	0.199	32:29 hr	7.784	0.114	0.171	0.063
D4-232-002	D4-232-002	D4-232-003	0.203	32:29 hr	7.15	0.122	0.183	0.073
D4-232-003	D4-232-003	D4-232-004	0.204	32:29 hr	4.233	0.177	0.266	0.155
D4-232-004	D4-232-004	D4-232-005	0.213	32:30 hr	3.348	0.216	0.325	0.228
D4-232-005	D4-232-005	D4-232-006	0.211	32:31 hr	3.399	0.213	0.319	0.22
D4-232-006	D4-232-006	D4-232-007	0.208	32:32 hr	3.842	0.193	0.289	0.183
D4-232-007	D4-232-007	D4-232-008	0.25	32:30 hr	2.543	0.3	0.45	0.416
D4-232-008	D4-232-008	9000	0.25	32:31 hr	3.322	0.245	0.367	0.288
D4-251-001	D4-251-001	E1-251-002	13.008	33:33 hr	3.417	1.788	0.397	0.333
D4-251-005	D4-251-005	D4-251-019	13.027	33:31 hr	2.577	2.221	0.494	0.489
D4-251-008	D4-251-008	D4-251-005	12.71	33:19 hr	3.259	1.821	0.405	0.344
D4-251-018	D4-251-018	D4-251-008	12.736	33:15 hr	3.427	1.757	0.39	0.322
D4-251-019	D4-251-019	D4-251-001	13.019	33:30 hr	2.581	2.217	0.493	0.488
D4-271-014	D4-271-014	D4-271-015	0.897	32:57 hr	3.752	0.427	0.341	0.251
D4-271-015	D4-271-015	D4-271-018	0.897	33:01 hr	3.751	0.427	0.341	0.251
D4-271-018	D4-271-018	D4-271-021	0.895	33:01 hr	3.749	0.426	0.341	0.25
D4-271-021	D4-271-021	D3-271-075	0.892	33:02 hr	3.745	0.425	0.34	0.249

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-221-001	D4-221-015	E1-221-001	0.498	33:00 hr	2.794	0.345	0.276	0.167
E1-221-001A	E1-221-001	E1-222-004	0.503	33:02 hr	2.936	0.335	0.268	0.157
E1-222-004	E1-222-004	E1-222-005	0.501	33:00 hr	6.228	0.203	0.174	0.066
E1-222-005	E1-222-005	E1-222-006	0.502	33:01 hr	4.468	0.249	0.199	0.087
E1-222-006	E1-222-006	E1-222-007	0.502	33:00 hr	3.658	0.287	0.229	0.115
E1-222-007	E1-222-007	E1-222-011	0.503	33:01 hr	3.663	0.287	0.229	0.115
E1-222-011	E1-222-011	E1-222-012	0.502	33:00 hr	4.556	0.229	0.153	0.05
E1-222-012	E1-222-012	E2-222-075	0.503	33:02 hr	2.935	0.311	0.207	0.094
E1-231-012	E1-231-012	E2-231-021	0.404	32:46 hr	4.466	0.281	0.422	0.372
E1-242-001	E1-242-001	E2-242-034	14.985	33:46 hr	3.423	1.987	0.442	0.403
E1-242-002	E1-242-002	E1-242-001	2.111	34:00 hr	3.01	0.755	0.377	0.303
E1-251-001	E1-251-001	E1-242-001	12.922	33:47 hr	5.845	1.204	0.268	0.157
E1-251-002	E1-251-002	E1-251-001	12.948	33:34 hr	3.229	1.86	0.413	0.358
E1-251-003	E1-251-003	E1-251-025	2.113	33:49 hr	2.688	0.822	0.411	0.354
E1-251-004	E1-251-004	E1-251-003	2.125	33:49 hr	2.591	0.848	0.424	0.375
E1-251-007	E1-251-007	E2-251-027	2.104	33:46 hr	3.245	0.712	0.356	0.272
E1-251-018	E1-251-018	E1-251-007	2.102	33:46 hr	3.614	0.658	0.329	0.234
E1-251-019	E1-251-019	E1-251-018	2.098	33:45 hr	3.628	0.655	0.327	0.232
E1-251-020	E1-251-020	E1-251-019	2.088	33:44 hr	3.301	0.699	0.35	0.262
E1-251-021	E1-251-021	E1-251-020	2.087	33:31 hr	3.296	0.7	0.35	0.263
E1-251-023	E1-251-023	E1-251-021	2.096	33:31 hr	3.326	0.697	0.349	0.261
E1-251-025	E1-251-025	E1-242-002	2.111	34:00 hr	2.685	0.822	0.411	0.354
E1-271-068	E1-271-068	E1-271-072	0.93	32:47 hr	3.789	0.435	0.348	0.26
E1-271-072	E1-271-072	E1-271-076	0.915	32:47 hr	3.773	0.431	0.345	0.256
E1-271-076	E1-271-076	D4-271-014	0.897	32:45 hr	3.752	0.427	0.341	0.251
E2-202-016	E2-202-016	E3-202-009	0.294	32:16 hr	4.041	0.239	0.359	0.276
E2-222-015	E2-222-015	E2-222-036	1.404	32:45 hr	6.359	0.372	0.248	0.135
E2-222-016	E2-222-016	E2-222-015	0.927	32:59 hr	13.739	0.191	0.191	0.079
E2-222-017	E2-222-017	E2-222-016	0.506	33:14 hr	7.367	0.166	0.11	0.026
E2-222-028	E2-222-028	E2-222-029	0.412	32:45 hr	4.488	0.284	0.426	0.378
E2-222-028A	E2-222-007	E2-222-028	0.411	32:45 hr	4.485	0.284	0.426	0.378
E2-222-029	E2-222-029	E2-222-030	0.412	32:45 hr	4.488	0.284	0.427	0.379
E2-222-030	E2-222-030	E2-222-031	0.411	32:45 hr	4.486	0.284	0.426	0.378
E2-222-031	E2-222-031	E2-222-048	0.412	32:46 hr	4.488	0.284	0.427	0.379
E2-222-036	E2-222-036	E2-222-037	1.402	32:45 hr	5.972	0.389	0.259	0.147
E2-222-037	E2-222-037	E3-222-065	1.402	32:45 hr	6.065	0.384	0.256	0.144
E2-222-040	E2-222-040	E2-222-015	0.502	32:30 hr	4.899	0.309	0.464	0.44
E2-222-044	E2-222-044	E2-222-017	0.507	33:03 hr	2.759	0.327	0.218	0.104
E2-222-048	E2-222-048	E2-222-050	0.41	32:45 hr	4.482	0.284	0.425	0.377
E2-222-050	E2-222-050	E2-222-040	0.502	32:30 hr	7.035	0.236	0.354	0.268
E2-222-067	E2-222-067	E2-222-044	0.508	33:01 hr	3.653	0.269	0.179	0.07
E2-222-075	E2-222-075	E2-222-067	0.507	33:00 hr	3.671	0.268	0.178	0.069
E2-231-002	E2-231-002	E2-222-007	0.402	32:46 hr	4.313	0.239	0.239	0.125
E2-231-005	E2-231-005	E2-231-002	0.404	32:46 hr	4.309	0.24	0.24	0.126
E2-231-006	E2-231-006	E2-231-005	0.404	32:45 hr	4.322	0.24	0.24	0.126
E2-231-013	E2-231-013	E2-231-006	0.404	32:45 hr	4.467	0.281	0.422	0.372
E2-231-021	E2-231-021	E2-231-013	0.397	32:46 hr	4.445	0.279	0.418	0.365
E2-231-028	E2-231-028	E2-231-029	0.437	32:45 hr	3.663	0.348	0.522	0.538
E2-231-029	E2-231-029	E2-231-030	0.429	32:45 hr	3.52	0.354	0.531	0.553
E2-231-030	E2-231-030	E2-231-031	0.425	32:45 hr	3.173	0.382	0.573	0.626
E2-231-031	E2-231-031	E2-231-035	0.416	32:46 hr	4.084	0.308	0.462	0.436
E2-231-035	E2-231-035	E2-231-037	0.398	32:45 hr	4.448	0.279	0.419	0.366
E2-231-037	E2-231-037	E1-231-012	0.394	32:45 hr	4.436	0.278	0.416	0.362
E2-242-004	E2-242-004	E3-242-012	14.851	34:18 hr	3.506	1.938	0.431	0.385
E2-242-011	E2-242-011	E2-242-004	14.876	34:05 hr	3.331	2.018	0.448	0.414
E2-242-017	E2-242-017	E2-242-011	14.911	34:04 hr	2.81	2.307	0.513	0.522
E2-242-024	E2-242-024	E2-242-017	14.923	34:02 hr	3.828	1.82	0.405	0.344
E2-242-034	E2-242-034	E2-242-024	14.964	33:47 hr	3.354	2.016	0.448	0.413
E2-251-027	E2-251-027	E1-251-004	2.126	33:45 hr	2.841	0.792	0.396	0.331
E2-251-058	E2-251-058	E1-251-023	2.092	33:30 hr	4.392	0.569	0.285	0.177
E2-252-192	E2-252-192	E2-251-058	2.106	33:32 hr	5.802	0.532	0.355	0.27
E2-252-193	E2-252-193	E2-252-196	2.111	33:31 hr	6.291	0.503	0.335	0.242

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E2-252-194	E2-252-194	E2-252-193	2.112	33:30 hr	6.292	0.503	0.335	0.242
E2-252-196	E2-252-196	E2-252-192	2.106	33:29 hr	6.289	0.502	0.334	0.241
E2-271-073	E2-271-076	E2-271-078	0.965	32:32 hr	3.829	0.444	0.355	0.27
E2-271-077	E2-271-078	E2-271-081	0.952	32:46 hr	3.815	0.44	0.352	0.266
E2-271-081	E2-271-081	E2-271-086	0.949	32:47 hr	3.811	0.44	0.352	0.265
E2-271-086	E2-271-086	E1-271-068	0.941	32:47 hr	3.802	0.438	0.35	0.263
E3-202-008	E3-202-010	E3-202-008	0.295	32:30 hr	3.159	0.259	0.31	0.209
E3-202-008A	E3-202-008	E3-202-011	0.3	32:30 hr	3.176	0.261	0.314	0.213
E3-202-009	E3-202-009	E3-202-BV	0.293	32:30 hr	3.16	0.258	0.309	0.208
E3-202-011	E3-202-011	E3-202-012	0.3	32:31 hr	3.261	0.256	0.308	0.206
E3-202-012	E3-202-012	E4-202-001	0.299	32:30 hr	4.686	0.197	0.237	0.123
E3-222-051	E3-222-051	E3-231-006	1.415	32:48 hr	3.051	0.639	0.426	0.378
E3-222-051A	E3-222-064	E3-222-051	1.417	32:46 hr	3.492	0.578	0.385	0.315
E3-222-065	E3-222-065	E3-222-064	1.401	32:45 hr	4.244	0.497	0.331	0.237
E3-231-006	E3-231-006	E4-231-005	1.417	32:52 hr	2.956	0.607	0.347	0.259
E3-241-015	E3-241-015	E4-241-016	16.493	34:33 hr	4.901	1.632	0.363	0.281
E3-241-022	E3-241-022	E3-241-015	16.516	34:18 hr	4.659	1.696	0.377	0.302
E3-241-028	E3-241-028	E3-241-022	16.556	34:17 hr	3.744	2.003	0.445	0.408
E3-241-034	E3-241-034	E3-241-028	2.056	33:15 hr	4.049	0.685	0.456	0.427
E3-241-036	E3-241-036	E3-241-034	2.024	33:15 hr	4.189	0.659	0.439	0.399
E3-241-048	E3-241-048	E3-241-049	2.006	33:15 hr	3.211	0.806	0.537	0.563
E3-241-049	E3-241-049	E3-241-036	2.019	33:15 hr	4.7	0.603	0.402	0.34
E3-242-002	E3-242-002	E3-241-028	14.821	34:18 hr	3.895	1.788	0.397	0.333
E3-242-012	E3-242-012	E3-242-002	14.834	34:15 hr	4.406	1.633	0.363	0.281
E3-252-001	E3-252-001	E3-252-003	2.132	33:19 hr	2.994	0.896	0.598	0.668
E3-252-003	E3-252-003	E3-252-004	2.117	33:33 hr	3.002	0.889	0.593	0.659
E3-252-004	E3-252-004	E3-252-084	2.114	33:29 hr	6.277	0.504	0.336	0.243
E3-252-084	E3-252-084	E2-252-194	2.116	33:31 hr	6.295	0.503	0.335	0.243
E3-252-085	E3-252-085	E3-252-001	2.135	33:15 hr	2.991	0.898	0.599	0.669
E3-271-068	E3-271-068	E3-271-072	0.897	32:31 hr	3.759	0.426	0.341	0.25
E3-271-072	E3-271-072	E3-271-074	0.9	32:31 hr	3.755	0.427	0.342	0.252
E3-271-074	E3-271-074	E2-271-076	0.956	32:30 hr	3.818	0.441	0.353	0.267
E3-271-121	E3-271-121	E3-271-123	0.887	32:31 hr	3.743	0.424	0.339	0.248
E3-271-122	E3-271-122	E3-271-121	0.879	32:30 hr	3.196	0.473	0.379	0.304
E3-271-123	E3-271-123	E3-271-068	0.883	32:31 hr	3.735	0.423	0.338	0.247
E4-202-001	E4-202-001	E4-202-002	0.297	32:30 hr	4.617	0.184	0.184	0.074
E4-202-002	E4-202-002	E4-202-003	0.297	32:31 hr	3.923	0.206	0.206	0.093
E4-202-003	E4-202-003	E4-202-009	0.292	32:30 hr	3.897	0.205	0.205	0.092
E4-202-007	E4-202-007	E4-202-013	0.299	32:30 hr	3.983	0.206	0.206	0.093
E4-202-009	E4-202-009	E4-202-007	0.295	32:30 hr	3.906	0.206	0.206	0.093
E4-202-013	E4-202-013	E4-202-014	0.298	32:31 hr	3.98	0.205	0.205	0.092
E4-202-014	E4-202-014	F1-202-010	0.295	32:30 hr	4.491	0.187	0.187	0.076
E4-231-005	E4-231-005	E4-231-006	1.414	33:00 hr	5.468	0.39	0.223	0.109
E4-231-006	E4-231-006	E4-231-008	1.414	33:01 hr	5.477	0.39	0.223	0.109
E4-231-007	E4-231-007	F1-231-002	1.404	33:04 hr	2.581	0.683	0.41	0.352
E4-231-008	E4-231-008	E4-231-007	1.407	33:01 hr	3.03	0.607	0.364	0.283
E4-232-016	E4-232-016	F1-232-033	16.485	34:48 hr	3.717	2.007	0.446	0.41
E4-241-005	E4-241-005	E4-232-016	16.518	34:35 hr	3.876	1.947	0.433	0.389
E4-241-016	E4-241-016	E4-241-005	16.48	34:32 hr	5.061	1.593	0.354	0.269
E4-241-075	E4-241-075	E4-241-077	1.839	33:14 hr	5.427	0.506	0.337	0.245
E4-241-077	E4-241-077	E4-241-078	1.841	33:17 hr	3.222	0.75	0.5	0.5
E4-241-078	E4-241-078	E4-241-079	1.842	33:16 hr	3.549	0.696	0.464	0.44
E4-241-079	E4-241-079	E4-241-080	1.972	33:15 hr	3.017	0.835	0.557	0.597
E4-241-080	E4-241-080	E3-241-048	1.975	33:16 hr	3.022	0.835	0.557	0.597
E4-241-081	E4-241-081	E4-241-075	1.838	33:11 hr	4.075	0.626	0.417	0.364
E4-242-014	E4-242-014	E4-241-081	1.811	33:02 hr	3.729	0.662	0.441	0.402
E4-242-029	E4-242-029	E4-242-014	1.824	33:03 hr	3.078	0.772	0.515	0.525
E4-242-034	E4-242-034	E4-242-029	1.822	33:00 hr	3.469	0.703	0.468	0.447
E4-242-036	E4-242-036	E4-242-034	1.821	32:59 hr	3.467	0.703	0.469	0.447
E4-242-045	E4-242-045	E4-242-036	1.824	33:01 hr	3.472	0.703	0.469	0.447
E4-242-057	E4-242-057	E4-242-045	1.821	33:02 hr	3.24	0.741	0.494	0.489
E4-242-062	E4-242-062	E4-242-057	1.814	33:01 hr	3.198	0.746	0.497	0.495

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E4-242-069	E4-242-069	E4-242-062	1.816	32:48 hr	2.881	0.811	0.541	0.57
E4-242-078	E4-242-078	E4-242-069	1.802	32:47 hr	3.012	0.778	0.519	0.532
E4-251-001	E4-251-001	E4-242-078	1.8	32:45 hr	3.063	0.767	0.512	0.52
E4-252-009	E4-252-009	E3-252-085	2.135	33:15 hr	2.99	0.898	0.599	0.67
E4-252-010	E4-252-010	E4-252-009	2.137	33:15 hr	2.985	0.9	0.6	0.672
E4-252-011	E4-252-011	E4-252-010	2.145	33:16 hr	3	0.899	0.6	0.671
E4-252-013	E4-252-013	E4-252-014	2.183	33:00 hr	4.375	0.675	0.45	0.417
E4-252-014	E4-252-014	E4-252-019	2.181	33:00 hr	4.283	0.686	0.457	0.429
E4-252-019	E4-252-019	E4-252-021	2.179	33:03 hr	3.299	0.843	0.562	0.606
E4-252-021	E4-252-021	E4-252-023	2.158	33:16 hr	3.321	0.831	0.554	0.593
E4-252-023	E4-252-023	E4-252-011	2.157	33:18 hr	3.035	0.895	0.597	0.666
E4-252-033	E4-252-033	E4-252-013	2.198	33:02 hr	3.795	0.758	0.506	0.51
E4-252-035	E4-252-035	E4-252-033	2.205	33:01 hr	6.14	0.528	0.352	0.266
E4-252-037	E4-252-037	E4-252-035	2.212	33:01 hr	4.549	0.662	0.442	0.403
E4-271-058	E4-271-058	E4-271-060	0.904	32:32 hr	2.32	0.616	0.493	0.488
E4-271-060	E4-271-060	E4-271-062	0.897	32:31 hr	3.921	0.413	0.331	0.236
E4-271-062	E4-271-062	E4-271-063	0.887	32:31 hr	4.376	0.378	0.303	0.199
E4-271-063	E4-271-063	E4-271-064	0.878	32:30 hr	4.785	0.352	0.282	0.173
E4-271-064	E4-271-064	E3-271-122	0.887	32:31 hr	3.393	0.455	0.364	0.284
F1-202-005	F1-202-005	F1-202-007	0.305	32:30 hr	3.782	0.198	0.158	0.054
F1-202-006	F1-202-006	F1-202-005	0.305	32:30 hr	3.976	0.196	0.168	0.061
F1-202-007	F1-202-007	F2-202-001	0.325	32:30 hr	4.521	0.183	0.146	0.046
F1-202-008	F1-202-008	F1-202-006	0.308	32:31 hr	2.892	0.24	0.192	0.08
F1-202-009	F1-202-009	F1-202-008	0.311	32:31 hr	4.123	0.206	0.206	0.093
F1-202-010	F1-202-010	F1-202-009	0.292	32:31 hr	4.292	0.192	0.192	0.08
F1-231-001	F1-231-001	F2-231-024	1.374	33:20 hr	2.205	0.738	0.422	0.371
F1-231-001A	F1-231-003	F1-231-001	1.386	33:18 hr	2.696	0.655	0.393	0.326
F1-231-002	F1-231-002	F1-231-003	1.386	33:17 hr	2.474	0.698	0.419	0.367
F1-232-001	F1-232-001	F2-231-023	16.833	35:02 hr	3.851	1.985	0.441	0.402
F1-232-002	F1-232-002	F1-232-001	16.845	34:50 hr	3.595	2.094	0.465	0.442
F1-232-008	F1-232-008	F1-232-066	1.181	32:30 hr	4.233	0.478	0.383	0.31
F1-232-012	F1-232-012	F1-232-066	16.448	34:45 hr	3.662	2.027	0.45	0.417
F1-232-013	F1-232-013	F1-232-008	1.195	32:32 hr	2.922	0.64	0.512	0.521
F1-232-014	F1-232-014	F1-232-017	0.508	33:44 hr	2.937	0.338	0.27	0.16
F1-232-017	F1-232-017	F1-232-019	0.509	33:48 hr	2.384	0.393	0.315	0.215
F1-232-019	F1-232-019	F1-232-013	1.194	32:30 hr	2.933	0.638	0.51	0.518
F1-232-033	F1-232-033	F1-232-012	16.475	34:48 hr	3.79	1.977	0.439	0.399
F1-232-066	F1-232-066	F1-232-002	16.87	34:47 hr	3.687	2.056	0.457	0.428
F1-241-050	F1-241-050	F1-242-001	0.035	32:41 hr	1.758	0.077	0.061	0.007
F1-241-109	F1-241-109	F1-241-050	0.032	32:33 hr	0.909	0.112	0.09	0.017
F1-241-110	F1-241-110	F1-241-109	0.026	32:37 hr	0.865	0.1	0.08	0.013
F1-242-001	F1-242-001	E4-241-081	0.059	32:29 hr	2.052	0.097	0.078	0.012
F1-251-003	F1-251-003	E4-251-001	1.797	32:45 hr	2.972	0.785	0.523	0.54
F1-251-015	F1-251-015	F1-251-003	1.595	33:01 hr	3.753	0.66	0.528	0.548
F1-251-023	F1-251-023	F1-251-015	1.592	32:47 hr	3.874	0.643	0.514	0.524
F1-251-031	F1-251-031	F1-251-023	1.522	33:00 hr	4.532	0.55	0.44	0.4
F1-251-033	F1-251-033	F1-251-031	1.516	32:58 hr	3.688	0.643	0.514	0.525
F1-251-034	F1-251-034	F1-251-106	1.518	32:46 hr	3.415	0.684	0.547	0.581
F1-251-039	F1-251-039	F1-251-034	1.525	32:47 hr	3.829	0.627	0.502	0.503
F1-251-040	F1-251-040	F1-251-039	1.517	32:47 hr	3.714	0.64	0.512	0.52
F1-251-041	F1-251-041	F1-251-040	1.508	32:45 hr	3.767	0.63	0.504	0.506
F1-251-044	F1-251-044	F1-251-041	1.502	32:46 hr	3.765	0.628	0.502	0.504
F1-251-047	F1-251-047	F1-251-044	1.499	32:47 hr	3.671	0.64	0.512	0.52
F1-251-048	F1-251-048	F1-251-068	1.493	32:45 hr	3.95	0.602	0.482	0.469
F1-251-049	F1-251-049	F1-251-108	1.435	32:45 hr	3.549	0.635	0.508	0.513
F1-251-050	F1-251-050	F1-251-049	1.44	32:32 hr	3.949	0.585	0.468	0.447
F1-251-068	F1-251-068	F1-251-047	1.495	32:45 hr	3.951	0.603	0.482	0.47
F1-251-106	F1-251-106	F1-251-033	1.513	32:58 hr	3.411	0.683	0.547	0.58
F1-251-108	F1-251-108	F1-251-048	1.492	32:45 hr	3.461	0.792	0.792	0.967
F1-252-017	F1-252-017	E4-252-037	2.215	33:00 hr	5.399	0.583	0.388	0.319
F1-252-033	F1-252-033	F1-252-017	2.216	33:00 hr	5.4	0.583	0.389	0.32
F1-252-039	F1-252-039	F1-252-033	2.219	33:01 hr	4.948	0.623	0.415	0.361

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-261-003	F1-261-003	F1-261-004	2.196	32:59 hr	6.611	0.545	0.436	0.394
F1-261-004	F1-261-004	F1-252-039	2.198	32:59 hr	6.234	0.521	0.347	0.259
F1-261-009	F1-261-009	F1-261-003	2.197	32:59 hr	4.653	0.719	0.575	0.629
F1-261-026	F1-261-026	F1-261-009	2.198	32:45 hr	4.654	0.719	0.575	0.629
F1-261-040	F1-261-040	F1-261-026	2.208	32:46 hr	4.648	0.723	0.578	0.634
F1-261-048	F1-261-048	F1-261-040	2.194	32:46 hr	4.641	0.72	0.576	0.63
F1-261-058	F1-261-058	F1-261-048	2.201	32:46 hr	5.64	0.617	0.494	0.489
F1-261-064	F1-261-064	F1-261-058	2.204	32:46 hr	5.347	0.644	0.515	0.526
F1-261-070	F1-261-070	F1-261-064	2.178	32:45 hr	5.332	0.64	0.512	0.52
F1-261-075	F1-261-075	F1-261-070	2.177	32:45 hr	4.806	0.695	0.556	0.596
F1-261-078	F1-261-078	F1-261-075	2.095	32:46 hr	4.763	0.679	0.543	0.574
F1-261-081	F1-261-081	F1-261-078	2.099	32:46 hr	4.208	0.752	0.602	0.675
F1-261-089	F1-261-089	F1-261-081	2.101	32:46 hr	4.209	0.753	0.602	0.676
F1-261-095	F1-261-095	F1-261-089	2.065	32:45 hr	4.208	0.742	0.594	0.661
F1-261-097	F1-261-097	F1-261-095	2.065	32:45 hr	4.205	0.742	0.594	0.662
F1-261-106	F1-261-106	F1-261-097	2.064	32:45 hr	4.208	0.742	0.593	0.66
F1-271-101	F1-271-101	F1-271-103	0.772	32:21 hr	2.228	0.563	0.45	0.417
F1-271-103	F1-271-103	E4-271-058	0.907	32:30 hr	2.717	0.547	0.438	0.396
F2-202-001	F2-202-001	F2-202-023	0.325	32:30 hr	3.595	0.214	0.171	0.064
F2-202-002	F2-202-002	F2-202-007	0.331	32:41 hr	3.567	0.218	0.174	0.066
F2-202-003	F2-202-003	F2-202-005	0.326	32:30 hr	3.658	0.212	0.17	0.063
F2-202-004	F2-202-004	F2-202-006	0.338	32:44 hr	3.489	0.225	0.18	0.07
F2-202-005	F2-202-005	F2-202-002	0.328	32:44 hr	3.752	0.209	0.168	0.061
F2-202-006	F2-202-006	F2-202-024	0.344	32:45 hr	4.718	0.185	0.148	0.047
F2-202-007	F2-202-007	F2-202-004	0.337	32:43 hr	3.785	0.212	0.169	0.062
F2-202-023	F2-202-023	F2-202-003	0.325	32:30 hr	3.326	0.226	0.181	0.071
F2-202-024	F2-202-024	F3-202-006	0.348	32:45 hr	4.025	0.207	0.166	0.06
F2-231-004	F2-231-004	F3-231-015	17.394	35:19 hr	3.155	2.378	0.529	0.549
F2-231-010	F2-231-010	F2-231-004	17.43	35:05 hr	3.869	2.032	0.451	0.419
F2-231-016	F2-231-016	F2-231-010	16.792	35:03 hr	3.829	1.99	0.442	0.404
F2-231-023	F2-231-023	F2-231-016	16.821	35:04 hr	3.696	2.047	0.455	0.425
F2-231-024	F2-231-024	F2-231-010	1.365	33:33 hr	1.925	0.815	0.466	0.442
F2-232-002	F2-232-002	F2-232-003	0.514	33:33 hr	2.33	0.402	0.322	0.224
F2-232-003	F2-232-003	F2-232-004	0.508	33:32 hr	2.3	0.403	0.322	0.225
F2-232-004	F2-232-004	F2-232-005	0.507	33:30 hr	2.297	0.403	0.322	0.225
F2-232-005	F2-232-005	F2-232-006	0.508	33:32 hr	2.245	0.41	0.328	0.232
F2-232-006	F2-232-006	F1-232-014	0.508	33:46 hr	2.399	0.391	0.313	0.212
F2-232-007	F2-232-007	F2-232-002	0.517	33:31 hr	2.052	0.443	0.354	0.269
F2-242-055	F2-242-055	F1-241-110	0.024	32:45 hr	0.819	0.098	0.078	0.012
F2-242-056	F2-242-056	F2-242-055	0.025	32:34 hr	0.885	0.097	0.078	0.012
F2-251-012	F2-251-012	F2-251-028	1.359	32:30 hr	4.125	0.542	0.433	0.389
F2-251-016	F2-251-016	F2-251-017	1.371	32:32 hr	4.044	0.554	0.443	0.405
F2-251-017	F2-251-017	F2-252-027	1.359	32:31 hr	4.153	0.539	0.431	0.386
F2-251-018	F2-251-018	F1-251-050	1.463	32:31 hr	4.359	0.549	0.44	0.399
F2-251-028	F2-251-028	F2-251-016	1.369	32:31 hr	4.134	0.544	0.435	0.392
F2-252-027	F2-252-027	F2-251-018	1.459	32:30 hr	4.227	0.561	0.449	0.415
F2-261-053	F2-261-053	F1-261-106	1.718	33:00 hr	5.63	0.511	0.409	0.351
F2-262-011	F2-262-011	F2-261-053	1.708	32:47 hr	4.914	0.564	0.451	0.419
F2-262-017	F2-262-017	F2-262-011	1.653	32:46 hr	5.764	0.488	0.39	0.322
F2-262-020	F2-262-020	F2-262-017	1.655	32:45 hr	5.765	0.488	0.391	0.323
F2-262-029	F2-262-029	F2-262-020	1.674	32:46 hr	5.088	0.541	0.433	0.389
F2-262-032	F2-262-032	F2-262-029	1.688	32:47 hr	3.607	0.714	0.571	0.622
F2-262-038	F2-262-038	F2-262-032	1.623	32:46 hr	4.355	0.595	0.476	0.46
F3-202-006	F3-202-006	F3-202-007	0.353	32:44 hr	3.677	0.223	0.179	0.07
F3-202-007	F3-202-007	F3-211-010	0.378	32:43 hr	3.751	0.231	0.185	0.075
F3-211-010	F3-211-010	F3-211-011	0.39	32:42 hr	4.101	0.222	0.178	0.069
F3-211-011	F3-211-011	F3-211-012	0.393	32:43 hr	3.814	0.235	0.188	0.077
F3-211-012	F3-211-012	F3-211-013	0.45	32:30 hr	4.069	0.247	0.197	0.085
F3-211-013	F3-211-013	F4-211-002	0.455	32:30 hr	3.937	0.254	0.203	0.09
F3-222-007	F3-222-007	F3-222-019	17.34	35:34 hr	3.751	2.072	0.46	0.434
F3-222-008	F3-222-008	F3-222-007	17.352	35:34 hr	3.683	2.103	0.467	0.445
F3-222-008A	F3-222-020	F3-222-008	17.36	35:18 hr	3.948	1.994	0.443	0.405

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F3-222-019	F3-222-019	F4-222-013	17.302	35:34 hr	3.611	2.13	0.473	0.455
F3-231-015	F3-231-015	F3-222-020	17.383	35:19 hr	3.155	2.377	0.528	0.548
F3-232-001	F3-232-001	F2-232-007	0.518	33:30 hr	2.446	0.391	0.312	0.212
F3-232-002	F3-232-002	F3-232-001	0.52	33:32 hr	2.15	0.43	0.344	0.255
F3-232-003	F3-232-003	F3-232-002	0.521	33:22 hr	2.212	0.422	0.337	0.245
F3-232-004	F3-232-004	F3-232-005	0.544	33:16 hr	2.62	0.374	0.281	0.172
F3-232-005	F3-232-005	F3-232-006	0.54	33:17 hr	2.302	0.409	0.307	0.204
F3-232-006	F3-232-006	F3-232-007	0.532	33:16 hr	2.618	0.369	0.276	0.167
F3-232-007	F3-232-007	F3-232-003	0.527	33:16 hr	3.852	0.286	0.229	0.115
F3-241-004	F3-241-004	F3-242-011	0.017	32:26 hr	1.262	0.059	0.047	0.004
F3-241-005	F3-241-005	F3-241-004	0.017	32:29 hr	0.749	0.083	0.067	0.009
F3-241-006	F3-241-006	F3-241-005	0.01	32:17 hr	0.677	0.063	0.05	0.005
F3-242-010	F3-242-010	F2-242-056	0.026	32:33 hr	0.85	0.103	0.082	0.014
F3-242-011	F3-242-011	F3-242-010	0.024	32:30 hr	0.832	0.097	0.078	0.012
F3-251-023	F3-251-023	F3-251-082	0.844	33:02 hr	3.568	0.423	0.339	0.247
F3-251-024	F3-251-024	F2-251-012	1.368	32:32 hr	3.707	0.591	0.473	0.454
F3-251-082	F3-251-082	F3-251-024	0.877	32:59 hr	4.717	0.356	0.285	0.177
F3-252-001	F3-252-001	F3-252-003	0.791	33:11 hr	4.023	0.37	0.296	0.191
F3-252-003	F3-252-003	F3-251-023	0.84	33:01 hr	4.092	0.382	0.305	0.203
F3-262-038	F3-262-038	F2-262-038	1.61	32:46 hr	5.182	0.518	0.414	0.36
F3-262-052	F3-262-052	F3-262-038	1.616	32:47 hr	3.549	0.698	0.558	0.6
F3-262-057	F3-262-057	F3-262-052	1.596	32:46 hr	5.129	0.519	0.415	0.36
F3-262-063	F3-262-063	F3-262-057	1.461	32:45 hr	6.305	0.417	0.334	0.24
F3-271-152	F3-271-152	F3-262-074	1.409	32:46 hr	3.693	0.606	0.485	0.475
F3-271-152A	F3-262-074	F3-262-063	1.463	32:46 hr	3.494	0.652	0.522	0.537
F3-271-153	F3-271-153	F3-271-152	1.405	32:44 hr	5.746	0.434	0.347	0.259
F4-0232-BV	F4-0232-BV	F4-232-004	0.576	33:04 hr	1.696	0.635	0.635	0.731
F4-211-002	F4-211-002	F4-211-003	0.454	32:30 hr	4.594	0.228	0.182	0.072
F4-211-003	F4-211-003	F4-211-015	0.451	32:32 hr	4.37	0.235	0.188	0.077
F4-211-004	F4-211-004	F4-211-005	0.453	32:40 hr	7.008	0.17	0.136	0.04
F4-211-005	F4-211-005	F4-211-013	0.457	32:30 hr	4.812	0.222	0.177	0.068
F4-211-006	F4-211-006	F4-211-007	0.471	32:30 hr	2.972	0.318	0.254	0.141
F4-211-007	F4-211-007	G1-211-003	0.476	32:31 hr	4.044	0.257	0.206	0.093
F4-211-013	F4-211-013	F4-211-014	0.468	32:30 hr	6.045	0.192	0.154	0.051
F4-211-014	F4-211-014	F4-211-006	0.471	32:30 hr	3.448	0.286	0.229	0.115
F4-211-015	F4-211-015	F4-211-004	0.452	32:30 hr	4.373	0.235	0.188	0.077
F4-221-022	F4-221-022	G1-221-029	17.284	36:03 hr	4.098	1.932	0.429	0.383
F4-222-003	F4-222-003	F4-221-022	17.316	35:49 hr	3.684	2.099	0.466	0.444
F4-222-013	F4-222-013	F4-222-003	17.331	35:48 hr	3.923	2.001	0.445	0.408
F4-232-004	F4-232-004	F4-232-005	0.565	33:05 hr	1.734	0.612	0.612	0.692
F4-232-005	F4-232-005	F4-232-006	0.547	33:16 hr	3.029	0.386	0.386	0.315
F4-232-006	F4-232-006	F3-232-004	0.546	33:16 hr	2.399	0.4	0.3	0.196
F4-241-002	F4-241-002	G1-241-001	0.588	32:45 hr	3.997	0.362	0.435	0.392
F4-241-003	F4-241-003	F4-241-002	0.608	32:49 hr	2.743	0.501	0.602	0.675
F4-241-004	F4-241-004	F4-241-003	0.615	32:48 hr	2.434	0.562	0.674	0.796
F4-241-005	F4-241-005	F4-241-004	0.633	32:34 hr	2.595	0.544	0.653	0.761
F4-241-006	F4-241-006	F4-241-005	0.482	32:48 hr	3.076	0.381	0.457	0.427
F4-241-007	F4-241-007	F4-241-006	0.47	32:48 hr	2.625	0.422	0.506	0.511
F4-241-008	F4-241-008	F4-241-007	0.459	32:48 hr	2.491	0.431	0.517	0.53
F4-241-009	F4-241-009	F3-241-006	0.003	32:18 hr	0.458	0.038	0.031	0.002
F4-241-010	F4-241-010	F4-241-009	0	00:00 hr	0	0	0	0
F4-241-011	F4-241-011	F4-241-010	0	00:00 hr	0	0	0	0
F4-251-016	F4-251-016	F4-251-022	0.778	33:01 hr	3.885	0.375	0.3	0.196
F4-251-022	F4-251-022	F4-251-023	0.777	33:01 hr	3.808	0.38	0.304	0.201
F4-251-023	F4-251-023	F4-252-003	0.791	33:02 hr	3.645	0.397	0.318	0.219
F4-252-003	F4-252-003	F3-252-001	0.79	33:02 hr	3.657	0.396	0.317	0.218
F4-252-005	F4-252-005	F4-251-016	0.776	33:01 hr	3.999	0.367	0.293	0.187
F4-271-034	G1-271-007	F4-271-034	1.417	32:30 hr	4.7	0.507	0.405	0.345
F4-271-034A	F4-271-034	F4-271-075	1.419	32:30 hr	4.533	0.521	0.417	0.363
F4-271-069	F4-271-069	F4-271-073	1.411	32:32 hr	4.374	0.533	0.427	0.379
F4-271-070	F4-271-070	F3-271-153	1.414	32:47 hr	4.682	0.507	0.406	0.346
F4-271-072	F4-271-072	F4-271-070	1.376	32:34 hr	3.591	0.608	0.487	0.478

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F4-271-073	F4-271-073	F4-271-072	1.398	32:32 hr	4.973	0.481	0.385	0.314
F4-271-075	F4-271-075	F4-271-069	1.42	32:31 hr	4.534	0.521	0.417	0.364
G1-211-003	G1-211-003	9010	0.819	32:32 hr	1.916	0.663	0.531	0.552
G1-221-001	G1-221-001	G2-212-041	17.253	36:20 hr	2.996	2.463	0.547	0.581
G1-221-005	G1-221-005	G1-221-001	17.261	36:17 hr	4.313	1.857	0.413	0.357
G1-221-010	G1-221-010	G1-221-005	17.282	36:04 hr	4.097	1.932	0.429	0.383
G1-221-029	G1-221-029	G1-221-010	17.28	36:04 hr	3.355	2.254	0.501	0.501
G1-232-012	G1-232-012	F4-0232-BV	0.584	32:50 hr	2.088	0.54	0.54	0.568
G1-241-001	G1-241-001	G1-232-012	0.585	32:45 hr	6.271	0.239	0.239	0.125
G1-241-002	G1-241-002	F4-241-008	0.459	32:44 hr	2.727	0.402	0.482	0.47
G1-242-001	G1-242-001	G1-241-002	0.46	32:36 hr	2.252	0.469	0.563	0.607
G1-242-006	G1-242-006	G1-242-001	0.467	32:33 hr	2.352	0.458	0.55	0.586
G1-242-014	G1-242-014	G1-242-006	0.467	32:33 hr	2.527	0.432	0.519	0.532
G1-242-025	G1-242-025	G1-242-014	0.457	32:32 hr	2.577	0.419	0.502	0.504
G1-242-028	G1-242-028	G1-242-025	0.197	32:30 hr	2.058	0.264	0.317	0.218
G1-242-038	G1-242-038	G1-242-028	0.193	32:33 hr	1.822	0.284	0.341	0.25
G1-242-045	G1-242-045	G1-242-038	0.175	32:19 hr	1.815	0.265	0.317	0.218
G1-252-004	G1-252-004	G1-252-005	0.728	33:01 hr	4.039	0.385	0.385	0.314
G1-252-005	G1-252-005	F4-252-005	0.756	33:01 hr	3.394	0.405	0.324	0.227
G1-252-006	G1-252-006	G1-252-004	0.728	33:00 hr	3.435	0.435	0.435	0.392
G1-252-007	G1-252-007	G1-252-006	0.732	33:01 hr	3.279	0.453	0.453	0.421
G1-252-008	G1-252-008	G1-252-007	0.731	33:00 hr	3.552	0.426	0.426	0.377
G1-252-009	G1-252-009	G1-252-008	0.732	33:01 hr	3.518	0.429	0.429	0.383
G1-252-011	G1-252-011	G1-252-009	0.732	33:01 hr	3.301	0.45	0.45	0.417
G1-271-007	G1-271-013	G1-271-007	1.394	32:30 hr	4.679	0.502	0.402	0.34
G1-271-013	G1-271-030	G1-271-013	1.398	32:30 hr	4.684	0.503	0.402	0.34
G1-271-030	G1-271-041	G1-271-030	1.4	32:31 hr	3.854	0.584	0.467	0.445
G1-271-042	G1-271-047	G1-271-042	1.058	32:30 hr	3.435	0.515	0.412	0.356
G1-271-047	G1-272-045	G1-271-047	1.054	32:31 hr	4.959	0.392	0.313	0.213
G1-272-045	G1-272-065	G1-272-045	0.92	32:33 hr	3.421	0.465	0.372	0.295
G1-272-065	G1-272-066	G1-272-065	0.859	32:30 hr	3.357	0.449	0.359	0.276
G1-272-066	G2-272-001	G1-272-066	0.856	32:30 hr	3.353	0.448	0.358	0.274
G2-212-001	G2-212-001	G3-212-007	17.263	36:34 hr	2.703	2.681	0.596	0.665
G2-212-002	G2-212-003	G2-212-002	17.287	36:30 hr	5.363	1.581	0.351	0.265
G2-212-002A	G2-212-002	G2-212-001	17.283	36:33 hr	3.253	2.309	0.513	0.523
G2-212-014A	G2-212-014	G2-212-003	2.879	36:30 hr	7.16	0.574	0.383	0.311
G2-212-015	G2-212-015	G2-212-014	17.285	36:30 hr	5.092	1.642	0.365	0.284
G2-212-032	G2-212-032	G2-212-047	17.292	36:30 hr	3.995	1.97	0.438	0.397
G2-212-035	G2-212-035	G2-212-032	17.292	36:19 hr	3.732	2.076	0.461	0.435
G2-212-038	G2-212-038	G2-212-035	17.306	36:16 hr	3.93	1.996	0.444	0.406
G2-212-041	G2-212-041	G2-212-038	17.308	36:15 hr	3.303	2.285	0.508	0.513
G2-212-047	G2-212-047	G2-212-015	17.288	36:30 hr	3.267	2.302	0.512	0.52
G2-252-043	G2-252-043	G2-252-045	0.705	33:00 hr	3.546	0.414	0.414	0.36
G2-252-044	G2-252-044	G2-252-043	0.71	32:47 hr	3.362	0.434	0.434	0.391
G2-252-045	G2-252-045	G1-252-011	0.705	33:00 hr	3.452	0.423	0.423	0.373
G2-252-046	G2-252-046	G2-252-044	0.719	32:47 hr	3.448	0.43	0.43	0.384
G2-252-047	G2-252-047	G2-252-046	0.721	32:46 hr	5.222	0.317	0.317	0.217
G2-272-014	G2-272-014	G2-272-001	0.861	32:32 hr	3.281	0.457	0.365	0.285
G2-272-036	G2-272-036	G2-272-014	0.839	32:31 hr	3.213	0.455	0.364	0.283
G2-272-049	G2-272-049	G2-272-036	0.819	32:31 hr	3.2	0.449	0.359	0.276
G2-272-055	G2-272-055	G2-272-049	0.815	32:30 hr	2.924	0.478	0.382	0.31
G2-272-068	G2-272-068	G2-272-055	0.41	32:30 hr	2.412	0.334	0.267	0.156
G2-272-080	G2-272-080	G2-272-068	0.408	32:16 hr	3.541	0.254	0.203	0.09
G3-211-015	G3-211-015	G3-211-018	19.947	36:31 hr	4.172	2.127	0.473	0.454
G3-211-018	G3-211-018	G3-211-017	19.588	36:31 hr	4.15	2.106	0.468	0.446
G3-212-006	G3-212-006	G3-212-007	3.27	01:30 hr	8.028	0.638	0.511	0.518
G3-212-007	G3-212-007	G3-211-015	20.325	36:32 hr	2.723	3.067	0.682	0.808
G3-252-026	G3-252-026	G3-252-028	0.718	32:46 hr	4.145	0.374	0.374	0.298
G3-252-027	G3-252-027	G3-252-026	0.719	32:45 hr	6.583	0.268	0.268	0.157
G3-252-028	G3-252-028	G3-252-029	0.716	32:45 hr	3.332	0.439	0.439	0.399
G3-252-029	G3-252-029	G2-252-047	0.725	32:46 hr	3.434	0.434	0.434	0.39
G3-252-030	G3-252-030	G3-252-027	0.721	32:45 hr	6.069	0.284	0.284	0.176

Existing System PWWF Run - Gravity Main Output								
ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G3-252-031	G3-252-031	G3-252-030	0.722	32:46 hr	3.519	0.425	0.425	0.376
G3-252-032	G3-252-032	G3-252-031	0.717	32:43 hr	3.24	0.449	0.449	0.416
G4-252-008	G4-252-008	G3-252-032	0.719	32:30 hr	3.543	0.421	0.421	0.37
G4-252-008A	G4-261-001	G4-252-008	0.59	32:45 hr	3.358	0.378	0.378	0.303
G4-261-008	G4-261-008	G4-261-015	0.596	32:31 hr	3.957	0.422	0.634	0.729
G4-261-015	G4-261-015	G4-261-016	0.586	32:32 hr	2.598	0.667	1	1.185
G4-261-016	G4-261-016	G4-261-017	0.572	32:31 hr	2.535	0.667	1	1.402
G4-261-017	G4-261-017	G4-261-029	0.572	32:44 hr	5.596	0.255	0.255	0.143
G4-261-018	G4-261-018	G4-261-020	0.585	32:45 hr	3.198	0.39	0.39	0.321
G4-261-020	G4-261-020	G4-261-021	0.589	32:46 hr	3.311	0.382	0.382	0.309
G4-261-021	G4-261-021	G4-261-001	0.591	32:45 hr	3.447	0.371	0.371	0.293
G4-261-029	G4-261-029	G4-261-018	0.581	32:45 hr	3.126	0.394	0.394	0.328
H1-261-006	H1-261-006	H1-261-025	0.637	32:30 hr	3.685	0.41	0.492	0.487
H1-261-008	H1-261-008	H1-261-009	0.633	32:29 hr	6.073	0.28	0.337	0.244
H1-261-009	H1-261-009	H1-261-010	0.632	32:32 hr	4.376	0.407	0.611	0.691
H1-261-010	H1-261-010	H1-261-011	0.624	32:32 hr	3.812	0.454	0.681	0.808
H1-261-011	H1-261-011	H1-261-012	0.625	32:32 hr	4.358	0.405	0.608	0.685
H1-261-012	H1-261-012	H1-261-015	0.608	32:31 hr	3.883	0.437	0.655	0.765
H1-261-015	H1-261-015	G4-261-008	0.595	32:30 hr	3.789	0.438	0.657	0.768
H1-261-025	H1-261-025	H1-261-008	0.636	32:31 hr	4.269	0.366	0.439	0.399
H1-262-023	H1-262-023	H1-261-006	0.642	32:17 hr	3.954	0.391	0.469	0.448

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1118	4685								0.02	
1130	4,698.91							0.018	0	0.023
1132	4,698.91							0.001	0	
1134	4,664.76							0.006	0	
1136	4,668.30							0.001	0	
1138	4,650.91							0.007	0.001	
1140	4,648.22							0.006	0.001	
1142	4,645.25							0.003	0	
1144	4,638.52							0.007	0	
1146	4,869.65							0.052	0	
1148	4,714.99							0.02	0	
1150	4,785.00							0.037	0	
1152	4,745.54							0.034	0	
1154	4,715.00							0.03	0	
1156	4,694.95							0.016	0	
1158	4,681.56							0.009	0	
1176	4,796.40							0.002	0	
1178	4,767.14							0.001	0	
1180	4,746.00							0.001	0	
1182	4,733.95							0.002	0	0.013
1184	4,674.06							0.002	0	
1186	4,656.75							0.001	0	
1188	4,641.11							0.001	0	
1190	4,603.00							0.015	0	
1220	4,580.00									
1222	4,564.00							0.017	0	
1224	4,557.00							0.012	0	
1226	4,550.00							0.094	0.008	
1228	4,535.00							0.002	0.054	
1230	4,521.67							0	0.031	
1236	4,609.12							0.005	0	
1238	4,600.22							0.011	0	
1240	4,568.00							0.014	0	
1242	4,555.00							0.097	0	
1244	4,547.00							0.127	0.012	
1246	4,544.96							0.021	0.026	
1248	4,538.00							0.024	0.021	
1250	4,535.00							0	0.004	
1252	4,539.02							0.015	0.001	
1254	4,536.00							0.017	0.015	
1256	4,644.94							0.021	0	
1258	4,595.00							0.039	0	
1260	4,582.00							0.075	0	
1262	4,582.08							0.2	0.002	
1264	4,565.00							0.15	0	
1266	4,557.00							0.176	0.003	
1268	4,544.00							0.017	0	
1272	4,674.00							0.115	0	
1274	4,647.41							0.028	0	
1276	4,628.00							0.036	0	0.056
1278	4,612.05							0.044	0.004	0.104
1284	4,704.00							0.073	0	
1286	4,703.00							0.002	0	
1288	4,691.30							0.005	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1290	4,675.00							0.012	0	
1292	4,664.09							0.006	0	
1294	4,664.00							0.005	0	
1296	4,645.00							0.011	0	
1298	4,619.00							0.026	0	
1300	4,595.00							0.041	0	
1302	4,588.00							0.005	0.002	
1304	4,582.00							0.004	0	
1306	4,575.00							0.004	0	
1308	4,665.00							0.006	0	
1310	4,628.00							0.005	0	
1312	4,620.61							0.016	0	
1314	4,585.00							0.01	0.009	
1316	4,538.00							0.001	0.014	
132	4,559.77	0.005	0.047					0.01	0	0.016
1332	4,709.12							0.03	0	
1334	4,701.50							0.002	0	
1338	4,722.82							0.001	0	
134	4,555.68	0								
1340	4,684.59							0.003	0	
1344	4,754.53							0.002	0	
1346	4,841.01							0.013	0	
1348	4,753.80							0.004	0	
1350	4,742.00							0.004	0	
1352	4,689.00							0.009	0	
1354	4,649.17							0.003	0	
1356	4,652.84							0.008	0	
1358	4,629.00									
136	4,536.74	0.006						0	0	
1360	4,619.60							0.018	0	
1362	4,569.93							0.009	0	
1364	4,567.00							0.01	0	
1372	4,803.00							0.125	0.072	
1374	4,803.00							0.15	0.086	
1376	4,775.81									
1378	4,725.69							0.455	0.054	
1380	4,765.00									
1382	4,784.68							0	0.043	
1384	4,808.00							0.011	0.012	
1386	4,843.87							0	0.009	
1394	4,692.06							0.001	0	
1396	4,775.00							0.272	0.031	
1398	4,760.49							0.051	0.019	
14	4,640.70	0.008	0.086					0.042	0	
140	4,531.97	0.001	0.026					0.002	0	0.017
1404	4,667.67							0.027	0	
1406	4,659.23							0.049	0.002	
1422	4,696.00							0.004	0	
1424	4,696.00							0	0	
1426	4,697.00							0	0	
1428	4,554.00							0	0	
1430	4,555.49									
148	4,532.39									
150	4,661.19	0.008						0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
152	4,560.00									
154										
1554	4,520.30									
1558	4,533.00							0	0.009	
1560	4,528.00							0	0.004	
1562	4,527.00							0	0.005	
1564	4,525.69							0	0.003	
1566	4,525.00									0.023
1568	4,543.00							0.036	0	
1570	4,542.00							0.008	0	
1572	4,558.00							0.034	0	
1574	4,785.78							0.5	0.01	
1576	4,750.64							0.061	0	
1578	4,714.95							0.043	0.005	
1580	4,705.45							0.057	0.005	
1582	4,683.88							0.003	0	
1584	4,680.21							0.003	0	
1586	4,676.34							0.006	0	
1588	4,674.51							0.001	0	
1590	4,666.00							0.012	0	
1596	4,602.00							1.5	0.098	
1610	4,657.00									
1612	4,706.00							0.099	0	
1614	4,699.50							0.047	0	
1618	4,683.00									
1620	4,542.00							0	0	
1622	4,545.00							0.001	0	
1624	4,545.00							0	0	
1626	4,547.00							0	0	
1628	4,548.00							0	0	
1630	4,548.00							0.004	0	
1632	4,550.00									
1634	4,550.00									
1636	4,552.00									
1638	4,555.00									
1640	4,555.00									
1642	4,565.00									
1644	4,575.00							0	0	
1646	4,585.00							0	0	
1648	4,595.00							0	0	
1650	4,597.00							0	0	
1652	4,608.00							0.001	0	
1654	4,615.00							0.002	0	
1656	4,615.00							0.002	0	
1658	4,625.00							0	0	
1660	4,688.00							0.069	0	
1668	4,943.00							0.066	0	
1672	4,668.00							0.13	0.033	
1676	4,637.70	0.094						0.047	0	
1678	4,670.00							0.022	0.001	
1680	4,669.00							0.052	0.005	
1682	4,728.00							0.06	0	
1684	4,738.00							0.025	0	
1686	4,775.00							0.035	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1688	4,829.00							0.042	0	
1700	4,655.00							0.003	0	
1730	4,680.00									
1732	4,670.00									
1734	4,658.00									
1736	4,640.00									
1738	4,630.00									
1740	4,600.00									
1742	4,580.00									
48	4,663.66	0.001	0.008					0	0	
50	4,662.47	0								
52	4,661.49	0						0	0	
54	4,660.60	0								
56	4,661.79	0								
58	4,659.69	0								
60	4,659.26	0.001								
62	4,658.85	0.001								
64	4,659.13	0.001	0.001					0	0	
66	4,658.47	0						0	0	
68	4,655.95	0						0	0	
70	4,655.24	0.001	0.002							
74	4,631.62	0.001								
76	4,624.82	0	0.004							
770	4,621.89	0.003						0	0	
772	4,627.37	0.003						0	0	
774	4,629.57	0.002	0.006					0.001	0	
776	4,629.63							0.018	0	
778	4,628.22	0						0	0	
78	4,622.00	0.001								
780	4,603.69									
80	4,622.00	0								
802	4,537.13		0.037							
804	4,593.40	0.001	0.021	0.81		0.007		0	0.035	
810	4,555.00							0.032	0.053	
812	4,544.00							0.003	0.008	
814	4,534.90							0.001	0.01	0.057
82	4,603.00	0								
916	4,593.00							0.285	0.032	
B1-272-001	4,656.60		0.03					0.006	0	
B1-272-002	4,657.28							0.001	0	
B1-272-003	4,658.04							0.004	0	
B1-272-005	4,659.62							0.006	0	
B1-272-007	4,660.98							0.013	0	
B1-272-010	4,654.15							0.004	0	
B1-272-012	4,653.42							0.015	0	
B1-272-013	4,650.96							0.015	0	
B1-272-015	4,650.38							0.031	0	
B1-272-016	4,649.85							0.015	0.002	
B1-281-001	4,662.51							0.007	0	
B1-281-002	4,664.91							0.004	0	
B1-281-004	4,667.12		0.07					0	0	
B1-281-005	4,668.75							0.003	0	
B1-281-006	4,670.69							0.003	0	
B1-281-007	4,671.37							0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B1-281-009	4,674.29							0.005	0	
B1-281-010	4,675.02		0.048					0.03	0	0.033
B1-292-001	4,714.95		0.009					0.001	0	
B1-292-002	4,714.30							0.001	0	
B1-292-003	4,716.66							0.009	0	
B1-292-004	4,715.14							0.033	0	
B1-292-010	4,714.07							0.003	0	
B1-292-011	4,709.88							0.005	0	
B1-292-012	4,682.02							0.004	0	
B1-292-013	4,699.01							0.006	0	
B1-292-014	4,698.59							0.001	0	
B1-292-015	4,696.92							0.001	0	
B1-292-016	4,697.59							0	0	
B2-271-019	4,645.97	0.01	0.068					0	0	
B2-271-020	4,646.10							0	0	
B2-271-022	4,646.25							0.046	0	
B2-271-031	4,644.88							0.002	0	
B2-272-004	4,648.22	0.003						0.002	0	
B2-272-005	4,646.98							0.003	0	
B2-272-007	4,648.91	0.003						0.002	0	
B2-272-008	4,648.60							0.006	0.001	
B2-272-009	4,648.92	0.002						0.001	0	
B2-272-014	4,649.73	0.003	0.031					0.002	0	
B2-272-017	4,650.24							0.003	0.001	
B2-272-021	4,651.87							0.007	0.002	
B2-272-027	4,650.27	0.032	0.059			0.027		0.006	0	
B2-272-028	4,651.04		0.053					0.002	0	
B2-272-029	4,651.00							0.003	0	
B2-272-030	4,652.06							0.007	0	
B2-272-033	4,650.96	0.005						0.006	0	
B2-281-001	4,656.19							0.003	0	
B2-281-002	4,657.43							0.004	0	
B2-281-003	4,657.95		0.119					0.001	0	
B2-281-004	4,658.60									
B2-281-005	4,660.30							0	0	
B2-281-006	4,661.91							0	0	
B2-281-013	4,662.47							0.001	0	
B2-281-020	4,653.32							0.005	0	
B2-281-022	4,655.62							0.004	0	
B2-281-027	4,661.75							0	0	
B2-281-029	4,656.57							0.003	0	
B2-282-003	4,662.68							0.003	0	
B2-282-036	4,664.20							0.003	0	
B2-282-037	4,666.15							0.001	0	
B2-282-041	4,666.15							0.001	0	
B2-282-046	4,667.40							0.002	0	
B2-282-047	4,668.61							0.001	0	
B2-282-048	4,669.56							0.002	0	
B2-282-051	4,671.11							0.005	0	
B2-282-054	4,672.79		0.217					0.004	0	0.023
B2-291-024	4,679.63							0.003	0	
B2-291-025	4,678.23							0.007	0	
B2-291-026	4,678.52							0.004	0	
B2-291-027	4,677.84							0.009	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B2-291-028	4,675.12							0.006	0	
B2-291-029	4,674.94							0.003	0	
B2-291-030	4,673.49							0.007	0	
B2-291-045	4,677.89							0.002	0	
B2-292-001	4,689.77							0.004	0	
B2-292-002	4,688.02							0.004	0	
B2-292-003	4,685.12							0.003	0	
B2-292-004	4,683.36							0	0	
B2-292-008	4,682.02							0.004	0	
B2-292-009	4,681.74							0.011	0	
B2-292-010	4,682.23									
B2-292-011	4,682.14							0	0	
B2-292-012	4,685.28							0.001	0	
B2-292-017	4,687.54							0.001	0	
B2-292-018	4,689.26							0.001	0	
B2-292-022	4,690.90							0.001	0	
B2-292-023	4,692.04							0	0	
B2-292-026	4,681.54									
B2-301-001	4,692.06		0.008					0.034	0	
B3-262-023	4,637.90	0.007						0.028	0.003	
B3-262-027	4,639.09	0.007					0.004	0.011	0.001	
B3-262-031	4,640.22	0.006	0.045			0.049		0.003	0	
B3-271-003	4,639.60	0.004						0.001	0	
B3-271-006	4,639.29	0.006						0.004	0	
B3-271-018	4,640.18	0.01						0.004	0	
B3-271-026	4,642.09	0.007	0.023					0.001	0	
B3-271-032	4,643.90	0.009						0.009	0	
B3-271-039	4,644.66	0.009						0.007	0	
B3-271-042	4,641.88	0.005						0.002	0	
B3-271-045	4,644.45	0.004						0.001	0	
B3-271-054	4,643.99	0.004								
B3-271-058	4,645.44	0.008						0.002	0	
B3-271-059	4,645.04	0.003						0	0	
B3-271-063	4,644.83	0.003						0	0	
B4-261-014	4,615.35	0.006						0.002	0.001	
B4-262-001	4,626.61	0.005	0.019					0.014	0.001	
B4-262-011	4,624.94	0.007	0.028					0.002	0.001	
B4-262-016	4,633.29	0.007						0.001	0	
B4-262-022	4,633.48	0.007	0.021					0.002	0	
B4-262-024	4,632.42	0.006					0.008	0	0.002	
B4-262-028	4,634.70	0.002								
B4-262-030	4,635.77	0.006						0	0	
B4-262-031	4,635.58	0.002						0.001	0	
B4-262-036	4,639.18	0.002						0	0	
B4-262-037	4,639.15	0.005					0.005	0.001	0	
B4-262-038	4,638.96	0.007						0	0	
B4-262-044	4,628.65	0.005						0.004	0	
B4-262-114	4,636.36	0.002								
B4-271-001	4,639.11	0.002						0.001	0	
B4-271-011	4,641.78	0.009						0.001	0	
B4-271-028	4,646.15	0.007						0.001	0	
B4-271-033	4,646.99	0.008						0.002	0	
B4-271-128	4,639.74	0.005						0.001	0.001	
B4-271-135	4,639.73	0.006	0.016					0.001	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B4-271-138	4,639.45	0.008						0.004	0	
B4-271-143	4,640.50	0.006						0.001	0	
B4-271-145	4,641.45	0.006						0	0	
B4-271-146	4,643.18	0.008						0.001	0	
B4-271-147	4,644.70	0.006	0.022				0.007	0.001	0	
B4-271-148	4,647.63	0.007						0.002	0	
B4-272-004	4,650.15	0.009	0.071					0.006	0	
B4-272-039	4,651.93	0.005	0.016							
B4-272-040	4,652.26	0.007						0.001	0	
B4-272-044	4,653.41	0.011						0.002	0	
B4-272-048	4,653.82	0.011						0.001	0	
B4-272-086	4,650.62	0.012						0.017	0	
B4-272-091	4,651.17	0.005						0	0	
B4-272-092	4,651.27	0.008								
B4-272-093	4,647.86	0.004						0.001	0	
B4-272-094	4,647.89	0.005						0.003	0	
B4-272-095	4,649.15	0.007								
B4-272-096	4,650.63	0.011						0.002	0	
B4-281-054	4,655.65	0.015						0.001	0	
B4-281-057	4,656.77	0.021						0.001	0	
BV-105	4,555.49									
BV-292-013	4,686.36							0.001	0	
C1-221-018	4,855.42	0						0	0	
C1-221-019	4,856.62	0.002	0.029					0.004	0	
C1-261-020	4,611.50	0.004	0.012					0	0.002	
C1-261-028	4,607.00	0.004						0	0	
C1-261-030	4,607.41	0.002	0.009					0	0	
C1-261-058	4,620.88	0.003						0.004	0	
C1-261-060	4,612.10	0.008	0.027				0.005	0	0.002	
C1-261-062	4,616.02	0.002						0.001	0	
C1-281-035	4,656.27	0.028	0.195					0.01	0	
C2-221-030	4,856.52	0.001						0.001	0	
C2-221-031	4,840.90	0						0.001	0	
C2-221-032	4,852.13	0						0.001	0	
C2-221-033	4,855.02	0						0.001	0	
C2-221-034	4,856.96	0.001						0.001	0	
C2-221-035	4,854.80	0.004						0.001	0	
C2-221-037	4,853.25	0.001						0.001	0	
C2-221-065	4,852.08	0						0.003	0	
C2-261-001	4,603.22									
C2-261-013	4,572.06	0					0.011			
C2-261-024	4,575.01	0								
C3-212-031	4,810.25	0						0	0	
C3-221-003	4,835.19	0	0.01					0.001	0	
C3-221-004	4,830.28	0						0	0	
C3-221-005	4,821.15	0						0.001	0	
C3-221-006	4,811.19	0						0.001	0	
C3-221-030	4,822.68	0	0.003					0	0	
C3-252-001	4,559.32									
C3-252-002	4,561.74									
C3-261-001	4,562.22	0								
C3-261-002	4,563.15	0						0	0.001	
C3-261-004	4,564.51	0								
C3-261-005	4,564.51	0						0	0	

Manhole Input Data for Future PWWF Scenario										
ID	**Rim Elevation**	**Load 1**	**Load 2**	**Load 3**	**Load 4**	**Load 5**	**Load 6**	**Load 8**	**Load 9**	**Load 10**
	(feet)	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**
C3-261-007	4,563.27	0								
C3-261-008	4,565.25	0						0	0	
C3-261-009	4,563.05									
C3-261-010	4,564.47									
C3-261-011	4,563.00									
C3-261-012	4,566.30									
C3-261-013	4,565.68									
C3-261-015	4,565.28	0						0	0	
C3-261-019	4,563.78	0						0	0	
C3-261-021	4,565.00	0	0.022				0.06	0	0	
C3-261-031	4,565.76	0						0	0	
C3-261-035	4,573.34	0						0	0	
C3-261-040	4,566.68	0.001						0	0	
C3-261-043	4,571.45	0						0	0	
C3-261-050	4,567.28	0						0	0	
C3-261-056	4,567.40	0.001	0.017					0	0	0.006
C3-261-062	4,567.35	0.001						0	0.002	
C3-261-075	5,000.00	0						0	0	
C3-261-076	5,000.00	0						0	0	
C3-262-007	4,567.22	0.001						0	0.003	
C3-262-009	4,567.77	0.001						0	0.001	
C3-262-033	4,569.31	0.001						0	0.001	
C3-262-041	4,569.51	0.001						0	0.001	
C3-262-046	4,570.66	0.001						0	0	
C3-262-051	4,568.30	0						0	0	
C3-262-061	4,572.79	0.002						0	0.003	
C3-262-070	4,577.51	0						0	0	
C3-262-071	4,577.15	0.001						0	0.001	
C3-262-074	4,578.59	0.001						0	0	
C3-271-001	4,576.86	0.002						0	0.001	
C3-271-003	4,578.37	0.001	0.004				0.004	0	0.001	
C3-271-004	4,579.69	0.002						0	0.001	
C3-271-007	4,581.04	0.002						0	0.001	
C3-271-010	4,581.04	0.001						0	0.001	
C3-271-012	4,581.04	0.001						0	0.001	
C4-212-059	4,802.26	0						0.001	0	
C4-212-060	4,790.25	0.001	0.004					0	0	
C4-212-061	4,781.59	0						0	0	
C4-221-001	4,776.51	0.001						0.001	0	
C4-252-001	4,557.32									
C4-252-002	4,559.28							0	0	
C4-252-003	4,560.79									
C4-252-004	4,559.57							0	0	
C4-252-005	4,559.66									
C4-252-006	4,557.44									
C4-252-007	4,560.16									
C4-252-008	4,559.21									
D1-212-011	4,757.04	0.001						0.003	0	
D1-212-012	4,751.59	0.001						0.002	0	
D1-212-032	4,767.46	0.001	0.002					0.003	0	
D1-242-011	4,631.80	0.001						0	0	
D1-242-017	4,645.13	0.001						0	0	
D1-242-018	4,656.69	0.002						0	0	
D1-242-019	4,661.02	0.005						0.001	0	0.001

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-242-030	4,631.80	0.001						0	0	
D1-242-031	5,000.00	0.001						0.001	0	
D1-251-005	4,663.66	0.002						0.012	0.002	
D1-251-023	5,000.00	0.002	0.003					0.004	0.001	
D1-252-001	4,554.94	0						0	0	
D1-252-004	4,555.66									
D1-252-005	4,555.31	0								
D1-252-008	4,555.58	0.001						0	0	
D1-252-009	4,556.21									
D1-252-010	4,555.57	0.001	0.004					0	0	
D1-252-011	4,555.56									
D1-252-015	4,556.52									
D1-252-016	4,557.04	0.001						0	0	
D1-252-018	4,556.32									
D1-252-019	4,556.43									
D1-252-023	4,557.57	0.001								
D1-252-031	4,557.39	0.001						0	0	
D1-252-036	4,557.63	0.001	0.002					0	0	
D1-252-041	4,558.20	0.003						0.002	0	
D1-252-042	4,558.62	0.002	0.007					0.001	0	
D1-252-050	4,585.00							0	0	
D1-252-053	4,581.46	0						0.001	0.001	
D1-252-056	4,581.81	0						0.001	0.001	
D1-252-057	4,582.88	0.009						0.003	0.002	
D1-252-059	4,582.91	0.001								
D1-261-001	4,583.74	0	0.053				0.013	0	0	
D1-261-003	4,588.00		0.056				0.012			
D1-261-006	4,583.32	0.004						0.001	0.001	
D1-261-008	4,584.98	0.005						0.005	0.003	
D1-261-020	4,588.00	0						0.011	0.006	
D1-261-021	4,584.67	0.004						0.008	0.004	
D1-261-023	4,587.00	0						0.006	0.003	
D1-261-036	4,586.86	0.006						0.013	0.007	
D1-261-037	4,589.00	0.001						0.002	0.001	
D1-261-052	4,588.29	0.006						0.009	0.005	
D1-261-059	4,588.00	0.001						0.001	0	
D1-261-061	4,588.00	0						0.006	0.004	
D1-261-075	4,589.51	0.01						0.002	0.001	
D1-261-084	4,590.00	0.003						0.01	0.007	
D1-261-103	4,591.22	0.007						0.002	0.001	
D1-261-116	4,588.00							0.017	0.01	
D1-261-117	4,591.75	0.01						0.004	0.002	
D1-261-128	4,590.09	0.015						0.015	0.009	
D1-262-001	4,589.00						0.004	0.009	0.005	
D1-262-025	4,589.16	0.018						0.01	0.006	
D1-262-030	4,590.00							0.003	0.002	
D1-262-040	4,589.76	0.006	0.005				0.008	0.001	0	
D1-262-049	4,590.00							0.007	0.005	
D1-262-067	4,591.72	0.006						0.002	0.001	
D1-262-079	4,592.00		0.048					0.027	0.017	0.031
D1-262-088	4,593.50	0.006						0.003	0.002	
D1-262-100	4,594.93	0.006						0.006	0.004	
D1-271-017	4,596.81	0.003						0	0	
D1-271-051	4,598.99	0.002						0.003	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-271-054	4,596.12	0.002					0.012	0.005	0	
D1-271-055	4,596.12	0.006			0.008			0.006	0.002	
D1-271-092	4,596.12	0.001						0.002	0	
D2-212-001	4,743.95	0						0	0	
D2-212-002	4,742.51	0	0					0	0	
D2-212-003	4,733.57	0.001	0					0	0	
D2-212-011	4,746.35	0	0.002					0.001	0	
D2-212-012	4,744.03	0						0	0	
D2-212-013	4,738.35	0	0.003					0	0	
D2-212-014	4,726.24	0.001						0.001	0	
D2-212-025	4,742.51	0						0	0	
D2-241-006	4,658.54	0.001	0.002					0.002	0	
D2-241-007	4,655.59	0						0	0	
D2-251-004	4,555.68									
D2-251-005	4,555.19									
D2-251-008	4,660.22	0.001	0.039					0.001	0	0.001
D2-251-014	4,657.55	0						0.001	0	
D2-252-002	4,556.35	0.001						0	0	
D2-252-004	4,555.49		0							
D2-252-005	4,556.03									
D2-252-006	4,555.69							0.001	0.001	
D2-252-008	4,557.06							0.001	0.001	
D2-252-010	4,564.13									
D2-252-011	4,556.07							0	0	
D2-252-012	4,555.82	0.002						0	0	
D2-252-014	4,556.19	0.001								
D2-252-015	4,556.19							0.001	0	
D2-252-026	4,559.34		0.009							
D2-252-033	4,559.07									
D2-252-039	4,559.94									
D2-252-049	4,570.51									
D2-252-050	4,577.00									
D2-252-052	4,578.00									
D2-252-056	4,579.00									
D2-252-057	4,573.79		0.015				0.052			
D2-252-062	4,574.15									
D2-252-067	4,587.00									
D2-252-069	4,577.81	0.003								
D2-252-071	4,575.19									
D2-252-085	4,580.75	0.002						0.01	0.006	
D2-252-105	4,572.19									
D2-271-017	4,603.11									
D2-271-019	4,601.30							0	0	
D2-271-022	4,600.17	0.001								
D2-271-023	4,598.81	0.001								
D2-271-039	4,601.59	0.001	0.297		0.012		0.049			0.046
D2-271-042	4,601.00	0.002								
D2-271-043	4,599.90	0.002								
D2-271-045	4,598.99	0.002	0.07							
D2-271-048	4,601.69	0.001								
D2-271-052	4,603.54	0.001						0	0	
D2-271-063	4,604.76	0.009						0.003	0	
D2-271-067	4,605.65	0.005						0.001	0	
D2-271-075	4,605.91	0.007					0.01	0.005	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D2-271-109	4,597.40	0.003						0.002	0	
D2-272-011	4,606.03	0.008						0.006	0	
D2-272-023	4,607.35	0.01						0.006	0	
D2-272-025	4,604.90	0.003						0	0	
D2-272-029	4,604.13	0.003						0	0	
D2-272-052	4,605.25	0.009						0	0	
D2-272-070	4,605.84	0.007						0	0	
D2-272-072	4,607.18	0.009						0.003	0.002	
D2-272-074	4,608.78	0.007						0.004	0.002	
D2-272-075	4,608.78	0						0	0	
D2-281-002	4,608.78	0								
D3-212-001	4,713.00	0	0.001					0	0	
D3-212-002	4,710.90	0						0	0	
D3-212-003	4,708.13	0						0	0	
D3-212-004	4,705.24	0						0	0	
D3-212-012	4,702.84	0	0					0	0	
D3-212-013	4,698.75	0						0	0	
D3-212-017	4,697.20	0								
D3-212-018	4,701.55	0						0	0	
D3-212-022	4,716.93	0.001	0.002					0	0	
D3-212-023	4,715.72	0	0.001					0.001	0	
D3-221-016	4,695.09	0						0	0	
D3-221-021	4,683.00	0.001						0.001	0	
D3-221-022	4,683.00	0.001						0.001	0	
D3-221-023	4,683.00	0.001						0	0	
D3-221-024	4,683.00	0						0	0	
D3-232-001	4,628.13	0	0.012					0	0	0.014
D3-232-009	4,644.58	0						0	0	
D3-232-015	4,634.34	0						0	0	
D3-232-017	4,613.76	0.001						0.003	0	
D3-232-018	4,626.19	0						0.001	0	
D3-241-001	4,650.99	0						0	0	
D3-241-002	4,651.19	0						0.001	0	
D3-241-003	4,654.39	0.001						0	0	
D3-241-004	4,649.91	0						0	0	
D3-241-005	4,650.33	0						0	0	
D3-241-006	4,650.09	0.001						0	0	
D3-241-007	4,649.00	0						0	0	
D3-241-008	4,651.31	0						0.001	0	
D3-241-009	4,652.37	0.001						0	0	
D3-251-001	4,555.45									
D3-251-002	4,555.84									
D3-251-004	4,554.87									
D3-251-008	4,553.38									
D3-251-011	4,555.31		0.008							
D3-251-012	4,555.45									
D3-251-013	4,556.46							0.022	0.012	
D3-251-014	4,559.45	0								
D3-251-015	4,554.87									
D3-251-016	4,548.92									
D3-252-008	4,556.68	0.002						0	0.012	
D3-252-012	4,555.65	0.002						0.005	0.003	
D3-252-045	4,572.19	0.003						0.004	0.004	
D3-252-054	4,576.99	0.002						0.003	0.002	

Manhole Input Data for Future PWWF Scenario										
ID	**Rim Elevation**	**Load 1**	**Load 2**	**Load 3**	**Load 4**	**Load 5**	**Load 6**	**Load 8**	**Load 9**	**Load 10**
	(feet)	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**	**(mgd)**
D3-252-057	5,000.00	0.002						0.023	0.013	
D3-261-010	4,591.00	0	0.034				0.101	0	0.003	
D3-261-014	4,591.00	0.001	0.132					0.003	0.001	
D3-261-025	4,594.00	0.002						0.003	0.001	
D3-261-045	4,597.00	0.003						0.002	0.001	
D3-261-075	4,600.00	0.004	0.036				0.029	0.002	0	
D3-261-086	4,602.00	0.007						0.007	0.002	
D3-261-117	4,607.00	0.002						0.009	0.001	
D3-261-130	4,608.00	0.004						0.005	0	
D3-262-017	4,609.00	0.007	0.118				0.08	0.001	0	
D3-262-018	4,610.00	0.007	0.208				0.005	0.001	0	
D3-262-042	4,608.00	0.004					0.009	0.001	0	
D3-262-065	4,606.00	0.006						0.002	0	
D3-262-083	4,610.00	0.007						0	0	
D3-262-122	4,608.00	0.004						0.001	0	
D3-271-013	4,612.50	0.003	0.015		0.085		0.033	0	0	
D3-271-019	4,607.81							0.002	0	
D3-271-024	4,605.19							0	0	
D3-271-029	4,613.00	0.001								
D3-271-038	4,608.37							0	0	
D3-271-055	4,610.45	0.002								
D3-271-059	4,611.12							0	0	
D3-271-068	4,617.13	0								
D3-271-069	4,616.85									
D3-271-070	4,615.82							0.002	0	
D3-271-072	4,613.27							0.001	0	
D3-271-075	4,617.94									
D3-271-111	4,614.00	0.001								
D3-281-006	4,608.96	0		0.8				0.103	0.04	
D4-221-004	4,683.00	0.001						0.001	0	
D4-221-005	4,662.00	0.001						0.001	0	
D4-221-008	4,654.90	0.001						0.001	0	
D4-221-009	4,651.00	0.001						0.001	0	
D4-221-010	4,646.00	0.001						0.001	0	
D4-221-011	4,643.00	0.001	0.002					0.001	0.001	
D4-221-015	4,637.85	0.001						0.002	0	
D4-232-001	4,595.25	0						0	0	
D4-232-002	4,575.21	0						0	0	
D4-232-003	4,563.00	0						0	0	
D4-232-004	4,562.51	0.001						0	0	
D4-232-005	4,555.62							0	0	
D4-232-006	4,546.99							0.001	0	
D4-232-007	4,539.68		0.005					0.001	0	
D4-232-008	4,539.41							0	0	
D4-232-020	4,788.00	0	0.005					0	0	
D4-251-001	4,551.09									
D4-251-005	4,552.08		0.187			0.031	0.031			0.133
D4-251-008	4,552.54									
D4-251-018	5,000.00									
D4-251-019	5,000.00									
D4-271-014	4,624.56							0.003	0.002	
D4-271-015	4,622.79									
D4-271-018	4,621.51									
D4-271-021	4,620.89									

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E1-221-001	4,639.87	0.001	0.001					0.001	0	
E1-222-004	4,638.00	0.001						0.002	0.001	
E1-222-005	4,627.00	0.001						0.002	0	
E1-222-006	4,620.00	0.001						0.002	0.001	
E1-222-007	4,623.00	0						0.003	0	
E1-222-011	4,618.00	0.001						0.001	0	
E1-222-012	4,612.00	0.001						0.001	0	
E1-231-012	4,639.85	0.001	0.002					0.003	0	
E1-232-001	4,537.50									
E1-232-025	4,538.19									
E1-242-001	4,548.46									
E1-242-002	4,548.17									
E1-251-001	4,548.07									
E1-251-002	4,549.16									
E1-251-003	4,549.50	0.005						0	0.006	
E1-251-004	4,548.81	0.003						0	0.002	
E1-251-007	4,550.14	0.003						0	0	
E1-251-018	4,552.73	0.003						0	0.001	
E1-251-019	4,553.70	0.001	0.005					0	0	
E1-251-020	4,553.70	0.001						0	0	
E1-251-021	4,554.64	0.003						0	0.001	
E1-251-023	4,555.81	0.002						0.004	0.001	
E1-251-025	4,548.17	0.002						0	0.006	
E1-271-068	4,630.77							0.001	0	
E1-271-072	4,627.97							0.001	0	
E1-271-076	4,624.85							0.003	0.002	
E2-202-016	4,725.54	0.009	0.076					0.032	0	
E2-222-007	4,637.79	0.001	0.002							
E2-222-015	4,603.00	0								
E2-222-016	4,603.00	0								
E2-222-017	4,602.00	0								
E2-222-028	4,637.79	0						0	0	
E2-222-029	4,637.79	0								
E2-222-030	4,637.79	0								
E2-222-031	4,637.79	0								
E2-222-036	4,591.00	0.001								
E2-222-037	4,591.00	0						0	0	
E2-222-040	4,637.79	0								
E2-222-044	4,598.00	0.001						0.001	0	
E2-222-048	4,637.79	0						0	0	
E2-222-050	4,637.79	0	0.015							
E2-222-067	4,603.00	0.001						0.001	0	
E2-222-075	4,610.00	0.001	0.002					0	0	
E2-231-002	4,643.10	0.001						0	0	
E2-231-005	4,641.90	0.001						0.002	0	
E2-231-006	4,637.10	0.001						0.001	0	
E2-231-013	4,635.95	0.001	0.002					0	0	
E2-231-021	4,636.94	0.001								
E2-231-028	4,647.50	0.002						0.002	0	
E2-231-029	4,646.62	0						0	0	
E2-231-030	4,645.21	0								
E2-231-031	4,644.31	0						0	0	
E2-231-035	4,640.93	0						0	0	
E2-231-037	4,640.55	0						0.001	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E2-232-013	4,538.60									
E2-232-014	4,555.40									
E2-242-004	4,550.05									
E2-242-011	4,552.87									
E2-242-017	4,552.84									
E2-242-024	4,549.64									
E2-242-034	4,548.66									
E2-251-027	4,550.68	0.005	0.012					0	0.005	
E2-251-058	4,555.97	0.001						0	0	
E2-252-192	4,559.30	0								
E2-252-193	4,565.83	0.001						0.005	0	
E2-252-194	4,576.19	0.001						0.004	0.001	
E2-252-196	4,559.47	0.001						0.001	0.001	
E2-271-076	4,645.81	0.006						0	0	
E2-271-078	4,642.38							0	0	
E2-271-081	4,639.14							0.001	0	
E2-271-086	4,635.95							0	0	
E3-202-008	4,711.83	0	0.002					0.001	0	
E3-202-009	4,718.61	0.001						0.001	0	
E3-202-010	4,713.19	0						0.001	0	
E3-202-011	4,710.71	0						0.001	0	
E3-202-012	4,709.38	0						0.001	0	
E3-202-BV	4,718.07	0						0.001	0	
E3-222-051	4,561.00	0.002						0	0	
E3-222-064	4,559.72	0.001	0.003					0	0	
E3-222-065	4,558.00	0.001						0	0	
E3-231-006	4,552.00	0.002	0.003					0.004	0	
E3-241-015	4,547.53									0.033
E3-241-022	4,547.99									
E3-241-028	4,548.74									
E3-241-034	4,550.68	0.003				0.017		0	0.002	
E3-241-036	4,553.65	0.004						0	0.002	
E3-241-048	4,554.31	0.002	0.017					0.004	0.002	
E3-241-049	4,555.23	0.007						0.005	0.006	
E3-242-002	4,549.96									
E3-242-012	4,549.55									
E3-252-001	4,579.49	0	0.001					0	0.001	
E3-252-003	4,578.01	0.001						0.001	0	
E3-252-004	4,581.01	0						0.008	0	
E3-252-084	4,581.28	0.001						0	0.001	
E3-252-085	4,580.53	0						0	0	
E3-271-068	4,650.07	0.004					0.005	0	0	
E3-271-072	4,647.15	0.006						0.001	0	
E3-271-074	4,645.76	0.005	0.016					0.001	0.001	
E3-271-121	4,664.18	0.002						0.001	0	
E3-271-122	4,664.18	0.002						0.001	0	
E3-271-123	4,654.21	0.004						0	0	
E4-202-001	4,701.01	0						0.001	0	
E4-202-002	4,691.43	0						0	0	
E4-202-003	4,682.45	0						0	0	
E4-202-007	4,681.68	0	0.002					0	0	
E4-202-009	4,683.62	0	0.001					0	0	
E4-202-013	4,675.41	0						0	0	
E4-202-014	4,668.71	0						0	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E4-231-005	4,549.56									
E4-231-006	4,548.23									
E4-231-007	4,537.67	0.002						0	0.001	
E4-231-008	4,538.95									
E4-232-016	4,544.02									
E4-241-005	4,545.86					0.047				
E4-241-016	4,545.76									
E4-241-075	4,559.77	0								
E4-241-077	4,557.41	0.001						0.002	0.001	
E4-241-078	4,554.86	0.002						0.002	0.001	
E4-241-079	4,553.36	0.002	0.075					0.002	0.001	
E4-241-080	4,553.60	0.002						0.004	0.002	
E4-241-081	4,560.82	0								
E4-242-014	4,561.53	0.002						0.002	0.001	
E4-242-029	4,562.46	0.003						0.005	0.003	
E4-242-034	4,562.86	0.001						0.001	0.001	
E4-242-036	4,562.95	0.002						0.005	0.003	
E4-242-045	4,563.48	0.005						0.014	0.008	
E4-242-057	4,564.49	0.005						0.018	0.005	
E4-242-062	4,565.50	0.004						0.024	0.005	
E4-242-069	4,565.79	0.003	0.006					0.011	0.006	
E4-242-078	4,567.20	0.001						0.003	0.003	
E4-251-001	4,567.38	0.001						0.012	0.004	
E4-252-009	4,581.22	0						0	0	
E4-252-010	4,581.19	0								
E4-252-011	4,581.87	0.001						0	0	
E4-252-013	4,586.51	0						0	0	
E4-252-014	4,586.55	0						0	0	
E4-252-019	4,586.54	0								
E4-252-021	4,586.49	0.001						0.004	0	
E4-252-023	4,585.78	0.002						0.014	0	
E4-252-033	4,588.12	0.001						0.001	0	
E4-252-035	4,593.09	0.001						0.003	0	
E4-252-037	4,596.23	0						0	0	
E4-271-058	4,679.36	0.001						0.017	0	
E4-271-060	4,677.07	0.001						0.007	0	
E4-271-062	4,672.66	0.001						0.006	0	
E4-271-063	4,670.03	0						0.005	0	
E4-271-064	4,668.97	0.001	0.004					0.005	0	
F1-202-005	4,635.52	0						0.001	0	
F1-202-006	4,633.60	0						0.001	0	
F1-202-007	4,631.66	0.001	0.005					0.001	0	
F1-202-008	4,636.08	0.001						0.002	0	
F1-202-009	4,646.60	0	0.007					0	0	
F1-202-010	4,657.51	0						0	0	
F1-231-001	4,535.76	0.002						0	0.004	
F1-231-002	4,534.29	0.002						0	0.001	
F1-231-003	4,533.00	0.002						0	0.003	
F1-232-001	4,541.76									
F1-232-002	4,542.61									
F1-232-008	4,542.87									
F1-232-012	4,542.90									
F1-232-013	4,543.00	0						0.003	0.002	
F1-232-014	4,544.35	0.001						0.006	0.003	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-232-017	4,545.30	0.001						0.006	0.003	
F1-232-019	4,543.99	0.003	0.083					0.039	0.023	
F1-232-033	4,542.97									
F1-232-066	4,542.90									
F1-241-050	4,562.29	0.001						0.003	0.002	
F1-241-109	4,564.40	0.002						0.009	0.005	
F1-241-110	4,567.50	0.001						0.011	0.005	
F1-242-001	4,561.36	0	0.005					0	0	
F1-251-003	4,567.58	0.001	0.075					0.012	0.002	
F1-251-015	4,568.22	0.004						0.006	0.006	
F1-251-023	4,569.76	0.004	0.023					0.007	0.006	
F1-251-031	4,570.51	0.002						0.002	0.002	
F1-251-033	4,571.32	0.001						0.001	0.001	
F1-251-034	4,571.74	0.005						0.008	0.003	
F1-251-039	4,574.01	0.008						0.019	0.002	
F1-251-040	4,576.83	0.004						0.01	0.001	
F1-251-041	4,576.74	0.003	0.002					0.013	0.001	
F1-251-044	4,579.14	0.004						0.013	0	
F1-251-047	4,581.16	0.002						0.009	0	
F1-251-048	4,581.18	0.001						0.004	0	
F1-251-049	4,586.77	0.003						0.005	0.001	
F1-251-050	4,586.77	0.003						0.01	0.001	
F1-251-068	4,580.49	0.001						0.007	0	
F1-251-106	4,571.32	0.002						0.002	0.002	
F1-251-108	4,581.83	0.002	0.016					0.003	0	
F1-252-017	4,597.89	0						0	0	
F1-252-033	4,599.93	0						0	0	
F1-252-039	4,609.51	0.001	0.008					0	0	
F1-261-003	4,609.31	0						0	0	
F1-261-004	4,609.98	0.001						0	0	
F1-261-009	4,607.52	0.001						0.001	0	
F1-261-026	4,607.64	0.002						0.004	0	
F1-261-040	4,608.58	0.001	0.008					0.002	0	
F1-261-048	4,611.41	0.002						0.002	0	
F1-261-058	4,615.25	0.002						0.003	0	
F1-261-064	4,617.47	0.002	0.003				0.005	0.004	0	
F1-261-070	4,619.40	0.001						0.003	0.001	
F1-261-075	4,621.68	0.002	0.027					0.006	0.001	
F1-261-078	4,625.58	0.001						0.009	0.004	
F1-261-081	4,626.87	0.001						0.006	0.002	
F1-261-089	4,630.42	0.001					0.011	0.002	0	
F1-261-095	4,635.78	0								
F1-261-097	4,635.78	0						0.001	0	
F1-261-106	4,635.78	0.007	0.066				0.042	0.008	0.004	
F1-271-101	4,680.72	0.007	0.206				0.011	0.034	0.001	
F1-271-103	4,678.53	0.002	0.022				0.017	0	0.001	
F2-202-001	4,625.07	0.001						0.002	0	
F2-202-002	4,613.34	0.001						0.006	0	
F2-202-003	4,618.05	0.001						0.002	0	
F2-202-004	4,606.95	0.001						0	0	
F2-202-005	4,616.09	0.001						0.002	0	
F2-202-006	4,600.68	0.003						0.001	0	
F2-202-007	4,610.35	0.002						0.005	0	
F2-202-023	4,618.05	0.001						0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F2-202-024	4,600.68	0.001						0	0	
F2-231-004	4,537.75									
F2-231-010	4,538.23									
F2-231-016	4,539.66									
F2-231-023	4,540.25									
F2-231-024	4,536.76	0.004						0	0.011	
F2-232-002	4,548.42	0						0.006	0.004	
F2-232-003	4,546.58	0.001						0.013	0.01	
F2-232-004	4,546.87	0.001	0.002					0.01	0.007	
F2-232-005	4,546.09	0.001						0.008	0.005	
F2-232-006	4,544.74	0.001						0.019	0.011	
F2-232-007	4,548.35	0						0.007	0.004	
F2-242-055	4,568.60	0						0.02	0.002	
F2-242-056	4,569.90	0						0.028	0	
F2-251-012	4,594.81	0.002						0	0	
F2-251-016	4,590.51	0.005						0.001	0	
F2-251-017	4,588.87	0.004						0	0	
F2-251-018	4,586.77	0.002						0.004	0	
F2-251-028	4,593.38	0.003						0	0	
F2-252-027	4,587.15	0.002	0.023					0	0	
F2-261-053	4,646.02	0.002	0.006					0.002	0	
F2-262-011	4,647.99	0.004	0.017					0.002	0	
F2-262-017	4,647.02	0.001						0.001	0	
F2-262-020	4,651.23	0.001						0	0	
F2-262-029	4,651.02	0.002						0	0	
F2-262-032	4,658.08	0.003	0.022					0	0	
F2-262-038	4,659.40	0.003	0.005					0.001	0	
F3-202-006	4,584.95	0.003						0.003	0	
F3-202-007	4,585.30	0.001	0.009					0	0	
F3-211-010	4,579.68	0.005						0.01	0	
F3-211-011	4,579.68	0.001						0	0	
F3-211-012	4,573.98	0.002	0.018					0.001	0	
F3-211-013	4,573.89	0.001						0.001	0	
F3-222-007	4,536.73									
F3-222-008	4,537.93									
F3-222-019	4,534.77									
F3-222-020	4,534.77		0.007							
F3-231-015	4,537.75									
F3-232-001	4,549.86							0.005	0.013	
F3-232-002	4,550.38							0.002	0.001	
F3-232-003	4,552.62							0.004	0.002	
F3-232-004	4,558.46	0.001						0.021	0.005	
F3-232-005	4,557.00	0.001						0.033	0.005	
F3-232-006	4,555.72	0.001						0.043	0.005	
F3-232-007	4,555.62	0.001						0.099	0.049	
F3-241-004	4,571.60	0						0.001	0	
F3-241-005	4,572.40	0.001						0.027	0	
F3-241-006	4,573.10	0.001						0.025	0	
F3-242-010	4,571.00	0.001						0.031	0	
F3-242-011	4,571.50	0.001						0.029	0	
F3-251-023	4,603.93	0.003						0.002	0	
F3-251-024	4,597.37	0.002	0.113					0.001	0	
F3-251-082	4,594.99	0.002	0.015					0.003	0	
F3-252-001	4,608.13	0.002						0.001	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F3-252-003	4,605.73	0.002	0.021					0.001	0	
F3-262-038	4,659.25	0.004						0.008	0	
F3-262-052	4,662.53	0.002	0.007					0.004	0	
F3-262-057	4,667.06	0.005	0.039					0.007	0.001	
F3-262-063	4,675.61	0.004						0.005	0.001	
F3-262-074	4,679.91	0.002				0.02		0.009	0.002	
F3-271-152	4,680.45	0.002						0.009	0.002	
F3-271-153	4,679.84	0.001						0.004	0.001	
F4-0232-BV	4,566.57	0						0.009	0.007	
F4-211-002	4,569.32	0.001						0.002	0	
F4-211-003	4,560.88	0						0.001	0	
F4-211-004	4,557.38	0						0.002	0	
F4-211-005	4,545.39	0.002						0.001	0	
F4-211-006	4,534.99	0.001						0.001	0	
F4-211-007	4,531.09	0.002						0.001	0	
F4-211-013	4,540.04	0.004						0.004	0	
F4-211-014	4,538.11	0.001						0.001	0	
F4-211-015	4,560.77	0						0.001	0	
F4-221-022	4,534.01									
F4-222-003	4,533.85									
F4-222-013	4,534.75					0.021				
F4-232-004	4,562.39	0						0.006	0.004	
F4-232-005	4,561.05	0						0.003	0.001	
F4-232-006	4,559.91	0						0.003	0.002	
F4-241-002	4,566.47	0						0.001	0.001	
F4-241-003	4,566.62	0						0.004	0.002	
F4-241-004	4,567.97	0						0.003	0.002	
F4-241-005	4,570.14	0.002	0.02					0.005	0	
F4-241-006	4,571.84	0.004						0.024	0	
F4-241-007	4,573.09	0.003						0.062	0.001	
F4-241-008	4,575.11	0						0.062	0.001	
F4-241-009	4,573.70	0.001						0.026	0	
F4-241-010	4,573.80	0						0.029	0	
F4-241-011	4,575.00	0						0.055	0	
F4-251-016	4,622.17	0.003						0.021	0	
F4-251-022	4,619.81	0.002						0.001	0	
F4-251-023	4,616.20	0.002	0.006					0	0	
F4-252-003	4,613.52	0.002						0.001	0	
F4-252-005	4,617.73	0.002	0.009					0.004	0	
F4-271-034	4,703.96	0.001						0.002	0	
F4-271-069	4,699.58	0.004						0.006	0.002	
F4-271-070	4,684.67	0.005	0.008					0.005	0.001	
F4-271-072	4,689.09	0.008						0.012	0.002	
F4-271-073	4,694.83	0.007						0.007	0.002	
F4-271-075	4,702.43	0.002						0.003	0.001	
G1-211-003	4,525.00		0.105					0.003	0	0.012
G1-221-001	4,528.35									
G1-221-005	4,528.52									
G1-221-010	4,529.55					0.015				0.176
G1-221-029	4,527.64									
G1-232-012	4,566.84	0						0.029	0.021	
G1-241-001	4,566.56	0								
G1-241-002	4,573.55	0.004								
G1-242-001	4,578.93	0.002						0.004	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G1-242-006	4,580.63	0.002						0.004	0	
G1-242-014	4,582.77	0.002								
G1-242-025	4,584.18	0.001	0.022							
G1-242-028	4,584.54	0.001								
G1-242-038	4,586.47	0.002								
G1-242-045	4,587.72	0.004	0.011					0.008	0	
G1-252-004	4,629.56	0.001						0.002	0	
G1-252-005	4,623.68	0.003	0.012					0.008	0	
G1-252-006	4,630.58	0.001						0.01	0	
G1-252-007	4,632.94	0.001						0.019	0	
G1-252-008	4,634.84	0.001						0.001	0	
G1-252-009	4,637.04	0.001						0.002	0	
G1-252-011	4,638.26	0.001	0.011					0.001	0	
G1-271-007	4,705.24	0.001	0.004					0	0	
G1-271-013	4,705.17	0.001						0	0	
G1-271-030	4,706.39	0.004						0	0	
G1-271-041	4,709.41	0.003	0.01			0.056				
G1-271-042	4,709.44	0.001								
G1-271-047	4,710.78	0.004						0	0	
G1-272-045	4,715.12	0.01				0.026		0	0	
G1-272-065	4,718.95	0.006	0.007					0	0.001	
G1-272-066	4,719.38	0.001						0	0	
G2-212-001	4,523.96									
G2-212-002	4,524.99									
G2-212-003	4,526.68	0.001						0	0.003	
G2-212-014	4,529.91	0.001						0	0.02	
G2-212-015	4,525.62									
G2-212-032	4,527.22									
G2-212-035	4,526.27									
G2-212-038	4,526.47									
G2-212-041	4,528.13		0.051							0.044
G2-212-047	4,522.78									
G2-252-043	4,631.26	0.001						0.001	0	
G2-252-044	4,633.64	0.001						0.003	0	
G2-252-045	4,639.87	0.001						0.026	0	
G2-252-046	4,637.78	0.002						0.004	0	
G2-252-047	4,649.25	0.001						0.001	0	
G2-272-001	4,719.61	0.003						0.001	0	
G2-272-014	4,721.87	0.007						0.005	0.002	
G2-272-036	4,724.33	0.005						0.011	0.005	
G2-272-049	4,727.32	0.001						0.02	0.01	
G2-272-055	4,730.67	0.001	0.049			0.031		0.007	0.004	
G2-272-068	4,732.77	0.002						0.018	0.012	
G2-272-080	4,738.67	0.008	0.027			0.045		0.277	0.187	
G3-211-015	4,522.45		0.013							
G3-211-017	5,000.00									
G3-211-018	5,000.00							0.011	0	
G3-212-006	4,521.80	0.001						0	0.002	
G3-212-007	4,522.94									
G3-252-026	4,654.93	0						0	0	
G3-252-027	4,659.06	0						0	0	
G3-252-028	4,656.53	0.001						0	0	
G3-252-029	4,656.26	0.004						0.025	0.003	
G3-252-030	4,670.54	0						0.002	0	

Manhole Input Data for Future PWWF Scenario										
ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G3-252-031	4,675.63	0.002						0.006	0	
G3-252-032	4,676.72	0.001						0.001	0	
G4-252-008	4,676.64		0.038					0.005	0	
G4-261-001	4,672.72	0.001						0	0	
G4-261-008	4,685.23	0.001						0	0	
G4-261-015	4,682.77	0						0.002	0	
G4-261-016	4,680.50	0.001						0	0	
G4-261-017	4,680.57	0.002						0	0	
G4-261-018	4,683.13	0.002						0.004	0	
G4-261-020	4,681.65	0.002						0	0	
G4-261-021	4,680.57	0.002						0.001	0	
G4-261-029	4,680.57	0.003						0.001	0	
H1-261-006	4,708.26	0.001						0.009	0	
H1-261-008	4,704.71	0						0.011	0	
H1-261-009	4,704.78	0						0.003	0	
H1-261-010	4,699.17	0.001						0.007	0	
H1-261-011	4,695.36	0.004						0.008	0	
H1-261-012	4,689.20	0.001						0.006	0	
H1-261-015	4,689.98	0						0.01	0	
H1-261-025	4,708.22	0						0.004	0	
H1-262-023	4,717.08	0.016	0.11					0.053	0	
SS_1_A	4,580.72							0	0.001	
SS_3	4,582.40							0	0	0.016
SS_4	4,583.40							0	0	
SS_5	4,583.90	0.001		0.13				0	0.014	
SS_6	4,585.50	0.001						0	0.003	
SS_7	4,588.00	0.001						0	0.003	
SS_8	4,591.00	0.001						0	0.001	

Notes:

1) For the Wet Weather Scenario, all demands had the "PWWF" Pattern.

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
0C2-261-013	4,556.99	4,556.74	204.399	21	RCP	River Trunk	Existing
0G1-271-041	4,703.98	4,703.94	8.167	15	RCP	Horizon Drive	Existing
1003	4,694.00	4,688.91	1,273.23	10		C Road	FUTURE
1005	4,688.91	4,683.54	1,341.70	10		C Road	FUTURE
1007	4,670.39	4,679.67	2,630.55	8			FUTURE
1009	4,531.04	4,527.29	232	12		Ridges Connector	FUTURE
101	4,643.41	4,643.05	144.8	8		Redlands	Existing
1011	4,533.18	4,531.04	536	12		Ridges Connector	FUTURE
1013	4,535.69	4,533.18	629	12		Ridges Connector	FUTURE
1015	4,537.20	4,535.69	379	12		Ridges Connector	FUTURE
1017	4,538.58	4,537.20	345	12		Ridges Connector	FUTURE
1019	4,539.90	4,538.58	329	12		Ridges Connector	FUTURE
1021	4,540.86	4,539.90	240	12		Ridges Connector	FUTURE
1023	4,542.02	4,540.86	289	12		Ridges Connector	FUTURE
1025	4,543.54	4,542.02	382	12		Ridges Connector	FUTURE
1027	4,545.14	4,543.54	399	12		Ridges Connector	FUTURE
1029	4,548.85	4,545.14	530	12		Ridges Connector	FUTURE
103	4,642.86	4,641.41	303.78	8		Redlands	Existing
1031	4,558.12	4,548.85	309	8		Ridges Connector	FUTURE
1033	4,569.61	4,558.12	383	8		Ridges Connector	FUTURE
1035	4,574.80	4,569.61	173	8		Ridges Connector	FUTURE
1037	4,583.54	4,574.80	437	8		Ridges Connector	FUTURE
1039	4,590.66	4,583.54	356	8		Ridges Connector	FUTURE
1041	4,597.92	4,590.66	363	8		Ridges Connector	FUTURE
1043	4,604.20	4,597.92	314	8		Ridges Connector	FUTURE
1045	4,612.75	4,604.20	285	8		Ridges Connector	FUTURE
1047	4,618.21	4,612.75	156	8		Ridges Connector	FUTURE
1049	4,623.67	4,618.21	156	8		Ridges Connector	FUTURE
105	4,641.21	4,639.76	346.62	8		Redlands	Existing
1051	4,516.58	4,513.57	1,543.17	21			FUTURE
1053	4,683.54	4,678.39	1,286.48	10		C Road	FUTURE
1057	4,596.51	4,511.56	5,986.47	8			FUTURE
1061	4,633.12	4,523.59	4,056.57	8			FUTURE
1063	4,673.86	4,523.46	7,540.55	10			FUTURE
1065	4,744.98	4,551.00	6,085.72	10			FUTURE
1069	4,642.98	4,551.00	3,944.87	8			FUTURE
107	4,639.49	4,623.63	270	8		Redlands	Existing
1071	4,559.67	4,551.00	4,360.58	8			FUTURE
1073	4,594.55	4,577.61	8,861.37	24			FUTURE
1075	4,714.77	4,579.82	21,706.66	15			FUTURE
1077	4,584.61	4,519.71	15,199.69	15			FUTURE
1087	4,513.34	4,513.07	664.462	36			FUTURE_REC
1093	4,601.28	4,594.10	7,911.69	21			FUTURE_REC
1097	4,576.75	4,565.04	3,663.57	15			FUTURE_REC
1105	4,933.00	4,623.67	16,667.16	10			FUTURE
1107	4,626.78	4,623.67	3.654	8			FUTURE
1109	4,819.00	4,770.00	966.573	12			FUTURE
111	4,623.36	4,616.80	123	8		Redlands	Existing
1111	4,770.00	4,735.00	1,033.62	12			FUTURE
1113	4,735.00	4,725.00	910.037	12			FUTURE
1115	4,725.00	4,667.00	659.264	12			FUTURE
1117	4,667.00	4,660.00	1,314.56	12			FUTURE
1119	4,660.00	4,646.95	1,864.76	12			FUTURE
1121	4,646.95	4,580.93	2,590.11	12			FUTURE
1123	4,660.00	4,601.78	13,592.32	15			FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
1125	4,589.29	4,580.04	3,093.95	12		24 1/2 Rd	FUTURE
113	4,616.40	4,610.10	74.11	8		Redlands	Existing
1131	0.00	0.00	1009.254	8		Lime Kiln	FUTURE
1133	0.00	0.00	617.395	8		Lime Kiln	FUTURE
1135	4,660.00	4,648.00	1171.199	8		Lime Kiln	FUTURE
1137	4,648.00	4,630.00	1271.107	8		Lime Kiln	FUTURE
1139	4,630.00	4,620.00	1264.866	8		Lime Kiln	FUTURE
1141	4,620.00	4,590.00	1000	8		Lime Kiln	FUTURE
1143	4,570.00	4,523.59	2586	8			FUTURE
1145	4,590.00	4,570.00	1200	8			FUTURE
115	4,609.90	4,589.98	213.82	8		Redlands	Existing
117	4,589.88	4,586.26	38.47	8		Redlands	Existing
119	4,586.16	4,573.55	134.02	8		Redlands	Existing
121	4,554.58	4,550.81	38.8	8	PVC	Ridges	Existing
123	4,550.52	4,529.41	87.67	8	PVC	Ridges	Existing
125	4,529.21	4,526.59	59.29	8	PVC	Ridges	Existing
127	4,523.59	4,521.66	215.16	8	PVC	Ridges	Existing
135	4,563.21	4,654.16	4,837.11	8	PVC		Existing
137	4,653.88	4,652.58	142.739	8	PVC	Redlands	Existing
139	4,600.86	4,600.67	69.73	24		Orchard Mesa	Existing
141	4,600.67	4,599.47	378.78	24		Orchard Mesa	Existing
143	4,599.47	4,598.75	362.65	24		Orchard Mesa	Existing
145	4,598.75	4,598.15	392.08	24		Orchard Mesa	Existing
147	4,598.15	4,597.06	426.27	24		Orchard Mesa	Existing
153	4,597.06	4,596.34	397.67	24		Orchard Mesa	Existing
155	4,596.34	4,596.31	21.25	24		Orchard Mesa	Existing
157	4,596.31	4,562.75	1,004.50	12		Orchard Mesa	Existing
161	4,523.46	4,521.29	511.1	10		Scenic School	Existing
163	4,577.14	4,576.70	340	30		South Side	Existing
165	4,574.96	4,573.97	303.73	20	RCP	South Side	Existing
167	4,577.61	4,577.24	289	30	PVC	South Side	Existing
169	4,577.71	4,577.61	75	24	PVC	South Side	Existing
171	4,578.21	4,577.81	308	24	PVC	South Side	Existing
173	4,579.82	4,579.23	457	24	PVC	South Side	Existing
175	4,579.23	4,578.73	387	24	PVC	South Side	Existing
177	4,578.73	4,578.21	402	24	PVC	South Side	Existing
181	4,543.00	4,537.25	2,052.73	12		G Road	FUTURE
183	4,537.25	4,533.34	1,398.72	12		G Road	FUTURE
185	4,529.86	4,528.15	534.626	12		G Road	FUTURE
483	4,693.91	4,692.10	626.246	12		E 1/2 road	FUTURE
485	4,692.10	4,689.93	747.576	12		E 1/2 road	FUTURE
487	4,658.76	4,657.82	236.609	8		Greenwood Drive	FUTURE
489	4,657.82	4,645.81	632.008	8		Greenwood Drive	FUTURE
491	4,645.81	4,643.95	123.804	8		Greenwood Drive	FUTURE
493	4,643.95	4,636.04	527.482	8		Greenwood Drive	FUTURE
495	4,636.04	4,633.12	194.46	8		Greenwood Drive	FUTURE
497	4,859.65	4,703.03	1,160.14	8		Easter Hill	FUTURE
499	4,703.03	4,645.81	706.83	8		Easter Hill	FUTURE
501	4,775.00	4,737.78	1,488.82	8		Alcove Drive	FUTURE
503	4,737.78	4,708.97	1,029.09	8		Alcove Drive	FUTURE
505	4,708.97	4,683.03	926.267	8		Alcove Drive	FUTURE
507	4,683.03	4,673.86	327.547	8		Alcove Drive	FUTURE
525	4,786.40	4,760.44	865.146	8		Broadway	FUTURE
527	4,760.44	4,733.64	893.316	8		Broadway	FUTURE
529	4,733.64	4,718.47	505.686	8		Broadway	FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
531	4,718.47	4,667.50	1,699.01	8		Broadway	FUTURE
533	4,667.50	4,649.92	1,172.00	8		Broadway	FUTURE
535	4,649.92	4,631.04	1,258.46	8		Broadway	FUTURE
537	4,631.04	4,596.51	1,726.88	8		Broadway	FUTURE
567	4,570.00	4,556.77	2,645.94	8		21 Road	FUTURE
569	4,556.77	4,551.38	1,346.50	8		21 Road	FUTURE
57	4,705.13	4,702.55	262.09	10	PVC		Existing
571	4,551.38	4,544.89	1,299.01	8		21 Road	FUTURE
573	4,544.89	4,527.86	3,405.84	8		21 Road	FUTURE
575	4,527.86	4,517.25	2,122.20	10		21 Road	FUTURE
577	4,517.25	4,510.53	1,678.71	10		21 Road	FUTURE
581	4,599.12	4,586.12	1,299.01	8		22 Road	FUTURE
583	4,586.12	4,559.52	1,330.39	8		22 Road	FUTURE
585	4,559.52	4,554.25	1,316.09	8		22 Road	FUTURE
587	4,548.99	4,536.63	3,088.83	10		22 Road	FUTURE
589	4,536.63	4,534.30	582.245	12		22 Road	FUTURE
591	4,534.30	4,528.52	1,654.12	12		22 Road	FUTURE
595	4,533.31	4,526.54	2,258.82	18		23 Road	FUTURE
597	4,526.54	4,524.00	714.837	18		23 Road	FUTURE
599	4,634.94	4,586.97	2,998.22	8		23 Road	FUTURE
601	4,586.97	4,575.06	851.104	8		23 Road	FUTURE
603	4,575.06	4,569.59	1,367.51	10		23 Road	FUTURE
605	4,569.59	4,555.05	3,635.02	12		23 Road	FUTURE
607	4,555.05	4,547.61	1,652.12	15		23 Road	FUTURE
609	4,547.61	4,538.91	1,932.55	15		23 Road	FUTURE
613	4,528.52	4,524.00	1,240.00	12		22 Road	FUTURE
615	4,664.00	4,638.75	2,295.59	8		24 1/2 Rd	FUTURE
617	4,638.75	4,618.90	1,804.38	8		24 1/2 Rd	FUTURE
619	4,618.90	4,605.85	1,186.69	8		24 1/2 Rd	FUTURE
627	4,694.00	4,689.28	673.665	8		26 Road	FUTURE
629	4,689.28	4,680.30	1,282.87	8		26 Road	FUTURE
631	4,680.30	4,671.16	1,306.94	8		26 Road	FUTURE
633	4,671.16	4,656.61	2,077.28	8		26 Road	FUTURE
635	4,656.61	4,649.04	1,081.70	8		26 Road	FUTURE
637	4,649.04	4,629.16	1,529.81	8		26 Road	FUTURE
639	4,629.16	4,611.95	1,323.32	8		26 Road	FUTURE
641	4,611.95	4,589.29	1,888.57	12		26 Road	FUTURE
643	4,589.29	4,580.04	771.101	12		26 Road	FUTURE
645	4,580.04	4,575.66	1,151.73	15		26 Road	FUTURE
647	4,575.66	4,569.36	1,656.66	15		26 Road	FUTURE
649	4,655.00	4,618.28	1,836.09	8		25 Road	FUTURE
651	4,618.28	4,613.83	1,647.79	12		25 Road	FUTURE
653	4,613.83	4,611.95	711.137	12		25 Road	FUTURE
655	4,581.96	4,580.04	686.164	12		26 Road	FUTURE
657	4,533.34	4,529.86	1,242.83	12		G Road	FUTURE
673	4,701.12	4,691.93	1,880.30	8		Monument Drive	FUTURE
677	4,712.82	4,691.93	596.637	8		Monument Drive	FUTURE
679	4,691.93	4,669.68	1,391.13	8		Monument Drive	FUTURE
681	4,669.68	4,646.06	1,312.27	8		Monument Drive	FUTURE
683	4,637.60	4,744.98	932.306	4			FUTURE
685	4,831.01	4,749.28	996.645	8		Bella Pago	FUTURE
687	4,749.28	4,744.98	1,076.66	8		Bella Pago	FUTURE
689	4,732.00	4,682.31	1,242.15	8		Mira Monte	FUTURE
691	4,682.31	4,645.18	1,237.68	8		Mira Monte	FUTURE
693	4,645.18	4,642.98	550.801	8		Mira Monte	FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
695	4,619.00	4,610.72	413.891	8		Rosevale	FUTURE
697	4,610.72	4,562.63	1,603.13	8		Rosevale	FUTURE
699	4,562.63	4,559.67	147.851	8		Rosevale	FUTURE
707	4,793.00	4,785.40	1,519.15	12		I-70 Interceptor	FUTURE
709	4,785.40	4,761.63	2,165.89	12		I-70 Interceptor	FUTURE
711	4,753.36	4,714.77	1,543.64	15		I-70 Interceptor	FUTURE
713	4,761.63	4,753.36	2,066.21	15		I-70 Interceptor	FUTURE
715	4,779.69	4,761.63	4,515.61	8		I-70 Interceptor	FUTURE
717	4,796.34	4,779.69	3,330.38	8		I-70 Interceptor	FUTURE
719	4,833.87	4,796.34	1,876.52	8		I-70 Interceptor	FUTURE
727	4,762.60	4,750.11	1,921.29	15		29 Road	FUTURE
733	4,657.67	4,650.64	1,171.15	8		US HWY 50	FUTURE
735	4,650.64	4,638.84	1,371.28	8		US HWY 50	FUTURE
749	4,689.93	4,689.06	300.636	12		E 1/2 road	FUTURE
751	4,689.06	4,688.78	95.714	12		E 1/2 road	FUTURE
753	4,688.78	4,687.93	290.211	12		E 1/2 road	FUTURE
757	4,547.55	4,546.92	334.196	10		Ridges	Existing
759	4,547.55	4,546.92	335.43	8		Ridges	Existing
761	4,546.92	4,546.82	9.951	8		Ridges	Existing
763	4,516.05	4,513.14	145.763	30	RCP	River Road	Existing
773	4,658.97	4,656.78	408	12	VCP	B 1/2 Road	Existing
775	4,656.75	4,655.22	123.2	12	VCP	B 1/2 Road	Existing
777	4,655.22	4,655.09	248.4	12	VCP	B 1/2 Road	Existing
779	4,655.09	4,653.77	333.6	12	VCP	B 1/2 Road	Existing
781	4,653.67	4,652.71	248.5	12	VCP	B 1/2 Road	Existing
785	4,652.64	4,651.67	251	12	VCP	B 1/2 Road	Existing
787	4,651.66	4,650.11	291.592	12	VCP	B 1/2 Road	Existing
789	4,650.44	4,650.15	65.206	12	VCP	B 1/2 Road	Existing
791	4,650.14	4,648.83	396.421	12	VCP	B 1/2 Road	Existing
793	4,648.80	4,647.45	379.463	12		B 1/2 Road	Existing
795	4,647.39	4,646.80	179.547	12		B 1/2 Road	Existing
797	4,646.80	4,646.21	201.687	12	VCP	B 1/2 Road	Existing
799	4,646.11	4,645.05	348	12	VCP	B 1/2 Road	Existing
801	4,644.97	4,644.95	37.1	12	VCP	B 1/2 Road	Existing
803	4,644.57	4,643.61	378.906	12	VCP	B 1/2 Road	Existing
805	4,643.57	4,642.10	324	12	VCP	B 1/2 Road	Existing
807	4,642.00	4,641.40	392	12	VCP	B 1/2 Road	Existing
809	4,641.30	4,639.77	399.077	12	VCP	B 1/2 Road	Existing
811	4,639.71	4,639.39	108.076	12	VCP	B 1/2 Road	Existing
813	4,639.39	4,638.24	293.59	12	VCP	B 1/2 Road	Existing
85	4,652.36	4,651.54	204.94	8	PVC	Redlands	Existing
87	4,651.52	4,650.96	218.91	8		Redlands	Existing
889	4,637.21	4,636.52	325	15		Frontage Rd	Existing
89	4,650.53	4,649.68	208.2	8		Redlands	Existing
891	4,636.45	4,635.40	338	15		Frontage Rd	Existing
893	4,635.26	4,634.52	345	15		Frontage Rd	Existing
895	4,634.45	4,633.58	145	15		Frontage Rd	Existing
897	4,633.58	4,633.24	12.52	15		Frontage Rd	Existing
91	4,649.48	4,648.80	161.6	8		Redlands	Existing
93	4,648.55	4,647.31	268.34	8		Redlands	Existing
939	4,503.19	4,513.80	666.64	6		21 Road	FUTURE
943	4,522.30	4,519.37	975.74	21		22 Road	FUTURE
945	4,519.37	4,518.94	171.855	21		22 Road	FUTURE
947	4,518.94	4,517.29	660.428	21		22 Road	FUTURE
949	4,517.29	4,516.58	283.874	21		22 Road	FUTURE

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
95	4,647.13	4,645.76	272.44	8		Redlands	Existing
951	4,524.00	4,522.30	666.531	21		22 Road	FUTURE
953	4,538.91	4,537.65	315.643	15		23 Road	FUTURE
955	4,537.65	4,536.15	375.976	15		23 Road	FUTURE
957	4,536.15	4,533.31	944.567	15		23 Road	FUTURE
959	4,554.25	4,548.99	1,315.88	8		22 Road	FUTURE
961	4,569.36	4,568.73	167.92	15		26 Road	FUTURE
963	4,775.78	4,762.60	2,028.59	15		29 Road	FUTURE
965	4,750.11	4,742.91	359.96	15		29 Road	FUTURE
967	4,742.91	4,708.77	2,276.14	15		29 Road	FUTURE
969	4,708.77	4,694.18	1,325.86	15		29 Road	FUTURE
97	4,645.57	4,644.67	196.21	8		Redlands	Existing
971	4,694.18	4,679.67	1,318.98	15		29 Road	FUTURE
973	4,679.67	4,673.05	1,325.26	18		29 Road	FUTURE
975	4,673.05	4,666.46	1,316.49	18		29 Road	FUTURE
977	4,666.46	4,661.84	925.484	18		29 Road	FUTURE
979	4,661.84	4,653.48	1,670.87	18		29 Road	FUTURE
981	4,653.48	4,647.09	1,279.28	18		29 Road	FUTURE
987	4,647.09	4,594.55	5,253.59	18		29 Road	FUTURE
99	4,644.46	4,643.51	254.49	8	PVC	Redlands	Existing
B1-272-001	4,646.75	4,646.04	245	12		B Road	Existing
B1-272-002	4,647.88	4,646.82	254	10		B Road	Existing
B1-272-003	4,648.97	4,647.96	271	10		B Road	Existing
B1-272-005	4,650.32	4,649.13	277	10		B Road	Existing
B1-272-007	4,651.33	4,650.34	336	10		B Road	Existing
B1-272-010	4,645.97	4,645.09	235	12		B Road	Existing
B1-281-001	4,652.64	4,651.37	337	10		B Road	Existing
B1-281-002	4,654.03	4,652.72	338	10		B Road	Existing
B1-281-004	4,656.80	4,654.09	450	10		B Road	Existing
B1-281-005	4,658.25	4,656.82	253	10		B Road	Existing
B1-281-006	4,659.90	4,658.31	300	10		B Road	Existing
B1-281-007	4,661.06	4,659.92	105	10		B Road	Existing
B1-281-009	4,664.19	4,661.02	301	10		B Road	Existing
B1-281-010	4,667.56	4,664.70	280	10		B Road	Existing
B1-292-001	4,710.24	4,709.43	401	10		Chipeta	Existing
B1-292-002	4,709.41	4,708.82	396	10		Chipeta	Existing
B1-292-003	4,708.82	4,707.80	401	10		Chipeta	Existing
B1-292-004	4,707.70	4,705.49	218	10		Chipeta	Existing
B1-292-010	4,705.49	4,702.44	293	10		Chipeta	Existing
B1-292-011	4,702.28	4,693.49	291	10		Chipeta	Existing
B1-292-012	4,674.06	4,673.62	302	10		Chipeta	Existing
B1-292-013	4,691.01	4,690.47	87	8		Chipeta	Existing
B1-292-014	4,690.47	4,689.38	266	10		Chipeta	Existing
B1-292-015	4,689.36	4,688.51	106	10		Chipeta	Existing
B1-292-016	4,688.51	4,685.74	145	8		Chipeta	Existing
B2-271-019	4,633.24	4,632.55	252.002	15	VCP	Orchard Mesa	Existing
B2-272-004	4,634.19	4,633.34	302.842	15	VCP	B 1/2 Road	Existing
B2-272-007	4,634.99	4,634.19	289.23	15	VCP	B 1/2 Road	Existing
B2-272-009	4,635.13	4,634.99	49.889	15	VCP	B 1/2 Road	Existing
B2-272-012	4,645.09	4,643.48	430	15		B Road	Existing
B2-272-013	4,643.33	4,642.53	186	15		B Road	Existing
B2-272-014	4,635.43	4,635.13	177.973	15	VCP	B 1/2 Road	Existing
B2-272-015	4,642.50	4,641.11	463	15		B Road	Existing
B2-272-016	4,639.99	4,638.97	440	15		B Road	Existing
B2-272-017	4,638.03	4,637.27	325	15		Frontage Rd	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B2-272-021	4,638.84	4,638.08	316	15		Frontage Rd	Existing
B2-272-027	4,638.22	4,636.76	430	12	VCP	B 1/2 Road	Existing
B2-272-033	4,636.69	4,635.49	208	12	VCP	B 1/2 Road	Existing
B2-282-048	4,660.36	4,658.98	353	12		B 1/2 Road	Existing
B2-282-051	4,661.76	4,660.36	329	12	VCP	B 1/2 Road	Existing
B2-282-054	4,663.80	4,661.80	450	12	VCP	B 1/2 Road	Existing
B2-291-024	4,671.85	4,670.65	135	12	VCP	B 1/2 Road	Existing
B2-291-025	4,670.56	4,667.90	528	12	VCP	B 1/2 Road	Existing
B2-291-026	4,667.87	4,667.72	413	12	VCP	B 1/2 Road	Existing
B2-291-027	4,667.71	4,666.81	443.2	12	VCP	B 1/2 Road	Existing
B2-291-028	4,666.77	4,666.62	78.1	12	VCP	B 1/2 Road	Existing
B2-291-029	4,666.60	4,665.18	299	12	VCP	B 1/2 Road	Existing
B2-291-030	4,665.03	4,663.80	465	12	VCP	B 1/2 Road	Existing
B2-291-045	4,670.65	4,670.57	248	12	VCP	B 1/2 Road	Existing
B2-292-001	4,681.06	4,679.10	400.9	10		B 1/2 Road	Existing
B2-292-002	4,679.00	4,676.86	400.4	10		B 1/2 Road	Existing
B2-292-003	4,676.86	4,676.36	200.7	10		B 1/2 Road	Existing
B2-292-004	4,676.23	4,675.08	95.7	12		B 1/2 Road	Existing
B2-292-008	4,674.06	4,673.62	501	12		B 1/2 Road	Existing
B2-292-009	4,673.56	4,671.86	503.5	12		B 1/2 Road	Existing
B2-292-010	4,675.08	4,674.72	150.5	12		B 1/2 Road	Existing
B2-292-011	4,676.30	4,675.48	145	8		Chipeta	Existing
B2-292-012	4,677.97	4,676.80	285	8		Chipeta	Existing
B2-292-017	4,680.45	4,679.15	163	8		Chipeta	Existing
B2-292-018	4,682.29	4,680.21	255	8		Chipeta	Existing
B2-292-022	4,684.69	4,682.13	220	8		Chipeta	Existing
B2-292-023	4,685.95	4,684.47	85	8		Chipeta	Existing
B2-292-026	4,674.71	4,674.07	222.8	12		B 1/2 Road	Existing
B2-301-001	4,682.29	4,681.46	213	10		B 1/2 Road	Existing
B3-262-023	4,622.01	4,620.76	319.833	18	VCP	Orchard Mesa	Existing
B3-262-027	4,622.49	4,622.01	404.358	18	VCP	Orchard Mesa	Existing
B3-262-031	4,622.98	4,622.49	407.081	18	VCP	Orchard Mesa	Existing
B3-271-003	4,623.79	4,623.13	234.126	15	VCP	Orchard Mesa	Existing
B3-271-006	4,624.41	4,623.79	220.318	15	VCP	Orchard Mesa	Existing
B3-271-018	4,625.47	4,624.41	378.578	15	VCP	Orchard Mesa	Existing
B3-271-026	4,627.09	4,626.58	149.6	15	VCP	Orchard Mesa	Existing
B3-271-032	4,627.95	4,627.09	304.646	15	VCP	Orchard Mesa	Existing
B3-271-039	4,628.92	4,627.95	346.729	15	VCP	Orchard Mesa	Existing
B3-271-042	4,629.70	4,628.92	278.734	15	VCP	Orchard Mesa	Existing
B3-271-045	4,630.11	4,629.70	143.795	15	VCP	Orchard Mesa	Existing
B3-271-054	4,630.84	4,630.11	225.041	15	VCP	Orchard Mesa	Existing
B3-271-058	4,631.39	4,630.84	158.555	15	VCP	Orchard Mesa	Existing
B3-271-058A	4,632.02	4,631.39	225.434	15	VCP	Orchard Mesa	Existing
B3-271-063	4,632.55	4,632.02	188.895	15	VCP	Orchard Mesa	Existing
B4-261-014	4,608.87	4,607.44	237.8	15		Orchard Mesa	Existing
B4-262-001	4,611.26	4,608.87	398.782	15		Orchard Mesa	Existing
B4-262-011	4,615.11	4,612.98	355.552	18		Orchard Mesa	Existing
B4-262-016	4,617.18	4,615.11	344.761	18	RCP	Orchard Mesa	Existing
B4-262-022	4,619.06	4,617.18	313.273	18	RCP	Orchard Mesa	Existing
B4-262-024	4,619.50	4,619.06	208.903	18	RCP	Orchard Mesa	Existing
B4-262-028	4,619.83	4,619.50	301.71	18	RCP	Orchard Mesa	Existing
B4-262-030	4,620.04	4,619.83	192.158	18	VCP	Orchard Mesa	Existing
B4-262-031	4,620.76	4,620.58	94.76	18	VCP	Orchard Mesa	Existing
B4-262-036	4,625.37	4,625.13	110.831	12	VCP	Unaweep Road	Existing
B4-262-037	4,625.13	4,624.18	428.532	12	VCP	Unaweep Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
B4-262-038	4,624.18	4,623.16	460.25	12	VCP	Unaweep Road	Existing
B4-262-043	4,612.98	4,611.26	288.279	15		Orchard Mesa	Existing
B4-262-114	4,620.58	4,620.04	209.8	18	VCP	Orchard Mesa	Existing
B4-271-001	4,625.44	4,625.37	28.798	12	VCP	Unaweep Road	Existing
B4-271-011	4,626.58	4,625.47	396.1	15	VCP	Orchard Mesa	Existing
B4-271-028	4,632.08	4,631.64	157.309	12	PVC	Unaweep Road	Existing
B4-271-033	4,633.06	4,632.08	348.762	12	PVC	Unaweep Road	Existing
B4-271-128	4,626.11	4,625.44	304.942	12	VCP	Unaweep Road	Existing
B4-271-135	4,627.28	4,626.11	415.674	12	PVC	Unaweep Road	Existing
B4-271-138	4,628.38	4,627.28	392.386	12	PVC	Unaweep Road	Existing
B4-271-143	4,629.27	4,628.38	315.864	12	PVC	Unaweep Road	Existing
B4-271-145	4,629.82	4,629.27	195.586	12	PVC	Unaweep Road	Existing
B4-271-146	4,630.72	4,629.82	318.521	12	PVC	Unaweep Road	Existing
B4-271-147	4,631.64	4,630.72	325.212	12	PVC	Unaweep Road	Existing
B4-271-148	4,633.50	4,633.06	154.783	12	PVC	Unaweep Road	Existing
B4-272-004	4,635.36	4,634.33	366	12	PVC	Unaweep Road	Existing
B4-272-039	4,639.40	4,639.08	125.854	12	PVC	Unaweep Road	Existing
B4-272-040	4,639.58	4,639.40	72.652	12	PVC	Unaweep Road	Existing
B4-272-044	4,640.18	4,639.58	241.31	12	PVC	Unaweep Road	Existing
B4-272-048	4,640.59	4,640.18	193.848	12	PVC	Unaweep Road	Existing
B4-272-086	4,636.41	4,635.36	372.542	12	PVC	Unaweep Road	Existing
B4-272-091	4,638.20	4,637.73	167.7	12	PVC	Unaweep Road	Existing
B4-272-092	4,639.08	4,638.49	237.1	12	PVC	Unaweep Road	Existing
B4-272-093	4,634.28	4,633.50	276.7	12	PVC	Unaweep Road	Existing
B4-272-094	4,634.33	4,634.28	18.6	12	PVC	Unaweep Road	Existing
B4-272-095	4,638.49	4,638.20	104.5	12	PVC	Unaweep Road	Existing
B4-272-096	4,637.73	4,636.41	468.3	12	PVC	Unaweep Road	Existing
B4-281-054	4,641.06	4,640.59	189.453	12	PVC	Unaweep Road	Existing
B4-281-057	4,641.94	4,641.06	320.62	12	PVC	Unaweep Road	Existing
BV-100	4,540.00	4,549.55	1,147.16	12		Scenic	Existing
BV-105	4,546.92	4,546.82	9.951	10		Ridges	Existing
BV-292-013	4,678.94	4,678.13	158	8		Chipeta	Existing
C1-221-018	4,846.93	4,846.06	249.9	12	PVC	South Camp	Existing
C1-221-019	4,847.43	4,846.93	124.148	12	PVC	South Camp	Existing
C1-261-028	4,603.26	4,600.82	408.196	18	VCP	Orchard Mesa	Existing
C1-261-030	4,604.33	4,603.26	178.662	18	VCP	Orchard Mesa	Existing
C1-261-058	4,607.44	4,606.78	110.175	15		Orchard Mesa	Existing
C1-261-060	4,605.22	4,604.33	149.994	18	VCP	Orchard Mesa	Existing
C1-261-062	4,606.78	4,605.22	260.432	15		Orchard Mesa	Existing
C1-281-035	4,642.19	4,641.94	101.155	10	PVC	Unaweep Road	Existing
C2-221-030	4,846.06	4,844.64	479.4	12	PVC	South Camp	Existing
C2-221-031	4,836.04	4,821.72	162.9	12	PVC	South Camp	Existing
C2-221-032	4,840.59	4,839.55	170.7	12	PVC	South Camp	Existing
C2-221-033	4,841.58	4,840.59	368.7	12	PVC	South Camp	Existing
C2-221-034	4,842.57	4,841.58	361.7	12	PVC	South Camp	Existing
C2-221-035	4,843.98	4,842.57	172.1	12	PVC	South Camp	Existing
C2-221-037	4,844.64	4,843.98	502.3	12	PVC	South Camp	Existing
C2-221-065	4,839.55	4,836.04	164.7	12	PVC	South Camp	Existing
C2-261-001A	4,596.31	4,562.75	1,005.71	14	DIP	Orchard Mesa	Existing
C2-261-024	4,557.05	4,556.99	49.5	27	VCP	River Trunk	Existing
C3-212-031	4,796.10	4,792.35	273.3	12	PVC	South Camp	Existing
C3-221-003	4,821.72	4,819.43	114.997	12	PVC	South Camp	Existing
C3-221-004	4,819.43	4,813.83	280.4	12	PVC	South Camp	Existing
C3-221-005	4,811.89	4,801.75	492.3	12	PVC	South Camp	Existing
C3-221-006	4,801.75	4,796.10	342	12	PVC	South Camp	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
C3-221-030	4,813.83	4,811.89	97.3	12	PVC	South Camp	Existing
C3-252-002	4,556.31	4,555.59	479.142	30	RCP	South Side	Existing
C3-261-001	4,554.75	4,553.86	725.733	21	CONCRETE	River Trunk	Existing
C3-261-002	4,557.21	4,556.31	471.205	27	polyvinyl chlorid	South Side	Existing
C3-261-004	4,555.11	4,554.75	299.7	21	CONCRETE	River Trunk	Existing
C3-261-005	4,558.11	4,557.21	303.203	27	PVC	South Side	Existing
C3-261-007	4,555.56	4,555.11	363.588	21	RCP	River Trunk	Existing
C3-261-008	4,558.49	4,558.11	365.753	27	PVC	South Side	Existing
C3-261-009	4,558.78	4,558.49	280.834	27	PVC	South Side	Existing
C3-261-010	4,558.86	4,558.78	76.621	27	PVC	South Side	Existing
C3-261-011	4,555.94	4,555.56	310.78	21	RCP	River Trunk	Existing
C3-261-012	4,558.88	4,558.86	17.843	30	RCP	South Side	Existing
C3-261-012A	3	3	46.018	21	PVC		Existing
C3-261-013	4,560.28	4,558.88	92.693	20	RCP	South Side	Existing
C3-261-015	4,556.22	4,555.94	227.894	21	RCP	River Trunk	Existing
C3-261-019	4,556.59	4,556.22	309.3	21	RCP	River Trunk	Existing
C3-261-021	4,556.74	4,556.59	123.197	21	RCP	River Trunk	Existing
C3-261-031	4,561.71	4,560.78	518.568	20	RCP	South Side	Existing
C3-261-035	4,557.14	4,557.05	74.4	27	VCP	River Trunk	Existing
C3-261-040	4,561.85	4,561.71	77.933	20	RCP	South Side	Existing
C3-261-043	4,557.18	4,557.14	31.718	27	VCP	River Trunk	Existing
C3-261-050	4,557.37	4,557.34	28	10	VCP	River Trunk	Existing
C3-261-056	4,557.50	4,557.37	80.918	10	VCP	River Trunk	Existing
C3-261-062	4,562.74	4,561.85	490.491	20	RCP	South Side	Existing
C3-261-075	4,557.34	4,557.24	13	12	PVC	River Trunk	Existing
C3-261-076	4,557.24	4,557.18	44.4	10	VCP	River Trunk	Existing
C3-262-007	4,563.98	4,563.70	154.554	20	RCP	South Side	Existing
C3-262-009	4,563.60	4,562.74	478.88	20	RCP	South Side	Existing
C3-262-033	4,564.91	4,564.08	463.661	20	RCP	South Side	Existing
C3-262-041	4,565.58	4,564.91	154.9	20	RCP	South Side	Existing
C3-262-046	4,566.92	4,565.58	319.406	20	RCP	South Side	Existing
C3-262-051	4,567.21	4,566.92	61.434	20	RCP	South Side	Existing
C3-262-061	4,568.19	4,567.21	206.673	20	RCP	South Side	Existing
C3-262-070	4,570.48	4,570.07	158.03	20	RCP	South Side	Existing
C3-262-071	4,570.07	4,568.19	373.756	20	RCP	South Side	Existing
C3-262-074	4,571.47	4,570.48	500.889	20	RCP	South Side	Existing
C3-271-001	4,572.32	4,571.47	421.48	20	RCP	South Side	Existing
C3-271-003	4,572.91	4,572.32	295.102	20	RCP	South Side	Existing
C3-271-004	4,573.07	4,572.91	77.966	20	RCP	South Side	Existing
C3-271-007	4,573.87	4,573.07	401.374	20	RCP	South Side	Existing
C3-271-010	4,575.40	4,575.16	28	20	RCP	South Side	Existing
C3-271-012	4,576.65	4,575.60	111	20	RCP	South Side	Existing
C4-212-059	4,792.35	4,780.23	489.901	12	PVC	South Camp	Existing
C4-212-060	4,776.84	4,772.96	226	12	PVC	South Camp	Existing
C4-212-061	4,770.23	4,764.84	299.9	12	PVC	South Camp	Existing
C4-221-001	4,764.84	4,751.11	391.4	12	PVC	South Camp	Existing
C4-221-011	4,772.96	4,770.23	159.3	12	PVC	South Camp	Existing
C4-252-001	4,552.80	4,552.03	536.838	30	RCP	South Side	Existing
C4-252-002	4,552.35	4,551.70	533.459	21	RCP	River Trunk	Existing
C4-252-003	4,555.59	4,554.87	297.594	30	RCP	South Side	Existing
C4-252-004	4,552.79	4,552.35	360.57	21	RCP	River Trunk	Existing
C4-252-005	4,554.19	4,553.57	346.893	30	RCP	South Side	Existing
C4-252-006	4,553.57	4,552.80	311.862	30	RCP	South Side	Existing
C4-252-007	4,553.86	4,553.32	441.554	21	RCP	River Trunk	Existing
C4-252-007A	4,553.32	4,552.79	436.699	21	RCP	River Trunk	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
C4-252-008	4,554.87	4,554.19	377.462	30	RCP	South Side	Existing
D1-212-011	4,745.82	4,738.58	284	12	PVC	South Camp	Existing
D1-212-012	4,738.58	4,733.37	274.602	12	PVC	South Camp	Existing
D1-212-032	4,751.11	4,745.82	500.7	12	PVC	South Camp	Existing
D1-242-011	4,625.05	4,620.05	124.968	10	PVC	Ridges	Existing
D1-242-017	4,635.90	4,625.71	275	10	PVC	Ridges	Existing
D1-242-018	4,648.75	4,636.15	294.478	10	PVC	Ridges	Existing
D1-242-019	4,652.05	4,648.85	199.457	12	PVC	Ridges	Existing
D1-242-030	4,619.95	4,600.75	399.963	10	PVC	Ridges	Existing
D1-242-031	4,600.00	4,586.00	293.724	10	PVC	Ridges	Existing
D1-242-031A	4,598.00	4,586.00	295.397	8	PVC	Ridges	Existing
D1-251-001	4,582.38	4,581.56	267.2	21		South Avenue	Existing
D1-251-005	4,586.00	4,556.00	1,267.13	10	PVC	Ridges	Existing
D1-251-005A	4,586.00	4,556.00	1,268.05	8	PVC	Ridges	Existing
D1-251-005B	4,556.00	4,551.00	343.186	10	PVC	Ridges	Existing
D1-252-001	4,549.53	4,548.08	371.427	30	RCP	South Side	Existing
D1-252-004	4,550.10	4,549.53	309.337	30	RCP	South Side	Existing
D1-252-005	4,548.94	4,548.69	201.72	24	VCP	River Trunk	Existing
D1-252-008	4,549.09	4,548.94	126.018	24	VCP	River Trunk	Existing
D1-252-008A	4,549.28	4,549.09	158.194	24	VCP	River Trunk	Existing
D1-252-009	4,550.62	4,550.10	292.478	30	RCP	South Side	Existing
D1-252-010	4,549.50	4,549.28	173.25	21	VCP	River Trunk	Existing
D1-252-011	4,549.87	4,549.50	310.091	21	VCP	River Trunk	Existing
D1-252-015	4,550.86	4,550.62	133.43	30	RCP	South Side	Existing
D1-252-018	4,551.45	4,550.86	398.159	30	RCP	South Side	Existing
D1-252-019	4,552.03	4,551.45	260.038	30	RCP	South Side	Existing
D1-252-023	4,550.29	4,549.87	343.449	21	VCP	River Trunk	Existing
D1-252-031	4,550.50	4,550.29	167.247	21	VCP	River Trunk	Existing
D1-252-036	4,550.70	4,550.50	164.131	21	VCP	River Trunk	Existing
D1-252-041	4,550.89	4,550.70	161.278	21	VCP	River Trunk	Existing
D1-252-042	4,551.70	4,550.89	662.626	21	VCP	River Trunk	Existing
D1-252-050	4,572.48	4,572.14	176.234	27	VCP	South Avenue	Existing
D1-252-053	4,564.58	4,564.29	272	24	RCP	Colorado Avenue	Existing
D1-252-056	4,564.84	4,564.67	83	24	RCP	Colorado Avenue	Existing
D1-252-057	4,565.78	4,564.84	223.762	24	RCP	Colorado Avenue	Existing
D1-252-059	4,565.89	4,565.78	27.158	24	RCP	Colorado Avenue	Existing
D1-261-001	4,566.50	4,566.09	77.506	24	PVC	Colorado Avenue	Existing
D1-261-003	4,573.60	4,572.48	723.306	27	VCP	South Avenue	Existing
D1-261-006	4,567.95	4,566.50	51.594	24	RCP	Colorado Avenue	Existing
D1-261-008	4,569.50	4,567.95	302.547	24	RCP	Colorado Avenue	Existing
D1-261-020	4,574.54	4,573.60	606.866	27	VCP	South Avenue	Existing
D1-261-021	4,570.00	4,569.50	99.515	24	RCP	Colorado Avenue	Existing
D1-261-023	4,577.36	4,577.02	233.241	27	VCP	South Avenue	Existing
D1-261-036	4,571.70	4,570.00	422.792	24	RCP	Colorado Avenue	Existing
D1-261-037	4,577.85	4,577.36	301.563	27	VCP	South Avenue	Existing
D1-261-052	4,572.10	4,571.70	440.734	24	RCP	Colorado Avenue	Existing
D1-261-059	4,578.49	4,577.85	481.274	27	VCP	South Avenue	Existing
D1-261-061	4,578.59	4,578.49	9.6	27	VCP	South Avenue	Existing
D1-261-075	4,573.00	4,572.10	445.227	24	RCP	Colorado Avenue	Existing
D1-261-084	4,579.30	4,578.59	471.5	27	VCP	South Avenue	Existing
D1-261-103	4,575.00	4,573.00	515.7	24	RCP	Colorado Avenue	Existing
D1-261-116	4,580.97	4,580.52	312.518	21	VCP	South Avenue	Existing
D1-261-116A	4,580.52	4,579.80	482.521	21	VCP	South Avenue	Existing
D1-261-117	4,575.50	4,575.00	54.284	24	RCP	Colorado Avenue	Existing
D1-261-128	4,575.80	4,575.50	267.746	24	RCP	Colorado Avenue	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D1-262-025	4,576.00	4,575.80	380	24	RCP	Colorado Avenue	Existing
D1-262-030	4,581.56	4,580.97	380.677	21	VCP	South Avenue	Existing
D1-262-040	4,576.50	4,576.00	264.434	24	RCP	Colorado Avenue	Existing
D1-262-067	4,578.20	4,576.50	502.758	24	RCP	Colorado Avenue	Existing
D1-262-079	4,583.87	4,582.38	495.739	21	VCP	South Avenue	Existing
D1-262-088	4,579.00	4,578.20	461.496	24	RCP	Colorado Avenue	Existing
D1-262-100	4,580.00	4,579.00	489.507	24	RCP	Colorado Avenue	Existing
D1-271-018	4,581.55	4,580.67	455.198	24	RCP	Colorado Avenue	Existing
D1-271-051	4,585.43	4,585.36	8.462	21	PVC	Colorado Avenue	Existing
D1-271-054	4,585.36	4,581.71	457.7	24	RCP	Colorado Avenue	Existing
D1-271-055	4,580.63	4,580.00	537.1	24	RCP	Colorado Avenue	Existing
D1-271-092	4,581.71	4,581.55	19.4	24	RCP	Colorado Avenue	Existing
D2-212-001	4,731.19	4,729.46	91.02	12	PVC	South Camp	Existing
D2-212-002	4,729.46	4,729.13	21.7	12	PVC	South Camp	Existing
D2-212-003	4,722.94	4,714.33	363.5	12	PVC	South Camp	Existing
D2-212-011	4,733.37	4,731.40	104.468	12	PVC	South Camp	Existing
D2-212-012	4,731.40	4,731.19	11.086	12	PVC	South Camp	Existing
D2-212-013	4,726.69	4,722.94	249.903	12	PVC	South Camp	Existing
D2-212-014	4,714.33	4,706.40	496.1	12	PVC	South Camp	Existing
D2-212-025	4,729.13	4,726.69	163	8	PVC	South Camp	Existing
D2-241-006	4,648.54	4,645.54	239.276	8	PVC	Scenic School	Existing
D2-241-007	4,645.54	4,641.85	302.842	8	PVC	Scenic School	Existing
D2-251-004	4,544.90	4,544.75	72.455	48	RCP	River Road	Existing
D2-251-005	4,545.26	4,544.90	17.81	48	RCP	River Road	Existing
D2-251-008	4,550.50	4,545.06	380	12		Ridges	Existing
D2-251-014	4,556.00	4,551.00	344.531	8	PVC	Ridges	Existing
D2-251-014A	4,551.00	4,550.50	3.246	12		Ridges	Existing
D2-252-002	4,548.08	4,547.05	523.849	30	RCP	South Side	Existing
D2-252-004	4,547.05	4,545.56	310.878	30	RCP	South Side	Existing
D2-252-005	4,545.56	4,545.26	318.46	48	RCP	River Road	Existing
D2-252-006	4,546.44	4,545.56	128.248	24	VCP	River Trunk	Existing
D2-252-008	4,546.82	4,546.44	330.165	24	VCP	River Trunk	Existing
D2-252-010	4,548.43	4,546.82	327.541	24	VCP	River Trunk	Existing
D2-252-011	4,549.30	4,547.05	433.714	27	PVC	Grand Avenue	Existing
D2-252-012	4,548.67	4,548.43	179.711	24	VCP	River Trunk	Existing
D2-252-014	4,548.69	4,548.67	180.728	24	VCP	River Trunk	Existing
D2-252-015	4,550.85	4,550.25	11.283	27	PVC	Grand Avenue	Existing
D2-252-026	4,551.69	4,550.85	423.546	30	VCP	Grand Avenue	Existing
D2-252-033	4,551.00	4,547.10	912.627	24	PVC	Colorado Avenue	Existing
D2-252-039	4,552.50	4,551.00	395.765	24	PVC	Colorado Avenue	Existing
D2-252-049	4,556.50	4,552.50	402.686	24	PVC	Colorado Avenue	Existing
D2-252-050	4,569.00	4,563.00	1,108.44	24	VCP	South Avenue	Existing
D2-252-052	4,569.41	4,569.00	206.443	27	VCP	South Avenue	Existing
D2-252-056	4,571.64	4,569.41	22.862	27	VCP	South Avenue	Existing
D2-252-057	4,559.50	4,556.50	278.866	24	PVC	Colorado Avenue	Existing
D2-252-062	4,559.77	4,559.50	68.9	24	PVC	Colorado Avenue	Existing
D2-252-067	4,572.14	4,571.64	400.1	27	VCP	South Avenue	Existing
D2-252-069	4,562.72	4,559.87	278.964	24	RCP	Colorado Avenue	Existing
D2-252-071	4,572.57	4,562.82	298.414	27	VCP	Grand Avenue	Existing
D2-252-085	4,564.19	4,562.81	299.202	24	RCP	Colorado Avenue	Existing
D2-252-105	4,553.17	4,551.69	749.5	24	VCP	Grand Avenue	Existing
D2-271-017	4,590.64	4,588.08	351.518	15	PVC	15th Street	Existing
D2-271-019	4,588.08	4,586.34	238.423	15	PVC	15th Street	Existing
D2-271-022	4,586.34	4,585.45	122.114	15	PVC	15th Street	Existing
D2-271-023	4,585.45	4,583.64	247.8	15	PVC	15th Street	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D2-271-039	4,591.68	4,589.83	154.586	18	PVC	Colorado Avenue	Existing
D2-271-042	4,589.83	4,588.61	153.504	21	RCP	Colorado Avenue	Existing
D2-271-043	4,588.61	4,586.86	218.809	21	RCP	Colorado Avenue	Existing
D2-271-045	4,586.86	4,585.43	179.022	21	PVC	Colorado Avenue	Existing
D2-271-048	4,594.65	4,594.60	30.635	15	VCP	Rood Avenue	Existing
D2-271-052	4,595.09	4,594.65	298.414	15	VCP	Rood Avenue	Existing
D2-271-063	4,595.66	4,595.09	375.396	15	VCP	Rood Avenue	Existing
D2-271-067	4,596.06	4,595.66	330.821	15	VCP	Rood Avenue	Existing
D2-271-075	4,596.17	4,596.06	88.527	15	VCP	Rood Avenue	Existing
D2-271-109	4,583.64	4,582.30	183.2	15	PVC	15th Street	Existing
D2-272-011	4,597.00	4,596.17	678.337	15	VCP	Rood Avenue	Existing
D2-272-023	4,598.93	4,598.42	331.313	15	VCP	Rood Avenue	Existing
D2-272-025	4,598.42	4,597.89	368.902	15	VCP	Rood Avenue	Existing
D2-272-029	4,597.89	4,597.00	602.667	15	VCP	Rood Avenue	Existing
D2-272-052	4,600.00	4,598.93	778.278	15	VCP	Rood Avenue	Existing
D2-272-070	4,600.60	4,600.00	403.899	15	VCP	Rood Avenue	Existing
D2-272-072	4,601.12	4,600.60	346.401	15	VCP	Rood Avenue	Existing
D2-272-074	4,601.53	4,601.12	322.916	15	VCP	Rood Avenue	Existing
D2-272-075	4,601.57	4,601.53	26.502	15	VCP	Rood Avenue	Existing
D2-281-002	4,601.72	4,601.57	100.171	15	VCP	Rood Avenue	Existing
D3-212-001	4,702.89	4,702.53	126.57	8	PVC	Goat Wash	Existing
D3-212-002	4,702.47	4,698.00	354.55	8	PVC	Goat Wash	Existing
D3-212-003	4,697.82	4,691.93	351.26	8	PVC	Goat Wash	Existing
D3-212-004	4,691.93	4,689.60	184.762	8	PVC	Goat Wash	Existing
D3-212-012	4,689.60	4,687.50	166.263	8	PVC	Goat Wash	Existing
D3-212-013	4,687.50	4,684.81	212.938	8	PVC	Goat Wash	Existing
D3-212-017	4,689.93	4,684.20	66.8	12	PVC	South Camp	Existing
D3-212-018	4,690.94	4,689.93	120.6	12	PVC	South Camp	Existing
D3-212-022	4,706.40	4,690.94	499.2	12	PVC	South Camp	Existing
D3-212-023	4,703.43	4,702.89	186.9	8	PVC	Goat Wash	Existing
D3-221-016	4,684.72	4,680.30	311.272	12	PVC	Goat Wash	Existing
D3-221-021	4,663.43	4,658.80	353.85	12	PVC	Goat Wash	Existing
D3-221-022	4,672.04	4,669.22	271.125	12	PVC	Goat Wash	Existing
D3-221-023	4,677.90	4,672.08	271.37	12	PVC	Goat Wash	Existing
D3-221-024	4,680.25	4,678.00	266.008	12	PVC	Goat Wash	Existing
D3-232-001	4,621.48	4,620.08	114.767	8	PVC	Scenic School	Existing
D3-232-001A	4,620.28	4,620.08	16.5	8	PVC	Scenic School	Existing
D3-232-009	4,622.35	4,621.48	71.045	8	PVC	Scenic School	Existing
D3-232-017	4,608.64	4,593.30	184.5	8	PVC	Scenic School	Existing
D3-232-018	4,620.08	4,610.69	88.61	8	PVC	Scenic School	Existing
D3-241-001	4,641.85	4,640.95	73.702	8	PVC	Scenic School	Existing
D3-241-002	4,640.95	4,638.42	207.066	8	PVC	Scenic School	Existing
D3-241-003	4,638.42	4,636.83	130.642	8	PVC	Scenic School	Existing
D3-241-004	4,636.83	4,634.94	154.75	8	PVC	Scenic School	Existing
D3-241-005	4,633.39	4,629.78	296.578	8	PVC	Scenic School	Existing
D3-241-005A	4,629.78	4,629.64	11.185	8	PVC	Scenic School	Existing
D3-241-006	4,629.64	4,625.45	343.711	8	PVC	Scenic School	Existing
D3-241-007	4,625.45	4,622.35	254.233	8	PVC	Scenic School	Existing
D3-241-009	4,634.94	4,633.39	126.674	8	PVC	Scenic School	Existing
D3-251-001	4,542.85	4,542.41	454.116	54	RCP	River Road	Existing
D3-251-002	4,543.23	4,542.85	414.428	54	RCP	River Road	Existing
D3-251-004	4,544.59	4,543.96	394	48	RCP	River Road	Existing
D3-251-008	4,543.80	4,543.63	234.094	48	RCP	River Road	Existing
D3-251-011	4,544.75	4,544.65	13.054	48	RCP	River Road	Existing
D3-251-012	4,543.63	4,543.62	24.764	48	RCP	River Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D3-251-013	4,543.62	4,543.23	340.89	54	RCP	River Road	Existing
D3-251-014	4,545.76	4,545.63	145.304	24	PVC	Colorado Avenue	Existing
D3-251-015	4,544.65	4,544.59	38.1	48	RCP	River Road	Existing
D3-251-016	4,543.96	4,543.80	48.1	48	RCP	River Road	Existing
D3-252-008	4,546.00	4,545.76	218.35	24	PVC	Colorado Avenue	Existing
D3-252-012	4,547.10	4,546.00	303.63	24	PVC	Colorado Avenue	Existing
D3-252-045	4,562.82	4,560.20	113.75	24	PVC	Grand Avenue	Existing
D3-252-045A	4,560.14	4,553.17	411.8	24	PVC	Grand Avenue	Existing
D3-252-057	4,577.57	4,572.57	153.11	27	VCP	Grand Avenue	Existing
D3-261-010	4,584.00	4,577.57	196.964	27	VCP	Grand Avenue	Existing
D3-261-014	4,585.03	4,585.00	7.905	27	VCP	Grand Avenue	Existing
D3-261-025	4,586.31	4,585.03	345.646	27	VCP	Grand Avenue	Existing
D3-261-045	4,588.09	4,586.31	479.864	27	VCP	Grand Avenue	Existing
D3-261-075	4,590.00	4,588.09	504.234	27	VCP	Grand Avenue	Existing
D3-261-086	4,593.11	4,592.00	286.508	24	VCP	Grand Avenue	Existing
D3-261-117	4,595.78	4,593.11	681.486	24	VCP	Grand Avenue	Existing
D3-261-130	4,596.52	4,595.78	297.66	24	VCP	Grand Avenue	Existing
D3-262-017	4,597.50	4,596.52	391.37	24	VCP	Grand Avenue	Existing
D3-262-018	4,598.50	4,597.50	273.749	24	VCP	Grand Avenue	Existing
D3-262-042	4,599.50	4,598.50	468.023	24	VCP	Grand Avenue	Existing
D3-262-065	4,600.39	4,599.54	472	18	VCP	Grand Avenue	Existing
D3-262-083	4,601.61	4,600.39	482.816	18	VCP	Grand Avenue	Existing
D3-262-122	4,599.54	4,599.50	22.8	18	DIP	Grand Avenue	Existing
D3-271-013	4,603.00	4,601.61	542.184	18	VCP	Grand Avenue	Existing
D3-271-019	4,595.79	4,593.35	334.757	15	PVC	15th Street	Existing
D3-271-024	4,593.35	4,590.64	371.362	15	PVC	15th Street	Existing
D3-271-029	4,604.18	4,603.00	464.186	18	VCP	Grand Avenue	Existing
D3-271-038	4,599.05	4,595.79	445.686	15	PVC	15th Street	Existing
D3-271-055	4,601.95	4,599.05	397.208	15	PVC	15th Street	Existing
D3-271-059	4,602.09	4,601.95	19.942	15	PVC	15th Street	Existing
D3-271-068	4,610.32	4,609.63	95.022	15	PVC	15th Street	Existing
D3-271-069	4,609.63	4,607.45	298.119	15	PVC	15th Street	Existing
D3-271-070	4,607.45	4,604.42	415.97	15	PVC	15th Street	Existing
D3-271-072	4,604.42	4,602.09	318.094	15	PVC	15th Street	Existing
D3-271-075	4,610.76	4,610.32	59.991	15	PVC	15th Street	Existing
D3-271-111	4,605.40	4,604.18	441.6	18	VCP	Grand Avenue	Existing
D3-281-006	4,601.78	4,601.72	37.589	15	VCP	Rood Avenue	Existing
D4-221-004	4,658.76	4,654.62	251.838	12	PVC	Goat Wash	Existing
D4-221-005	4,654.52	4,650.54	350.65	12	PVC	Goat Wash	Existing
D4-221-008	4,650.44	4,645.81	300.612	12	PVC	Goat Wash	Existing
D4-221-009	4,640.75	4,637.90	198.99	15	PVC	Goat Wash	Existing
D4-221-010	4,637.77	4,631.55	298.775	15	PVC	Goat Wash	Existing
D4-221-011	4,631.45	4,630.16	300.24	15	PVC	Goat Wash	Existing
D4-232-001	4,593.08	4,572.75	126.5	8	PVC	Scenic School	Existing
D4-232-002	4,572.53	4,554.95	141.3	8	PVC	Scenic School	Existing
D4-232-003	4,554.74	4,551.59	111.5	8	PVC	Scenic School	Existing
D4-232-004	4,551.41	4,549.55	131.2	8	PVC	Scenic School	Existing
D4-232-005	4,547.40	4,543.02	294.03	8	PVC	Scenic School	Existing
D4-232-006	4,542.82	4,533.87	422.7	8	PVC	Scenic School	Existing
D4-232-007	4,533.69	4,533.27	71.2	8	PVC	Scenic School	Existing
D4-232-008	4,526.81	4,524.29	205.6	8	PVC	Scenic School	Existing
D4-251-001	4,541.56	4,541.03	564.16	54	RCP	River Road	Existing
D4-251-005	4,541.81	4,541.60	480.618	54	RCP	River Road	Existing
D4-251-008	4,542.29	4,541.81	571.671	54	RCP	River Road	Existing
D4-251-018	4,542.41	4,542.29	125.788	54	RCP	River Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
D4-251-019	4,541.60	4,541.56	91.184	54	RCP	River Road	Existing
D4-271-014	4,620.92	4,619.45	201.031	15	PVC	15th Street	Existing
D4-271-015	4,619.45	4,616.97	339.939	15	PVC	15th Street	Existing
D4-271-018	4,616.97	4,614.52	335.413	15	PVC	15th Street	Existing
D4-271-021	4,614.52	4,610.76	515.485	15	PVC	15th Street	Existing
E1-221-001	4,630.05	4,629.03	200.12	15	PVC	Goat Wash	Existing
E1-221-001A	4,628.98	4,626.63	403.702	15	PVC	Goat Wash	Existing
E1-222-004	4,626.53	4,616.86	202.35	14	DIP	Goat Wash	Existing
E1-222-005	4,616.76	4,611.53	275.05	15	PVC	Goat Wash	Existing
E1-222-006	4,611.53	4,609.83	157.276	15	PVC	Goat Wash	Existing
E1-222-007	4,609.72	4,606.39	307.041	15	PVC	Goat Wash	Existing
E1-222-011	4,606.39	4,599.71	311.698	18	PVC	Goat Wash	Existing
E1-222-012	4,599.62	4,597.21	392.36	18	PVC	Goat Wash	Existing
E1-231-012	4,627.63	4,623.16	231.896	8	PVC	Connected Lakes	Existing
E1-232-001	4,524.29	4,527.07	982.8	6	PVC	Connected Lakes	Existing
E1-232-025	4,527.07	4,532.08	1,164.80	6	PVC	Connected Lakes	Existing
E1-242-001	4,538.07	4,537.93	164.394	54	RCP	River Road	Existing
E1-242-002	4,539.59	4,539.31	123.689	24		Horizon Drive	Existing
E1-251-001	4,540.69	4,538.07	625.102	54	RCP	River Road	Existing
E1-251-002	4,541.03	4,540.69	421.218	54	RCP	River Road	Existing
E1-251-003	4,540.76	4,539.90	516.239	24		Horizon Drive	Existing
E1-251-004	4,541.65	4,540.89	508.531	24		Horizon Drive	Existing
E1-251-007	4,543.10	4,542.09	361.751	24	CONCRETE	Horizon Drive	Existing
E1-251-018	4,544.60	4,543.17	379.857	24	CONCRETE	Horizon Drive	Existing
E1-251-019	4,545.14	4,544.64	131.2	24	CONCRETE	Horizon Drive	Existing
E1-251-020	4,545.20	4,545.14	21.386	24	CONCRETE	Horizon Drive	Existing
E1-251-021	4,545.79	4,545.20	200.146	24	CONCRETE	Horizon Drive	Existing
E1-251-023	4,546.77	4,545.79	326.95	24	CONCRETE	Horizon Drive	Existing
E1-251-025	4,539.90	4,539.74	99.122	24		Horizon Drive	Existing
E1-271-068	4,628.02	4,625.04	408.4	15	PVC	15th Street	Existing
E1-271-072	4,625.04	4,621.79	444.9	15	PVC	15th Street	Existing
E1-271-076	4,621.79	4,620.92	119.097	15	PVC	15th Street	Existing
E2-202-016	4,711.65	4,705.93	307.8	8	PVC		Existing
E2-222-015	4,567.50	4,559.61	337.25	18	PVC	Goat Wash	Existing
E2-222-016	4,570.44	4,567.89	9.98	12		Goat Wash	Existing
E2-222-017	4,579.68	4,572.72	83.02	18	PVC	Goat Wash	Existing
E2-222-028	4,593.04	4,591.61	73.964	8	PVC	Connected Lakes	Existing
E2-222-028A	4,596.12	4,593.14	154.521	8	PVC	Connected Lakes	Existing
E2-222-029	4,591.51	4,587.75	194.799	8	PVC	Connected Lakes	Existing
E2-222-030	4,587.65	4,586.97	35.03	8	PVC	Connected Lakes	Existing
E2-222-031	4,586.87	4,581.37	285.36	8	PVC	Connected Lakes	Existing
E2-222-036	4,559.30	4,555.83	176.628	18	PVC	Goat Wash	Existing
E2-222-037	4,555.76	4,548.93	333.084	18	PVC	Goat Wash	Existing
E2-222-040	4,571.36	4,567.89	163.213	8	PVC	Connected Lakes	Existing
E2-222-044	4,590.76	4,588.22	496.38	18	PVC	Goat Wash	Existing
E2-222-048	4,581.27	4,578.95	120.146	8	PVC	Connected Lakes	Existing
E2-222-050	4,578.85	4,571.46	129.166	8	PVC	Connected Lakes	Existing
E2-222-067	4,595.73	4,590.82	434.11	18	PVC	Goat Wash	Existing
E2-222-075	4,597.10	4,596.10	86.953	18	PVC	Goat Wash	Existing
E2-231-002	4,603.37	4,596.22	370.312	12		Connected Lakes	Existing
E2-231-005	4,610.62	4,603.47	373.362	12		Connected Lakes	Existing
E2-231-006	4,615.27	4,610.72	235.57	12		Connected Lakes	Existing
E2-231-013	4,618.13	4,615.37	143.27	8	PVC	Connected Lakes	Existing
E2-231-021	4,623.06	4,618.23	249.903	8	PVC	Connected Lakes	Existing
E2-231-028	4,641.17	4,639.85	122.9	8	PVC	Connected Lakes	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E2-231-029	4,639.69	4,638.76	95.054	8	PVC	Connected Lakes	Existing
E2-231-030	4,638.52	4,637.71	107.945	8	PVC	Connected Lakes	Existing
E2-231-031	4,637.60	4,632.91	315.864	8	PVC	Connected Lakes	Existing
E2-231-035	4,632.81	4,630.49	120.573	8	PVC	Connected Lakes	Existing
E2-231-037	4,630.39	4,627.73	137.563	8	PVC	Connected Lakes	Existing
E2-232-013	4,532.08	4,533.39	305.8	6	PVC	Connected Lakes	Existing
E2-232-014	4,533.39	4,643.59	1,085.30	6	PVC	Connected Lakes	Existing
E2-242-004	4,536.23	4,535.65	633.926	54	RCP	River Road	Existing
E2-242-011	4,536.71	4,536.23	604.045	54	RCP	River Road	Existing
E2-242-017	4,537.01	4,536.71	596.271	54	RCP	River Road	Existing
E2-242-024	4,537.65	4,537.01	552.418	54	RCP	River Road	Existing
E2-242-034	4,537.93	4,537.65	346.991	54	RCP	River Road	Existing
E2-251-027	4,542.09	4,541.72	192.634	24		Horizon Drive	Existing
E2-251-058	4,547.27	4,547.03	36.867	24	CONCRETE	Horizon Drive	Existing
E2-252-192	4,557.18	4,548.58	654	18	PVC	Horizon Drive	Existing
E2-252-193	4,565.18	4,557.37	475.1	18	PVC	Horizon Drive	Existing
E2-252-194	4,567.93	4,565.18	167.9	18	PVC	Horizon Drive	Existing
E2-252-196	4,557.37	4,557.18	11.8	18	PVC	Horizon Drive	Existing
E2-271-073	4,640.61	4,637.43	435.912	15	PVC	15th Street	Existing
E2-271-077	4,637.43	4,634.50	401.8	15	PVC	15th Street	Existing
E2-271-081	4,634.50	4,631.30	437.4	15	PVC	15th Street	Existing
E2-271-086	4,631.30	4,628.02	450.2	15	PVC	15th Street	Existing
E3-202-008	4,702.45	4,700.84	163.377	10	PVC		Existing
E3-202-008A	4,700.74	4,699.77	98.498	10	PVC		Existing
E3-202-009	4,705.83	4,705.23	61.23	10	PVC		Existing
E3-202-011	4,699.64	4,696.85	263.614	10	PVC		Existing
E3-202-012	4,696.79	4,687.93	301.465	10	PVC		Existing
E3-222-051	4,546.11	4,544.70	465.366	18	PVC	Goat Wash	Existing
E3-222-051A	4,547.31	4,546.11	274.16	18	PVC	Goat Wash	Existing
E3-222-065	4,548.83	4,547.41	187.682	18	PVC	Goat Wash	Existing
E3-231-006	4,544.56	4,542.00	900.02	21		Goat Wash	Existing
E3-241-015	4,533.01	4,531.11	896.457	54	RCP	River Road	Existing
E3-241-022	4,534.22	4,533.01	657.05	54	RCP	River Road	Existing
E3-241-028	4,534.67	4,534.22	444.899	54	RCP	River Road	Existing
E3-241-034	4,537.66	4,536.64	203.95	18	DI	24 1/2 Road	Existing
E3-241-036	4,539.03	4,537.66	247.017	18	PVC	24 1/2 Road	Existing
E3-241-048	4,541.05	4,540.95	36.539	18	PVC	24 1/2 Road	Existing
E3-241-049	4,540.95	4,539.03	252.56	18		24 1/2 Road	Existing
E3-242-002	4,535.29	4,534.67	508.006	54	RCP	River Road	Existing
E3-242-012	4,535.65	4,535.29	210.281	54	RCP	River Road	Existing
E3-252-001	4,576.93	4,575.97	435.978	18	CIP	Horizon Drive	Existing
E3-252-003	4,575.97	4,575.03	422.07	18	CIP	Horizon Drive	Existing
E3-252-004	4,575.03	4,574.81	13.5	18	PVC	Horizon Drive	Existing
E3-252-084	4,574.81	4,567.93	418.9	18	PVC	Horizon Drive	Existing
E3-252-085	4,577.07	4,576.93	62.9	18	PVC	Horizon Drive	Existing
E3-271-068	4,645.72	4,643.65	282.3	15	PVC	15th Street	Existing
E3-271-072	4,643.65	4,641.84	247.2	15	PVC	15th Street	Existing
E3-271-074	4,641.84	4,640.61	168.9	15	PVC	15th Street	Existing
E3-271-121	4,649.80	4,647.68	289.8	15	PVC	15th Street	Existing
E3-271-122	4,649.90	4,649.80	21	15	PVC	15th Street	Existing
E3-271-123	4,647.68	4,645.72	268.5	15	PVC	15th Street	Existing
E4-202-001	4,687.84	4,682.01	194.078	12	PVC		Existing
E4-202-002	4,681.87	4,674.32	398.454	12	PVC		Existing
E4-202-003	4,674.21	4,671.73	131.626	12	PVC		Existing
E4-202-007	4,667.94	4,664.29	186.042	12	PVC		Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
E4-202-009	4,671.73	4,668.17	189.387	12	PVC		Existing
E4-202-013	4,664.14	4,658.33	295.528	12	PVC		Existing
E4-202-014	4,656.10	4,646.58	340.628	12	PVC		Existing
E4-231-005	4,542.00	4,539.69	145.009	21	DIP	Goat Wash	Existing
E4-231-006	4,539.27	4,532.41	428.663	21	DIP	Goat Wash	Existing
E4-231-007	4,531.58	4,530.60	501.23	20	DIP	Goat Wash	Existing
E4-231-008	4,532.18	4,531.58	197.882	20	DIP	Goat Wash	Existing
E4-232-016	4,529.10	4,528.53	572.95	54	RCP	River Road	Existing
E4-241-005	4,529.85	4,529.10	673.974	54	RCP	River Road	Existing
E4-241-016	4,531.11	4,529.85	543.693	54	RCP	River Road	Existing
E4-241-075	4,547.08	4,544.15	241.703	18	PVC	24 1/2 Road	Existing
E4-241-077	4,544.15	4,543.11	355.847	18	PVC	24 1/2 Road	Existing
E4-241-078	4,543.11	4,541.95	306.418	18	PVC	24 1/2 Road	Existing
E4-241-079	4,541.95	4,541.82	54.874	18	PVC	24 1/2 Road	Existing
E4-241-080	4,541.82	4,541.05	326.852	18	PVC	24 1/2 Road	Existing
E4-241-081	4,547.62	4,547.08	97.941	18		24 1/2 Road	Existing
E4-242-014	4,549.43	4,547.75	383.727	18	PVC	Paradise Hills	Existing
E4-242-029	4,550.42	4,549.43	380.382	18	PVC	Paradise Hills	Existing
E4-242-034	4,550.83	4,550.42	114.866	18	PVC	Paradise Hills	Existing
E4-242-036	4,550.91	4,550.83	20.664	18	PVC	Paradise Hills	Existing
E4-242-045	4,551.79	4,550.91	246.164	18	PVC	Paradise Hills	Existing
E4-242-057	4,552.92	4,551.79	378.446	18	PVC	Paradise Hills	Existing
E4-242-062	4,554.02	4,552.92	380.218	18	PVC	Paradise Hills	Existing
E4-242-069	4,554.85	4,554.02	378.84	18	PVC	Paradise Hills	Existing
E4-242-078	4,555.69	4,554.85	339.382	18	PVC	Paradise Hills	Existing
E4-251-001	4,555.79	4,555.69	38.606	18	PVC	Paradise Hills	Existing
E4-252-009	4,577.14	4,577.07	32.4	18	PVC	Horizon Drive	Existing
E4-252-010	4,577.18	4,577.14	21.09	18	PVC	Horizon Drive	Existing
E4-252-011	4,577.52	4,577.18	153.865	18	PVC	Horizon Drive	Existing
E4-252-013	4,581.79	4,581.35	74.39	18	RCP	Horizon Drive	Existing
E4-252-014	4,581.34	4,581.22	21.484	18	PVC	Horizon Drive	Existing
E4-252-019	4,581.14	4,580.06	386.843	18	PVC	Horizon Drive	Existing
E4-252-021	4,579.99	4,578.73	440.93	18	PVC	Horizon Drive	Existing
E4-252-023	4,578.66	4,577.52	502.758	18	PVC	Horizon Drive	Existing
E4-252-033	4,583.11	4,581.79	328.689	18	RCP	Horizon Drive	Existing
E4-252-035	4,587.99	4,583.11	328.853	18	RCP	Horizon Drive	Existing
E4-252-037	4,590.20	4,587.99	339.546	18	RCP	Horizon Drive	Existing
E4-271-058	4,665.16	4,664.59	291.395	15	PVC	15th Street	Existing
E4-271-060	4,664.59	4,662.15	295.725	15	PVC	15th Street	Existing
E4-271-062	4,662.15	4,659.19	261.908	15	PVC	15th Street	Existing
E4-271-063	4,659.19	4,656.13	209.297	15	PVC	15th Street	Existing
E4-271-064	4,651.17	4,649.90	227.6	15	PVC	15th Street	Existing
F1-202-005	4,624.27	4,622.35	106.797	15	PVC		Existing
F1-202-006	4,626.01	4,624.39	79.966	14	DIP		Existing
F1-202-007	4,622.23	4,616.37	206.542	15	PVC		Existing
F1-202-008	4,628.00	4,626.13	224.057	15	PVC		Existing
F1-202-009	4,636.50	4,628.11	399.701	12	PVC		Existing
F1-202-010	4,646.50	4,636.58	400.455	12	PVC		Existing
F1-231-001	4,528.61	4,527.96	499.675	21	PVC	Goat Wash	Existing
F1-231-001A	4,529.72	4,528.61	499.05	20	DIP	Goat Wash	Existing
F1-231-002	4,530.60	4,529.72	500.42	20	DIP	Goat Wash	Existing
F1-232-001	4,526.89	4,526.32	528.047	54	RCP	River Road	Existing
F1-232-002	4,527.37	4,526.89	536.214	54	RCP	River Road	Existing
F1-232-008	4,530.29	4,530.09	24.2	15	PVC	24 Road	Existing
F1-232-012	4,527.92	4,527.77	152.5	54	RCP	River Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F1-232-013	4,531.41	4,530.37	346.368	15	PVC	24 Road	Existing
F1-232-014	4,533.42	4,533.25	29.454	15	PVC	24 Road	Existing
F1-232-017	4,533.11	4,531.82	401.242	15	PVC	24 Road	Existing
F1-232-019	4,531.76	4,531.43	108.699	15	PVC	24 Road	Existing
F1-232-033	4,528.53	4,527.92	581.216	54	RCP	River Road	Existing
F1-232-066	4,527.77	4,527.37	421.9	54	RCP	River Road	Existing
F1-241-050	4,552.55	4,549.66	223.434	15	PVC	24 1/2 Road	Existing
F1-241-109	4,553.53	4,552.55	465	15	PVC	24 1/2 Road	Existing
F1-241-110	4,554.75	4,553.71	470.8	15	PVC	24 1/2 Road	Existing
F1-242-001	4,549.66	4,547.62	158.293	15	PVC	24 1/2 Road	Existing
F1-251-003	4,555.90	4,555.79	45.953	18	PVC	Paradise Hills	Existing
F1-251-015	4,557.63	4,555.90	358.012	15	PVC	Paradise Hills	Existing
F1-251-023	4,559.69	4,557.63	391.271	15	PVC	Paradise Hills	Existing
F1-251-031	4,561.00	4,559.69	158.358	15	PVC	Paradise Hills	Existing
F1-251-033	4,561.58	4,561.00	121.7	15	VCP	Paradise Hills	Existing
F1-251-034	4,562.43	4,561.89	139.3	15	VCP	Paradise Hills	Existing
F1-251-039	4,564.24	4,562.43	344.859	15	VCP	Paradise Hills	Existing
F1-251-040	4,565.92	4,564.24	346.106	15	VCP	Paradise Hills	Existing
F1-251-041	4,566.47	4,565.92	108.666	15	VCP	Paradise Hills	Existing
F1-251-044	4,567.63	4,566.47	228.911	15	VCP	Paradise Hills	Existing
F1-251-047	4,569.24	4,567.63	339.218	15	VCP	Paradise Hills	Existing
F1-251-048	4,571.12	4,570.21	156.948	15	VCP	Paradise Hills	Existing
F1-251-049	4,572.58	4,571.60	219.6	15	VCP	Paradise Hills	Existing
F1-251-050	4,574.53	4,572.58	329.017	15	PVC	Paradise Hills	Existing
F1-251-068	4,570.21	4,569.24	168.1	15	VCP	Paradise Hills	Existing
F1-251-106	4,561.89	4,561.58	79.3	15	VCP	Paradise Hills	Existing
F1-251-108	4,571.60	4,571.12	107.6	12		Paradise Hills	Existing
F1-252-017	4,592.37	4,590.20	209.067	18	RCP	Horizon Drive	Existing
F1-252-033	4,593.99	4,592.37	156.1	18	RCP	Horizon Drive	Existing
F1-252-039	4,598.44	4,593.99	545.1	18	RCP	Horizon Drive	Existing
F1-261-003	4,601.05	4,600.19	48.5	15	RCP	Horizon Drive	Existing
F1-261-004	4,600.19	4,598.44	112.8	18	RCP	Horizon Drive	Existing
F1-261-009	4,602.40	4,601.34	152.586	15	RCP	Horizon Drive	Existing
F1-261-026	4,603.63	4,602.40	176.4	15	RCP	Horizon Drive	Existing
F1-261-040	4,605.33	4,603.63	245	15	RCP	Horizon Drive	Existing
F1-261-048	4,607.00	4,605.33	241.9	15	RCP	Horizon Drive	Existing
F1-261-058	4,610.87	4,607.30	309.206	15	RCP	Horizon Drive	Existing
F1-261-064	4,613.31	4,610.91	239.998	15	RCP	Horizon Drive	Existing
F1-261-070	4,615.23	4,613.31	191.814	15	RCP	Horizon Drive	Existing
F1-261-075	4,615.99	4,615.23	100.106	15	RCP	Horizon Drive	Existing
F1-261-078	4,618.31	4,615.99	304.515	15	RCP	Horizon Drive	Existing
F1-261-081	4,620.40	4,619.21	215.201	15	RCP	Horizon Drive	Existing
F1-261-089	4,621.95	4,620.40	281.654	15	RCP	Horizon Drive	Existing
F1-261-095	4,624.44	4,623.16	229.141	15	RCP	Horizon Drive	Existing
F1-261-097	4,624.85	4,624.44	73.767	15	RCP	Horizon Drive	Existing
F1-261-106	4,625.38	4,624.85	96.038	15	RCP	Horizon Drive	Existing
F1-271-101	4,666.06	4,665.41	331.4	15	VCP	15th Street	Existing
F1-271-103	4,665.41	4,665.16	83.7	15	PVC	15th Street	Existing
F2-202-001	4,616.31	4,613.21	209.986	15	PVC		Existing
F2-202-002	4,604.15	4,599.43	331.51	15	PVC		Existing
F2-202-003	4,610.41	4,607.10	214.118	15	PVC		Existing
F2-202-004	4,597.01	4,593.69	252.855	15	PVC		Existing
F2-202-005	4,606.99	4,604.26	165.148	15	PVC		Existing
F2-202-006	4,593.41	4,585.36	264.204	15	PVC		Existing
F2-202-007	4,599.29	4,597.14	129.593	15	PVC		Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F2-202-023	4,613.03	4,610.44	218.907	15	PVC		Existing
F2-202-024	4,585.27	4,578.45	354.306	15	PVC		Existing
F2-231-004	4,524.32	4,523.89	701.526	54	RCP	River Road	Existing
F2-231-010	4,525.21	4,524.32	831.316	54	RCP	River Road	Existing
F2-231-016	4,525.73	4,525.21	492.361	54	RCP	River Road	Existing
F2-231-023	4,526.32	4,525.73	610.769	54	RCP	River Road	Existing
F2-231-024	4,527.82	4,527.40	464.874	21	PVC	Goat Wash	Existing
F2-232-002	4,537.77	4,536.80	323.736	15	PVC	24 Road	Existing
F2-232-003	4,536.76	4,535.92	287.951	15	PVC	24 Road	Existing
F2-232-004	4,535.89	4,535.82	24.042	15	PVC	24 Road	Existing
F2-232-005	4,535.76	4,534.87	326.196	15	PVC	24 Road	Existing
F2-232-006	4,534.71	4,533.58	344.695	15	PVC	24 Road	Existing
F2-232-007	4,538.55	4,538.01	257.185	15	PVC	24 Road	Existing
F2-242-055	4,555.85	4,554.92	455	15	PVC	24 1/2 Road	Existing
F2-242-056	4,557.08	4,556.03	434.7	15	PVC	24 1/2 Road	Existing
F2-251-012	4,583.65	4,583.39	37.851	15	PVC	Paradise Hills	Existing
F2-251-016	4,581.40	4,579.28	324.064	15	PVC	Paradise Hills	Existing
F2-251-017	4,579.28	4,577.52	248.854	15	PVC	Paradise Hills	Existing
F2-251-018	4,576.98	4,574.53	320.095	15	PVC	Paradise Hills	Existing
F2-251-028	4,583.39	4,581.40	285.885	15	PVC	Paradise Hills	Existing
F2-252-027	4,577.52	4,576.98	76.522	15	PVC	Paradise Hills	Existing
F2-261-053	4,635.22	4,630.88	317.242	15	RCP	Horizon Drive	Existing
F2-262-011	4,640.09	4,635.32	502.594	15	RCP	Horizon Drive	Existing
F2-262-017	4,644.05	4,640.09	263.515	15	RCP	Horizon Drive	Existing
F2-262-020	4,646.00	4,644.05	130.282	15	RCP	Horizon Drive	Existing
F2-262-029	4,650.32	4,646.00	408.262	15	RCP	Horizon Drive	Existing
F2-262-032	4,651.58	4,650.32	299.694	15	RCP	Horizon Drive	Existing
F2-262-038	4,655.55	4,653.48	291.494	15	RCP	Horizon Drive	Existing
F3-202-006	4,578.39	4,577.44	64.452	15	PVC		Existing
F3-202-007	4,577.44	4,573.23	286.902	15	PVC		Existing
F3-211-010	4,573.13	4,568.35	259.579	15	PVC		Existing
F3-211-011	4,567.19	4,563.42	253.38	15	PVC		Existing
F3-211-012	4,563.08	4,561.63	90.79	15	PVC		Existing
F3-211-013	4,561.45	4,557.41	280.014	15	PVC		Existing
F3-222-007	4,522.40	4,521.71	701.166	54	RCP	River Road	Existing
F3-222-008	4,523.05	4,522.40	694.179	54	RCP	River Road	Existing
F3-222-008A	4,523.59	4,523.05	478.3	54	RCP	River Road	Existing
F3-222-019	4,521.71	4,521.18	595.681	54	RCP	River Road	Existing
F3-231-015	4,523.89	4,523.59	478.3	54	RCP	River Road	Existing
F3-232-001	4,538.86	4,538.60	76.227	15	PVC	24 Road	Existing
F3-232-002	4,539.70	4,538.93	323.998	15	PVC	24 Road	Existing
F3-232-003	4,540.54	4,539.72	319.242	15	PVC	24 Road	Existing
F3-232-004	4,548.18	4,546.81	339	16	HDPE	24 Road	Existing
F3-232-005	4,546.75	4,545.78	342.7	16	HDPE	24 Road	Existing
F3-232-006	4,545.74	4,544.53	294.9	16	HDPE	24 Road	Existing
F3-232-007	4,544.53	4,540.56	330.3	15	PVC	24 Road	Existing
F3-241-004	4,559.45	4,559.19	27.9	15	PVC	24 1/2 Road	Existing
F3-241-005	4,560.25	4,559.60	309	15	PVC	24 1/2 Road	Existing
F3-241-006	4,561.28	4,560.44	339.5	15	PVC	24 1/2 Road	Existing
F3-242-010	4,558.20	4,557.28	444.8	15	PVC	24 1/2 Road	Existing
F3-242-011	4,559.03	4,558.38	304.6	15	PVC	24 1/2 Road	Existing
F3-251-023	4,590.13	4,587.17	444.571	15	PVC	Paradise Hills	Existing
F3-251-024	4,585.33	4,583.65	324.392	15	PVC	Paradise Hills	Existing
F3-251-082	4,587.17	4,585.33	130.938	15	PVC	Paradise Hills	Existing
F3-252-001	4,593.68	4,592.21	150.027	15	PVC	Paradise Hills	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
F3-252-003	4,592.21	4,590.13	212.839	15	PVC	Paradise Hills	Existing
F3-262-038	4,659.00	4,655.55	301.662	15	RCP	Horizon Drive	Existing
F3-262-052	4,660.53	4,659.00	369.623	15	RCP	Horizon Drive	Existing
F3-262-057	4,664.20	4,660.53	327.869	15	RCP	Horizon Drive	Existing
F3-262-063	4,672.06	4,665.70	301.202	15	RCP	Horizon Drive	Existing
F3-271-152	4,675.11	4,673.60	300.514	15	RCP	Horizon Drive	Existing
F3-271-152A	4,673.60	4,672.36	293.2	15	RCP	Horizon Drive	Existing
F3-271-153	4,675.60	4,675.26	20.2	15	PVC	Horizon Drive	Existing
F4-0232-BV	4,552.06	4,551.69	317.28	12		24 Road	Existing
F4-211-002	4,556.72	4,551.06	252.56	15	PVC		Existing
F4-211-003	4,544.08	4,543.65	21.976	15	PVC		Existing
F4-211-004	4,538.94	4,527.02	159.9	15	PVC		Existing
F4-211-005	4,526.75	4,523.36	133.463	15	PVC		Existing
F4-211-006	4,517.22	4,516.63	93.04	15	PVC		Existing
F4-211-007	4,516.33	4,511.16	344.892	15	PVC		Existing
F4-211-013	4,523.75	4,519.02	99.45	15	PVC		Existing
F4-211-014	4,518.73	4,517.70	106.895	15	PVC		Existing
F4-211-015	4,543.65	4,541.94	87.543	15	PVC		Existing
F4-221-022	4,519.88	4,519.04	670.202	54	RCP	River Road	Existing
F4-222-003	4,520.51	4,519.88	671.416	54	RCP	River Road	Existing
F4-222-013	4,521.18	4,520.51	603.094	54	RCP	River Road	Existing
F4-232-004	4,551.59	4,551.15	352.6	12	PVC	24 Road	Existing
F4-232-005	4,551.10	4,549.36	308	12	HDPE	24 Road	Existing
F4-232-006	4,549.28	4,548.22	336.6	16	HDPE	24 Road	Existing
F4-241-002	4,558.40	4,557.49	81.5	10	PVC	24 Road	Existing
F4-241-003	4,560.16	4,558.53	405.014	10	PVC	24 Road	Existing
F4-241-004	4,561.33	4,560.16	394.781	10	PVC	24 Road	Existing
F4-241-005	4,562.70	4,561.33	399.963	10	PVC	24 Road	Existing
F4-241-006	4,565.23	4,562.70	400.357	10	PVC	24 Road	Existing
F4-241-007	4,566.91	4,565.23	399.734	10	PVC	24 Road	Existing
F4-241-008	4,568.35	4,566.91	387.401	10	PVC	24 Road	Existing
F4-241-009	4,562.23	4,561.47	351.5	15	PVC	24 1/2 Road	Existing
F4-241-010	4,563.15	4,562.45	300	15	PVC	24 1/2 Road	Existing
F4-241-011	4,564.41	4,563.36	350	15	PVC	24 1/2 Road	Existing
F4-251-016	4,605.10	4,601.99	346.138	15	PVC	Paradise Hills	Existing
F4-251-022	4,601.99	4,599.02	349.287	15	PVC	Paradise Hills	Existing
F4-251-023	4,599.02	4,596.44	347.188	15	PVC	Paradise Hills	Existing
F4-252-003	4,596.44	4,593.68	367.786	15	PVC	Paradise Hills	Existing
F4-252-005	4,608.55	4,605.10	352.928	15	PVC	Paradise Hills	Existing
F4-271-034	4,700.50	4,699.60	93.054	15	RCP	Horizon Drive	Existing
F4-271-034A	4,699.51	4,698.60	104.1	15	RCP	Horizon Drive	Existing
F4-271-069	4,696.03	4,692.78	410	15	PVC	Horizon Drive	Existing
F4-271-070	4,680.25	4,675.60	487.7	15	PVC	Horizon Drive	Existing
F4-271-072	4,684.12	4,681.27	601.5	15	PVC	Horizon Drive	Existing
F4-271-073	4,691.57	4,685.07	573.1	15	PVC	Horizon Drive	Existing
F4-271-075	4,698.60	4,696.09	288.8	15	RCP	Horizon Drive	Existing
G1-211-001	4,507.06	4,515.66	3,785.00	12	DIP		Existing
G1-211-003	4,504.06	4,503.70	286.8	15	PVC		Existing
G1-221-001	4,516.73	4,516.37	663.61	54	RCP	River Road	Existing
G1-221-005	4,517.71	4,516.73	679.583	54	RCP	River Road	Existing
G1-221-010	4,518.56	4,517.71	678.534	54	RCP	River Road	Existing
G1-221-029	4,519.04	4,518.56	656.197	54	RCP	River Road	Existing
G1-232-012	4,552.92	4,552.15	388.96	12		24 Road	Existing
G1-241-001	4,557.49	4,554.47	74.11	12	PVC	24 Road	Existing
G1-241-002	4,568.73	4,568.45	59.204	10	PVC	24 Road	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
G1-242-001	4,570.26	4,568.83	502.365	10	PVC	24 Road	Existing
G1-242-006	4,571.33	4,570.26	338.988	10	PVC	24 Road	Existing
G1-242-014	4,572.57	4,571.33	324.818	10	PVC	24 Road	Existing
G1-242-025	4,573.81	4,572.57	303.367	10	PVC	24 Road	Existing
G1-242-028	4,573.88	4,573.81	17.876	10	PVC	24 Road	Existing
G1-242-038	4,574.89	4,573.88	340.89	10	PVC	24 Road	Existing
G1-242-045	4,575.95	4,574.89	334.396	10	PVC	24 Road	Existing
G1-252-004	4,614.01	4,610.79	319.997	12	PVC	Paradise Hills	Existing
G1-252-005	4,610.79	4,608.55	354.666	15	PVC	Paradise Hills	Existing
G1-252-006	4,615.08	4,614.01	165.574	12	PVC	Paradise Hills	Existing
G1-252-007	4,616.78	4,615.08	299.53	12	PVC	Paradise Hills	Existing
G1-252-008	4,617.98	4,616.78	170.134	12	PVC	Paradise Hills	Existing
G1-252-009	4,620.11	4,617.98	310.157	12	PVC	Paradise Hills	Existing
G1-252-011	4,621.45	4,620.11	231.896	12	PVC	Paradise Hills	Existing
G1-271-007	4,700.96	4,700.50	47.954	15	RCP	Horizon Drive	Existing
G1-271-013	4,702.45	4,700.96	155.242	15	RCP	Horizon Drive	Existing
G1-271-030	4,703.94	4,702.45	263.253	15	RCP	Horizon Drive	Existing
G1-271-042	4,704.45	4,703.98	92.726	15	RCP	Horizon Drive	Existing
G1-271-047	4,710.11	4,705.74	312.814	15	RCP	Horizon Drive	Existing
G1-272-045	4,713.46	4,710.19	588.76	15	RCP	Horizon Drive	Existing
G1-272-065	4,713.80	4,713.46	61.828	15	RCP	Horizon Drive	Existing
G1-272-066	4,713.99	4,713.80	34.243	15	RCP	Horizon Drive	Existing
G2-212-001	4,511.84	4,511.66	433.386	54	RCP	River Road	Existing
G2-212-002	4,512.35	4,512.14	80.065	54	RCP	River Road	Existing
G2-212-002A	4,512.14	4,511.84	445.326	54	RCP	River Road	Existing
G2-212-014A	4,516.55	4,513.85	145.763	18	RCP	River Road	Existing
G2-212-015	4,515.25	4,515.05	87.97	54	RCP	River Road	Existing
G2-212-032	4,515.90	4,515.45	384.9	54	RCP	River Road	Existing
G2-212-035	4,516.04	4,515.90	143.992	54	RCP	River Road	Existing
G2-212-038	4,516.31	4,516.04	241.638	54	RCP	River Road	Existing
G2-212-041	4,516.37	4,516.31	85.641	54	RCP	River Road	Existing
G2-212-047	4,515.45	4,515.25	293.6	54	RCP	River Road	Existing
G2-252-043	4,624.69	4,623.00	234.356	12	PVC	Paradise Hills	Existing
G2-252-044	4,626.85	4,624.69	348.074	12	PVC	Paradise Hills	Existing
G2-252-045	4,623.00	4,621.45	231.404	12	PVC	Paradise Hills	Existing
G2-252-046	4,629.20	4,626.85	356.962	12	PVC	Paradise Hills	Existing
G2-252-047	4,636.54	4,629.20	355.814	12	PVC	Paradise Hills	Existing
G2-272-014	4,715.85	4,713.99	357.684	15	RCP	Horizon Drive	Existing
G2-272-036	4,720.62	4,718.80	363.686	15	RCP	Horizon Drive	Existing
G2-272-049	4,721.87	4,720.62	247.902	15	RCP	Horizon Drive	Existing
G2-272-055	4,724.49	4,724.00	123.886	15	RCP	Horizon Drive	Existing
G2-272-068	4,724.93	4,724.49	111.717	15	RCP	Horizon Drive	Existing
G2-272-080	4,731.50	4,727.50	342	15	RCP	Horizon Drive	Existing
G3-211-015	4,511.57	4,511.17	336.364	54	RCP	River Road	Existing
G3-211-018	4,511.17	4,510.87	256.89	54	RCP	River Road	Existing
G3-212-006	4,515.66	4,514.91	32.997	15	PVC		Existing
G3-212-007	4,511.66	4,511.57	231.076	54	RCP	River Road	Existing
G3-252-026	4,642.80	4,639.47	305.106	12	PVC	Paradise Hills	Existing
G3-252-027	4,650.29	4,642.80	189.617	12	PVC	Paradise Hills	Existing
G3-252-028	4,639.47	4,638.48	164.295	12	PVC	Paradise Hills	Existing
G3-252-029	4,638.48	4,636.54	299.53	12	PVC	Paradise Hills	Existing
G3-252-030	4,657.84	4,650.29	240.621	12	PVC	Paradise Hills	Existing
G3-252-031	4,659.59	4,657.84	252.101	12	PVC	Paradise Hills	Existing
G3-252-032	4,661.34	4,659.59	313.765	12	PVC	Paradise Hills	Existing
G4-252-008	4,662.47	4,661.34	158.588	12	PVC	Paradise Hills	Existing

Pipe Input Data from Future PWWF System

ID	From Invert	To Invert	Length	Pipe Diameter	Pipe Material	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)			
G4-252-008A	4,663.19	4,662.47	102.303	12	PVC	Paradise Hills	Existing
G4-261-008	4,679.32	4,677.37	178.662	8	PVC	Paradise Hills	Existing
G4-261-015	4,677.17	4,676.45	180.334	8	PVC	Paradise Hills	Existing
G4-261-016	4,676.25	4,675.92	121.524	8	PVC	Paradise Hills	Existing
G4-261-017	4,675.82	4,669.37	214.2	12	PVC	Paradise Hills	Existing
G4-261-018	4,667.52	4,666.30	195.652	12	PVC	Paradise Hills	Existing
G4-261-020	4,666.30	4,664.93	200.736	12	PVC	Paradise Hills	Existing
G4-261-021	4,664.93	4,663.19	228.485	12	PVC	Paradise Hills	Existing
G4-261-029	4,669.37	4,667.52	313.8	12	PVC	Paradise Hills	Existing
H1-261-006	4,701.96	4,701.33	74.3	10	PVC	Paradise Hills	Existing
H1-261-008	4,697.93	4,697.73	6	10	PVC	Paradise Hills	Existing
H1-261-009	4,697.63	4,692.71	360.308	8	PVC	Paradise Hills	Existing
H1-261-010	4,692.71	4,689.30	350.074	8	PVC	Paradise Hills	Existing
H1-261-011	4,688.00	4,682.72	388.483	8	PVC	Paradise Hills	Existing
H1-261-012	4,682.52	4,680.37	208.5	8	PVC	Paradise Hills	Existing
H1-261-015	4,680.17	4,679.52	66.3	8	PVC	Paradise Hills	Existing
H1-261-025	4,701.02	4,698.18	225.5	10	PVC	Paradise Hills	Existing
H1-262-023	4,705.38	4,701.96	335.675	10	PVC	Paradise Hills	Existing

Notes:

1) **All gravity lines have an "n-value" of 0.013**
2) **All force mains have a "C-value" of 110**

Wet Well Input Information Future PWWF System Scenarios							
ID	Description	Type	Bottom Elevation	Minimum Level	Maximum Level	Initial Level	Diameter
			(feet)	(feet)	(feet)	(feet)	(feet)
9000	Connected Lakes LS	0: Cylindrical	4,518.81	0	18	0.5	6
9006	Lime Kiln Gulch LS	0: Cylindrical	4,516.82	0	15.5	0.5	6
9008	Rosevale LS	0: Cylindrical	4,530.00	0	15	3	6
9010	Tiara Rado LS	0: Cylindrical	4,487.25	1	24	1	8
9014	21 Road LS	0: Cylindrical	4,509.19	1	10	1	6
9016	Monument Road LS	0: Cylindrical	4,636.26	1	15	1	6
9018	C Road LS	0: Cylindrical	4,668.39	1	10	1	6

Pump Input Information Future PWWF System Scenarios			
ID	Description	Pump Type	Pump Capacity
			(mgd)
5016	Redlands Village Pump #1	0: Constant Capacity	0.279
5018	Redlands Village Pump #2	0: Constant Capacity	0.279
5020	Rosevale Pump #1	0: Constant Capacity	0.684
5022	Rosevale Pump #2	0: Constant Capacity	0.684
5024	Tiara Rado Pump #1	0: Constant Capacity	3.272
5026	Tiara Rado Pump #2	0: Constant Capacity	3.272
5038	Connected Lakes Pump #1	0: Constant Capacity	0.212
5040	Connected Lakes Pump #2	0: Constant Capacity	0.212
5046	21 Road Pump #1	0: Constant Capacity	0.35
5048	21 Road Pump #2	0: Constant Capacity	0.35
5050	Monument Road Pump #1	0: Constant Capacity	0.1
5052	Monument Road Pump #2	0: Constant Capacity	0.1
5054	C Road Pump#1	0: Constant Capacity	0.35
5056	C Road Pump#2	0: Constant Capacity	0.35
5058	Connected Lakes Pump #4	0: Constant Capacity	0.001
5060	Connected Lakes Pump #3	0: Constant Capacity	0.001

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.302	32:30 hr	1.402	0.344	0.196	0.084
0G1-271-041	G1-271-042	G1-271-041	2.769	32:30 hr	4.249	0.957	0.766	0.934
1003	1612	1614	0.339	32:30 hr	2.369	0.355	0.426	0.378
1005	1614	1660	0.494	32:45 hr	2.608	0.441	0.529	0.55
1009	1620	D4-232-007	0.831	33:15 hr	4.974	0.364	0.364	0.283
101	64	66	0.586	32:47 hr	2.597	0.667	1	1.5
1011	1622	1620	0.831	33:14 hr	2.967	0.541	0.541	0.57
1013	1624	1622	0.848	33:05 hr	2.981	0.548	0.548	0.582
1015	1626	1624	0.857	33:02 hr	2.986	0.551	0.551	0.588
1017	1628	1626	0.86	33:01 hr	2.994	0.552	0.552	0.589
1019	1630	1628	0.865	32:48 hr	3.001	0.553	0.553	0.591
1021	1632	1630	0.869	32:47 hr	3.001	0.555	0.555	0.595
1023	1634	1632	0.882	32:47 hr	3.015	0.56	0.56	0.603
1025	1636	1634	0.896	32:48 hr	3.016	0.567	0.567	0.615
1027	1638	1636	0.902	32:47 hr	3.03	0.568	0.568	0.617
1029	1640	1638	0.922	32:33 hr	3.762	0.487	0.487	0.478
103	66	68	0.578	32:48 hr	2.56	0.667	1	1.067
1031	1642	1640	0.937	32:31 hr	6.487	0.407	0.611	0.691
1033	1644	1642	0.954	32:31 hr	6.512	0.412	0.619	0.704
1035	1646	1644	0.962	32:30 hr	6.523	0.415	0.622	0.709
1037	1648	1646	0.982	32:32 hr	5.545	0.488	0.733	0.887
1039	1650	1648	0.996	32:31 hr	5.555	0.494	0.741	0.899
1041	1652	1650	1.006	32:31 hr	5.561	0.498	0.747	0.908
1043	1654	1652	1.009	32:31 hr	5.563	0.5	0.749	0.911
1045	1656	1654	1.006	32:31 hr	6.583	0.427	0.641	0.742
1047	1658	1656	0.997	32:29 hr	6.984	0.403	0.605	0.681
1049	1676	1658	1.003	32:15 hr	6.992	0.405	0.607	0.684
105	68	70	0.569	33:03 hr	2.521	0.667	1	1.123
1051	1566	G3-211-015	2.686	34:13 hr	3.04	0.969	0.554	0.592
1053	1660	9018	0.662	32:58 hr	2.787	0.532	0.638	0.737
1057	1190	G1-211-003	0.101	33:11 hr	2.703	0.148	0.222	0.108
1061	1144	140	0.11	32:49 hr	3.486	0.132	0.198	0.086
1063	1158	802	0.404	33:08 hr	4.452	0.254	0.305	0.202
1065	1344	D2-251-014	0.163	32:53 hr	4.042	0.143	0.172	0.064
1069	1356	D2-251-014	0.076	32:49 hr	2.967	0.114	0.171	0.064
107	70	74	0.577	33:00 hr	7.378	0.252	0.378	0.304
1071	1364	D2-251-014	0.121	33:44 hr	1.408	0.271	0.407	0.348
1073	1596	SS_5	6.243	33:43 hr	3.597	1.594	0.797	0.974
1075	1378	804	2.545	34:56 hr	4.592	0.824	0.659	0.771
1077	916	G1-221-010	1.085	34:25 hr	3.249	0.547	0.438	0.397
1087	G2-212-001	G3-211-015	0	00:00 hr	0	0	0	0
1093	D3-281-006	D2-271-039	0	00:00 hr	0	0	0	0
1097	D1-262-025	D2-252-085	0	00:00 hr	0	0	0	0
1105	1668	1676	0.229	33:43 hr	3.685	0.194	0.232	0.118
1107	14	1676	0.469	32:14 hr	18.027	0.115	0.173	0.065
1109	1688	1686	0.145	32:17 hr	4.481	0.115	0.115	0.028
111	74	76	0.578	33:00 hr	7.128	0.259	0.389	0.319
1111	1686	1684	0.264	32:32 hr	4.653	0.169	0.169	0.062
1113	1684	1682	0.346	32:35 hr	3.382	0.255	0.255	0.143
1115	1682	1680	0.539	32:30 hr	8.042	0.19	0.19	0.079
1117	1680	1678	0.725	32:40 hr	3.194	0.458	0.458	0.43
1119	1678	1700	0.758	32:44 hr	3.575	0.435	0.435	0.392
1121	1700	E2-222-050	0.765	32:54 hr	5.729	0.309	0.309	0.208
1123	1672	D3-281-006	0.559	34:10 hr	2.713	0.383	0.307	0.204
1125	1278	1302	1.092	33:07 hr	2.799	0.718	0.718	0.865
113	76	78	0.59	33:00 hr	8.491	0.231	0.347	0.259
1131	1118	1730	0.069	34:52 hr	0.307	0.667	1.000	2.794
1133	1730	1732	0.069	36:37 hr	0.305	0.667	1.000	2.778
1135	1732	1734	0.063	36:49 hr	2.102	0.127	0.191	0.08
1137	1734	1736	0.062	36:52 hr	2.338	0.116	0.174	0.066
1139	1736	1738	0.06	37:09 hr	1.894	0.133	0.199	0.087
1141	1738	1740	0.058	37:12 hr	2.997	0.094	0.141	0.043

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
1143	1742	140	0.114	32:45 hr	3.044	0.148	0.222	0.108
1145	1740	1742	0.058	37:20 hr	2.435	0.109	0.163	0.058
115	78	80	0.592	33:00 hr	8.783	0.226	0.339	0.248
117	80	82	0.592	33:00 hr	8.816	0.226	0.338	0.247
119	82	E2-222-016	0.592	32:59 hr	8.815	0.226	0.338	0.247
121	132	134	0.27	32:15 hr	7.124	0.15	0.225	0.111
123	134	136	0.27	32:15 hr	9.814	0.12	0.179	0.07
125	136	9006	0.291	32:15 hr	5.501	0.19	0.285	0.177
127	140	9006	0.243	32:31 hr	2.942	0.262	0.394	0.327
137	150	48	0.592	32:31 hr	3.674	0.448	0.672	0.793
139	C1-261-020	770	5.289	34:12 hr	4.067	1.223	0.611	0.691
141	770	772	5.294	34:15 hr	4.314	1.165	0.582	0.642
143	772	774	5.297	34:16 hr	3.583	1.367	0.683	0.811
145	774	776	5.304	34:17 hr	3.206	1.519	0.759	0.925
147	776	778	5.321	34:18 hr	3.971	1.254	0.627	0.718
153	778	780	5.304	34:18 hr	3.449	1.417	0.708	0.85
155	780	C2-261-001	5.29	34:28 hr	3.089	1.572	0.786	0.96
157	C2-261-001	C3-261-013	2.446	34:31 hr	8.619	0.546	0.546	0.58
161	802	9000	0.451	33:18 hr	2.609	0.411	0.493	0.488
163	SS_3	C3-271-012	9.847	35:32 hr	3.104	2.5	1	1.03
165	SS_1_A	C3-271-007	9.8	35:32 hr	6.95	1.667	1	1.904
167	SS_4	SS_3	9.859	35:32 hr	3.107	2.5	1	1.037
169	SS_5	SS_4	9.87	35:30 hr	4.861	2	1	1.844
171	SS_6	SS_5	3.819	35:18 hr	2.834	1.26	0.63	0.723
173	804	SS_8	3.926	35:02 hr	2.844	1.287	0.643	0.745
175	SS_8	SS_7	3.87	35:04 hr	2.836	1.274	0.637	0.734
177	SS_7	SS_6	3.822	35:17 hr	2.83	1.262	0.631	0.725
181	810	812	0.293	32:42 hr	1.977	0.333	0.333	0.239
183	812	1316	0.317	33:01 hr	2.02	0.348	0.348	0.26
185	814	F2-231-004	0.455	33:20 hr	2.342	0.408	0.408	0.349
483	1130	1132	0.141	32:21 hr	1.623	0.227	0.227	0.113
485	1132	1422	0.144	32:38 hr	1.634	0.23	0.23	0.116
487	1134	1136	0.019	32:16 hr	1.059	0.09	0.135	0.039
489	1136	1138	0.023	32:32 hr	1.929	0.067	0.101	0.021
491	1138	1140	0.052	32:27 hr	2.265	0.105	0.157	0.054
493	1140	1142	0.075	32:30 hr	2.524	0.126	0.189	0.078
495	1142	1144	0.087	32:30 hr	2.639	0.135	0.203	0.09
497	1146	1148	0.179	32:17 hr	7.088	0.113	0.169	0.062
499	1148	D4-221-009	0.245	32:30 hr	6.494	0.149	0.224	0.11
501	1150	1152	0.13	32:22 hr	3.557	0.146	0.219	0.105
503	1152	1154	0.243	32:34 hr	4.439	0.194	0.292	0.185
505	1154	1156	0.337	32:34 hr	4.867	0.231	0.346	0.257
507	1156	1158	0.381	32:31 hr	5.032	0.246	0.369	0.29
525	1176	1178	0.008	32:18 hr	1.619	0.036	0.054	0.006
527	1178	1180	0.009	32:26 hr	1.711	0.039	0.059	0.007
529	1180	1182	0.011	32:27 hr	1.82	0.043	0.064	0.008
531	1182	1184	0.062	32:30 hr	3.053	0.097	0.146	0.046
533	1184	1186	0.068	32:36 hr	2.455	0.12	0.18	0.071
535	1186	1188	0.067	32:53 hr	2.445	0.119	0.179	0.07
537	1188	1190	0.068	32:53 hr	2.717	0.112	0.168	0.061
567	1220	1222	0	00:00 hr	0	0	0	0
569	1222	1224	0.059	32:32 hr	1.48	0.156	0.234	0.12
57	E3-202-BV	E3-202-010	0.41	32:30 hr	3.463	0.308	0.37	0.291
571	1224	1226	0.096	32:45 hr	1.842	0.188	0.283	0.174
573	1226	1228	0.42	33:05 hr	2.7	0.434	0.651	0.759
575	1228	1230	0.525	33:20 hr	2.879	0.428	0.513	0.523
577	1230	9014	0.556	33:44 hr	2.683	0.474	0.569	0.619
581	1236	1238	0.016	32:24 hr	1.374	0.065	0.098	0.02
583	1238	1240	0.052	32:35 hr	2.508	0.098	0.147	0.047
585	1240	1572	0.099	32:45 hr	1.713	0.202	0.303	0.199
587	1242	1244	0.488	33:03 hr	2.6	0.438	0.525	0.543
589	1244	1246	0.762	33:03 hr	2.908	0.513	0.513	0.522

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
591	1246	1248	0.882	32:47 hr	2.858	0.585	0.585	0.646
595	1252	1254	1.719	34:01 hr	3.197	0.716	0.477	0.461
597	1254	1250	1.768	34:03 hr	3.43	0.693	0.462	0.436
599	1256	1258	0.072	32:35 hr	2.553	0.121	0.182	0.072
601	1258	1260	0.196	32:35 hr	3.255	0.208	0.312	0.211
603	1260	1262	0.44	32:44 hr	2.534	0.412	0.494	0.49
605	1262	1264	1.07	33:05 hr	3.142	0.636	0.636	0.733
607	1264	1266	1.331	33:13 hr	3.494	0.606	0.484	0.474
609	1266	1268	1.627	33:29 hr	3.67	0.683	0.546	0.579
613	1248	1250	0.979	32:57 hr	2.973	0.618	0.618	0.702
615	1272	1274	0.396	32:33 hr	3.608	0.327	0.49	0.483
617	1274	1276	0.462	32:55 hr	3.748	0.358	0.537	0.563
619	1276	1278	0.688	32:53 hr	4.076	0.467	0.7	0.838
627	1284	1286	0.251	32:21 hr	2.711	0.286	0.429	0.382
629	1286	1288	0.254	32:42 hr	2.72	0.288	0.432	0.388
631	1288	1290	0.259	32:56 hr	2.732	0.291	0.437	0.395
633	1290	1292	0.276	33:18 hr	2.781	0.302	0.453	0.421
635	1292	1294	0.284	33:24 hr	2.8	0.307	0.46	0.434
637	1294	1296	0.284	33:37 hr	3.514	0.258	0.388	0.318
639	1296	1298	0.3	33:38 hr	3.567	0.266	0.399	0.336
641	1298	1300	0.386	33:53 hr	3.602	0.264	0.264	0.153
643	1300	1302	0.449	33:48 hr	3.76	0.285	0.285	0.178
645	1302	1304	1.54	33:10 hr	3.397	0.695	0.556	0.596
647	1304	1306	1.543	33:29 hr	3.399	0.696	0.557	0.598
649	1308	1310	0.018	32:24 hr	1.838	0.06	0.09	0.017
651	1310	1312	0.036	32:47 hr	1.061	0.12	0.12	0.03
653	1312	1298	0.082	32:37 hr	1.341	0.178	0.178	0.069
655	1314	1302	0.066	32:24 hr	1.281	0.158	0.158	0.054
657	1316	814	0.341	33:13 hr	2.063	0.361	0.361	0.279
673	1332	1334	0.103	32:37 hr	1.861	0.196	0.294	0.188
677	1338	1334	0.004	32:11 hr	1.355	0.024	0.036	0.002
679	1334	1340	0.11	32:53 hr	2.896	0.15	0.225	0.111
681	1340	9016	0.108	33:00 hr	3.001	0.144	0.216	0.103
685	1346	1348	0.043	32:17 hr	3.893	0.064	0.096	0.019
687	1348	1344	0.058	32:42 hr	1.471	0.155	0.232	0.118
689	1350	1352	0.013	32:18 hr	2.123	0.044	0.065	0.009
691	1352	1354	0.043	32:28 hr	2.738	0.082	0.122	0.032
693	1354	1356	0.054	32:34 hr	1.435	0.148	0.222	0.108
695	1358	1360	0	00:00 hr	0	0	0	0
697	1360	1362	0.061	32:21 hr	3.032	0.096	0.144	0.045
699	1362	1364	0.091	32:29 hr	2.965	0.129	0.194	0.082
707	1372	1374	0.679	32:30 hr	3.068	0.449	0.449	0.416
709	1374	1376	1.477	32:42 hr	5	0.564	0.564	0.611
711	1380	1378	1.52	33:05 hr	6.774	0.407	0.326	0.23
713	1376	1380	1.538	33:01 hr	3.463	0.684	0.547	0.581
715	1382	1376	0.203	33:25 hr	2.086	0.297	0.446	0.409
717	1384	1382	0.109	33:05 hr	1.909	0.201	0.301	0.197
719	1386	1384	0.031	32:25 hr	2.153	0.077	0.115	0.028
727	1396	1398	2.764	32:43 hr	4.747	0.86	0.688	0.819
733	1404	1406	0.095	32:27 hr	1.956	0.178	0.267	0.156
735	1406	B2-272-021	0.267	32:41 hr	2.974	0.28	0.42	0.368
749	1422	1424	0.145	32:47 hr	1.635	0.23	0.23	0.116
751	1424	1426	0.144	32:43 hr	1.639	0.229	0.229	0.115
753	1426	E4-202-001	0.144	32:46 hr	1.64	0.229	0.229	0.115
757	1428	BV-105	0.389	09:39 hr	1.849	0.48	0.576	0.631
759	1428	1430	0.294	09:37 hr	1.694	0.48	0.719	0.867
761	1430	D2-252-004	0.294	09:44 hr	3.229	0.283	0.424	0.374
763	G2-212-014	G2-212-003	24.569	37:30 hr	12.62	1.474	0.59	0.654
773	B2-282-047	B2-282-046	1.083	32:33 hr	3.536	0.582	0.582	0.64
775	B2-282-046	B2-282-041	1.071	32:45 hr	4.837	0.45	0.45	0.416
777	B2-282-041	B2-282-037	1.06	32:47 hr	2.088	1	1	2.007
779	B2-282-037	B2-282-036	1.054	32:47 hr	3.119	0.632	0.632	0.726

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
781	B2-282-036	B2-282-003	1.046	32:47 hr	3.085	0.634	0.634	0.729
785	B2-282-003	B2-281-013	1.04	32:59 hr	3.082	0.631	0.631	0.725
787	B2-281-013	B2-281-027	1.041	33:01 hr	3.491	0.569	0.569	0.618
789	B2-281-027	B2-281-006	1.038	33:00 hr	3.255	0.601	0.601	0.674
791	B2-281-006	B2-281-005	1.037	33:03 hr	2.892	0.665	0.665	0.781
793	B2-281-005	B2-281-004	1.028	33:03 hr	2.974	0.644	0.644	0.746
795	B2-281-004	B2-281-003	1.014	33:01 hr	2.873	0.656	0.656	0.766
797	B2-281-003	B2-281-002	1.249	33:01 hr	2.461	1	1	1
799	B2-281-002	B2-281-029	1.252	33:02 hr	2.861	0.804	0.804	0.983
801	B2-281-029	B2-281-001	1.249	33:00 hr	2.461	1	1	2.331
803	B2-281-001	B2-281-022	1.254	33:04 hr	2.47	1	1	1.079
805	B2-281-022	B2-281-020	1.253	33:13 hr	3.408	0.68	0.68	0.806
807	B2-281-020	B2-272-030	1.259	33:18 hr	2.481	1	1	1.394
809	B2-272-030	B2-272-029	1.269	33:19 hr	3.181	0.733	0.733	0.888
811	B2-272-029	B2-272-028	1.267	33:15 hr	2.496	1	1	1.009
813	B2-272-028	B2-272-027	1.361	33:29 hr	3.237	0.772	0.772	0.942
85	48	50	0.662	32:32 hr	2.935	0.667	1	1.337
87	50	52	0.639	32:46 hr	2.833	0.667	1	1.614
889	B2-272-008	B2-272-005	1.174	33:01 hr	2.55	0.704	0.563	0.608
89	52	54	0.638	32:47 hr	2.83	0.667	1	1.276
891	B2-272-005	B2-271-022	1.178	33:02 hr	2.949	0.629	0.503	0.505
893	B2-271-022	B2-271-031	1.265	33:02 hr	2.604	0.736	0.589	0.652
895	B2-271-031	B2-271-020	1.264	33:00 hr	3.834	0.542	0.433	0.39
897	B2-271-020	B2-271-019	1.261	32:59 hr	6.62	0.362	0.29	0.183
91	54	56	0.632	32:46 hr	2.802	0.667	1	1.244
93	56	58	0.627	32:47 hr	2.777	0.667	1	1.177
943	1558	1560	2.652	33:51 hr	3.566	0.845	0.483	0.471
945	1560	1562	2.651	33:45 hr	3.33	0.892	0.509	0.516
947	1562	1564	2.654	33:50 hr	3.33	0.893	0.51	0.517
949	1564	1566	2.653	34:00 hr	3.33	0.892	0.51	0.517
95	58	60	0.614	32:47 hr	2.723	0.667	1	1.106
951	1250	1558	2.651	33:35 hr	3.354	0.887	0.507	0.511
953	1268	1568	1.654	33:31 hr	3.519	0.716	0.573	0.625
955	1568	1570	1.705	33:32 hr	3.543	0.73	0.584	0.645
957	1570	1252	1.708	33:38 hr	3.171	0.803	0.643	0.744
959	1572	1242	0.198	32:46 hr	2.072	0.293	0.44	0.4
961	1306	G1-241-002	1.55	33:31 hr	3.385	0.701	0.561	0.604
963	1574	1396	1.758	32:30 hr	4.298	0.64	0.512	0.521
965	1398	1576	2.912	32:46 hr	7.434	0.619	0.495	0.492
967	1576	1578	3.023	32:55 hr	6.729	0.69	0.552	0.59
969	1578	1580	3	33:06 hr	5.959	0.758	0.607	0.683
97	60	62	0.603	32:47 hr	2.672	0.667	1	1.137
971	1580	1394	3.061	33:06 hr	5.984	0.768	0.615	0.697
973	1394	1582	3.657	33:22 hr	4.635	0.978	0.652	0.76
975	1582	1584	3.647	33:24 hr	4.637	0.976	0.651	0.757
977	1584	1586	3.599	33:35 hr	4.62	0.968	0.645	0.748
979	1586	1588	3.531	33:41 hr	4.606	0.954	0.636	0.733
981	1588	1590	3.508	33:53 hr	4.596	0.951	0.634	0.729
987	1590	1596	3.451	34:23 hr	5.981	0.756	0.504	0.507
99	62	64	0.594	32:48 hr	2.635	0.667	1	1.242
B1-272-001	B1-272-001	B1-272-010	0.757	32:46 hr	2.568	0.563	0.563	0.609
B1-272-002	B1-272-002	B1-272-001	0.674	32:47 hr	2.844	0.531	0.637	0.734
B1-272-003	B1-272-003	B1-272-002	0.675	32:46 hr	2.718	0.553	0.663	0.779
B1-272-005	B1-272-005	B1-272-003	0.669	32:46 hr	2.872	0.523	0.628	0.719
B1-272-007	B1-272-007	B1-272-005	0.665	32:34 hr	2.46	0.597	0.716	0.863
B1-272-010	B1-272-010	B1-272-012	0.762	32:46 hr	2.836	0.523	0.523	0.539
B1-281-001	B1-281-001	B1-272-007	0.648	32:33 hr	2.709	0.535	0.642	0.744
B1-281-002	B1-281-002	B1-281-001	0.646	32:33 hr	2.737	0.529	0.635	0.731
B1-281-004	B1-281-004	B1-281-002	0.646	32:33 hr	3.25	0.459	0.55	0.586
B1-281-005	B1-281-005	B1-281-004	0.414	32:31 hr	2.836	0.36	0.432	0.388
B1-281-006	B1-281-006	B1-281-005	0.408	32:31 hr	2.76	0.364	0.437	0.395
B1-281-007	B1-281-007	B1-281-006	0.402	32:30 hr	3.57	0.297	0.356	0.272

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B1-281-009	B1-281-009	B1-281-007	0.396	32:31 hr	3.516	0.297	0.356	0.272
B1-281-010	B1-281-010	B1-281-009	0.384	32:16 hr	3.448	0.294	0.353	0.268
B1-292-001	B1-292-001	B1-292-002	0.034	32:20 hr	0.964	0.131	0.157	0.054
B1-292-002	B1-292-002	B1-292-003	0.035	32:33 hr	0.873	0.143	0.172	0.064
B1-292-003	B1-292-003	B1-292-004	0.065	32:34 hr	1.262	0.17	0.203	0.091
B1-292-004	B1-292-004	B1-292-010	0.175	32:29 hr	2.752	0.197	0.237	0.123
B1-292-010	B1-292-010	B1-292-011	0.187	32:31 hr	2.828	0.202	0.242	0.129
B1-292-011	B1-292-011	B1-292-012	0.201	32:30 hr	4.213	0.161	0.193	0.081
B1-292-012	B1-292-012	B1-292-013	0.212	32:31 hr	2.698	0.229	0.275	0.165
B1-292-013	B1-292-013	B1-292-014	0.23	32:30 hr	2.536	0.282	0.423	0.374
B1-292-014	B1-292-014	B1-292-015	0.231	32:31 hr	2.154	0.287	0.344	0.254
B1-292-015	B1-292-015	B1-292-016	0.23	32:30 hr	2.737	0.24	0.288	0.181
B1-292-016	B1-292-016	B2-292-023	0.23	32:30 hr	3.813	0.209	0.313	0.213
B2-271-019	B2-271-019	B3-271-059	3.097	33:01 hr	3.904	1.25	1	1.414
B2-272-004	B2-272-004	B2-271-019	1.682	33:02 hr	3.075	0.814	0.651	0.758
B2-272-007	B2-272-007	B2-272-004	1.672	33:02 hr	3.057	0.814	0.651	0.759
B2-272-009	B2-272-009	B2-272-007	1.662	32:59 hr	3.068	0.807	0.646	0.75
B2-272-012	B1-272-012	B1-272-013	0.793	32:48 hr	2.847	0.477	0.382	0.31
B2-272-013	B1-272-013	B1-272-015	0.821	32:45 hr	3.023	0.469	0.375	0.299
B2-272-014	B2-272-014	B2-272-009	1.657	33:01 hr	2.461	0.99	0.792	0.967
B2-272-015	B1-272-015	B1-272-016	0.894	32:49 hr	2.712	0.542	0.433	0.39
B2-272-016	B1-272-016	B2-272-021	0.925	32:50 hr	2.487	0.595	0.476	0.459
B2-272-017	B2-272-017	B2-272-008	1.178	32:48 hr	2.649	0.685	0.548	0.582
B2-272-021	B2-272-021	B2-272-017	1.188	32:47 hr	2.683	0.682	0.546	0.579
B2-272-027	B2-272-027	B2-272-033	1.57	33:03 hr	3.094	1	1	1.167
B2-272-033	B2-272-033	B2-272-014	1.59	33:30 hr	3.913	0.746	0.746	0.906
B2-282-048	B2-282-048	B2-282-047	1.114	32:33 hr	3.138	0.659	0.659	0.772
B2-282-051	B2-282-051	B2-282-048	1.134	32:32 hr	3.259	0.648	0.648	0.753
B2-282-054	B2-282-054	B2-282-051	1.129	32:32 hr	3.313	0.636	0.636	0.734
B2-291-024	B2-291-024	B2-291-045	0.412	33:00 hr	3.295	0.295	0.295	0.189
B2-291-025	B2-291-025	B2-291-026	0.42	33:03 hr	2.703	0.345	0.345	0.257
B2-291-026	B2-291-026	B2-291-027	0.417	33:16 hr	0.986	0.776	0.776	0.947
B2-291-027	B2-291-027	B2-291-028	0.431	33:20 hr	1.954	0.449	0.449	0.415
B2-291-028	B2-291-028	B2-291-029	0.437	33:29 hr	1.92	0.459	0.459	0.432
B2-291-029	B2-291-029	B2-291-030	0.442	33:28 hr	2.682	0.36	0.36	0.278
B2-291-030	B2-291-030	B2-282-054	0.452	33:32 hr	2.18	0.428	0.428	0.381
B2-291-045	B2-291-045	B2-291-025	0.411	33:03 hr	0.931	0.811	0.811	0.99
B2-292-001	B2-292-001	B2-292-002	0.154	32:31 hr	2.046	0.222	0.266	0.155
B2-292-002	B2-292-002	B2-292-003	0.167	32:32 hr	2.162	0.226	0.272	0.161
B2-292-003	B2-292-003	B2-292-004	0.172	32:32 hr	1.658	0.28	0.336	0.243
B2-292-004	B2-292-004	B2-292-010	0.169	32:30 hr	2.832	0.175	0.175	0.067
B2-292-008	B2-292-008	B2-292-009	0.39	32:52 hr	1.392	0.541	0.541	0.571
B2-292-009	B2-292-009	B2-291-024	0.411	32:50 hr	2.323	0.38	0.38	0.306
B2-292-010	B2-292-010	B2-292-026	0.385	32:40 hr	2.013	0.403	0.403	0.341
B2-292-011	B2-292-011	B2-292-010	0.229	32:45 hr	2.447	0.289	0.433	0.389
B2-292-012	B2-292-012	B2-292-011	0.229	32:33 hr	2.173	0.316	0.474	0.456
B2-292-017	B2-292-017	BV-292-013	0.23	32:30 hr	2.777	0.263	0.395	0.329
B2-292-018	B2-292-018	B2-292-017	0.232	32:31 hr	2.806	0.262	0.394	0.327
B2-292-022	B2-292-022	B2-292-018	0.232	32:31 hr	3.194	0.239	0.358	0.275
B2-292-023	B2-292-023	B2-292-022	0.229	32:30 hr	3.683	0.213	0.32	0.222
B2-292-026	B2-292-026	B2-292-008	0.385	32:45 hr	2.152	0.383	0.383	0.311
B2-301-001	B2-301-001	B2-292-001	0.144	32:17 hr	1.852	0.228	0.273	0.163
B3-262-023	B3-262-023	B4-262-031	5.019	33:43 hr	4.394	1.5	1	1.179
B3-262-027	B3-262-027	B3-262-023	4.987	33:35 hr	4.366	1.5	1	2.126
B3-262-031	B3-262-031	B3-262-027	4.968	33:33 hr	4.35	1.5	1	2.104
B3-271-003	B3-271-003	B3-262-031	3.25	33:31 hr	4.098	1.25	1	1.466
B3-271-006	B3-271-006	B3-271-003	3.246	33:31 hr	4.092	1.25	1	1.464
B3-271-018	B3-271-018	B3-271-006	3.229	33:31 hr	4.071	1.25	1	1.456
B3-271-026	B3-271-026	B4-271-011	3.204	33:15 hr	4.04	1.25	1	1.311
B3-271-032	B3-271-032	B3-271-026	3.16	33:17 hr	3.984	1.25	1	1.421
B3-271-039	B3-271-039	B3-271-032	3.136	33:17 hr	3.953	1.25	1	1.416
B3-271-042	B3-271-042	B3-271-039	3.111	33:15 hr	3.923	1.25	1	1.405

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B3-271-045	B3-271-045	B3-271-042	3.1	33:01 hr	3.908	1.25	1	1.387
B3-271-054	B3-271-054	B3-271-045	3.105	33:01 hr	3.915	1.25	1	1.302
B3-271-058	B3-271-058	B3-271-054	3.106	33:01 hr	3.916	1.25	1	1.26
B3-271-058A	B3-271-063	B3-271-058	3.095	33:01 hr	3.903	1.25	1	1.399
B3-271-063	B3-271-059	B3-271-063	3.096	33:01 hr	3.904	1.25	1	1.396
B4-261-014	B4-261-014	C1-261-058	5.201	34:01 hr	6.557	1.25	1	1.605
B4-262-001	B4-262-001	B4-261-014	5.196	34:01 hr	6.551	1.25	1	1.603
B4-262-011	B4-262-011	B4-262-044	5.126	34:01 hr	5.257	1.194	0.796	0.973
B4-262-016	B4-262-016	B4-262-011	5.067	34:00 hr	5.259	1.18	0.786	0.961
B4-262-022	B4-262-022	B4-262-016	5.066	33:46 hr	5.254	1.18	0.787	0.961
B4-262-024	B4-262-024	B4-262-022	5.031	33:46 hr	4.405	1.5	1	1.61
B4-262-028	B4-262-028	B4-262-024	5.021	33:48 hr	4.396	1.5	1	2.23
B4-262-030	B4-262-030	B4-262-028	5.027	33:45 hr	4.401	1.5	1	2.234
B4-262-031	B4-262-031	B4-262-114	5.023	33:45 hr	4.398	1.5	1	1.693
B4-262-036	B4-262-036	B4-262-037	1.553	33:15 hr	3.06	1	1	1.431
B4-262-037	B4-262-037	B4-262-038	1.57	33:19 hr	3.093	1	1	1.446
B4-262-038	B4-262-038	B3-262-031	1.574	33:20 hr	3.1	1	1	1.449
B4-262-043	B4-262-044	B4-262-001	5.138	34:01 hr	6.478	1.25	1	1.586
B4-262-114	B4-262-114	B4-262-030	5.025	33:46 hr	4.399	1.5	1	1.455
B4-271-001	B4-271-001	B4-262-036	1.55	33:14 hr	3.053	1	1	1.424
B4-271-011	B4-271-011	B3-271-018	3.214	33:18 hr	4.052	1.25	1	1.449
B4-271-028	B4-271-028	B4-271-147	1.413	32:46 hr	2.783	1	1	1.153
B4-271-033	B4-271-033	B4-271-028	1.411	32:48 hr	2.78	1	1	1.152
B4-271-128	B4-271-128	B4-271-001	1.549	33:04 hr	3.052	1	1	1.426
B4-271-135	B4-271-135	B4-271-128	1.559	33:04 hr	3.07	1	1	1.273
B4-271-138	B4-271-138	B4-271-135	1.527	33:03 hr	3.009	1	1	1.246
B4-271-143	B4-271-143	B4-271-138	1.511	33:02 hr	2.977	1	1	1.234
B4-271-145	B4-271-145	B4-271-143	1.499	33:01 hr	2.954	1	1	1.223
B4-271-146	B4-271-146	B4-271-145	1.491	32:48 hr	2.937	1	1	1.217
B4-271-147	B4-271-147	B4-271-146	1.491	32:48 hr	2.936	1	1	1.217
B4-271-148	B4-271-148	B4-271-033	1.395	32:46 hr	2.749	1	1	1.139
B4-272-004	B4-272-004	B4-272-094	1.351	32:46 hr	2.662	1	1	1.103
B4-272-039	B4-272-039	B4-272-092	1.05	32:30 hr	2.582	0.747	0.747	0.907
B4-272-040	B4-272-040	B4-272-039	0.985	32:30 hr	2.527	0.718	0.718	0.864
B4-272-044	B4-272-044	B4-272-040	0.979	32:32 hr	2.551	0.707	0.707	0.848
B4-272-048	B4-272-048	B4-272-044	0.947	32:31 hr	2.354	0.739	0.739	0.896
B4-272-086	B4-272-086	B4-272-004	1.14	32:48 hr	2.743	0.763	0.763	0.93
B4-272-091	B4-272-091	B4-272-096	1.064	32:31 hr	2.717	0.721	0.721	0.869
B4-272-092	B4-272-092	B4-272-095	1.062	32:32 hr	2.583	0.755	0.755	0.919
B4-272-093	B4-272-093	B4-271-148	1.382	32:46 hr	2.722	1	1	1.128
B4-272-094	B4-272-094	B4-272-093	1.371	32:45 hr	2.701	1	1	1.123
B4-272-095	B4-272-095	B4-272-091	1.059	32:31 hr	2.707	0.72	0.72	0.868
B4-272-096	B4-272-096	B4-272-086	1.087	32:35 hr	2.726	0.733	0.733	0.887
B4-281-054	B4-281-054	B4-272-048	0.919	32:31 hr	2.525	0.674	0.674	0.796
B4-281-057	B4-281-057	B4-281-054	0.871	32:31 hr	2.594	0.628	0.628	0.72
BV-105	BV-105	D2-252-004	0.389	09:45 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.231	32:31 hr	2.365	0.298	0.447	0.412
C1-221-018	C1-221-018	C2-221-030	0.32	32:31 hr	2.192	0.33	0.33	0.235
C1-221-019	C1-221-019	C1-221-018	0.322	32:16 hr	2.315	0.319	0.319	0.22
C1-261-028	C1-261-028	C1-261-020	5.275	34:02 hr	4.619	1.5	1	1.001
C1-261-030	C1-261-030	C1-261-028	5.276	34:00 hr	4.619	1.5	1	1.002
C1-261-058	C1-261-058	C1-261-062	5.205	34:00 hr	6.562	1.25	1	1.606
C1-261-060	C1-261-060	C1-261-030	5.263	34:00 hr	4.608	1.5	1	1.001
C1-261-062	C1-261-062	C1-261-060	5.205	34:01 hr	6.562	1.25	1	1.606
C1-281-035	C1-281-035	B4-281-057	0.805	32:16 hr	2.283	0.833	1	1.133
C2-221-030	C2-221-030	C2-221-037	0.325	32:34 hr	2.078	0.347	0.347	0.259
C2-221-031	C2-221-031	C3-221-003	0.331	32:45 hr	6.956	0.15	0.15	0.048
C2-221-032	C2-221-032	C2-221-065	0.322	32:45 hr	2.685	0.286	0.286	0.179
C2-221-033	C2-221-033	C2-221-032	0.326	32:48 hr	2.006	0.356	0.356	0.272
C2-221-034	C2-221-034	C2-221-033	0.324	32:46 hr	2.016	0.354	0.354	0.268
C2-221-035	C2-221-035	C2-221-034	0.319	32:40 hr	2.976	0.264	0.264	0.153
C2-221-037	C2-221-037	C2-221-035	0.32	32:37 hr	1.539	0.429	0.429	0.383

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C2-221-065	C2-221-065	C2-221-031	0.328	32:45 hr	4.213	0.211	0.211	0.097
C2-261-001A	C2-261-001	C3-261-013	2.843	34:31 hr	8.949	0.547	0.468	0.447
C2-261-024	C2-261-024	C2-261-013	0.195	32:29 hr	1.191	0.259	0.115	0.028
C3-212-031	C3-212-031	C4-212-059	0.414	32:45 hr	3.853	0.264	0.264	0.153
C3-221-003	C3-221-003	C3-221-004	0.389	32:44 hr	4.324	0.233	0.233	0.119
C3-221-004	C3-221-004	C3-221-030	0.391	32:45 hr	4.331	0.234	0.234	0.12
C3-221-005	C3-221-005	C3-221-006	0.411	32:43 hr	4.445	0.238	0.238	0.124
C3-221-006	C3-221-006	C3-212-031	0.415	32:45 hr	4.12	0.253	0.253	0.14
C3-221-030	C3-221-030	C3-221-005	0.407	32:43 hr	4.383	0.239	0.239	0.125
C3-252-002	C3-252-002	C4-252-003	13.741	36:33 hr	4.331	2.5	1	1.334
C3-261-001	C3-261-001	C3-252-001	0.907	32:52 hr	1.923	0.6	0.343	0.253
C3-261-002	C3-261-002	C3-252-002	13.75	36:32 hr	5.351	2.25	1	1.568
C3-261-004	C3-261-004	C3-261-001	0.913	32:45 hr	1.928	0.602	0.344	0.254
C3-261-005	C3-261-005	C3-261-002	13.752	36:30 hr	5.351	2.25	1	1.258
C3-261-007	C3-261-007	C3-261-004	0.982	32:34 hr	1.971	0.625	0.357	0.273
C3-261-008	C3-261-008	C3-261-005	13.771	36:19 hr	5.359	2.25	1	2.129
C3-261-009	C3-261-009	C3-261-008	13.793	36:17 hr	5.367	2.25	1	2.131
C3-261-010	C3-261-010	C3-261-009	13.799	36:15 hr	5.37	2.25	1	2.128
C3-261-011	C3-261-011	C3-261-007	1.04	32:33 hr	1.998	0.645	0.369	0.29
C3-261-012	C3-261-012	C3-261-010	13.801	36:14 hr	4.35	2.5	1	1.635
C3-261-012A	C3-261-012	C3-261-011	0	00:00 hr	0	0	0	0
C3-261-013	C3-261-013	C3-261-012	13.804	36:15 hr	9.789	1.667	1	1.246
C3-261-015	C3-261-015	C3-261-011	1.078	32:32 hr	2.018	0.658	0.376	0.301
C3-261-019	C3-261-019	C3-261-015	1.097	32:32 hr	2.026	0.664	0.38	0.306
C3-261-021	C3-261-021	C3-261-019	1.103	32:30 hr	2.029	0.667	0.381	0.308
C3-261-031	C3-261-031	C3-261-013	9.557	36:20 hr	6.778	1.667	1	2.503
C3-261-035	C3-261-035	C2-261-024	0.196	32:29 hr	1.196	0.258	0.115	0.028
C3-261-040	C3-261-040	C3-261-031	9.563	36:15 hr	6.782	1.667	1	2.503
C3-261-043	C3-261-043	C3-261-035	0.196	32:29 hr	1.198	0.258	0.115	0.028
C3-261-050	C3-261-050	C3-261-075	0.197	32:29 hr	1.323	0.365	0.439	0.398
C3-261-056	C3-261-056	C3-261-050	0.2	32:16 hr	1.47	0.342	0.411	0.353
C3-261-062	C3-261-062	C3-261-040	9.585	36:19 hr	6.797	1.667	1	2.496
C3-261-075	C3-261-075	C3-261-076	0.196	32:28 hr	2.528	0.21	0.21	0.097
C3-261-076	C3-261-076	C3-261-043	0.197	32:30 hr	1.324	0.365	0.438	0.397
C3-262-007	C3-262-007	C3-262-009	9.596	36:01 hr	6.806	1.667	1	2.501
C3-262-009	C3-262-009	C3-261-062	9.586	36:17 hr	6.798	1.667	1	2.509
C3-262-033	C3-262-033	C3-262-007	9.638	36:04 hr	6.835	1.667	1	2.527
C3-262-041	C3-262-041	C3-262-033	9.648	36:00 hr	6.842	1.667	1	1.627
C3-262-046	C3-262-046	C3-262-041	9.659	36:01 hr	6.85	1.667	1	1.654
C3-262-051	C3-262-051	C3-262-046	9.659	36:00 hr	6.85	1.667	1	1.559
C3-262-061	C3-262-061	C3-262-051	9.664	36:01 hr	6.854	1.667	1	1.557
C3-262-070	C3-262-070	C3-262-071	9.664	36:00 hr	6.854	1.667	1	2.112
C3-262-071	C3-262-071	C3-262-061	9.664	36:01 hr	6.854	1.667	1	1.511
C3-262-074	C3-262-074	C3-262-070	9.713	35:50 hr	6.888	1.667	1	2.423
C3-271-001	C3-271-001	C3-262-074	9.753	35:48 hr	6.917	1.667	1	2.409
C3-271-003	C3-271-003	C3-271-001	9.769	35:46 hr	6.928	1.667	1	2.417
C3-271-004	C3-271-004	C3-271-003	9.761	35:45 hr	6.923	1.667	1	2.413
C3-271-007	C3-271-007	C3-271-004	9.76	35:45 hr	6.922	1.667	1	2.425
C3-271-010	C3-271-010	SS_1_A	9.803	35:30 hr	6.952	1.667	1	1.174
C3-271-012	C3-271-012	C3-271-010	9.809	35:30 hr	6.956	1.667	1	1.119
C4-212-059	C4-212-059	C4-212-060	0.415	32:46 hr	4.757	0.228	0.228	0.114
C4-212-060	C4-212-060	D4-232-020	0.44	32:45 hr	4.247	0.258	0.258	0.145
C4-212-061	C4-212-061	C4-221-001	0.47	32:44 hr	4.4	0.263	0.263	0.152
C4-221-001	C4-221-001	D1-212-032	0.476	32:45 hr	5.603	0.224	0.224	0.11
C4-221-011	D4-232-020	C4-212-061	0.467	32:43 hr	4.319	0.266	0.266	0.154
C4-252-001	C4-252-001	D1-252-019	13.675	36:49 hr	4.31	2.5	1	1.358
C4-252-002	C4-252-002	D1-252-042	0.793	33:06 hr	1.853	0.559	0.319	0.221
C4-252-003	C4-252-003	C4-252-008	13.723	36:31 hr	4.325	2.5	1	1.05
C4-252-004	C4-252-004	C4-252-002	0.823	33:03 hr	1.871	0.57	0.326	0.23
C4-252-005	C4-252-005	C4-252-006	13.689	36:32 hr	4.315	2.5	1	1.218
C4-252-006	C4-252-006	C4-252-001	13.677	36:45 hr	4.311	2.5	1	1.036
C4-252-007	C3-252-001	C4-252-007	0.865	32:50 hr	1.899	0.585	0.334	0.241

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C4-252-007A	C4-252-007	C4-252-004	0.84	33:04 hr	1.883	0.576	0.329	0.234
C4-252-008	C4-252-008	C4-252-005	13.71	36:32 hr	4.321	2.5	1	1.215
D1-212-011	D1-212-011	D1-212-012	0.512	32:45 hr	5.108	0.252	0.252	0.139
D1-212-012	D1-212-012	D2-212-011	0.519	32:45 hr	4.615	0.273	0.273	0.163
D1-212-032	D1-212-032	D1-212-011	0.5	32:46 hr	3.705	0.312	0.312	0.211
D1-242-011	D1-242-011	D1-242-030	0.04	32:28 hr	2.865	0.069	0.083	0.014
D1-242-017	D1-242-017	D1-242-011	0.036	32:21 hr	2.709	0.067	0.08	0.013
D1-242-018	D1-242-018	D1-242-017	0.032	32:15 hr	2.736	0.061	0.073	0.011
D1-242-019	D1-242-019	D1-242-018	0.024	32:15 hr	1.74	0.064	0.064	0.008
D1-242-030	D1-242-030	D1-242-031	0.044	32:30 hr	3.154	0.07	0.083	0.014
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.049	32:26 hr	3.17	0.081	0.121	0.031
D1-251-001	D1-262-049	D1-262-030	0.459	32:31 hr	2.197	0.336	0.192	0.081
D1-251-005	D1-251-023	D1-251-005	0.042	32:28 hr	2.432	0.08	0.097	0.019
D1-251-005A	D1-251-023	D1-251-005	0.038	32:35 hr	2.424	0.081	0.122	0.032
D1-251-005B	D1-251-005	D2-251-014	0.071	32:30 hr	2.399	0.116	0.139	0.042
D1-252-001	D1-252-001	D2-252-002	13.612	36:59 hr	5.841	1.722	0.689	0.82
D1-252-004	D1-252-004	D1-252-001	13.624	36:47 hr	4.294	2.5	1	1.194
D1-252-005	D1-252-005	D2-252-014	0.76	33:31 hr	1.811	0.52	0.26	0.148
D1-252-008	D1-252-008	D1-252-005	0.764	33:30 hr	1.812	0.522	0.261	0.149
D1-252-008A	D1-252-010	D1-252-008	0.765	33:31 hr	1.812	0.522	0.261	0.149
D1-252-009	D1-252-009	D1-252-004	13.639	36:47 hr	4.299	2.5	1	1.217
D1-252-010	D1-252-011	D1-252-010	0.76	33:31 hr	1.83	0.547	0.313	0.212
D1-252-011	D1-252-016	D1-252-011	0.766	33:32 hr	1.834	0.549	0.314	0.214
D1-252-015	D1-252-015	D1-252-009	13.644	36:45 hr	4.301	2.5	1	1.21
D1-252-018	D1-252-018	D1-252-015	13.659	36:47 hr	4.305	2.5	1	1.335
D1-252-019	D1-252-019	D1-252-018	13.667	36:46 hr	4.308	2.5	1	1.089
D1-252-023	D1-252-023	D1-252-016	0.765	33:19 hr	1.834	0.549	0.314	0.213
D1-252-031	D1-252-031	D1-252-023	0.774	33:16 hr	1.84	0.552	0.315	0.216
D1-252-036	D1-252-036	D1-252-031	0.782	33:16 hr	1.845	0.555	0.317	0.218
D1-252-041	D1-252-041	D1-252-036	0.785	33:16 hr	1.848	0.556	0.318	0.219
D1-252-042	D1-252-042	D1-252-041	0.789	33:21 hr	1.85	0.558	0.319	0.22
D1-252-050	D1-252-050	D2-252-067	0.86	32:45 hr	2.178	0.475	0.211	0.098
D1-252-053	D1-252-053	D2-252-085	5.151	34:16 hr	2.537	2	1	1.076
D1-252-056	D1-252-056	D1-252-053	5.153	34:15 hr	3.61	1.324	0.662	0.777
D1-252-057	D1-252-057	D1-252-056	5.153	34:15 hr	4.775	1.05	0.525	0.542
D1-252-059	D1-252-059	D1-252-057	5.133	34:14 hr	4.705	1.059	0.529	0.55
D1-261-001	D1-261-001	D1-252-059	5.133	34:15 hr	5.201	0.978	0.489	0.481
D1-261-003	D1-261-003	D1-252-050	0.865	32:49 hr	2.018	0.503	0.223	0.109
D1-261-006	D1-261-006	D1-261-001	5.032	34:15 hr	9.514	0.614	0.307	0.205
D1-261-008	D1-261-008	D1-261-006	5.027	34:15 hr	5.112	0.975	0.488	0.479
D1-261-020	D1-261-020	D1-261-003	0.707	32:50 hr	1.903	0.455	0.202	0.089
D1-261-021	D1-261-021	D1-261-008	5.008	34:15 hr	5.07	0.979	0.489	0.482
D1-261-023	D1-261-023	D1-261-020	0.668	32:46 hr	1.831	0.449	0.2	0.087
D1-261-036	D1-261-036	D1-261-021	4.986	34:16 hr	4.658	1.043	0.521	0.536
D1-261-037	D1-261-037	D1-261-023	0.649	32:46 hr	1.887	0.431	0.192	0.08
D1-261-052	D1-261-052	D1-261-036	4.962	34:05 hr	2.444	2	1	1.123
D1-261-059	D1-261-059	D1-261-037	0.64	32:35 hr	1.751	0.45	0.2	0.088
D1-261-061	D1-261-061	D1-261-059	0.637	32:43 hr	3.604	0.272	0.121	0.031
D1-261-075	D1-261-075	D1-261-052	4.955	34:03 hr	3.564	1.294	0.647	0.752
D1-261-084	D1-261-084	D1-261-061	0.63	32:34 hr	1.821	0.433	0.192	0.081
D1-261-103	D1-261-103	D1-261-075	4.952	34:02 hr	4.588	1.05	0.525	0.542
D1-261-116	D1-262-001	D1-261-116	0.516	32:32 hr	1.739	0.43	0.246	0.132
D1-261-116A	D1-261-116	D1-261-084	0.592	32:34 hr	1.832	0.457	0.261	0.149
D1-261-117	D1-261-117	D1-261-103	4.939	34:00 hr	6.32	0.818	0.409	0.351
D1-261-128	D1-261-128	D1-261-117	4.917	34:01 hr	2.422	2	1	1.002
D1-262-025	D1-262-025	D1-261-128	4.862	33:53 hr	2.395	2	1	1.446
D1-262-030	D1-262-030	D1-262-001	0.469	32:32 hr	1.736	0.402	0.23	0.116
D1-262-040	D1-262-040	D1-262-025	4.836	33:47 hr	3.453	1.303	0.651	0.759
D1-262-067	D1-262-067	D1-262-040	4.828	33:47 hr	4.329	1.078	0.539	0.566
D1-262-079	D1-262-079	D1-262-049	0.424	32:18 hr	2.131	0.325	0.186	0.075
D1-262-088	D1-262-088	D1-262-067	4.83	33:47 hr	3.333	1.343	0.671	0.791

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-262-100	D1-262-100	D1-262-088	4.822	33:47 hr	3.56	1.266	0.633	0.728
D1-271-018	D1-271-017	D1-271-055	4.843	33:33 hr	3.485	1.294	0.647	0.751
D1-271-051	D1-271-051	D1-271-054	3.743	33:29 hr	5.585	0.78	0.446	0.41
D1-271-054	D1-271-054	D1-271-092	3.774	33:31 hr	5.579	0.735	0.367	0.288
D1-271-055	D1-271-055	D1-262-100	4.834	33:35 hr	2.816	1.576	0.788	0.963
D1-271-092	D1-271-092	D1-271-017	3.761	33:30 hr	5.573	0.734	0.367	0.287
D2-212-001	D2-212-001	D2-212-002	0.533	32:44 hr	4.649	0.277	0.277	0.168
D2-212-002	D2-212-002	D2-212-025	0.533	32:44 hr	4.278	0.294	0.294	0.188
D2-212-003	D2-212-003	D2-212-014	0.553	32:45 hr	5.088	0.267	0.267	0.156
D2-212-011	D2-212-011	D2-212-012	0.532	32:45 hr	4.646	0.277	0.277	0.167
D2-212-012	D2-212-012	D2-212-001	0.531	32:44 hr	4.645	0.277	0.277	0.167
D2-212-013	D2-212-013	D2-212-003	0.549	32:45 hr	4.313	0.299	0.299	0.194
D2-212-014	D2-212-014	D3-212-022	0.558	32:46 hr	4.432	0.296	0.296	0.191
D2-212-025	D2-212-025	D2-212-013	0.533	32:45 hr	4.277	0.294	0.294	0.189
D2-241-006	D2-241-006	D2-241-007	0.037	32:16 hr	1.925	0.093	0.14	0.042
D2-241-007	D2-241-007	D3-241-001	0.04	32:24 hr	1.959	0.098	0.147	0.047
D2-251-004	D2-251-004	D3-251-011	16.499	36:45 hr	4.89	1.733	0.433	0.39
D2-251-005	D2-251-005	D2-251-004	14.203	37:14 hr	10.636	0.885	0.221	0.107
D2-251-008	D2-251-008	9008	0.471	33:01 hr	4.059	0.279	0.279	0.17
D2-251-014	D1-251-005	D2-251-014	0.063	32:31 hr	2.369	0.116	0.174	0.066
D2-251-014A	D2-251-014	D2-251-008	0.385	32:59 hr	8.859	0.14	0.14	0.042
D2-252-002	D2-252-002	D2-252-004	13.612	37:02 hr	4.29	2.5	1	1.155
D2-252-004	D2-252-004	D2-252-005	14.014	36:46 hr	6.385	1.633	0.653	0.762
D2-252-005	D2-252-005	D2-251-005	14.238	36:47 hr	3.515	1.996	0.499	0.498
D2-252-006	D2-252-006	D2-252-005	0.735	33:45 hr	3.299	0.334	0.167	0.061
D2-252-008	D2-252-008	D2-252-006	0.736	33:47 hr	1.755	0.52	0.26	0.148
D2-252-010	D2-252-010	D2-252-008	0.735	33:45 hr	2.933	0.362	0.181	0.071
D2-252-011	D2-252-011	D2-251-004	7.777	32:46 hr	5.728	1.175	0.522	0.538
D2-252-012	D2-252-012	D2-252-010	0.735	33:43 hr	1.85	0.5	0.25	0.137
D2-252-014	D2-252-014	D2-252-012	0.738	33:31 hr	0.751	0.975	0.487	0.479
D2-252-015	D2-252-015	D2-252-011	7.787	32:45 hr	13.387	0.624	0.277	0.168
D2-252-026	D2-252-026	D2-252-015	7.908	32:47 hr	3.993	1.496	0.598	0.669
D2-252-033	D2-252-033	D3-252-012	5.229	34:28 hr	4.823	1.053	0.527	0.546
D2-252-039	D2-252-039	D2-252-033	5.245	34:17 hr	4.611	1.095	0.547	0.581
D2-252-049	D2-252-049	D2-252-039	5.257	34:16 hr	6.607	0.829	0.415	0.36
D2-252-050	D2-252-050	D2-252-026	0.843	33:05 hr	3.16	0.378	0.189	0.078
D2-252-052	D2-252-052	D2-252-050	0.842	32:58 hr	2.187	0.467	0.207	0.094
D2-252-056	D2-252-056	D2-252-052	0.843	32:57 hr	8.567	0.183	0.081	0.013
D2-252-057	D2-252-057	D2-252-049	5.263	34:15 hr	6.805	0.812	0.406	0.346
D2-252-062	D2-252-062	D2-252-057	5.162	34:15 hr	4.652	1.073	0.536	0.562
D2-252-067	D2-252-067	D2-252-056	0.855	32:48 hr	1.864	0.527	0.234	0.12
D2-252-069	D2-252-069	D2-252-062	5.167	34:15 hr	6.645	0.815	0.408	0.349
D2-252-071	D3-252-054	D2-252-071	7.475	32:30 hr	11.114	0.693	0.308	0.206
D2-252-085	D2-252-085	D2-252-069	5.171	34:16 hr	4.95	1.023	0.511	0.519
D2-252-105	D2-252-105	D2-252-026	7.246	32:37 hr	3.569	2	1	1.112
D2-271-017	D2-271-017	D2-271-019	1.1	33:17 hr	3.968	0.476	0.381	0.307
D2-271-019	D2-271-019	D2-271-022	1.093	33:16 hr	3.961	0.474	0.379	0.306
D2-271-022	D2-271-022	D2-271-023	1.089	33:15 hr	3.957	0.473	0.379	0.305
D2-271-023	D2-271-023	D2-271-109	1.087	33:16 hr	3.956	0.473	0.378	0.304
D2-271-039	D2-271-039	D2-271-042	3.631	33:30 hr	6.476	0.739	0.493	0.488
D2-271-042	D2-271-042	D2-271-043	3.63	33:30 hr	5.558	0.765	0.437	0.396
D2-271-043	D2-271-043	D2-271-045	3.628	33:30 hr	5.558	0.765	0.437	0.395
D2-271-045	D2-271-045	D1-271-051	3.74	33:30 hr	5.602	0.778	0.445	0.408
D2-271-048	D2-271-048	D2-271-039	2.944	33:30 hr	3.712	1.25	1	1.815
D2-271-052	D2-271-052	D2-271-048	2.956	33:32 hr	3.727	1.25	1	1.831
D2-271-063	D2-271-063	D2-271-052	2.967	33:20 hr	3.741	1.25	1	1.819
D2-271-067	D2-271-067	D2-271-063	3.007	33:19 hr	3.792	1.25	1	2.066
D2-271-075	D2-271-075	D2-271-067	3.013	33:15 hr	3.798	1.25	1	2.042
D2-271-109	D2-271-109	D1-271-017	1.09	33:15 hr	3.96	0.473	0.379	0.305
D2-272-011	D2-272-011	D2-271-075	2.983	33:12 hr	3.761	1.25	1	2.037
D2-272-023	D2-272-023	D2-272-025	3.133	32:49 hr	3.95	1.25	1	1.908
D2-272-025	D2-272-025	D2-272-029	3.059	33:02 hr	3.857	1.25	1	1.928

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-272-029	D2-272-029	D2-272-011	3.044	33:07 hr	3.838	1.25	1	1.892
D2-272-052	D2-272-052	D2-272-023	3.127	32:51 hr	3.943	1.25	1	2.015
D2-272-070	D2-272-070	D2-272-052	3.244	32:35 hr	4.091	1.25	1	2.011
D2-272-072	D2-272-072	D2-272-070	3.341	32:33 hr	4.212	1.25	1	2.06
D2-272-074	D2-272-074	D2-272-072	3.365	32:32 hr	4.242	1.25	1	2.256
D2-272-075	D2-272-075	D2-272-074	3.339	32:30 hr	4.21	1.25	1	2.053
D2-281-002	D2-281-002	D2-272-075	3.344	32:19 hr	4.216	1.25	1	2.064
D3-212-001	D3-212-001	D3-212-002	0.022	32:17 hr	0.982	0.104	0.155	0.052
D3-212-002	D3-212-002	D3-212-003	0.023	32:25 hr	1.67	0.074	0.111	0.026
D3-212-003	D3-212-003	D3-212-004	0.024	32:28 hr	1.869	0.071	0.106	0.024
D3-212-004	D3-212-004	D3-212-012	0.025	32:30 hr	1.723	0.078	0.117	0.029
D3-212-012	D3-212-012	D3-212-013	0.025	32:28 hr	1.713	0.077	0.116	0.028
D3-212-013	D3-212-013	D3-221-016	0.026	32:29 hr	1.733	0.078	0.118	0.029
D3-212-017	D3-212-017	D3-221-016	0.566	32:45 hr	8.085	0.196	0.196	0.084
D3-212-018	D3-212-018	D3-212-017	0.568	32:45 hr	3.53	0.354	0.354	0.269
D3-212-022	D3-212-022	D3-212-018	0.569	32:46 hr	5.644	0.253	0.253	0.14
D3-212-023	D3-212-023	D3-212-001	0.012	32:15 hr	0.827	0.079	0.118	0.029
D3-221-016	D3-221-016	D3-221-024	0.589	32:46 hr	4.314	0.314	0.314	0.214
D3-221-021	D3-221-021	D4-221-004	0.585	32:46 hr	4.18	0.32	0.32	0.221
D3-221-022	D3-221-022	D3-221-021	0.585	32:46 hr	3.849	0.34	0.34	0.248
D3-221-023	D3-221-023	D3-221-022	0.585	32:46 hr	4.991	0.282	0.282	0.173
D3-221-024	D3-221-024	D3-221-023	0.587	32:46 hr	3.576	0.36	0.36	0.277
D3-232-001	D3-232-015	D3-232-001	0.082	32:30 hr	2.414	0.139	0.208	0.095
D3-232-001A	D3-232-001	D3-232-018	0.247	32:29 hr	3.299	0.244	0.366	0.286
D3-232-009	D3-232-009	D3-232-015	0.083	32:30 hr	2.425	0.14	0.21	0.096
D3-232-017	D3-232-017	D4-232-001	0.274	32:29 hr	6.77	0.157	0.235	0.121
D3-232-018	D3-232-018	D3-232-017	0.254	32:29 hr	7.219	0.142	0.213	0.1
D3-241-001	D3-241-001	D3-241-002	0.042	32:27 hr	1.986	0.1	0.151	0.049
D3-241-002	D3-241-002	D3-241-003	0.047	32:28 hr	2.049	0.106	0.158	0.054
D3-241-003	D3-241-003	D3-241-004	0.054	32:29 hr	2.13	0.113	0.169	0.062
D3-241-004	D3-241-004	D3-241-008	0.056	32:30 hr	2.158	0.115	0.173	0.065
D3-241-005	D3-241-009	D3-241-005	0.069	32:30 hr	2.289	0.127	0.19	0.079
D3-241-005A	D3-241-005	D3-241-006	0.07	32:29 hr	2.299	0.128	0.192	0.081
D3-241-006	D3-241-006	D3-241-007	0.08	32:31 hr	2.395	0.137	0.205	0.092
D3-241-007	D3-241-007	D3-232-009	0.083	32:31 hr	2.426	0.14	0.21	0.096
D3-241-009	D3-241-008	D3-241-009	0.061	32:30 hr	2.212	0.12	0.18	0.071
D3-251-001	D3-251-001	D4-251-018	20.61	35:31 hr	3.893	2.303	0.512	0.52
D3-251-002	D3-251-002	D3-251-001	20.644	35:18 hr	3.817	2.342	0.521	0.535
D3-251-004	D3-251-004	D3-251-016	16.501	36:47 hr	4.45	1.863	0.466	0.443
D3-251-008	D3-251-008	D3-251-012	16.461	36:47 hr	3.295	2.364	0.591	0.656
D3-251-011	D3-251-011	D3-251-015	16.508	36:45 hr	7.776	1.231	0.308	0.206
D3-251-012	D3-251-012	D3-251-013	20.653	35:15 hr	2.543	4	1	1.104
D3-251-013	D3-251-013	D3-251-002	20.694	35:17 hr	4.151	2.197	0.488	0.48
D3-251-014	D3-251-014	D3-251-012	5.245	34:31 hr	2.583	2	1	1.22
D3-251-015	D3-251-015	D3-251-004	16.506	36:45 hr	4.448	1.865	0.466	0.443
D3-251-016	D3-251-016	D3-251-008	16.469	36:45 hr	5.814	1.52	0.38	0.307
D3-252-008	D3-252-008	D3-251-014	5.254	34:31 hr	2.587	2	1	1.07
D3-252-012	D3-252-012	D3-252-008	5.242	34:31 hr	4.532	1.11	0.555	0.594
D3-252-045	D2-252-071	D3-252-045	7.41	32:30 hr	9.854	0.795	0.397	0.333
D3-252-045A	D3-252-045	D2-252-105	7.432	32:31 hr	8.809	0.867	0.433	0.39
D3-252-057	D3-252-057	D3-252-054	7.461	32:30 hr	11.108	0.692	0.308	0.206
D3-261-010	D3-261-010	D3-252-057	7.352	32:30 hr	11.063	0.687	0.305	0.203
D3-261-014	D3-261-014	D3-261-010	6.021	32:30 hr	4.719	1.119	0.497	0.495
D3-261-025	D3-261-025	D3-261-014	5.223	32:46 hr	4.57	1.027	0.457	0.427
D3-261-045	D3-261-045	D3-261-025	5.233	32:33 hr	4.572	1.028	0.457	0.428
D3-261-075	D3-261-075	D3-261-045	5.503	32:33 hr	4.667	1.052	0.468	0.446
D3-261-086	D3-261-086	D3-261-075	5.005	32:31 hr	4.601	1.056	0.528	0.548
D3-261-117	D3-261-117	D3-261-086	5.266	32:34 hr	4.673	1.086	0.543	0.574
D3-261-130	D3-261-130	D3-261-117	5.348	32:31 hr	3.938	1.269	0.634	0.73
D3-262-017	D3-262-017	D3-261-130	5.399	32:32 hr	3.945	1.277	0.638	0.737
D3-262-018	D3-262-018	D3-262-017	3.456	32:31 hr	4.093	0.867	0.434	0.39
D3-262-042	D3-262-042	D3-262-018	1.431	32:34 hr	2.646	0.624	0.312	0.211

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-262-065	D3-262-065	D3-262-122	1.399	32:34 hr	2.508	0.736	0.491	0.485
D3-262-083	D3-262-083	D3-262-065	1.426	32:34 hr	2.859	0.675	0.45	0.417
D3-262-122	D3-262-122	D3-262-042	1.309	32:30 hr	2.466	0.709	0.472	0.454
D3-271-013	D3-271-013	D3-262-083	1.378	32:22 hr	2.849	0.66	0.44	0.4
D3-271-019	D3-271-019	D3-271-024	1.108	33:16 hr	3.974	0.478	0.382	0.31
D3-271-024	D3-271-024	D2-271-017	1.104	33:16 hr	3.973	0.477	0.381	0.309
D3-271-029	D3-271-029	D3-271-013	0.026	32:29 hr	0.885	0.093	0.062	0.008
D3-271-038	D3-271-038	D3-271-019	1.108	33:17 hr	3.976	0.478	0.382	0.31
D3-271-055	D3-271-055	D3-271-038	1.113	33:02 hr	3.982	0.479	0.383	0.311
D3-271-059	D3-271-059	D3-271-055	1.109	33:00 hr	3.982	0.478	0.382	0.31
D3-271-068	D3-271-068	D3-271-069	1.138	33:00 hr	4.004	0.485	0.388	0.318
D3-271-069	D3-271-069	D3-271-070	1.136	33:01 hr	4.004	0.484	0.387	0.318
D3-271-070	D3-271-070	D3-271-072	1.132	33:02 hr	3.999	0.483	0.387	0.316
D3-271-072	D3-271-072	D3-271-059	1.12	33:01 hr	3.988	0.48	0.384	0.313
D3-271-075	D3-271-075	D3-271-068	1.139	33:00 hr	4.006	0.485	0.388	0.318
D3-271-111	D3-271-111	D3-271-029	0.014	32:19 hr	0.756	0.068	0.045	0.004
D3-281-006	D3-281-006	D2-281-002	3.366	32:16 hr	4.244	1.25	1	2.013
D4-221-004	D4-221-004	D4-221-005	0.583	32:57 hr	4.533	0.301	0.301	0.197
D4-221-005	D4-221-005	D4-221-008	0.586	32:58 hr	3.974	0.332	0.332	0.238
D4-221-008	D4-221-008	D4-221-009	0.59	33:01 hr	4.444	0.308	0.308	0.206
D4-221-009	D4-221-009	D4-221-010	0.768	32:45 hr	4.571	0.331	0.265	0.153
D4-221-010	D4-221-010	D4-221-011	0.771	32:46 hr	5.228	0.302	0.241	0.128
D4-221-011	D4-221-011	D4-221-015	0.788	32:46 hr	2.989	0.459	0.367	0.287
D4-232-001	D4-232-001	D4-232-002	0.278	32:30 hr	8.583	0.134	0.201	0.088
D4-232-002	D4-232-002	D4-232-003	0.281	32:29 hr	7.871	0.144	0.216	0.102
D4-232-003	D4-232-003	D4-232-004	0.281	32:29 hr	4.642	0.209	0.314	0.214
D4-232-004	D4-232-004	D4-232-005	0.29	32:30 hr	3.649	0.255	0.383	0.311
D4-232-005	D4-232-005	D4-232-006	0.288	32:31 hr	3.707	0.251	0.376	0.301
D4-232-006	D4-232-006	D4-232-007	0.288	32:32 hr	4.212	0.229	0.343	0.253
D4-232-007	D4-232-007	D4-232-008	0.974	33:00 hr	4.315	0.667	1	1.619
D4-232-008	D4-232-008	9000	0.973	33:01 hr	4.314	0.667	1	1.123
D4-251-001	D4-251-001	E1-251-002	21.128	35:48 hr	3.875	2.358	0.524	0.541
D4-251-005	D4-251-005	D4-251-019	21.138	35:37 hr	2.875	3.027	0.673	0.794
D4-251-008	D4-251-008	D4-251-005	20.596	35:34 hr	3.69	2.402	0.534	0.558
D4-251-018	D4-251-018	D4-251-008	20.604	35:30 hr	3.885	2.306	0.513	0.521
D4-251-019	D4-251-019	D4-251-001	21.132	35:45 hr	2.879	3.022	0.671	0.792
D4-271-014	D4-271-014	D4-271-015	1.154	32:46 hr	4.021	0.488	0.391	0.323
D4-271-015	D4-271-015	D4-271-018	1.151	33:00 hr	4.017	0.488	0.39	0.322
D4-271-018	D4-271-018	D4-271-021	1.15	33:01 hr	4.017	0.487	0.39	0.322
D4-271-021	D4-271-021	D3-271-075	1.147	33:02 hr	4.013	0.487	0.389	0.321
E1-221-001	D4-221-015	E1-221-001	0.792	32:46 hr	3.183	0.439	0.351	0.265
E1-221-001A	E1-221-001	E1-222-004	0.801	32:47 hr	3.351	0.427	0.341	0.251
E1-222-004	E1-222-004	E1-222-005	0.801	32:45 hr	7.152	0.256	0.219	0.105
E1-222-005	E1-222-005	E1-222-006	0.809	32:45 hr	5.132	0.316	0.253	0.14
E1-222-006	E1-222-006	E1-222-007	0.815	32:45 hr	4.205	0.366	0.293	0.187
E1-222-007	E1-222-007	E1-222-011	0.823	32:46 hr	4.222	0.368	0.294	0.189
E1-222-011	E1-222-011	E1-222-012	0.826	32:59 hr	5.281	0.292	0.195	0.083
E1-222-012	E1-222-012	E2-222-075	0.831	33:01 hr	3.396	0.4	0.267	0.156
E1-231-012	E1-231-012	E2-231-021	0.513	32:28 hr	4.751	0.322	0.483	0.472
E1-242-001	E1-242-001	E2-242-034	23.723	35:45 hr	3.835	2.611	0.58	0.638
E1-242-002	E1-242-002	E1-242-001	3.794	34:07 hr	3.507	1.051	0.526	0.544
E1-251-001	E1-251-001	E1-242-001	21.093	35:47 hr	6.714	1.552	0.345	0.256
E1-251-002	E1-251-002	E1-251-001	21.113	35:48 hr	3.657	2.468	0.548	0.583
E1-251-003	E1-251-003	E1-251-025	3.813	34:04 hr	3.118	1.161	0.581	0.639
E1-251-004	E1-251-004	E1-251-003	3.812	34:03 hr	2.994	1.201	0.6	0.673
E1-251-007	E1-251-007	E2-251-027	3.775	34:00 hr	3.791	0.985	0.492	0.487
E1-251-018	E1-251-018	E1-251-007	3.782	33:47 hr	4.238	0.905	0.452	0.42
E1-251-019	E1-251-019	E1-251-018	3.781	33:45 hr	4.257	0.901	0.451	0.418
E1-251-020	E1-251-020	E1-251-019	3.771	33:45 hr	3.866	0.969	0.485	0.474
E1-251-021	E1-251-021	E1-251-020	3.779	33:46 hr	3.862	0.972	0.486	0.476
E1-251-023	E1-251-023	E1-251-021	3.786	33:46 hr	3.895	0.967	0.483	0.472
E1-251-025	E1-251-025	E1-242-002	3.797	34:00 hr	3.112	1.159	0.58	0.637

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-271-068	E1-271-068	E1-271-072	1.173	32:47 hr	4.039	0.493	0.394	0.328
E1-271-072	E1-271-072	E1-271-076	1.158	32:47 hr	4.025	0.489	0.391	0.324
E1-271-076	E1-271-076	D4-271-014	1.147	32:45 hr	4.014	0.487	0.389	0.321
E2-202-016	E2-202-016	E3-202-009	0.404	32:16 hr	4.403	0.284	0.426	0.378
E2-222-015	E2-222-015	E2-222-036	2.775	33:00 hr	7.714	0.529	0.353	0.267
E2-222-016	E2-222-016	E2-222-015	1.439	32:59 hr	15.626	0.237	0.237	0.123
E2-222-017	E2-222-017	E2-222-016	0.847	32:59 hr	8.595	0.212	0.141	0.043
E2-222-028	E2-222-028	E2-222-029	0.607	32:29 hr	4.954	0.356	0.534	0.558
E2-222-028A	E2-222-007	E2-222-028	0.603	32:30 hr	4.946	0.355	0.532	0.555
E2-222-029	E2-222-029	E2-222-030	0.61	32:30 hr	4.96	0.357	0.536	0.561
E2-222-030	E2-222-030	E2-222-031	0.611	32:30 hr	4.962	0.357	0.536	0.562
E2-222-031	E2-222-031	E2-222-048	0.613	32:30 hr	4.966	0.358	0.537	0.564
E2-222-036	E2-222-036	E2-222-037	2.772	33:00 hr	7.238	0.554	0.369	0.29
E2-222-037	E2-222-037	E3-222-065	2.77	33:00 hr	7.351	0.547	0.365	0.284
E2-222-040	E2-222-040	E2-222-015	1.337	33:00 hr	5.926	0.667	1	1.171
E2-222-044	E2-222-044	E2-222-017	0.848	33:02 hr	3.201	0.424	0.282	0.174
E2-222-048	E2-222-048	E2-222-050	0.614	32:30 hr	4.966	0.358	0.538	0.564
E2-222-050	E2-222-050	E2-222-040	1.337	32:59 hr	9.019	0.416	0.625	0.714
E2-222-067	E2-222-067	E2-222-044	0.845	32:59 hr	4.239	0.346	0.231	0.117
E2-222-075	E2-222-075	E2-222-067	0.84	32:59 hr	4.258	0.344	0.229	0.115
E2-231-002	E2-231-002	E2-222-007	0.576	32:30 hr	4.785	0.287	0.287	0.18
E2-231-005	E2-231-005	E2-231-002	0.568	32:30 hr	4.754	0.285	0.285	0.178
E2-231-006	E2-231-006	E2-231-005	0.555	32:30 hr	4.734	0.281	0.281	0.173
E2-231-013	E2-231-013	E2-231-006	0.547	32:30 hr	4.83	0.335	0.502	0.503
E2-231-021	E2-231-021	E2-231-013	0.518	32:30 hr	4.764	0.324	0.486	0.477
E2-231-028	E2-231-028	E2-231-029	0.456	32:15 hr	3.702	0.358	0.536	0.562
E2-231-029	E2-231-029	E2-231-030	0.458	32:15 hr	3.575	0.369	0.553	0.591
E2-231-030	E2-231-030	E2-231-031	0.459	32:20 hr	3.23	0.402	0.603	0.677
E2-231-031	E2-231-031	E2-231-035	0.463	32:27 hr	4.197	0.328	0.491	0.485
E2-231-035	E2-231-035	E2-231-037	0.467	32:28 hr	4.637	0.305	0.458	0.429
E2-231-037	E2-231-037	E1-231-012	0.473	32:29 hr	4.654	0.307	0.461	0.435
E2-242-004	E2-242-004	E3-242-012	23.676	36:04 hr	3.941	2.549	0.567	0.614
E2-242-011	E2-242-011	E2-242-004	23.681	36:03 hr	3.732	2.667	0.593	0.659
E2-242-017	E2-242-017	E2-242-011	23.697	35:51 hr	3.109	3.126	0.695	0.829
E2-242-024	E2-242-024	E2-242-017	23.714	35:47 hr	4.314	2.373	0.527	0.547
E2-242-034	E2-242-034	E2-242-024	23.72	35:46 hr	3.756	2.656	0.59	0.655
E2-251-027	E2-251-027	E1-251-004	3.808	34:00 hr	3.298	1.108	0.554	0.593
E2-251-058	E2-251-058	E1-251-023	3.777	33:45 hr	5.179	0.777	0.388	0.319
E2-252-192	E2-252-192	E2-251-058	3.789	33:47 hr	6.784	0.737	0.491	0.485
E2-252-193	E2-252-193	E2-252-196	3.789	33:46 hr	7.369	0.691	0.461	0.434
E2-252-194	E2-252-194	E2-252-193	3.78	33:45 hr	7.364	0.69	0.46	0.433
E2-252-196	E2-252-196	E2-252-192	3.789	33:45 hr	7.372	0.691	0.461	0.434
E2-271-073	E2-271-076	E2-271-078	1.212	32:32 hr	4.074	0.502	0.401	0.339
E2-271-077	E2-271-078	E2-271-081	1.194	32:46 hr	4.057	0.497	0.398	0.334
E2-271-081	E2-271-081	E2-271-086	1.193	32:47 hr	4.057	0.497	0.398	0.333
E2-271-086	E2-271-086	E1-271-068	1.185	32:47 hr	4.049	0.495	0.396	0.331
E3-202-008	E3-202-010	E3-202-008	0.412	32:30 hr	3.468	0.309	0.37	0.292
E3-202-008A	E3-202-008	E3-202-011	0.419	32:30 hr	3.483	0.311	0.374	0.297
E3-202-009	E3-202-009	E3-202-BV	0.406	32:29 hr	3.459	0.306	0.367	0.288
E3-202-011	E3-202-011	E3-202-012	0.423	32:31 hr	3.587	0.307	0.368	0.29
E3-202-012	E3-202-012	E4-202-001	0.424	32:30 hr	5.185	0.235	0.283	0.174
E3-222-051	E3-222-051	E3-231-006	2.768	33:03 hr	3.589	0.959	0.639	0.739
E3-222-051A	E3-222-064	E3-222-051	2.775	33:01 hr	4.147	0.851	0.568	0.616
E3-222-065	E3-222-065	E3-222-064	2.767	33:00 hr	5.096	0.721	0.481	0.467
E3-231-006	E3-231-006	E4-231-005	2.763	33:06 hr	3.531	0.88	0.503	0.504
E3-241-015	E3-241-015	E4-241-016	26.399	36:18 hr	5.557	2.116	0.47	0.45
E3-241-022	E3-241-022	E3-241-015	26.35	36:03 hr	5.271	2.202	0.489	0.482
E3-241-028	E3-241-028	E3-241-022	26.361	36:02 hr	4.198	2.644	0.588	0.65
E3-241-034	E3-241-034	E3-241-028	4.133	33:15 hr	4.739	1.071	0.714	0.859
E3-241-036	E3-241-036	E3-241-034	4.095	33:14 hr	4.94	1.022	0.681	0.808
E3-241-048	E3-241-048	E3-241-049	4.053	33:13 hr	3.549	1.5	1	1.138
E3-241-049	E3-241-049	E3-241-036	4.09	33:01 hr	5.604	0.915	0.61	0.689

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E3-242-002	E3-242-002	E3-241-028	23.655	36:03 hr	4.397	2.333	0.518	0.531
E3-242-012	E3-242-012	E3-242-002	23.661	36:00 hr	4.991	2.113	0.469	0.449
E3-252-001	E3-252-001	E3-252-003	3.792	33:34 hr	3.32	1.5	1	1.188
E3-252-003	E3-252-003	E3-252-004	3.765	33:34 hr	3.296	1.5	1	1.173
E3-252-004	E3-252-004	E3-252-084	3.771	33:44 hr	7.339	0.691	0.461	0.434
E3-252-084	E3-252-084	E2-252-194	3.773	33:46 hr	7.36	0.69	0.46	0.433
E3-252-085	E3-252-085	E3-252-001	3.793	33:30 hr	3.321	1.5	1	1.19
E3-271-068	E3-271-068	E3-271-072	1.145	32:31 hr	4.019	0.486	0.388	0.319
E3-271-072	E3-271-072	E3-271-074	1.146	32:31 hr	4.013	0.486	0.389	0.32
E3-271-074	E3-271-074	E2-271-076	1.205	32:30 hr	4.068	0.5	0.4	0.337
E3-271-121	E3-271-121	E3-271-123	1.14	32:31 hr	4.011	0.485	0.388	0.318
E3-271-122	E3-271-122	E3-271-121	1.13	32:30 hr	3.419	0.543	0.434	0.391
E3-271-123	E3-271-123	E3-271-068	1.133	32:31 hr	4	0.483	0.387	0.317
E4-202-001	E4-202-001	E4-202-002	0.553	32:30 hr	5.537	0.251	0.251	0.138
E4-202-002	E4-202-002	E4-202-003	0.551	32:31 hr	4.693	0.282	0.282	0.173
E4-202-003	E4-202-003	E4-202-009	0.542	32:30 hr	4.661	0.28	0.28	0.171
E4-202-007	E4-202-007	E4-202-013	0.547	32:30 hr	4.742	0.278	0.278	0.169
E4-202-009	E4-202-009	E4-202-007	0.544	32:30 hr	4.664	0.28	0.28	0.172
E4-202-013	E4-202-013	E4-202-014	0.544	32:31 hr	4.738	0.277	0.277	0.168
E4-202-014	E4-202-014	F1-202-010	0.538	32:31 hr	5.355	0.252	0.252	0.139
E4-231-005	E4-231-005	E4-231-006	2.725	33:15 hr	6.602	0.545	0.311	0.21
E4-231-006	E4-231-006	E4-231-008	2.725	33:16 hr	6.612	0.544	0.311	0.21
E4-231-007	E4-231-007	F1-231-002	2.721	33:18 hr	3.042	1.01	0.606	0.683
E4-231-008	E4-231-008	E4-231-007	2.721	33:15 hr	3.602	0.88	0.528	0.548
E4-232-016	E4-232-016	F1-232-033	26.447	36:30 hr	4.174	2.664	0.592	0.658
E4-241-005	E4-241-005	E4-232-016	26.458	36:19 hr	4.36	2.571	0.571	0.622
E4-241-016	E4-241-016	E4-241-005	26.393	36:16 hr	5.744	2.062	0.458	0.43
E4-241-075	E4-241-075	E4-241-077	3.898	33:00 hr	6.627	0.768	0.512	0.52
E4-241-077	E4-241-077	E4-241-078	3.893	33:02 hr	3.408	1.5	1	1.058
E4-241-078	E4-241-078	E4-241-079	3.871	33:02 hr	4.163	1.138	0.759	0.924
E4-241-079	E4-241-079	E4-241-080	4.02	33:00 hr	3.52	1.5	1	1.218
E4-241-080	E4-241-080	E3-241-048	4.034	33:03 hr	3.532	1.5	1	1.22
E4-241-081	E4-241-081	E4-241-075	3.901	33:00 hr	4.884	0.989	0.659	0.772
E4-242-014	E4-242-014	E4-241-081	3.029	33:02 hr	4.23	0.901	0.6	0.672
E4-242-029	E4-242-029	E4-242-014	3.035	33:03 hr	3.428	1.086	0.724	0.874
E4-242-034	E4-242-034	E4-242-029	3.019	33:00 hr	3.908	0.961	0.64	0.74
E4-242-036	E4-242-036	E4-242-034	3.014	33:00 hr	3.903	0.96	0.64	0.74
E4-242-045	E4-242-045	E4-242-036	3.001	33:01 hr	3.904	0.956	0.638	0.736
E4-242-057	E4-242-057	E4-242-045	2.951	33:01 hr	3.613	1.009	0.672	0.793
E4-242-062	E4-242-062	E4-242-057	2.897	33:00 hr	3.554	1.007	0.671	0.791
E4-242-069	E4-242-069	E4-242-062	2.838	32:48 hr	3.153	1.103	0.735	0.891
E4-242-078	E4-242-078	E4-242-069	2.791	32:48 hr	3.312	1.037	0.692	0.824
E4-251-001	E4-251-001	E4-242-078	2.772	32:45 hr	3.37	1.015	0.677	0.8
E4-252-009	E4-252-009	E3-252-085	3.794	33:30 hr	3.322	1.5	1	1.191
E4-252-010	E4-252-010	E4-252-009	3.796	33:30 hr	3.323	1.5	1	1.194
E4-252-011	E4-252-011	E4-252-010	3.801	33:30 hr	3.328	1.5	1	1.19
E4-252-013	E4-252-013	E4-252-014	3.816	33:15 hr	5.001	0.95	0.634	0.729
E4-252-014	E4-252-014	E4-252-019	3.814	33:15 hr	4.888	0.969	0.646	0.75
E4-252-019	E4-252-019	E4-252-021	3.811	33:17 hr	3.337	1.5	1	1.06
E4-252-021	E4-252-021	E4-252-023	3.792	33:18 hr	3.32	1.5	1	1.042
E4-252-023	E4-252-023	E4-252-011	3.811	33:33 hr	3.337	1.5	1	1.177
E4-252-033	E4-252-033	E4-252-013	3.829	33:17 hr	4.267	1.1	0.733	0.888
E4-252-035	E4-252-035	E4-252-033	3.833	33:15 hr	7.118	0.716	0.478	0.462
E4-252-037	E4-252-037	E4-252-035	3.834	33:16 hr	5.199	0.923	0.615	0.698
E4-271-058	E4-271-058	E4-271-060	1.084	32:32 hr	2.426	0.687	0.55	0.586
E4-271-060	E4-271-060	E4-271-062	1.099	32:31 hr	4.148	0.46	0.368	0.289
E4-271-062	E4-271-062	E4-271-063	1.108	32:31 hr	4.659	0.425	0.34	0.249
E4-271-063	E4-271-063	E4-271-064	1.114	32:30 hr	5.119	0.399	0.319	0.22
E4-271-064	E4-271-064	E3-271-122	1.139	32:31 hr	3.631	0.522	0.417	0.364
F1-202-005	F1-202-005	F1-202-007	0.56	32:44 hr	4.521	0.267	0.213	0.1
F1-202-006	F1-202-006	F1-202-005	0.558	32:45 hr	4.75	0.264	0.227	0.113
F1-202-007	F1-202-007	F2-202-001	0.578	32:45 hr	5.363	0.242	0.194	0.082

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-202-008	F1-202-008	F1-202-006	0.555	32:44 hr	3.435	0.322	0.257	0.145
F1-202-009	F1-202-009	F1-202-008	0.548	32:41 hr	4.86	0.274	0.274	0.164
F1-202-010	F1-202-010	F1-202-009	0.532	32:31 hr	5.113	0.259	0.259	0.146
F1-231-001	F1-231-001	F2-231-024	2.684	33:34 hr	2.596	1.104	0.631	0.725
F1-231-001A	F1-231-003	F1-231-001	2.68	33:19 hr	3.188	0.96	0.576	0.63
F1-231-002	F1-231-002	F1-231-003	2.708	33:20 hr	2.915	1.043	0.626	0.716
F1-232-001	F1-232-001	F2-231-023	28.959	36:32 hr	4.396	2.752	0.612	0.692
F1-232-002	F1-232-002	F1-232-001	28.962	36:32 hr	4.081	2.934	0.652	0.76
F1-232-008	F1-232-008	F1-232-066	3.149	32:30 hr	5.362	0.867	0.694	0.828
F1-232-012	F1-232-012	F1-232-066	26.438	36:30 hr	4.112	2.696	0.599	0.67
F1-232-013	F1-232-013	F1-232-008	3.228	32:33 hr	4.07	1.25	1	1.407
F1-232-014	F1-232-014	F1-232-017	2.773	34:15 hr	4.519	0.903	0.723	0.872
F1-232-017	F1-232-017	F1-232-019	2.788	34:18 hr	3.515	1.25	1	1.175
F1-232-019	F1-232-019	F1-232-013	3.227	32:30 hr	4.069	1.25	1	1.399
F1-232-033	F1-232-033	F1-232-012	26.445	36:33 hr	4.262	2.618	0.582	0.641
F1-232-066	F1-232-066	F1-232-002	28.963	36:20 hr	4.193	2.866	0.637	0.734
F1-241-050	F1-241-050	F1-242-001	0.891	32:45 hr	4.597	0.367	0.293	0.187
F1-241-109	F1-241-109	F1-241-050	0.894	32:49 hr	2.38	0.599	0.48	0.465
F1-241-110	F1-241-110	F1-241-109	0.867	32:48 hr	2.402	0.581	0.465	0.44
F1-242-001	F1-242-001	E4-241-081	0.902	32:45 hr	4.613	0.369	0.295	0.19
F1-251-003	F1-251-003	E4-251-001	2.732	32:45 hr	3.254	1.034	0.689	0.82
F1-251-015	F1-251-015	F1-251-003	2.512	33:01 hr	4.128	0.896	0.717	0.863
F1-251-023	F1-251-023	F1-251-015	2.482	33:01 hr	4.271	0.859	0.687	0.817
F1-251-031	F1-251-031	F1-251-023	2.394	33:00 hr	5.072	0.719	0.575	0.629
F1-251-033	F1-251-033	F1-251-031	2.38	33:00 hr	4.069	0.864	0.691	0.824
F1-251-034	F1-251-034	F1-251-106	2.362	33:00 hr	3.728	0.931	0.745	0.904
F1-251-039	F1-251-039	F1-251-034	2.335	32:47 hr	4.218	0.823	0.658	0.77
F1-251-040	F1-251-040	F1-251-039	2.282	32:47 hr	4.069	0.832	0.666	0.783
F1-251-041	F1-251-041	F1-251-040	2.247	32:45 hr	4.126	0.811	0.649	0.755
F1-251-044	F1-251-044	F1-251-041	2.211	32:46 hr	4.114	0.802	0.641	0.742
F1-251-047	F1-251-047	F1-251-044	2.184	32:47 hr	3.998	0.813	0.65	0.757
F1-251-048	F1-251-048	F1-251-068	2.146	32:45 hr	4.308	0.752	0.601	0.674
F1-251-049	F1-251-049	F1-251-108	2.082	32:46 hr	3.864	0.804	0.643	0.744
F1-251-050	F1-251-050	F1-251-049	2.068	32:46 hr	4.313	0.728	0.582	0.642
F1-251-068	F1-251-068	F1-251-047	2.161	32:45 hr	4.314	0.755	0.604	0.679
F1-251-106	F1-251-106	F1-251-033	2.372	32:59 hr	3.727	0.935	0.748	0.909
F1-251-108	F1-251-108	F1-251-048	2.137	32:45 hr	3.883	0.819	0.655	0.764
F1-252-017	F1-252-017	E4-252-037	3.837	33:15 hr	6.225	0.797	0.531	0.553
F1-252-033	F1-252-033	F1-252-017	3.839	33:15 hr	6.226	0.797	0.531	0.554
F1-252-039	F1-252-039	F1-252-033	3.839	33:15 hr	5.68	0.858	0.572	0.624
F1-261-003	F1-261-003	F1-261-004	3.822	33:14 hr	7.57	0.76	0.608	0.686
F1-261-004	F1-261-004	F1-252-039	3.823	33:13 hr	7.232	0.706	0.471	0.451
F1-261-009	F1-261-009	F1-261-003	3.825	33:00 hr	4.823	1.25	1	1.095
F1-261-026	F1-261-026	F1-261-009	3.834	33:00 hr	4.834	1.25	1	1.098
F1-261-040	F1-261-040	F1-261-026	3.839	33:01 hr	4.84	1.25	1	1.102
F1-261-048	F1-261-048	F1-261-040	3.829	33:01 hr	4.827	1.25	1	1.099
F1-261-058	F1-261-058	F1-261-048	3.834	33:01 hr	6.368	0.887	0.71	0.852
F1-261-064	F1-261-064	F1-261-058	3.834	33:01 hr	5.987	0.941	0.753	0.916
F1-261-070	F1-261-070	F1-261-064	3.81	33:00 hr	5.982	0.936	0.749	0.91
F1-261-075	F1-261-075	F1-261-070	3.802	33:00 hr	4.793	1.25	1	1.041
F1-261-078	F1-261-078	F1-261-075	3.735	33:01 hr	4.71	1.25	1	1.023
F1-261-081	F1-261-081	F1-261-078	3.719	33:01 hr	4.689	1.25	1	1.196
F1-261-089	F1-261-089	F1-261-081	3.712	33:01 hr	4.68	1.25	1	1.194
F1-261-095	F1-261-095	F1-261-089	3.69	33:01 hr	4.652	1.25	1	1.182
F1-261-097	F1-261-097	F1-261-095	3.691	33:00 hr	4.654	1.25	1	1.183
F1-261-106	F1-261-106	F1-261-097	3.688	33:00 hr	4.65	1.25	1	1.181
F1-271-101	F1-271-101	F1-271-103	0.893	32:21 hr	2.313	0.612	0.489	0.482
F1-271-103	F1-271-103	E4-271-058	1.029	32:30 hr	2.808	0.588	0.47	0.45
F2-202-001	F2-202-001	F2-202-023	0.585	32:45 hr	4.271	0.286	0.229	0.115
F2-202-002	F2-202-002	F2-202-007	0.624	32:45 hr	4.297	0.298	0.239	0.125
F2-202-003	F2-202-003	F2-202-005	0.6	32:45 hr	4.373	0.287	0.229	0.115
F2-202-004	F2-202-004	F2-202-006	0.642	32:45 hr	4.209	0.309	0.247	0.134

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F2-202-005	F2-202-005	F2-202-002	0.607	32:45 hr	4.494	0.283	0.227	0.113
F2-202-006	F2-202-006	F2-202-024	0.649	32:45 hr	5.69	0.252	0.201	0.089
F2-202-007	F2-202-007	F2-202-004	0.64	32:44 hr	4.57	0.291	0.233	0.119
F2-202-023	F2-202-023	F2-202-003	0.591	32:45 hr	3.961	0.304	0.243	0.13
F2-202-024	F2-202-024	F3-202-006	0.652	32:45 hr	4.844	0.283	0.226	0.112
F2-231-004	F2-231-004	F3-231-015	30.819	36:38 hr	3.514	3.58	0.796	0.972
F2-231-010	F2-231-010	F2-231-004	30.568	36:35 hr	4.423	2.867	0.637	0.735
F2-231-016	F2-231-016	F2-231-010	28.94	36:33 hr	4.371	2.764	0.614	0.696
F2-231-023	F2-231-023	F2-231-016	28.951	36:33 hr	4.207	2.856	0.635	0.731
F2-231-024	F2-231-024	F2-231-010	2.688	33:36 hr	2.237	1.263	0.722	0.871
F2-232-002	F2-232-002	F2-232-003	2.624	34:03 hr	3.308	1.25	1	1.145
F2-232-003	F2-232-003	F2-232-004	2.661	34:16 hr	3.355	1.25	1	1.177
F2-232-004	F2-232-004	F2-232-005	2.693	34:14 hr	3.395	1.25	1	1.192
F2-232-005	F2-232-005	F2-232-006	2.715	34:16 hr	3.423	1.25	1	1.242
F2-232-006	F2-232-006	F1-232-014	2.76	34:15 hr	3.479	1.25	1	1.151
F2-232-007	F2-232-007	F2-232-002	2.61	34:02 hr	3.291	1.25	1	1.361
F2-242-055	F2-242-055	F1-241-110	0.828	32:36 hr	2.306	0.578	0.463	0.437
F2-242-056	F2-242-056	F2-242-055	0.792	32:34 hr	2.425	0.538	0.431	0.385
F2-251-012	F2-251-012	F2-251-028	1.918	32:30 hr	4.503	0.661	0.529	0.55
F2-251-016	F2-251-016	F2-251-017	1.93	32:45 hr	4.408	0.676	0.541	0.57
F2-251-017	F2-251-017	F2-252-027	1.943	32:46 hr	4.548	0.663	0.53	0.552
F2-251-018	F2-251-018	F1-251-050	2.038	32:46 hr	4.741	0.666	0.533	0.556
F2-251-028	F2-251-028	F2-251-016	1.929	32:31 hr	4.51	0.664	0.531	0.553
F2-252-027	F2-252-027	F2-251-018	2.022	32:45 hr	4.588	0.68	0.544	0.575
F2-261-053	F2-261-053	F1-261-106	3.412	33:01 hr	6.673	0.768	0.615	0.697
F2-262-011	F2-262-011	F2-261-053	3.416	33:02 hr	5.758	0.875	0.7	0.838
F2-262-017	F2-262-017	F2-262-011	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-020	F2-262-020	F2-262-017	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-029	F2-262-029	F2-262-020	3.385	33:01 hr	6.012	0.835	0.668	0.786
F2-262-032	F2-262-032	F2-262-029	3.387	33:01 hr	4.271	1.25	1	1.248
F2-262-038	F2-262-038	F2-262-032	3.335	33:01 hr	5.06	0.968	0.775	0.945
F3-202-006	F3-202-006	F3-202-007	0.664	32:44 hr	4.421	0.305	0.244	0.131
F3-202-007	F3-202-007	F3-211-010	0.688	32:45 hr	4.469	0.311	0.249	0.136
F3-211-010	F3-211-010	F3-211-011	0.726	32:45 hr	4.917	0.302	0.241	0.128
F3-211-011	F3-211-011	F3-211-012	0.729	32:45 hr	4.565	0.319	0.255	0.143
F3-211-012	F3-211-012	F3-211-013	0.78	32:44 hr	4.773	0.324	0.259	0.147
F3-211-013	F3-211-013	F4-211-002	0.785	32:44 hr	4.612	0.334	0.267	0.156
F3-222-007	F3-222-007	F3-222-019	30.803	37:03 hr	4.291	2.963	0.659	0.77
F3-222-008	F3-222-008	F3-222-007	30.81	36:50 hr	4.206	3.017	0.67	0.79
F3-222-008A	F3-222-020	F3-222-008	30.819	36:47 hr	4.534	2.827	0.628	0.72
F3-222-019	F3-222-019	F4-222-013	30.798	37:03 hr	4.118	3.073	0.683	0.81
F3-231-015	F3-231-015	F3-222-020	30.815	36:47 hr	3.515	3.579	0.795	0.972
F3-232-001	F3-232-001	F2-232-007	2.593	34:00 hr	3.269	1.25	1	1.06
F3-232-002	F3-232-002	F3-232-001	2.566	34:02 hr	3.235	1.25	1	1.257
F3-232-003	F3-232-003	F3-232-002	2.564	34:01 hr	3.233	1.25	1	1.209
F3-232-004	F3-232-004	F3-232-005	2.182	34:00 hr	3.779	0.814	0.611	0.69
F3-232-005	F3-232-005	F3-232-006	2.243	34:01 hr	3.289	0.943	0.707	0.848
F3-232-006	F3-232-006	F3-232-007	2.319	34:00 hr	3.85	0.844	0.633	0.728
F3-232-007	F3-232-007	F3-232-003	2.557	34:01 hr	5.943	0.667	0.533	0.557
F3-241-004	F3-241-004	F3-242-011	0.544	32:30 hr	3.551	0.31	0.248	0.134
F3-241-005	F3-241-005	F3-241-004	0.551	32:32 hr	2.09	0.458	0.367	0.287
F3-241-006	F3-241-006	F3-241-005	0.465	32:32 hr	2.114	0.401	0.321	0.223
F3-242-010	F3-242-010	F2-242-056	0.731	32:34 hr	2.242	0.537	0.43	0.384
F3-242-011	F3-242-011	F3-242-010	0.644	32:33 hr	2.193	0.497	0.397	0.333
F3-251-023	F3-251-023	F3-251-082	1.513	33:02 hr	4.176	0.582	0.466	0.443
F3-251-024	F3-251-024	F2-251-012	1.944	32:32 hr	4.037	0.731	0.584	0.645
F3-251-082	F3-251-082	F3-251-024	1.551	33:00 hr	5.53	0.48	0.384	0.313
F3-252-001	F3-252-001	F3-252-003	1.452	33:00 hr	4.761	0.511	0.409	0.351
F3-252-003	F3-252-003	F3-251-023	1.505	33:00 hr	4.806	0.521	0.417	0.363
F3-262-038	F3-262-038	F2-262-038	3.317	33:00 hr	6.179	0.801	0.641	0.741
F3-262-052	F3-262-052	F3-262-038	3.329	32:48 hr	4.197	1.25	1	1.236
F3-262-057	F3-262-057	F3-262-052	3.323	32:46 hr	6.129	0.808	0.646	0.75

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F3-262-063	F3-262-063	F3-262-057	3.183	32:46 hr	7.756	0.642	0.514	0.523
F3-271-152	F3-271-152	F3-262-074	3.142	32:46 hr	3.961	1.25	1	1.059
F3-271-152A	F3-262-074	F3-262-063	3.197	32:47 hr	4.031	1.25	1	1.174
F3-271-153	F3-271-153	F3-271-152	3.115	32:45 hr	7.081	0.679	0.543	0.574
F4-0232-BV	F4-0232-BV	F4-232-004	2.113	33:50 hr	4.163	1	1	2.68
F4-211-002	F4-211-002	F4-211-003	0.791	32:44 hr	5.407	0.3	0.24	0.126
F4-211-003	F4-211-003	F4-211-015	0.793	32:44 hr	5.152	0.311	0.249	0.136
F4-211-004	F4-211-004	F4-211-005	0.801	32:44 hr	8.299	0.224	0.179	0.07
F4-211-005	F4-211-005	F4-211-013	0.807	32:44 hr	5.684	0.293	0.235	0.121
F4-211-006	F4-211-006	F4-211-007	0.837	32:45 hr	3.497	0.427	0.341	0.251
F4-211-007	F4-211-007	G1-211-003	0.843	32:45 hr	4.773	0.343	0.274	0.165
F4-211-013	F4-211-013	F4-211-014	0.827	32:44 hr	7.15	0.254	0.203	0.091
F4-211-014	F4-211-014	F4-211-006	0.833	32:45 hr	4.061	0.382	0.305	0.203
F4-211-015	F4-211-015	F4-211-004	0.796	32:44 hr	5.159	0.311	0.249	0.136
F4-221-022	F4-221-022	G1-221-029	30.804	37:18 hr	4.723	2.729	0.606	0.683
F4-222-003	F4-222-003	F4-221-022	30.805	37:15 hr	4.209	3.014	0.67	0.789
F4-222-013	F4-222-013	F4-222-003	30.817	37:03 hr	4.505	2.842	0.632	0.725
F4-232-004	F4-232-004	F4-232-005	2.127	33:59 hr	4.19	1	1	2.608
F4-232-005	F4-232-005	F4-232-006	2.133	34:01 hr	4.203	1	1	1.229
F4-232-006	F4-232-006	F3-232-004	2.141	34:00 hr	3.409	0.875	0.656	0.767
F4-241-002	F4-241-002	G1-241-001	2.013	33:45 hr	5.71	0.833	1	1.342
F4-241-003	F4-241-003	F4-241-002	2.013	33:48 hr	5.71	0.833	1	2.235
F4-241-004	F4-241-004	F4-241-003	2.003	33:47 hr	5.683	0.833	1	2.592
F4-241-005	F4-241-005	F4-241-004	2	33:34 hr	5.672	0.833	1	2.406
F4-241-006	F4-241-006	F4-241-005	1.957	33:32 hr	5.552	0.833	1	1.734
F4-241-007	F4-241-007	F4-241-006	1.919	33:33 hr	5.443	0.833	1	2.084
F4-241-008	F4-241-008	F4-241-007	1.816	33:33 hr	5.152	0.833	1	2.098
F4-241-009	F4-241-009	F3-241-006	0.379	32:32 hr	1.902	0.374	0.299	0.195
F4-241-010	F4-241-010	F4-241-009	0.289	32:31 hr	1.809	0.32	0.256	0.143
F4-241-011	F4-241-011	F4-241-010	0.191	32:18 hr	1.753	0.244	0.195	0.083
F4-251-016	F4-251-016	F4-251-022	1.435	33:01 hr	4.599	0.52	0.416	0.362
F4-251-022	F4-251-022	F4-251-023	1.436	33:01 hr	4.508	0.528	0.422	0.372
F4-251-023	F4-251-023	F4-252-003	1.45	33:01 hr	4.301	0.551	0.441	0.402
F4-252-003	F4-252-003	F3-252-001	1.452	33:02 hr	4.318	0.55	0.44	0.4
F4-252-005	F4-252-005	F4-251-016	1.388	33:01 hr	4.702	0.499	0.399	0.335
F4-271-034	G1-271-007	F4-271-034	3.073	32:30 hr	5.678	0.807	0.645	0.748
F4-271-034A	F4-271-034	F4-271-075	3.077	32:30 hr	5.455	0.836	0.669	0.788
F4-271-069	F4-271-069	F4-271-073	3.066	32:32 hr	5.246	0.863	0.691	0.823
F4-271-070	F4-271-070	F3-271-153	3.142	32:47 hr	5.683	0.822	0.657	0.769
F4-271-072	F4-271-072	F4-271-070	3.12	32:48 hr	3.933	1.25	1	1.083
F4-271-073	F4-271-073	F4-271-072	3.072	32:47 hr	6.061	0.763	0.61	0.689
F4-271-075	F4-271-075	F4-271-069	3.081	32:31 hr	5.457	0.837	0.67	0.789
G1-211-003	G1-211-003	9010	1.262	32:33 hr	2.099	0.886	0.709	0.851
G1-221-001	G1-221-001	G2-212-041	31.473	37:22 hr	3.062	4.5	1	1.06
G1-221-005	G1-221-005	G1-221-001	31.489	37:18 hr	5.013	2.644	0.588	0.651
G1-221-010	G1-221-010	G1-221-005	31.492	37:17 hr	4.745	2.769	0.615	0.698
G1-221-029	G1-221-029	G1-221-010	30.797	37:19 hr	3.791	3.317	0.737	0.893
G1-232-012	G1-232-012	F4-0232-BV	2.091	33:48 hr	4.12	1	1	2.036
G1-241-001	G1-241-001	G1-232-012	2.013	33:45 hr	8.846	0.459	0.459	0.432
G1-241-002	G1-241-002	F4-241-008	1.712	33:30 hr	4.856	0.833	1	1.753
G1-242-001	G1-242-001	G1-241-002	0.51	32:36 hr	2.306	0.501	0.601	0.673
G1-242-006	G1-242-006	G1-242-001	0.506	32:33 hr	2.396	0.482	0.578	0.635
G1-242-014	G1-242-014	G1-242-006	0.494	32:33 hr	2.562	0.447	0.537	0.563
G1-242-025	G1-242-025	G1-242-014	0.485	32:32 hr	2.615	0.434	0.52	0.535
G1-242-028	G1-242-028	G1-242-025	0.225	32:29 hr	2.134	0.282	0.339	0.247
G1-242-038	G1-242-038	G1-242-028	0.222	32:33 hr	1.893	0.305	0.367	0.287
G1-242-045	G1-242-045	G1-242-038	0.203	32:19 hr	1.894	0.286	0.344	0.254
G1-252-004	G1-252-004	G1-252-005	1.314	33:01 hr	4.706	0.539	0.539	0.567
G1-252-005	G1-252-005	F4-252-005	1.36	33:02 hr	3.983	0.557	0.445	0.409
G1-252-006	G1-252-006	G1-252-004	1.31	33:00 hr	3.963	0.62	0.62	0.706
G1-252-007	G1-252-007	G1-252-006	1.29	33:01 hr	3.752	0.641	0.641	0.742
G1-252-008	G1-252-008	G1-252-007	1.253	33:00 hr	4.061	0.585	0.585	0.646

Future System PWWF Run - Gravity Main Output (No Improvements)

ID	From ID	To ID	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G1-252-009	G1-252-009	G1-252-008	1.25	33:00 hr	4.017	0.589	0.589	0.653
G1-252-011	G1-252-011	G1-252-009	1.243	32:54 hr	3.75	0.621	0.621	0.708
G1-271-007	G1-271-013	G1-271-007	3.05	32:30 hr	5.668	0.803	0.642	0.743
G1-271-013	G1-271-030	G1-271-013	3.069	32:30 hr	5.678	0.806	0.645	0.747
G1-271-030	G1-271-041	G1-271-030	3.109	32:31 hr	4.527	1.01	0.808	0.987
G1-271-042	G1-271-047	G1-271-042	2.777	32:30 hr	4.265	0.956	0.765	0.933
G1-271-047	G1-272-045	G1-271-047	2.803	32:31 hr	6.432	0.674	0.539	0.567
G1-272-045	G1-272-065	G1-272-045	2.742	32:33 hr	4.435	0.909	0.728	0.879
G1-272-065	G1-272-066	G1-272-065	2.687	32:30 hr	4.422	0.895	0.716	0.862
G1-272-066	G2-272-001	G1-272-066	2.687	32:30 hr	4.422	0.895	0.716	0.862
G2-212-001	G2-212-001	G3-212-007	31.561	37:37 hr	3.07	4.5	1	1.215
G2-212-002	G2-212-003	G2-212-002	31.574	37:30 hr	6.297	2.207	0.49	0.484
G2-212-002A	G2-212-002	G2-212-001	31.571	37:33 hr	3.663	3.517	0.781	0.954
G2-212-014A	G2-212-014	G2-212-003	7.001	37:30 hr	8.915	0.974	0.65	0.756
G2-212-015	G2-212-015	G2-212-014	31.55	37:30 hr	5.967	2.301	0.511	0.519
G2-212-032	G2-212-032	G2-212-047	31.557	37:31 hr	4.62	2.838	0.631	0.724
G2-212-035	G2-212-035	G2-212-032	31.558	37:29 hr	4.289	3.028	0.673	0.794
G2-212-038	G2-212-038	G2-212-035	31.559	37:29 hr	4.537	2.883	0.641	0.741
G2-212-041	G2-212-041	G2-212-038	31.559	37:24 hr	3.729	3.452	0.767	0.936
G2-212-047	G2-212-047	G2-212-015	31.554	37:31 hr	3.682	3.496	0.777	0.949
G2-252-043	G2-252-043	G2-252-045	1.16	32:46 hr	4.024	0.553	0.553	0.592
G2-252-044	G2-252-044	G2-252-043	1.176	32:47 hr	3.81	0.585	0.585	0.647
G2-252-045	G2-252-045	G1-252-011	1.213	32:59 hr	3.952	0.583	0.583	0.642
G2-252-046	G2-252-046	G2-252-044	1.181	32:47 hr	3.901	0.576	0.576	0.63
G2-252-047	G2-252-047	G2-252-046	1.172	32:46 hr	5.97	0.411	0.411	0.354
G2-272-014	G2-272-014	G2-272-001	2.722	32:32 hr	4.309	0.929	0.743	0.902
G2-272-036	G2-272-036	G2-272-014	2.705	32:31 hr	4.233	0.939	0.751	0.913
G2-272-049	G2-272-049	G2-272-036	2.644	32:31 hr	4.235	0.918	0.734	0.889
G2-272-055	G2-272-055	G2-272-049	2.543	32:30 hr	3.778	0.989	0.791	0.967
G2-272-068	G2-272-068	G2-272-055	2.103	32:30 hr	3.684	0.845	0.676	0.8
G2-272-080	G2-272-080	G2-272-068	2.016	32:16 hr	5.542	0.584	0.467	0.445
G3-211-015	G3-211-015	G3-211-018	36.95	37:47 hr	4.791	3.16	0.702	0.841
G3-211-018	G3-211-018	G3-211-017	36.856	37:46 hr	4.786	3.156	0.701	0.839
G3-212-006	G3-212-006	G3-212-007	3.279	32:15 hr	8.033	0.639	0.512	0.52
G3-212-007	G3-212-007	G3-211-015	34.833	37:46 hr	3.389	4.5	1	1.385
G3-252-026	G3-252-026	G3-252-028	1.103	32:46 hr	4.645	0.475	0.475	0.457
G3-252-027	G3-252-027	G3-252-026	1.105	32:45 hr	7.435	0.334	0.334	0.241
G3-252-028	G3-252-028	G3-252-029	1.099	32:46 hr	3.709	0.566	0.566	0.613
G3-252-029	G3-252-029	G2-252-047	1.177	32:46 hr	3.874	0.578	0.578	0.633
G3-252-030	G3-252-030	G3-252-027	1.106	32:45 hr	6.845	0.355	0.355	0.271
G3-252-031	G3-252-031	G3-252-030	1.106	32:46 hr	3.921	0.544	0.544	0.575
G3-252-032	G3-252-032	G3-252-031	1.086	32:46 hr	3.591	0.576	0.576	0.63
G4-252-008	G4-252-008	G3-252-032	1.082	32:45 hr	3.933	0.533	0.533	0.556
G4-252-008A	G4-261-001	G4-252-008	0.946	32:45 hr	3.803	0.492	0.492	0.487
G4-261-008	G4-261-008	G4-261-015	0.956	32:31 hr	4.24	0.667	1	1.169
G4-261-015	G4-261-015	G4-261-016	0.948	32:32 hr	4.202	0.667	1	1.916
G4-261-016	G4-261-016	G4-261-017	0.927	32:31 hr	4.11	0.667	1	2.272
G4-261-017	G4-261-017	G4-261-029	0.917	32:30 hr	6.401	0.325	0.325	0.229
G4-261-018	G4-261-018	G4-261-020	0.938	32:45 hr	3.617	0.508	0.508	0.514
G4-261-020	G4-261-020	G4-261-021	0.942	32:46 hr	3.746	0.497	0.497	0.494
G4-261-021	G4-261-021	G4-261-001	0.947	32:45 hr	3.908	0.482	0.482	0.47
G4-261-029	G4-261-029	G4-261-018	0.924	32:32 hr	3.528	0.512	0.512	0.521
H1-261-006	H1-261-006	H1-261-025	0.85	32:30 hr	3.948	0.489	0.587	0.65
H1-261-008	H1-261-008	H1-261-009	0.896	32:29 hr	6.679	0.338	0.405	0.345
H1-261-009	H1-261-009	H1-261-010	0.904	32:32 hr	4.624	0.539	0.809	0.988
H1-261-010	H1-261-010	H1-261-011	0.917	32:32 hr	4.065	0.667	1	1.187
H1-261-011	H1-261-011	H1-261-012	0.942	32:32 hr	4.176	0.667	1	1.032
H1-261-012	H1-261-012	H1-261-015	0.937	32:31 hr	4.155	0.667	1	1.179
H1-261-015	H1-261-015	G4-261-008	0.955	32:30 hr	4.233	0.667	1	1.232
H1-261-025	H1-261-025	H1-261-008	0.861	32:30 hr	4.61	0.436	0.524	0.54
H1-262-023	H1-262-023	H1-261-006	0.825	32:17 hr	4.209	0.454	0.544	0.576

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1118	4685								0.02	0
1130	4,698.91							0.018	0	0.023
1132	4,698.91							0.001	0	
1134	4,664.76							0.006	0	
1136	4,668.30							0.001	0	
1138	4,650.91							0.007	0.001	
1140	4,648.22							0.006	0.001	
1142	4,645.25							0.003	0	
1144	4,638.52							0.007	0	
1146	4,869.65							0.052	0	
1148	4,714.99							0.02	0	
1150	4,785.00							0.037	0	
1152	4,745.54							0.034	0	
1154	4,715.00							0.03	0	
1156	4,694.95							0.016	0	
1158	4,681.56							0.009	0	
1176	4,796.40							0.002	0	
1178	4,767.14							0.001	0	
1180	4,746.00							0.001	0	
1182	4,733.95							0.002	0	0.013
1184	4,674.06							0.002	0	
1186	4,656.75							0.001	0	
1188	4,641.11							0.001	0	
1190	4,603.00							0.015	0	
1220	4,580.00									
1222	4,564.00							0.017	0	
1224	4,557.00							0.012	0	
1226	4,550.00							0.094	0.008	
1228	4,535.00							0.002	0.054	
1230	4,521.67							0	0.031	
1236	4,609.12							0.005	0	
1238	4,600.22							0.011	0	
1240	4,568.00							0.014	0	
1242	4,555.00							0.097	0	
1244	4,547.00							0.127	0.012	
1246	4,544.96							0.021	0.026	
1248	4,538.00							0.024	0.021	
1250	4,535.00							0	0.004	
1252	4,539.02							0.015	0.001	
1254	4,536.00							0.017	0.015	
1256	4,644.94							0.021	0	
1258	4,595.00							0.039	0	
1260	4,582.00							0.075	0	
1262	4,582.08							0.2	0.002	
1264	4,565.00							0.15	0	
1266	4,557.00							0.176	0.003	
1268	4,544.00							0.017	0	
1272	4,674.00							0.115	0	
1274	4,647.41							0.028	0	
1276	4,628.00							0.036	0	0.056
1278	4,612.05							0.044	0.004	0.104
1284	4,704.00							0.073	0	
1286	4,703.00							0.002	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1288	4,691.30							0.005	0	
1290	4,675.00							0.012	0	
1292	4,664.09							0.006	0	
1294	4,664.00							0.005	0	
1296	4,645.00							0.011	0	
1298	4,619.00							0.026	0	
1300	4,595.00							0.041	0	
1302	4,588.00							0.005	0.002	
1304	4,582.00							0.004	0	
1306	4,575.00							0.004	0	
1308	4,665.00							0.006	0	
1310	4,628.00							0.005	0	
1312	4,620.61							0.016	0	
1314	4,585.00							0.01	0.009	
1316	4,538.00							0.001	0.014	
132	4,559.77	0.005	0.047					0.01	0	0.016
1332	4,709.12							0.03	0	
1334	4,701.50							0.002	0	
1338	4,722.82							0.001	0	
134	4,555.68	0								
1340	4,684.59							0.003	0	
1344	4,754.53							0.002	0	
1346	4,841.01							0.013	0	
1348	4,753.80							0.004	0	
1350	4,742.00							0.004	0	
1352	4,689.00							0.009	0	
1354	4,649.17							0.003	0	
1356	4,652.84							0.008	0	
1358	4,629.00									
136	4,536.74	0.006						0	0	
1360	4,619.60							0.018	0	
1362	4,569.93							0.009	0	
1364	4,567.00							0.01	0	
1372	4,803.00							0.125	0.072	
1374	4,803.00							0.15	0.086	
1376	4,775.81									
1378	4,725.69							0.455	0.054	
1380	4,765.00									
1382	4,784.68							0	0.043	
1384	4,808.00							0.011	0.012	
1386	4,843.87							0	0.009	
1394	4,692.06							0.001	0	
1396	4,775.00							0.272	0.031	
1398	4,760.49							0.051	0.019	
14	4,640.70	0.008	0.086					0.042	0	
140	4,531.97	0.001	0.026					0.002	0	0.017
1404	4,667.67							0.027	0	
1406	4,659.23							0.049	0.002	
1422	4,696.00							0.004	0	
1424	4,696.00							0	0	
1426	4,697.00							0	0	
1428	4,554.00							0	0	
1430	4,555.49									

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
148	4,532.39									
150	4,661.19	0.008						0.002	0	
152	4,560.00									
154										
1554	4,520.30									
1558	4,533.00							0	0.009	
1560	4,528.00							0	0.004	
1562	4,527.00							0	0.005	
1564	4,525.69							0	0.003	
1566	4,525.00									0.023
1568	4,543.00							0.036	0	
1570	4,542.00							0.008	0	
1572	4,558.00							0.034	0	
1574	4,785.78							0.5	0.01	
1576	4,750.64							0.061	0	
1578	4,714.95							0.043	0.005	
1580	4,705.45							0.057	0.005	
1582	4,683.88							0.003	0	
1584	4,680.21							0.003	0	
1586	4,676.34							0.006	0	
1588	4,674.51							0.001	0	
1590	4,666.00							0.012	0	
1596	4,602.00							1.5	0.098	
1610	4,657.00									
1612	4,706.00							0.099	0	
1614	4,699.50							0.047	0	
1618	4,683.00									
1620	4,542.00							0	0	
1622	4,545.00							0.001	0	
1624	4,545.00							0	0	
1626	4,547.00							0	0	
1628	4,548.00							0	0	
1630	4,548.00							0.004	0	
1632	4,550.00									
1634	4,550.00									
1636	4,552.00									
1638	4,555.00									
1640	4,555.00									
1642	4,565.00									
1644	4,575.00							0	0	
1646	4,585.00							0	0	
1648	4,595.00							0	0	
1650	4,597.00							0	0	
1652	4,608.00							0.001	0	
1654	4,615.00							0.002	0	
1656	4,615.00							0.002	0	
1658	4,625.00							0	0	
1660	4,688.00							0.069	0	
1668	4,943.00							0.066	0	
1672	4,668.00							0.13	0.033	
1676	4,637.70	0.094						0.047	0	
1678	4,670.00							0.022	0.001	
1680	4,669.00							0.052	0.005	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
1682	4,728.00							0.06	0	
1684	4,738.00							0.025	0	
1686	4,775.00							0.035	0	
1688	4,829.00							0.042	0	
1700	4,655.00							0.003	0	
1730	4,680.00									
1732	4,670.00									
1734	4,658.00									
1736	4,640.00									
1738	4,630.00									
1740	4,600.00									
1742	4,580.00									
48	4,663.66	0.001	0.008					0	0	
50	4,662.47	0								
52	4,661.49	0						0	0	
54	4,660.60	0								
56	4,661.79	0								
58	4,659.69	0								
60	4,659.26	0.001								
62	4,658.85	0.001								
64	4,659.13	0.001	0.001					0	0	
66	4,658.47	0						0	0	
68	4,655.95	0						0	0	
70	4,655.24	0.001	0.002							
74	4,631.62	0.001								
76	4,624.82	0	0.004							
770	4,621.89	0.003						0	0	
772	4,627.37	0.003						0	0	
774	4,629.57	0.002	0.006					0.001	0	
776	4,629.63							0.018	0	
778	4,628.22	0						0	0	
78	4,622.00	0.001								
780	4,603.69									
80	4,622.00	0								
802	4,537.13		0.037							
804	4,593.40	0.001	0.021	0.81		0.007		0	0.035	
810	4,555.00							0.032	0.053	
812	4,544.00							0.003	0.008	
814	4,534.90							0.001	0.01	0.057
82	4,603.00	0								
916	4,593.00							0.285	0.032	
B1-272-001	4,656.60		0.03					0.006	0	
B1-272-002	4,657.28							0.001	0	
B1-272-003	4,658.04							0.004	0	
B1-272-005	4,659.62							0.006	0	
B1-272-007	4,660.98							0.013	0	
B1-272-010	4,654.15							0.004	0	
B1-272-012	4,653.42							0.015	0	
B1-272-013	4,650.96							0.015	0	
B1-272-015	4,650.38							0.031	0	
B1-272-016	4,649.85							0.015	0.002	
B1-281-001	4,662.51							0.007	0	
B1-281-002	4,664.91							0.004	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B1-281-004	4,667.12		0.07					0	0	
B1-281-005	4,668.75							0.003	0	
B1-281-006	4,670.69							0.003	0	
B1-281-007	4,671.37							0.002	0	
B1-281-009	4,674.29							0.005	0	
B1-281-010	4,675.02		0.048					0.03	0	0.033
B1-292-001	4,714.95		0.009					0.001	0	
B1-292-002	4,714.30							0.001	0	
B1-292-003	4,716.66							0.009	0	
B1-292-004	4,715.14							0.033	0	
B1-292-010	4,714.07							0.003	0	
B1-292-011	4,709.88							0.005	0	
B1-292-012	4,682.02							0.004	0	
B1-292-013	4,699.01							0.006	0	
B1-292-014	4,698.59							0.001	0	
B1-292-015	4,696.92							0.001	0	
B1-292-016	4,697.59							0	0	
B2-271-019	4,645.97	0.01	0.068					0	0	
B2-271-020	4,646.10							0	0	
B2-271-022	4,646.25							0.046	0	
B2-271-031	4,644.88							0.002	0	
B2-272-004	4,648.22	0.003						0.002	0	
B2-272-005	4,646.98							0.003	0	
B2-272-007	4,648.91	0.003						0.002	0	
B2-272-008	4,648.60							0.006	0.001	
B2-272-009	4,648.92	0.002						0.001	0	
B2-272-014	4,649.73	0.003	0.031					0.002	0	
B2-272-017	4,650.24							0.003	0.001	
B2-272-021	4,651.87							0.007	0.002	
B2-272-027	4,650.27	0.032	0.059			0.027		0.006	0	
B2-272-028	4,651.04		0.053					0.002	0	
B2-272-029	4,651.00							0.003	0	
B2-272-030	4,652.06							0.007	0	
B2-272-033	4,650.96	0.005						0.006	0	
B2-281-001	4,656.19							0.003	0	
B2-281-002	4,657.43							0.004	0	
B2-281-003	4,657.95		0.119					0.001	0	
B2-281-004	4,658.60									
B2-281-005	4,660.30							0	0	
B2-281-006	4,661.91							0	0	
B2-281-013	4,662.47							0.001	0	
B2-281-020	4,653.32							0.005	0	
B2-281-022	4,655.62							0.004	0	
B2-281-027	4,661.75							0	0	
B2-281-029	4,656.57							0.003	0	
B2-282-003	4,662.68							0.003	0	
B2-282-036	4,664.20							0.003	0	
B2-282-037	4,666.15							0.001	0	
B2-282-041	4,666.15							0.001	0	
B2-282-046	4,667.40							0.002	0	
B2-282-047	4,668.61							0.001	0	
B2-282-048	4,669.56							0.002	0	
B2-282-051	4,671.11							0.005	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B2-282-054	4,672.79		0.217					0.004	0	0.023
B2-291-024	4,679.63							0.003	0	
B2-291-025	4,678.23							0.007	0	
B2-291-026	4,678.52							0.004	0	
B2-291-027	4,677.84							0.009	0	
B2-291-028	4,675.12							0.006	0	
B2-291-029	4,674.94							0.003	0	
B2-291-030	4,673.49							0.007	0	
B2-291-045	4,677.89							0.002	0	
B2-292-001	4,689.77							0.004	0	
B2-292-002	4,688.02							0.004	0	
B2-292-003	4,685.12							0.003	0	
B2-292-004	4,683.36							0	0	
B2-292-008	4,682.02							0.004	0	
B2-292-009	4,681.74							0.011	0	
B2-292-010	4,682.23									
B2-292-011	4,682.14							0	0	
B2-292-012	4,685.28							0.001	0	
B2-292-017	4,687.54							0.001	0	
B2-292-018	4,689.26							0.001	0	
B2-292-022	4,690.90							0.001	0	
B2-292-023	4,692.04							0	0	
B2-292-026	4,681.54									
B2-301-001	4,692.06		0.008					0.034	0	
B3-262-023	4,637.90	0.007						0.028	0.003	
B3-262-027	4,639.09	0.007					0.004	0.011	0.001	
B3-262-031	4,640.22	0.006	0.045			0.049		0.003	0	
B3-271-003	4,639.60	0.004						0.001	0	
B3-271-006	4,639.29	0.006						0.004	0	
B3-271-018	4,640.18	0.01						0.004	0	
B3-271-026	4,642.09	0.007	0.023					0.001	0	
B3-271-032	4,643.90	0.009						0.009	0	
B3-271-039	4,644.66	0.009						0.007	0	
B3-271-042	4,641.88	0.005						0.002	0	
B3-271-045	4,644.45	0.004						0.001	0	
B3-271-054	4,643.99	0.004								
B3-271-058	4,645.44	0.008						0.002	0	
B3-271-059	4,645.04	0.003						0	0	
B3-271-063	4,644.83	0.003						0	0	
B4-261-014	4,615.35	0.006						0.002	0.001	
B4-262-001	4,626.61	0.005	0.019					0.014	0.001	
B4-262-011	4,624.94	0.007	0.028					0.002	0.001	
B4-262-016	4,633.29	0.007						0.001	0	
B4-262-022	4,633.48	0.007	0.021					0.002	0	
B4-262-024	4,632.42	0.006					0.008	0	0.002	
B4-262-028	4,634.70	0.002								
B4-262-030	4,635.77	0.006						0	0	
B4-262-031	4,635.58	0.002						0.001	0	
B4-262-036	4,639.18	0.002						0	0	
B4-262-037	4,639.15	0.005					0.005	0.001	0	
B4-262-038	4,638.96	0.007						0	0	
B4-262-044	4,628.65	0.005						0.004	0	
B4-262-114	4,636.36	0.002								

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
B4-271-001	4,639.11	0.002						0.001	0	
B4-271-011	4,641.78	0.009						0.001	0	
B4-271-028	4,646.15	0.007						0.001	0	
B4-271-033	4,646.99	0.008						0.002	0	
B4-271-128	4,639.74	0.005						0.001	0.001	
B4-271-135	4,639.73	0.006	0.016					0.001	0	
B4-271-138	4,639.45	0.008						0.004	0	
B4-271-143	4,640.50	0.006						0.001	0	
B4-271-145	4,641.45	0.006						0	0	
B4-271-146	4,643.18	0.008						0.001	0	
B4-271-147	4,644.70	0.006	0.022				0.007	0.001	0	
B4-271-148	4,647.63	0.007						0.002	0	
B4-272-004	4,650.15	0.009	0.071					0.006	0	
B4-272-039	4,651.93	0.005	0.016							
B4-272-040	4,652.26	0.007						0.001	0	
B4-272-044	4,653.41	0.011						0.002	0	
B4-272-048	4,653.82	0.011						0.001	0	
B4-272-086	4,650.62	0.012						0.017	0	
B4-272-091	4,651.17	0.005						0	0	
B4-272-092	4,651.27	0.008								
B4-272-093	4,647.86	0.004						0.001	0	
B4-272-094	4,647.89	0.005						0.003	0	
B4-272-095	4,649.15	0.007								
B4-272-096	4,650.63	0.011						0.002	0	
B4-281-054	4,655.65	0.015						0.001	0	
B4-281-057	4,656.77	0.021						0.001	0	
BV-105	4,555.49									
BV-292-013	4,686.36							0.001	0	
C1-221-018	4,855.42	0						0	0	
C1-221-019	4,856.62	0.002	0.029					0.004	0	
C1-261-020	4,611.50	0.004	0.012					0	0.002	
C1-261-028	4,607.00	0.004						0	0	
C1-261-030	4,607.41	0.002	0.009					0	0	
C1-261-058	4,620.88	0.003						0.004	0	
C1-261-060	4,612.10	0.008	0.027				0.005	0	0.002	
C1-261-062	4,616.02	0.002						0.001	0	
C1-281-035	4,656.27	0.028	0.195					0.01	0	
C2-221-030	4,856.52	0.001						0.001	0	
C2-221-031	4,840.90	0						0.001	0	
C2-221-032	4,852.13	0						0.001	0	
C2-221-033	4,855.02	0						0.001	0	
C2-221-034	4,856.96	0.001						0.001	0	
C2-221-035	4,854.80	0.004						0.001	0	
C2-221-037	4,853.25	0.001						0.001	0	
C2-221-065	4,852.08	0						0.003	0	
C2-261-001	4,603.22									
C2-261-013	4,572.06	0					0.011			
C2-261-024	4,575.01	0								
C3-212-031	4,810.25	0						0	0	
C3-221-003	4,835.19	0	0.01					0.001	0	
C3-221-004	4,830.28	0						0	0	
C3-221-005	4,821.15	0						0.001	0	
C3-221-006	4,811.19	0						0.001	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C3-221-030	4,822.68	0	0.003					0	0	
C3-252-001	4,559.32									
C3-252-002	4,561.74									
C3-261-001	4,562.22	0								
C3-261-002	4,563.15	0						0	0.001	
C3-261-004	4,564.51	0								
C3-261-005	4,564.51	0						0	0	
C3-261-007	4,563.27	0								
C3-261-008	4,565.25	0						0	0	
C3-261-009	4,563.05									
C3-261-010	4,564.47									
C3-261-011	4,563.00									
C3-261-012	4,566.30									
C3-261-013	4,565.68									
C3-261-015	4,565.28	0						0	0	
C3-261-019	4,563.78	0						0	0	
C3-261-021	4,565.00	0	0.022				0.06	0	0	
C3-261-031	4,565.76	0						0	0	
C3-261-035	4,573.34	0						0	0	
C3-261-040	4,566.68	0.001						0	0	
C3-261-043	4,571.45	0						0	0	
C3-261-050	4,567.28	0						0	0	
C3-261-056	4,567.40	0.001	0.017					0	0	0.006
C3-261-062	4,567.35	0.001						0	0.002	
C3-261-075	5,000.00	0						0	0	
C3-261-076	5,000.00	0						0	0	
C3-262-007	4,567.22	0.001						0	0.003	
C3-262-009	4,567.77	0.001						0	0.001	
C3-262-033	4,569.31	0.001						0	0.001	
C3-262-041	4,569.51	0.001						0	0.001	
C3-262-046	4,570.66	0.001						0	0	
C3-262-051	4,568.30	0						0	0	
C3-262-061	4,572.79	0.002						0	0.003	
C3-262-070	4,577.51	0						0	0	
C3-262-071	4,577.15	0.001						0	0.001	
C3-262-074	4,578.59	0.001						0	0	
C3-271-001	4,576.86	0.002						0	0.001	
C3-271-003	4,578.37	0.001	0.004				0.004	0	0.001	
C3-271-004	4,579.69	0.002						0	0.001	
C3-271-007	4,581.04	0.002						0	0.001	
C3-271-010	4,581.04	0.001						0	0.001	
C3-271-012	4,581.04	0.001						0	0.001	
C4-212-059	4,802.26	0						0.001	0	
C4-212-060	4,790.25	0.001	0.004					0	0	
C4-212-061	4,781.59	0						0	0	
C4-221-001	4,776.51	0.001						0.001	0	
C4-252-001	4,557.32									
C4-252-002	4,559.28							0	0	
C4-252-003	4,560.79									
C4-252-004	4,559.57							0	0	
C4-252-005	4,559.66									
C4-252-006	4,557.44									
C4-252-007	4,560.16									

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
C4-252-008	4,559.21									
D1-212-011	4,757.04	0.001						0.003	0	
D1-212-012	4,751.59	0.001						0.002	0	
D1-212-032	4,767.46	0.001	0.002					0.003	0	
D1-242-011	4,631.80	0.001						0	0	
D1-242-017	4,645.13	0.001						0	0	
D1-242-018	4,656.69	0.002						0	0	
D1-242-019	4,661.02	0.005						0.001	0	0.001
D1-242-030	4,631.80	0.001						0	0	
D1-242-031	5,000.00	0.001						0.001	0	
D1-251-005	4,663.66	0.002						0.012	0.002	
D1-251-023	5,000.00	0.002	0.003					0.004	0.001	
D1-252-001	4,554.94	0						0	0	
D1-252-004	4,555.66									
D1-252-005	4,555.31	0								
D1-252-008	4,555.58	0.001						0	0	
D1-252-009	4,556.21									
D1-252-010	4,555.57	0.001	0.004					0	0	
D1-252-011	4,555.56									
D1-252-015	4,556.52									
D1-252-016	4,557.04	0.001						0	0	
D1-252-018	4,556.32									
D1-252-019	4,556.43									
D1-252-023	4,557.57	0.001								
D1-252-031	4,557.39	0.001						0	0	
D1-252-036	4,557.63	0.001	0.002					0	0	
D1-252-041	4,558.20	0.003						0.002	0	
D1-252-042	4,558.62	0.002	0.007					0.001	0	
D1-252-050	4,585.00							0	0	
D1-252-053	4,581.46	0						0.001	0.001	
D1-252-056	4,581.81	0						0.001	0.001	
D1-252-057	4,582.88	0.009						0.003	0.002	
D1-252-059	4,582.91	0.001								
D1-261-001	4,583.74	0	0.053				0.013	0	0	
D1-261-003	4,588.00		0.056				0.012			
D1-261-006	4,583.32	0.004						0.001	0.001	
D1-261-008	4,584.98	0.005						0.005	0.003	
D1-261-020	4,588.00	0						0.011	0.006	
D1-261-021	4,584.67	0.004						0.008	0.004	
D1-261-023	4,587.00	0						0.006	0.003	
D1-261-036	4,586.86	0.006						0.013	0.007	
D1-261-037	4,589.00	0.001						0.002	0.001	
D1-261-052	4,588.29	0.006						0.009	0.005	
D1-261-059	4,588.00	0.001						0.001	0	
D1-261-061	4,588.00	0						0.006	0.004	
D1-261-075	4,589.51	0.01						0.002	0.001	
D1-261-084	4,590.00	0.003						0.01	0.007	
D1-261-103	4,591.22	0.007						0.002	0.001	
D1-261-116	4,588.00							0.017	0.01	
D1-261-117	4,591.75	0.01						0.004	0.002	
D1-261-128	4,590.09	0.015						0.015	0.009	
D1-262-001	4,589.00						0.004	0.009	0.005	
D1-262-025	4,589.16	0.018						0.01	0.006	

Manhole Input Data for Future Recommendation System PWWF Scenaric

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D1-262-030	4,590.00							0.003	0.002	
D1-262-040	4,589.76	0.006	0.005				0.008	0.001	0	
D1-262-049	4,590.00							0.007	0.005	
D1-262-067	4,591.72	0.006						0.002	0.001	
D1-262-079	4,592.00		0.048					0.027	0.017	0.031
D1-262-088	4,593.50	0.006						0.003	0.002	
D1-262-100	4,594.93	0.006						0.006	0.004	
D1-271-017	4,596.81	0.003						0	0	
D1-271-051	4,598.99	0.002						0.003	0	
D1-271-054	4,596.12	0.002					0.012	0.005	0	
D1-271-055	4,596.12	0.006			0.008			0.006	0.002	
D1-271-092	4,596.12	0.001						0.002	0	
D2-212-001	4,743.95	0						0	0	
D2-212-002	4,742.51	0	0					0	0	
D2-212-003	4,733.57	0.001	0					0	0	
D2-212-011	4,746.35	0	0.002					0.001	0	
D2-212-012	4,744.03	0						0	0	
D2-212-013	4,738.35	0	0.003					0	0	
D2-212-014	4,726.24	0.001						0.001	0	
D2-212-025	4,742.51	0						0	0	
D2-241-006	4,658.54	0.001	0.002					0.002	0	
D2-241-007	4,655.59	0						0	0	
D2-251-004	4,555.68									
D2-251-005	4,555.19									
D2-251-008	4,660.22	0.001	0.039					0.001	0	0.001
D2-251-014	4,657.55	0						0.001	0	
D2-252-002	4,556.35	0.001						0	0	
D2-252-004	4,555.49		0							
D2-252-005	4,556.03									
D2-252-006	4,555.69							0.001	0.001	
D2-252-008	4,557.06							0.001	0.001	
D2-252-010	4,564.13									
D2-252-011	4,556.07							0	0	
D2-252-012	4,555.82	0.002						0	0	
D2-252-014	4,556.19	0.001								
D2-252-015	4,556.19							0.001	0	
D2-252-026	4,559.34		0.009							
D2-252-033	4,559.07									
D2-252-039	4,559.94									
D2-252-049	4,570.51									
D2-252-050	4,577.00									
D2-252-052	4,578.00									
D2-252-056	4,579.00									
D2-252-057	4,573.79		0.015				0.052			
D2-252-062	4,574.15									
D2-252-067	4,587.00									
D2-252-069	4,577.81	0.003								
D2-252-071	4,575.19									
D2-252-085	4,580.75	0.002						0.01	0.006	
D2-252-105	4,572.19									
D2-271-017	4,603.11									
D2-271-019	4,601.30							0	0	
D2-271-022	4,600.17	0.001								

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D2-271-023	4,598.81	0.001								
D2-271-039	4,601.59	0.001	0.297		0.012		0.049			0.046
D2-271-042	4,601.00	0.002								
D2-271-043	4,599.90	0.002								
D2-271-045	4,598.99	0.002	0.07							
D2-271-048	4,601.69	0.001								
D2-271-052	4,603.54	0.001						0	0	
D2-271-063	4,604.76	0.009						0.003	0	
D2-271-067	4,605.65	0.005						0.001	0	
D2-271-075	4,605.91	0.007					0.01	0.005	0	
D2-271-109	4,597.40	0.003						0.002	0	
D2-272-011	4,606.03	0.008						0.006	0	
D2-272-023	4,607.35	0.01						0.006	0	
D2-272-025	4,604.90	0.003						0	0	
D2-272-029	4,604.13	0.003						0	0	
D2-272-052	4,605.25	0.009						0	0	
D2-272-070	4,605.84	0.007						0	0	
D2-272-072	4,607.18	0.009						0.003	0.002	
D2-272-074	4,608.78	0.007						0.004	0.002	
D2-272-075	4,608.78	0						0	0	
D2-281-002	4,608.78	0								
D3-212-001	4,713.00	0	0.001					0	0	
D3-212-002	4,710.90	0						0	0	
D3-212-003	4,708.13	0						0	0	
D3-212-004	4,705.24	0						0	0	
D3-212-012	4,702.84	0	0					0	0	
D3-212-013	4,698.75	0						0	0	
D3-212-017	4,697.20	0								
D3-212-018	4,701.55	0						0	0	
D3-212-022	4,716.93	0.001	0.002					0	0	
D3-212-023	4,715.72	0	0.001					0.001	0	
D3-221-016	4,695.09	0						0	0	
D3-221-021	4,683.00	0.001						0.001	0	
D3-221-022	4,683.00	0.001						0.001	0	
D3-221-023	4,683.00	0.001						0	0	
D3-221-024	4,683.00	0						0	0	
D3-232-001	4,628.13	0	0.012					0	0	0.014
D3-232-009	4,644.58	0						0	0	
D3-232-015	4,634.34	0						0	0	
D3-232-017	4,613.76	0.001						0.003	0	
D3-232-018	4,626.19	0						0.001	0	
D3-241-001	4,650.99	0						0	0	
D3-241-002	4,651.19	0						0.001	0	
D3-241-003	4,654.39	0.001						0	0	
D3-241-004	4,649.91	0						0	0	
D3-241-005	4,650.33	0						0	0	
D3-241-006	4,650.09	0.001						0	0	
D3-241-007	4,649.00	0						0	0	
D3-241-008	4,651.31	0						0.001	0	
D3-241-009	4,652.37	0.001						0	0	
D3-251-001	4,555.45									
D3-251-002	4,555.84									
D3-251-004	4,554.87									

Manhole Input Data for Future Recommendation System PWWF Scenaric

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D3-251-008	4,553.38									
D3-251-011	4,555.31		0.008							
D3-251-012	4,555.45									
D3-251-013	4,556.46							0.022	0.012	
D3-251-014	4,559.45	0								
D3-251-015	4,554.87									
D3-251-016	4,548.92									
D3-252-008	4,556.68	0.002						0	0.012	
D3-252-012	4,555.65	0.002						0.005	0.003	
D3-252-045	4,572.19	0.003						0.004	0.004	
D3-252-054	4,576.99	0.002						0.003	0.002	
D3-252-057	5,000.00	0.002						0.023	0.013	
D3-261-010	4,591.00	0	0.034				0.101	0	0.003	
D3-261-014	4,591.00	0.001	0.132					0.003	0.001	
D3-261-025	4,594.00	0.002						0.003	0.001	
D3-261-045	4,597.00	0.003						0.002	0.001	
D3-261-075	4,600.00	0.004	0.036				0.029	0.002	0	
D3-261-086	4,602.00	0.007						0.007	0.002	
D3-261-117	4,607.00	0.002						0.009	0.001	
D3-261-130	4,608.00	0.004						0.005	0	
D3-262-017	4,609.00	0.007	0.118				0.08	0.001	0	
D3-262-018	4,610.00	0.007	0.208				0.005	0.001	0	
D3-262-042	4,608.00	0.004					0.009	0.001	0	
D3-262-065	4,606.00	0.006						0.002	0	
D3-262-083	4,610.00	0.007						0	0	
D3-262-122	4,608.00	0.004						0.001	0	
D3-271-013	4,612.50	0.003	0.015		0.085		0.033	0	0	
D3-271-019	4,607.81							0.002	0	
D3-271-024	4,605.19							0	0	
D3-271-029	4,613.00	0.001								
D3-271-038	4,608.37							0	0	
D3-271-055	4,610.45	0.002								
D3-271-059	4,611.12							0	0	
D3-271-068	4,617.13	0								
D3-271-069	4,616.85									
D3-271-070	4,615.82							0.002	0	
D3-271-072	4,613.27							0.001	0	
D3-271-075	4,617.94									
D3-271-111	4,614.00	0.001								
D3-281-006	4,608.96	0		0.8				0.103	0.04	
D4-221-004	4,683.00	0.001						0.001	0	
D4-221-005	4,662.00	0.001						0.001	0	
D4-221-008	4,654.90	0.001						0.001	0	
D4-221-009	4,651.00	0.001						0.001	0	
D4-221-010	4,646.00	0.001						0.001	0	
D4-221-011	4,643.00	0.001	0.002					0.001	0.001	
D4-221-015	4,637.85	0.001						0.002	0	
D4-232-001	4,595.25	0						0	0	
D4-232-002	4,575.21	0						0	0	
D4-232-003	4,563.00	0						0	0	
D4-232-004	4,562.51	0.001						0	0	
D4-232-005	4,555.62							0	0	
D4-232-006	4,546.99							0.001	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
D4-232-007	4,539.68		0.005					0.001	0	
D4-232-008	4,539.41							0	0	
D4-232-020	4,788.00	0	0.005					0	0	
D4-251-001	4,551.09									
D4-251-005	4,552.08		0.187			0.031	0.031			0.133
D4-251-008	4,552.54									
D4-251-018	5,000.00									
D4-251-019	5,000.00									
D4-271-014	4,624.56							0.003	0.002	
D4-271-015	4,622.79									
D4-271-018	4,621.51									
D4-271-021	4,620.89									
E1-221-001	4,639.87	0.001	0.001					0.001	0	
E1-222-004	4,638.00	0.001						0.002	0.001	
E1-222-005	4,627.00	0.001						0.002	0	
E1-222-006	4,620.00	0.001						0.002	0.001	
E1-222-007	4,623.00	0						0.003	0	
E1-222-011	4,618.00	0.001						0.001	0	
E1-222-012	4,612.00	0.001						0.001	0	
E1-231-012	4,639.85	0.001	0.002					0.003	0	
E1-232-001	4,537.50									
E1-232-025	4,538.19									
E1-242-001	4,548.46									
E1-242-002	4,548.17									
E1-251-001	4,548.07									
E1-251-002	4,549.16									
E1-251-003	4,549.50	0.005						0	0.006	
E1-251-004	4,548.81	0.003						0	0.002	
E1-251-007	4,550.14	0.003						0	0	
E1-251-018	4,552.73	0.003						0	0.001	
E1-251-019	4,553.70	0.001	0.005					0	0	
E1-251-020	4,553.70	0.001						0	0	
E1-251-021	4,554.64	0.003						0	0.001	
E1-251-023	4,555.81	0.002						0.004	0.001	
E1-251-025	4,548.17	0.002						0	0.006	
E1-271-068	4,630.77							0.001	0	
E1-271-072	4,627.97							0.001	0	
E1-271-076	4,624.85							0.003	0.002	
E2-202-016	4,725.54	0.009	0.076					0.032	0	
E2-222-007	4,637.79	0.001	0.002							
E2-222-015	4,603.00	0								
E2-222-016	4,603.00	0								
E2-222-017	4,602.00	0								
E2-222-028	4,637.79	0						0	0	
E2-222-029	4,637.79	0								
E2-222-030	4,637.79	0								
E2-222-031	4,637.79	0								
E2-222-036	4,591.00	0.001								
E2-222-037	4,591.00	0						0	0	
E2-222-040	4,637.79	0								
E2-222-044	4,598.00	0.001						0.001	0	
E2-222-048	4,637.79	0						0	0	
E2-222-050	4,637.79	0	0.015							

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E2-222-067	4,603.00	0.001						0.001	0	
E2-222-075	4,610.00	0.001	0.002					0	0	
E2-231-002	4,643.10	0.001						0	0	
E2-231-005	4,641.90	0.001						0.002	0	
E2-231-006	4,637.10	0.001						0.001	0	
E2-231-013	4,635.95	0.001	0.002					0	0	
E2-231-021	4,636.94	0.001								
E2-231-028	4,647.50	0.002						0.002	0	
E2-231-029	4,646.62	0						0	0	
E2-231-030	4,645.21	0								
E2-231-031	4,644.31	0						0	0	
E2-231-035	4,640.93	0						0	0	
E2-231-037	4,640.55	0						0.001	0	
E2-232-013	4,538.60									
E2-232-014	4,555.40									
E2-242-004	4,550.05									
E2-242-011	4,552.87									
E2-242-017	4,552.84									
E2-242-024	4,549.64									
E2-242-034	4,548.66									
E2-251-027	4,550.68	0.005	0.012					0	0.005	
E2-251-058	4,555.97	0.001						0	0	
E2-252-192	4,559.30	0								
E2-252-193	4,565.83	0.001						0.005	0	
E2-252-194	4,576.19	0.001						0.004	0.001	
E2-252-196	4,559.47	0.001						0.001	0.001	
E2-271-076	4,645.81	0.006						0	0	
E2-271-078	4,642.38							0	0	
E2-271-081	4,639.14							0.001	0	
E2-271-086	4,635.95							0	0	
E3-202-008	4,711.83	0	0.002					0.001	0	
E3-202-009	4,718.61	0.001						0.001	0	
E3-202-010	4,713.19	0						0.001	0	
E3-202-011	4,710.71	0						0.001	0	
E3-202-012	4,709.38	0						0.001	0	
E3-202-BV	4,718.07	0						0.001	0	
E3-222-051	4,561.00	0.002						0	0	
E3-222-064	4,559.72	0.001	0.003					0	0	
E3-222-065	4,558.00	0.001						0	0	
E3-231-006	4,552.00	0.002	0.003					0.004	0	
E3-241-015	4,547.53									0.033
E3-241-022	4,547.99									
E3-241-028	4,548.74									
E3-241-034	4,550.68	0.003				0.017		0	0.002	
E3-241-036	4,553.65	0.004						0	0.002	
E3-241-048	4,554.31	0.002	0.017					0.004	0.002	
E3-241-049	4,555.23	0.007						0.005	0.006	
E3-242-002	4,549.96									
E3-242-012	4,549.55									
E3-252-001	4,579.49	0	0.001					0	0.001	
E3-252-003	4,578.01	0.001						0.001	0	
E3-252-004	4,581.01	0						0.008	0	
E3-252-084	4,581.28	0.001						0	0.001	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
E3-252-085	4,580.53	0						0	0	
E3-271-068	4,650.07	0.004					0.005	0	0	
E3-271-072	4,647.15	0.006						0.001	0	
E3-271-074	4,645.76	0.005	0.016					0.001	0.001	
E3-271-121	4,664.18	0.002						0.001	0	
E3-271-122	4,664.18	0.002						0.001	0	
E3-271-123	4,654.21	0.004						0	0	
E4-202-001	4,701.01	0						0.001	0	
E4-202-002	4,691.43	0						0	0	
E4-202-003	4,682.45	0						0	0	
E4-202-007	4,681.68	0	0.002					0	0	
E4-202-009	4,683.62	0	0.001					0	0	
E4-202-013	4,675.41	0						0	0	
E4-202-014	4,668.71	0						0	0	
E4-231-005	4,549.56									
E4-231-006	4,548.23									
E4-231-007	4,537.67	0.002						0	0.001	
E4-231-008	4,538.95									
E4-232-016	4,544.02									
E4-241-005	4,545.86					0.047				
E4-241-016	4,545.76									
E4-241-075	4,559.77	0								
E4-241-077	4,557.41	0.001						0.002	0.001	
E4-241-078	4,554.86	0.002						0.002	0.001	
E4-241-079	4,553.36	0.002	0.075					0.002	0.001	
E4-241-080	4,553.60	0.002						0.004	0.002	
E4-241-081	4,560.82	0								
E4-242-014	4,561.53	0.002						0.002	0.001	
E4-242-029	4,562.46	0.003						0.005	0.003	
E4-242-034	4,562.86	0.001						0.001	0.001	
E4-242-036	4,562.95	0.002						0.005	0.003	
E4-242-045	4,563.48	0.005						0.014	0.008	
E4-242-057	4,564.49	0.005						0.018	0.005	
E4-242-062	4,565.50	0.004						0.024	0.005	
E4-242-069	4,565.79	0.003	0.006					0.011	0.006	
E4-242-078	4,567.20	0.001						0.003	0.003	
E4-251-001	4,567.38	0.001						0.012	0.004	
E4-252-009	4,581.22	0						0	0	
E4-252-010	4,581.19	0								
E4-252-011	4,581.87	0.001						0	0	
E4-252-013	4,586.51	0						0	0	
E4-252-014	4,586.55	0						0	0	
E4-252-019	4,586.54	0								
E4-252-021	4,586.49	0.001						0.004	0	
E4-252-023	4,585.78	0.002						0.014	0	
E4-252-033	4,588.12	0.001						0.001	0	
E4-252-035	4,593.09	0.001						0.003	0	
E4-252-037	4,596.23	0						0	0	
E4-271-058	4,679.36	0.001						0.017	0	
E4-271-060	4,677.07	0.001						0.007	0	
E4-271-062	4,672.66	0.001						0.006	0	
E4-271-063	4,670.03	0						0.005	0	
E4-271-064	4,668.97	0.001	0.004					0.005	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-202-005	4,635.52	0						0.001	0	
F1-202-006	4,633.60	0						0.001	0	
F1-202-007	4,631.66	0.001	0.005					0.001	0	
F1-202-008	4,636.08	0.001						0.002	0	
F1-202-009	4,646.60	0	0.007					0	0	
F1-202-010	4,657.51	0						0	0	
F1-231-001	4,535.76	0.002						0	0.004	
F1-231-002	4,534.29	0.002						0	0.001	
F1-231-003	4,533.00	0.002						0	0.003	
F1-232-001	4,541.76									
F1-232-002	4,542.61									
F1-232-008	4,542.87									
F1-232-012	4,542.90									
F1-232-013	4,543.00	0						0.003	0.002	
F1-232-014	4,544.35	0.001						0.006	0.003	
F1-232-017	4,545.30	0.001						0.006	0.003	
F1-232-019	4,543.99	0.003	0.083					0.039	0.023	
F1-232-033	4,542.97									
F1-232-066	4,542.90									
F1-241-050	4,562.29	0.001						0.003	0.002	
F1-241-109	4,564.40	0.002						0.009	0.005	
F1-241-110	4,567.50	0.001						0.011	0.005	
F1-242-001	4,561.36	0	0.005					0	0	
F1-251-003	4,567.58	0.001	0.075					0.012	0.002	
F1-251-015	4,568.22	0.004						0.006	0.006	
F1-251-023	4,569.76	0.004	0.023					0.007	0.006	
F1-251-031	4,570.51	0.002						0.002	0.002	
F1-251-033	4,571.32	0.001						0.001	0.001	
F1-251-034	4,571.74	0.005						0.008	0.003	
F1-251-039	4,574.01	0.008						0.019	0.002	
F1-251-040	4,576.83	0.004						0.01	0.001	
F1-251-041	4,576.74	0.003	0.002					0.013	0.001	
F1-251-044	4,579.14	0.004						0.013	0	
F1-251-047	4,581.16	0.002						0.009	0	
F1-251-048	4,581.18	0.001						0.004	0	
F1-251-049	4,586.77	0.003						0.005	0.001	
F1-251-050	4,586.77	0.003						0.01	0.001	
F1-251-068	4,580.49	0.001						0.007	0	
F1-251-106	4,571.32	0.002						0.002	0.002	
F1-251-108	4,581.83	0.002	0.016					0.003	0	
F1-252-017	4,597.89	0						0	0	
F1-252-033	4,599.93	0						0	0	
F1-252-039	4,609.51	0.001	0.008					0	0	
F1-261-003	4,609.31	0						0	0	
F1-261-004	4,609.98	0.001						0	0	
F1-261-009	4,607.52	0.001						0.001	0	
F1-261-026	4,607.64	0.002						0.004	0	
F1-261-040	4,608.58	0.001	0.008					0.002	0	
F1-261-048	4,611.41	0.002						0.002	0	
F1-261-058	4,615.25	0.002						0.003	0	
F1-261-064	4,617.47	0.002	0.003				0.005	0.004	0	
F1-261-070	4,619.40	0.001						0.003	0.001	
F1-261-075	4,621.68	0.002	0.027					0.006	0.001	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F1-261-078	4,625.58	0.001						0.009	0.004	
F1-261-081	4,626.87	0.001						0.006	0.002	
F1-261-089	4,630.42	0.001					0.011	0.002	0	
F1-261-095	4,635.78	0								
F1-261-097	4,635.78	0						0.001	0	
F1-261-106	4,635.78	0.007	0.066				0.042	0.008	0.004	
F1-271-101	4,680.72	0.007	0.206				0.011	0.034	0.001	
F1-271-103	4,678.53	0.002	0.022				0.017	0	0.001	
F2-202-001	4,625.07	0.001						0.002	0	
F2-202-002	4,613.34	0.001						0.006	0	
F2-202-003	4,618.05	0.001						0.002	0	
F2-202-004	4,606.95	0.001						0	0	
F2-202-005	4,616.09	0.001						0.002	0	
F2-202-006	4,600.68	0.003						0.001	0	
F2-202-007	4,610.35	0.002						0.005	0	
F2-202-023	4,618.05	0.001						0.002	0	
F2-202-024	4,600.68	0.001						0	0	
F2-231-004	4,537.75									
F2-231-010	4,538.23									
F2-231-016	4,539.66									
F2-231-023	4,540.25									
F2-231-024	4,536.76	0.004						0	0.011	
F2-232-002	4,548.42	0						0.006	0.004	
F2-232-003	4,546.58	0.001						0.013	0.01	
F2-232-004	4,546.87	0.001	0.002					0.01	0.007	
F2-232-005	4,546.09	0.001						0.008	0.005	
F2-232-006	4,544.74	0.001						0.019	0.011	
F2-232-007	4,548.35	0						0.007	0.004	
F2-242-055	4,568.60	0						0.02	0.002	
F2-242-056	4,569.90	0						0.028	0	
F2-251-012	4,594.81	0.002						0	0	
F2-251-016	4,590.51	0.005						0.001	0	
F2-251-017	4,588.87	0.004						0	0	
F2-251-018	4,586.77	0.002						0.004	0	
F2-251-028	4,593.38	0.003						0	0	
F2-252-027	4,587.15	0.002	0.023					0	0	
F2-261-053	4,646.02	0.002	0.006					0.002	0	
F2-262-011	4,647.99	0.004	0.017					0.002	0	
F2-262-017	4,647.02	0.001						0.001	0	
F2-262-020	4,651.23	0.001						0	0	
F2-262-029	4,651.02	0.002						0	0	
F2-262-032	4,658.08	0.003	0.022					0	0	
F2-262-038	4,659.40	0.003	0.005					0.001	0	
F3-202-006	4,584.95	0.003						0.003	0	
F3-202-007	4,585.30	0.001	0.009					0	0	
F3-211-010	4,579.68	0.005						0.01	0	
F3-211-011	4,579.68	0.001						0	0	
F3-211-012	4,573.98	0.002	0.018					0.001	0	
F3-211-013	4,573.89	0.001						0.001	0	
F3-222-007	4,536.73									
F3-222-008	4,537.93									
F3-222-019	4,534.77									
F3-222-020	4,534.77		0.007							

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F3-231-015	4,537.75									
F3-232-001	4,549.86							0.005	0.013	
F3-232-002	4,550.38							0.002	0.001	
F3-232-003	4,552.62							0.004	0.002	
F3-232-004	4,558.46	0.001						0.021	0.005	
F3-232-005	4,557.00	0.001						0.033	0.005	
F3-232-006	4,555.72	0.001						0.043	0.005	
F3-232-007	4,555.62	0.001						0.099	0.049	
F3-241-004	4,571.60	0						0.001	0	
F3-241-005	4,572.40	0.001						0.027	0	
F3-241-006	4,573.10	0.001						0.025	0	
F3-242-010	4,571.00	0.001						0.031	0	
F3-242-011	4,571.50	0.001						0.029	0	
F3-251-023	4,603.93	0.003						0.002	0	
F3-251-024	4,597.37	0.002	0.113					0.001	0	
F3-251-082	4,594.99	0.002	0.015					0.003	0	
F3-252-001	4,608.13	0.002						0.001	0	
F3-252-003	4,605.73	0.002	0.021					0.001	0	
F3-262-038	4,659.25	0.004						0.008	0	
F3-262-052	4,662.53	0.002	0.007					0.004	0	
F3-262-057	4,667.06	0.005	0.039					0.007	0.001	
F3-262-063	4,675.61	0.004						0.005	0.001	
F3-262-074	4,679.91	0.002				0.02		0.009	0.002	
F3-271-152	4,680.45	0.002						0.009	0.002	
F3-271-153	4,679.84	0.001						0.004	0.001	
F4-0232-BV	4,566.57	0						0.009	0.007	
F4-211-002	4,569.32	0.001						0.002	0	
F4-211-003	4,560.88	0						0.001	0	
F4-211-004	4,557.38	0						0.002	0	
F4-211-005	4,545.39	0.002						0.001	0	
F4-211-006	4,534.99	0.001						0.001	0	
F4-211-007	4,531.09	0.002						0.001	0	
F4-211-013	4,540.04	0.004						0.004	0	
F4-211-014	4,538.11	0.001						0.001	0	
F4-211-015	4,560.77	0						0.001	0	
F4-221-022	4,534.01									
F4-222-003	4,533.85									
F4-222-013	4,534.75					0.021				
F4-232-004	4,562.39	0						0.006	0.004	
F4-232-005	4,561.05	0						0.003	0.001	
F4-232-006	4,559.91	0						0.003	0.002	
F4-241-002	4,566.47	0						0.001	0.001	
F4-241-003	4,566.62	0						0.004	0.002	
F4-241-004	4,567.97	0						0.003	0.002	
F4-241-005	4,570.14	0.002	0.02					0.005	0	
F4-241-006	4,571.84	0.004						0.024	0	
F4-241-007	4,573.09	0.003						0.062	0.001	
F4-241-008	4,575.11	0						0.062	0.001	
F4-241-009	4,573.70	0.001						0.026	0	
F4-241-010	4,573.80	0						0.029	0	
F4-241-011	4,575.00	0						0.055	0	
F4-251-016	4,622.17	0.003						0.021	0	
F4-251-022	4,619.81	0.002						0.001	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
F4-251-023	4,616.20	0.002	0.006					0	0	
F4-252-003	4,613.52	0.002						0.001	0	
F4-252-005	4,617.73	0.002	0.009					0.004	0	
F4-271-034	4,703.96	0.001						0.002	0	
F4-271-069	4,699.58	0.004						0.006	0.002	
F4-271-070	4,684.67	0.005	0.008					0.005	0.001	
F4-271-072	4,689.09	0.008						0.012	0.002	
F4-271-073	4,694.83	0.007						0.007	0.002	
F4-271-075	4,702.43	0.002						0.003	0.001	
G1-211-003	4,525.00		0.105					0.003	0	0.012
G1-221-001	4,528.35									
G1-221-005	4,528.52									
G1-221-010	4,529.55					0.015				0.176
G1-221-029	4,527.64									
G1-232-012	4,566.84	0						0.029	0.021	
G1-241-001	4,566.56	0								
G1-241-002	4,573.55	0.004								
G1-242-001	4,578.93	0.002						0.004	0	
G1-242-006	4,580.63	0.002						0.004	0	
G1-242-014	4,582.77	0.002								
G1-242-025	4,584.18	0.001	0.022							
G1-242-028	4,584.54	0.001								
G1-242-038	4,586.47	0.002								
G1-242-045	4,587.72	0.004	0.011					0.008	0	
G1-252-004	4,629.56	0.001						0.002	0	
G1-252-005	4,623.68	0.003	0.012					0.008	0	
G1-252-006	4,630.58	0.001						0.01	0	
G1-252-007	4,632.94	0.001						0.019	0	
G1-252-008	4,634.84	0.001						0.001	0	
G1-252-009	4,637.04	0.001						0.002	0	
G1-252-011	4,638.26	0.001	0.011					0.001	0	
G1-271-007	4,705.24	0.001	0.004					0	0	
G1-271-013	4,705.17	0.001						0	0	
G1-271-030	4,706.39	0.004						0	0	
G1-271-041	4,709.41	0.003	0.01			0.056				
G1-271-042	4,709.44	0.001								
G1-271-047	4,710.78	0.004						0	0	
G1-272-045	4,715.12	0.01				0.026		0	0	
G1-272-065	4,718.95	0.006	0.007					0	0.001	
G1-272-066	4,719.38	0.001						0	0	
G2-212-001	4,523.96									
G2-212-002	4,524.99									
G2-212-003	4,526.68	0.001						0	0.003	
G2-212-014	4,529.91	0.001						0	0.02	
G2-212-015	4,525.62									
G2-212-032	4,527.22									
G2-212-035	4,526.27									
G2-212-038	4,526.47									
G2-212-041	4,528.13		0.051							0.044
G2-212-047	4,522.78									
G2-252-043	4,631.26	0.001						0.001	0	
G2-252-044	4,633.64	0.001						0.003	0	
G2-252-045	4,639.87	0.001						0.026	0	

Manhole Input Data for Future Recommendation System PWWF Scenario

ID	Rim Elevation	Load 1	Load 2	Load 3	Load 4	Load 5	Load 6	Load 8	Load 9	Load 10
	(feet)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)	(mgd)
G2-252-046	4,637.78	0.002						0.004	0	
G2-252-047	4,649.25	0.001						0.001	0	
G2-272-001	4,719.61	0.003						0.001	0	
G2-272-014	4,721.87	0.007						0.005	0.002	
G2-272-036	4,724.33	0.005						0.011	0.005	
G2-272-049	4,727.32	0.001						0.02	0.01	
G2-272-055	4,730.67	0.001	0.049			0.031		0.007	0.004	
G2-272-068	4,732.77	0.002						0.018	0.012	
G2-272-080	4,738.67	0.008	0.027			0.045		0.277	0.187	
G3-211-015	4,522.45		0.013							
G3-211-017	5,000.00									
G3-211-018	5,000.00							0.011	0	
G3-212-006	4,521.80	0.001						0	0.002	
G3-212-007	4,522.94									
G3-252-026	4,654.93	0						0	0	
G3-252-027	4,659.06	0						0	0	
G3-252-028	4,656.53	0.001						0	0	
G3-252-029	4,656.26	0.004						0.025	0.003	
G3-252-030	4,670.54	0						0.002	0	
G3-252-031	4,675.63	0.002						0.006	0	
G3-252-032	4,676.72	0.001						0.001	0	
G4-252-008	4,676.64		0.038					0.005	0	
G4-261-001	4,672.72	0.001						0	0	
G4-261-008	4,685.23	0.001						0	0	
G4-261-015	4,682.77	0						0.002	0	
G4-261-016	4,680.50	0.001						0	0	
G4-261-017	4,680.57	0.002						0	0	
G4-261-018	4,683.13	0.002						0.004	0	
G4-261-020	4,681.65	0.002						0	0	
G4-261-021	4,680.57	0.002						0.001	0	
G4-261-029	4,680.57	0.003						0.001	0	
H1-261-006	4,708.26	0.001						0.009	0	
H1-261-008	4,704.71	0						0.011	0	
H1-261-009	4,704.78	0						0.003	0	
H1-261-010	4,699.17	0.001						0.007	0	
H1-261-011	4,695.36	0.004						0.008	0	
H1-261-012	4,689.20	0.001						0.006	0	
H1-261-015	4,689.98	0						0.01	0	
H1-261-025	4,708.22	0						0.004	0	
H1-262-023	4,717.08	0.016	0.11					0.053	0	
SS_1_A	4,580.72							0	0.001	
SS_3	4,582.40							0	0	0.016
SS_4	4,583.40							0	0	
SS_5	4,583.90	0.001		0.13				0	0.014	
SS_6	4,585.50	0.001						0	0.003	
SS_7	4,588.00	0.001						0	0.003	
SS_8	4,591.00	0.001						0	0.001	

Notes:

1) **For the Wet Weather Scenario, all demands had the "PWWF" Pattern.**

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
0C2-261-013	4,556.99	4,556.74	204.399	21	RCP		River Trunk	Existing
0G1-271-041	4,703.98	4,703.94	8.167	15	RCP		Horizon Drive	Existing
1003	4,694.00	4,688.91	1,273.23	10			C Road	FUTURE
1005	4,688.91	4,683.54	1,341.70	10			C Road	FUTURE
1007	4,670.39	4,679.67	2,630.55	8				FUTURE
1009	4,531.04	4,527.29	232	12			Ridges Connector	FUTURE
101	4,643.41	4,643.05	144.8	8			Redlands	Existing
1011	4,533.18	4,531.04	536	12			Ridges Connector	FUTURE
1013	4,535.69	4,533.18	629	12			Ridges Connector	FUTURE
1015	4,537.20	4,535.69	379	12			Ridges Connector	FUTURE
1017	4,538.58	4,537.20	345	12			Ridges Connector	FUTURE
1019	4,539.90	4,538.58	329	12			Ridges Connector	FUTURE
1021	4,540.86	4,539.90	240	12			Ridges Connector	FUTURE
1023	4,542.02	4,540.86	289	12			Ridges Connector	FUTURE
1025	4,543.54	4,542.02	382	12			Ridges Connector	FUTURE
1027	4,545.14	4,543.54	399	12			Ridges Connector	FUTURE
1029	4,548.85	4,545.14	530	12			Ridges Connector	FUTURE
103	4,642.86	4,641.41	303.78	8			Redlands	Existing
1031	4,558.12	4,548.85	309	8			Ridges Connector	FUTURE
1033	4,569.61	4,558.12	383	8			Ridges Connector	FUTURE
1035	4,574.80	4,569.61	173	8			Ridges Connector	FUTURE
1037	4,583.54	4,574.80	437	8			Ridges Connector	FUTURE
1039	4,590.66	4,583.54	356	8			Ridges Connector	FUTURE
1041	4,597.92	4,590.66	363	8			Ridges Connector	FUTURE
1043	4,604.20	4,597.92	314	8			Ridges Connector	FUTURE
1045	4,612.75	4,604.20	285	8			Ridges Connector	FUTURE
1047	4,618.21	4,612.75	156	8			Ridges Connector	FUTURE
1049	4,623.67	4,618.21	156	8			Ridges Connector	FUTURE
105	4,641.21	4,639.76	346.62	8			Redlands	Existing
1051	4,516.58	4,513.57	1,543.17	21				FUTURE
1053	4,683.54	4,678.39	1,286.48	10			C Road	FUTURE
1057	4,596.51	4,511.56	5,986.47	8				FUTURE
1061	4,633.12	4,523.59	4,056.57	8				FUTURE
1063	4,673.86	4,523.46	7,540.55	10				FUTURE
1065	4,744.98	4,551.00	6,085.72	10				FUTURE
1069	4,642.98	4,551.00	3,944.87	8				FUTURE
107	4,639.49	4,623.63	270	8			Redlands	Existing
1071	4,559.67	4,551.00	4,360.58	8				FUTURE
1073	4,594.55	4,577.61	8,861.37	24				FUTURE
1075	4,714.77	4,579.82	21,706.66	15				FUTURE
1077	4,584.61	4,519.71	15,199.69	15				FUTURE
1087	4,513.20	4,212.85	664.462	36		Parallel		FUTURE_REC
1093	4,601.28	4,594.10	7,911.69	21		Parallel		FUTURE_REC
1097	4,576.75	4,565.04	3,663.57	15		Parallel		FUTURE_REC
1105	4,933.00	4,623.67	16,667.16	10				FUTURE
1107	4,626.78	4,623.67	3.654	8				FUTURE
1109	4,819.00	4,770.00	966.573	12				FUTURE
111	4,623.36	4,616.80	123	8			Redlands	Existing
1111	4,770.00	4,735.00	1,033.62	12				FUTURE
1113	4,735.00	4,725.00	910.037	12				FUTURE
1115	4,725.00	4,667.00	659.264	12				FUTURE
1117	4,667.00	4,660.00	1,314.56	12				FUTURE
1119	4,660.00	4,646.95	1,864.76	12				FUTURE
1121	4,646.95	4,580.93	2,590.11	12				FUTURE
1123	4,660.00	4,601.78	13,592.32	15				FUTURE
1125	4,589.29	4,580.04	3,093.95	12			24 1/2 Rd	FUTURE
113	4,616.40	4,610.10	74.11	8			Redlands	Existing
1131	4,675.00	4,670.00	1009.254	8			Lime Kiln	FUTURE
1133	4,670.00	4,660.00	617.395	8			Lime Kiln	FUTURE
1135	4,660.00	4,648.00	1171.199	8			Lime Kiln	FUTURE
1137	4,648.00	4,630.00	1271.107	8			Lime Kiln	FUTURE
1139	4,630.00	4,620.00	1264.866	8			Lime Kiln	FUTURE

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
1141	4,620.00	4,600.00	891.294	8			Lime Kiln	FUTURE
1143	4,570.00	4,523.59	2586	8				FUTURE
1145	4,590.00	4,570.00	1200	8				FUTURE
115	4,609.90	4,589.98	213.82	8			Redlands	Existing
117	4,589.88	4,586.26	38.47	8			Redlands	Existing
119	4,586.16	4,573.55	134.02	8			Redlands	Existing
121	4,554.58	4,550.81	38.8	8	PVC		Ridges	Existing
123	4,550.52	4,529.41	87.67	8	PVC		Ridges	Existing
125	4,529.21	4,526.59	59.29	8	PVC		Ridges	Existing
127	4,523.59	4,521.66	215.16	8	PVC		Ridges	Existing
135	4,563.21	4,654.16	4,837.11	8	PVC			Existing
137	4,653.88	4,652.58	142.739	8	PVC		Redlands	Existing
139	4,600.86	4,600.67	69.73	24			Orchard Mesa	Existing
141	4,600.67	4,599.47	378.78	24			Orchard Mesa	Existing
143	4,599.47	4,598.75	362.65	24			Orchard Mesa	Existing
145	4,598.75	4,598.15	392.08	24			Orchard Mesa	Existing
147	4,598.15	4,597.06	426.27	24			Orchard Mesa	Existing
153	4,597.06	4,596.34	397.67	24			Orchard Mesa	Existing
155	4,596.34	4,596.31	21.25	24			Orchard Mesa	Existing
157	4,596.31	4,562.75	1,004.50	12			Orchard Mesa	Existing
161	4,523.46	4,521.29	511.1	12			Scenic School	Existing
163	4,577.14	4,576.70	340	30		Upsize Diameter	South Side	Existing
165	4,574.96	4,573.97	303.73	30	RCP	Upsize Diameter	South Side	Existing
167	4,577.61	4,577.24	289	30	PVC	Upsize Diameter	South Side	Existing
169	4,577.71	4,577.61	75	30	PVC	Upsize Diameter	South Side	Existing
171	4,578.21	4,577.81	308	24	PVC		South Side	Existing
173	4,579.82	4,579.23	457	24	PVC		South Side	Existing
175	4,579.23	4,578.73	387	24	PVC		South Side	Existing
177	4,578.73	4,578.21	402	24	PVC		South Side	Existing
181	4,543.00	4,537.25	2,052.73	12			G Road	FUTURE
183	4,537.25	4,533.34	1,398.72	12			G Road	FUTURE
185	4,529.86	4,528.15	534.626	12			G Road	FUTURE
483	4,693.91	4,692.10	626.246	12			E 1/2 road	FUTURE
485	4,692.10	4,689.93	747.576	12			E 1/2 road	FUTURE
487	4,658.76	4,657.82	236.609	8			Greenwood Drive	FUTURE
489	4,657.82	4,645.81	632.008	8			Greenwood Drive	FUTURE
491	4,645.81	4,643.95	123.804	8			Greenwood Drive	FUTURE
493	4,643.95	4,636.04	527.482	8			Greenwood Drive	FUTURE
495	4,636.04	4,633.12	194.46	8			Greenwood Drive	FUTURE
497	4,859.65	4,703.03	1,160.14	8			Easter Hill	FUTURE
499	4,703.03	4,645.81	706.83	8			Easter Hill	FUTURE
501	4,775.00	4,737.78	1,488.82	8			Alcove Drive	FUTURE
503	4,737.78	4,708.97	1,029.09	8			Alcove Drive	FUTURE
505	4,708.97	4,683.03	926.267	8			Alcove Drive	FUTURE
507	4,683.03	4,673.86	327.547	8			Alcove Drive	FUTURE
525	4,786.40	4,760.44	865.146	8			Broadway	FUTURE
527	4,760.44	4,733.64	893.316	8			Broadway	FUTURE
529	4,733.64	4,718.47	505.686	8			Broadway	FUTURE
531	4,718.47	4,667.50	1,699.01	8			Broadway	FUTURE
533	4,667.50	4,649.92	1,172.00	8			Broadway	FUTURE
535	4,649.92	4,631.04	1,258.46	8			Broadway	FUTURE
537	4,631.04	4,596.51	1,726.88	8			Broadway	FUTURE
567	4,570.00	4,556.77	2,645.94	8			21 Road	FUTURE
569	4,556.77	4,551.38	1,346.50	8			21 Road	FUTURE
57	4,705.13	4,702.55	262.09	10	PVC			Existing
571	4,551.38	4,544.89	1,299.01	8			21 Road	FUTURE
573	4,544.89	4,527.86	3,405.84	8			21 Road	FUTURE
575	4,527.86	4,517.25	2,122.20	10			21 Road	FUTURE
577	4,517.25	4,510.53	1,678.71	10			21 Road	FUTURE
581	4,599.12	4,586.12	1,299.01	8			22 Road	FUTURE
583	4,586.12	4,559.52	1,330.39	8			22 Road	FUTURE
585	4,559.52	4,554.25	1,316.09	8			22 Road	FUTURE

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
587	4,548.99	4,536.63	3,088.83	10			22 Road	FUTURE
589	4,536.63	4,534.30	582.245	12			22 Road	FUTURE
591	4,534.30	4,528.52	1,654.12	12			22 Road	FUTURE
595	4,533.31	4,526.54	2,258.82	18			23 Road	FUTURE
597	4,526.54	4,524.00	714.837	18			23 Road	FUTURE
599	4,634.94	4,586.97	2,998.22	8			23 Road	FUTURE
601	4,586.97	4,575.06	851.104	8			23 Road	FUTURE
603	4,575.06	4,569.59	1,367.51	10			23 Road	FUTURE
605	4,569.59	4,555.05	3,635.02	12			23 Road	FUTURE
607	4,555.05	4,547.61	1,652.12	15			23 Road	FUTURE
609	4,547.61	4,538.91	1,932.55	15			23 Road	FUTURE
613	4,528.52	4,524.00	1,240.00	12			22 Road	FUTURE
615	4,664.00	4,638.75	2,295.59	8			24 1/2 Rd	FUTURE
617	4,638.75	4,618.90	1,804.38	8			24 1/2 Rd	FUTURE
619	4,618.90	4,605.85	1,186.69	8			24 1/2 Rd	FUTURE
627	4,694.00	4,689.28	673.665	8			26 Road	FUTURE
629	4,689.28	4,680.30	1,282.87	8			26 Road	FUTURE
631	4,680.30	4,671.16	1,306.94	8			26 Road	FUTURE
633	4,671.16	4,656.61	2,077.28	8			26 Road	FUTURE
635	4,656.61	4,649.04	1,081.70	8			26 Road	FUTURE
637	4,649.04	4,629.16	1,529.81	8			26 Road	FUTURE
639	4,629.16	4,611.95	1,323.32	8			26 Road	FUTURE
641	4,611.95	4,589.29	1,888.57	12			26 Road	FUTURE
643	4,589.29	4,580.04	771.101	12			26 Road	FUTURE
645	4,580.04	4,575.66	1,151.73	15			26 Road	FUTURE
647	4,575.66	4,569.36	1,656.66	15			26 Road	FUTURE
649	4,655.00	4,618.28	1,836.09	8			25 Road	FUTURE
651	4,618.28	4,613.83	1,647.79	12			25 Road	FUTURE
653	4,613.83	4,611.95	711.137	12			25 Road	FUTURE
655	4,581.96	4,580.04	686.164	12			26 Road	FUTURE
657	4,533.34	4,529.86	1,242.83	12			G Road	FUTURE
673	4,701.12	4,691.93	1,880.30	8			Monument Drive	FUTURE
677	4,712.82	4,691.93	596.637	8			Monument Drive	FUTURE
679	4,691.93	4,669.68	1,391.13	8			Monument Drive	FUTURE
681	4,669.68	4,646.06	1,312.27	8			Monument Drive	FUTURE
683	4,637.60	4,744.98	932.306	4				FUTURE
685	4,831.01	4,749.28	996.645	8			Bella Pago	FUTURE
687	4,749.28	4,744.98	1,076.66	8			Bella Pago	FUTURE
689	4,732.00	4,682.31	1,242.15	8			Mira Monte	FUTURE
691	4,682.31	4,645.18	1,237.68	8			Mira Monte	FUTURE
693	4,645.18	4,642.98	550.801	8			Mira Monte	FUTURE
695	4,619.00	4,610.72	413.891	8			Rosevale	FUTURE
697	4,610.72	4,562.63	1,603.13	8			Rosevale	FUTURE
699	4,562.63	4,559.67	147.851	8			Rosevale	FUTURE
707	4,793.00	4,785.40	1,519.15	12			I-70 Interceptor	FUTURE
709	4,785.40	4,761.63	2,165.89	12			I-70 Interceptor	FUTURE
711	4,753.36	4,714.77	1,543.64	15			I-70 Interceptor	FUTURE
713	4,761.63	4,753.36	2,066.21	15			I-70 Interceptor	FUTURE
715	4,779.69	4,761.63	4,515.61	8			I-70 Interceptor	FUTURE
717	4,796.34	4,779.69	3,330.38	8			I-70 Interceptor	FUTURE
719	4,833.87	4,796.34	1,876.52	8			I-70 Interceptor	FUTURE
727	4,762.60	4,750.11	1,921.29	15			29 Road	FUTURE
733	4,657.67	4,650.64	1,171.15	8			US HWY 50	FUTURE
735	4,650.64	4,638.84	1,371.28	8			US HWY 50	FUTURE
749	4,689.93	4,689.06	300.636	12			E 1/2 road	FUTURE
751	4,689.06	4,688.78	95.714	12			E 1/2 road	FUTURE
753	4,688.78	4,687.93	290.211	12			E 1/2 road	FUTURE
757	4,547.55	4,546.92	334.196	10			Ridges	Existing
759	4,547.55	4,546.92	335.43	8			Ridges	Existing
761	4,546.92	4,546.82	9.951	8			Ridges	Existing
763	4,516.05	4,513.14	145.763	30	RCP		River Road	Existing
773	4,658.97	4,656.78	408	12	VCP		B 1/2 Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
775	4,656.75	4,656.20	123.2	12	VCP	Changed Inverts	B 1/2 Road	Existing
777	4,656.20	4,655.09	248.4	12	VCP	Changed Inverts	B 1/2 Road	Existing
779	4,655.09	4,653.77	333.6	12	VCP		B 1/2 Road	Existing
781	4,653.67	4,652.71	248.5	12	VCP		B 1/2 Road	Existing
785	4,652.64	4,651.67	251	12	VCP		B 1/2 Road	Existing
787	4,651.66	4,650.11	291.592	12	VCP		B 1/2 Road	Existing
789	4,650.44	4,650.15	65.206	12	VCP		B 1/2 Road	Existing
791	4,650.14	4,648.83	396.421	12	VCP		B 1/2 Road	Existing
793	4,648.80	4,647.45	379.463	12			B 1/2 Road	Existing
795	4,647.39	4,646.80	179.547	12			B 1/2 Road	Existing
797	4,646.80	4,646.21	201.687	12	VCP		B 1/2 Road	Existing
799	4,646.11	4,644.92	348	12	VCP	Changed Inverts	B 1/2 Road	Existing
801	4,644.92	4,644.80	37.1	12	VCP	Changed Inverts	B 1/2 Road	Existing
803	4,644.80	4,643.51	378.906	12	VCP	Changed Inverts	B 1/2 Road	Existing
805	4,643.51	4,642.41	324	12	VCP	Changed Inverts	B 1/2 Road	Existing
807	4,642.41	4,641.07	392	12	VCP	Changed Inverts	B 1/2 Road	Existing
809	4,641.07	4,639.71	399.077	12	VCP	Changed Inverts	B 1/2 Road	Existing
811	4,639.71	4,639.39	108.076	12	VCP		B 1/2 Road	Existing
813	4,639.39	4,638.24	293.59	12	VCP		B 1/2 Road	Existing
85	4,652.36	4,651.54	204.94	8	PVC		Redlands	Existing
87	4,651.52	4,650.96	218.91	8			Redlands	Existing
889	4,637.21	4,636.52	325	15			Frontage Rd	Existing
89	4,650.53	4,649.68	208.2	8			Redlands	Existing
891	4,636.45	4,635.40	338	15			Frontage Rd	Existing
893	4,635.26	4,634.52	345	15			Frontage Rd	Existing
895	4,634.45	4,633.58	145	15			Frontage Rd	Existing
897	4,633.58	4,633.24	12.52	15			Frontage Rd	Existing
91	4,649.48	4,648.80	161.6	8			Redlands	Existing
93	4,648.55	4,647.31	268.34	8			Redlands	Existing
939	4,503.19	4,513.80	666.64	6			21 Road	FUTURE
943	4,522.30	4,519.37	975.74	21			22 Road	FUTURE
945	4,519.37	4,518.94	171.855	21			22 Road	FUTURE
947	4,518.94	4,517.29	660.428	21			22 Road	FUTURE
949	4,517.29	4,516.58	283.874	21			22 Road	FUTURE
95	4,647.13	4,645.76	272.44	8			Redlands	Existing
951	4,524.00	4,522.30	666.531	21			22 Road	FUTURE
953	4,538.91	4,537.65	315.643	15			23 Road	FUTURE
955	4,537.65	4,536.15	375.976	15			23 Road	FUTURE
957	4,536.15	4,533.31	944.567	15			23 Road	FUTURE
959	4,554.25	4,548.99	1,315.88	8			22 Road	FUTURE
961	4,569.36	4,568.73	167.92	15			26 Road	FUTURE
963	4,775.78	4,762.60	2,028.59	15			29 Road	FUTURE
965	4,750.11	4,742.91	359.96	15			29 Road	FUTURE
967	4,742.91	4,708.77	2,276.14	15			29 Road	FUTURE
969	4,708.77	4,694.18	1,325.86	15			29 Road	FUTURE
97	4,645.57	4,644.67	196.21	8			Redlands	Existing
971	4,694.18	4,679.67	1,318.98	15			29 Road	FUTURE
973	4,679.67	4,673.05	1,325.26	18			29 Road	FUTURE
975	4,673.05	4,666.46	1,316.49	18			29 Road	FUTURE
977	4,666.46	4,661.84	925.484	18			29 Road	FUTURE
979	4,661.84	4,653.48	1,670.87	18			29 Road	FUTURE
981	4,653.48	4,647.09	1,279.28	18			29 Road	FUTURE
987	4,647.09	4,594.55	5,253.59	18			29 Road	FUTURE
99	4,644.46	4,643.51	254.49	8	PVC		Redlands	Existing
B1-272-001	4,646.75	4,646.04	245	12			B Road	Existing
B1-272-002	4,647.88	4,646.82	254	10			B Road	Existing
B1-272-003	4,648.97	4,647.96	271	10			B Road	Existing
B1-272-005	4,650.32	4,649.13	277	10			B Road	Existing
B1-272-007	4,651.33	4,650.34	336	10			B Road	Existing
B1-272-010	4,645.97	4,645.09	235	12			B Road	Existing
B1-281-001	4,652.64	4,651.37	337	10			B Road	Existing
B1-281-002	4,654.03	4,652.72	338	10			B Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
B1-281-004	4,656.80	4,654.09	450	10			B Road	Existing
B1-281-005	4,658.25	4,656.82	253	10			B Road	Existing
B1-281-006	4,659.90	4,658.31	300	10			B Road	Existing
B1-281-007	4,661.06	4,659.92	105	10			B Road	Existing
B1-281-009	4,664.19	4,661.02	301	10			B Road	Existing
B1-281-010	4,667.56	4,664.70	280	10			B Road	Existing
B1-292-001	4,710.24	4,709.43	401	10			Chipeta	Existing
B1-292-002	4,709.41	4,708.82	396	10			Chipeta	Existing
B1-292-003	4,708.82	4,707.80	401	10			Chipeta	Existing
B1-292-004	4,707.70	4,705.49	218	10			Chipeta	Existing
B1-292-010	4,705.49	4,702.44	293	10			Chipeta	Existing
B1-292-011	4,702.28	4,693.49	291	10			Chipeta	Existing
B1-292-012	4,674.06	4,673.62	302	10			Chipeta	Existing
B1-292-013	4,691.01	4,690.47	87	8			Chipeta	Existing
B1-292-014	4,690.47	4,689.38	266	10			Chipeta	Existing
B1-292-015	4,689.36	4,688.51	106	10			Chipeta	Existing
B1-292-016	4,688.51	4,685.74	145	8			Chipeta	Existing
B2-271-019	4,633.24	4,632.55	252.002	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B2-272-004	4,634.19	4,633.34	302.842	15	VCP		B 1/2 Road	Existing
B2-272-007	4,634.99	4,634.19	289.23	15	VCP		B 1/2 Road	Existing
B2-272-009	4,635.13	4,634.99	49.889	15	VCP		B 1/2 Road	Existing
B2-272-012	4,645.09	4,643.48	430	15			B Road	Existing
B2-272-013	4,643.33	4,642.53	186	15			B Road	Existing
B2-272-014	4,635.43	4,635.13	177.973	15	VCP		B 1/2 Road	Existing
B2-272-015	4,642.50	4,641.11	463	15			B Road	Existing
B2-272-016	4,639.99	4,638.97	440	15			B Road	Existing
B2-272-017	4,638.03	4,637.27	325	15			Frontage Rd	Existing
B2-272-021	4,638.84	4,638.08	316	15			Frontage Rd	Existing
B2-272-027	4,638.22	4,636.76	430	12	VCP		B 1/2 Road	Existing
B2-272-033	4,636.69	4,635.49	208	12	VCP		B 1/2 Road	Existing
B2-282-048	4,660.36	4,658.98	353	12			B 1/2 Road	Existing
B2-282-051	4,661.76	4,660.36	329	12	VCP		B 1/2 Road	Existing
B2-282-054	4,663.80	4,661.80	450	12	VCP		B 1/2 Road	Existing
B2-291-024	4,671.85	4,670.65	135	12	VCP		B 1/2 Road	Existing
B2-291-025	4,670.56	4,667.90	528	12	VCP		B 1/2 Road	Existing
B2-291-026	4,667.87	4,667.72	413	12	VCP		B 1/2 Road	Existing
B2-291-027	4,667.71	4,666.81	443.2	12	VCP		B 1/2 Road	Existing
B2-291-028	4,666.77	4,666.62	78.1	12	VCP		B 1/2 Road	Existing
B2-291-029	4,666.60	4,665.18	299	12	VCP		B 1/2 Road	Existing
B2-291-030	4,665.03	4,663.80	465	12	VCP		B 1/2 Road	Existing
B2-291-045	4,670.65	4,670.57	248	12	VCP		B 1/2 Road	Existing
B2-292-001	4,681.06	4,679.10	400.9	10			B 1/2 Road	Existing
B2-292-002	4,679.00	4,676.86	400.4	10			B 1/2 Road	Existing
B2-292-003	4,676.86	4,676.36	200.7	10			B 1/2 Road	Existing
B2-292-004	4,676.23	4,675.08	95.7	12			B 1/2 Road	Existing
B2-292-008	4,674.06	4,673.62	501	12			B 1/2 Road	Existing
B2-292-009	4,673.56	4,671.86	503.5	12			B 1/2 Road	Existing
B2-292-010	4,675.08	4,674.72	150.5	12			B 1/2 Road	Existing
B2-292-011	4,676.30	4,675.48	145	8			Chipeta	Existing
B2-292-012	4,677.97	4,676.80	285	8			Chipeta	Existing
B2-292-017	4,680.45	4,679.15	163	8			Chipeta	Existing
B2-292-018	4,682.29	4,680.21	255	8			Chipeta	Existing
B2-292-022	4,684.69	4,682.13	220	8			Chipeta	Existing
B2-292-023	4,685.95	4,684.47	85	8			Chipeta	Existing
B2-292-026	4,674.71	4,674.07	222.8	12			B 1/2 Road	Existing
B2-301-001	4,682.29	4,681.46	213	10			B 1/2 Road	Existing
B3-262-023	4,621.17	4,620.66	319.833	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-262-027	4,621.81	4,621.17	404.358	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-262-031	4,622.41	4,621.81	407.081	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-003	4,623.79	4,623.13	234.126	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-006	4,624.41	4,623.79	220.318	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-018	4,625.47	4,624.41	378.578	18	VCP	Upsize Diameter	Orchard Mesa	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
B3-271-026	4,627.09	4,626.58	149.6	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-032	4,627.95	4,627.09	304.646	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-039	4,628.92	4,627.95	346.729	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-042	4,629.70	4,628.92	278.734	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-045	4,630.11	4,629.70	143.795	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-054	4,630.84	4,630.11	225.041	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-058	4,631.39	4,630.84	158.555	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-058A	4,632.02	4,631.39	225.434	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B3-271-063	4,632.55	4,632.02	188.895	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-261-014	4,608.87	4,607.44	237.8	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-001	4,611.26	4,608.87	398.782	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-011	4,615.11	4,612.98	355.552	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-016	4,617.18	4,615.11	344.761	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-022	4,619.06	4,617.18	313.273	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-024	4,619.39	4,619.06	208.903	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-028	4,619.87	4,619.39	301.71	24	RCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-030	4,620.18	4,619.87	192.158	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-031	4,620.66	4,620.51	94.76	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-262-036	4,625.37	4,625.13	110.831	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-262-037	4,625.13	4,624.18	428.532	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-262-038	4,624.18	4,623.16	460.25	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-262-043	4,612.98	4,611.26	288.279	24		Upsize Diameter	Orchard Mesa	Existing
B4-262-114	4,620.51	4,620.18	209.8	24	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-271-001	4,625.44	4,625.37	28.798	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-271-011	4,626.58	4,625.47	396.1	18	VCP	Upsize Diameter	Orchard Mesa	Existing
B4-271-028	4,632.08	4,631.64	157.309	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-033	4,633.06	4,632.08	348.762	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-128	4,626.11	4,625.44	304.942	15	VCP	Upsize Diameter	Unaweep Road	Existing
B4-271-135	4,627.28	4,626.11	415.674	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-138	4,628.38	4,627.28	392.386	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-143	4,629.27	4,628.38	315.864	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-145	4,629.82	4,629.27	195.586	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-146	4,630.72	4,629.82	318.521	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-147	4,631.64	4,630.72	325.212	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-271-148	4,633.50	4,633.06	154.783	15	PVC		Unaweep Road	Existing
B4-272-004	4,635.36	4,634.33	366	12	PVC		Unaweep Road	Existing
B4-272-039	4,639.40	4,639.08	125.854	12	PVC		Unaweep Road	Existing
B4-272-040	4,639.58	4,639.40	72.652	12	PVC		Unaweep Road	Existing
B4-272-044	4,640.18	4,639.58	241.31	12	PVC		Unaweep Road	Existing
B4-272-048	4,640.59	4,640.18	193.848	12	PVC		Unaweep Road	Existing
B4-272-086	4,636.41	4,635.36	372.542	12	PVC		Unaweep Road	Existing
B4-272-091	4,638.20	4,637.73	167.7	12	PVC		Unaweep Road	Existing
B4-272-092	4,639.08	4,638.49	237.1	12	PVC		Unaweep Road	Existing
B4-272-093	4,634.28	4,633.50	276.7	15	PVC	Upsize Diameter	Unaweep Road	Existing
B4-272-094	4,634.33	4,634.28	18.6	12	PVC		Unaweep Road	Existing
B4-272-095	4,638.49	4,638.20	104.5	12	PVC		Unaweep Road	Existing
B4-272-096	4,637.73	4,636.41	468.3	12	PVC		Unaweep Road	Existing
B4-281-054	4,641.06	4,640.59	189.453	12	PVC		Unaweep Road	Existing
B4-281-057	4,641.94	4,641.06	320.62	12	PVC		Unaweep Road	Existing
BV-100	4,540.00	4,549.55	1,147.16	12			Scenic	Existing
BV-105	4,546.92	4,546.82	9.951	10			Ridges	Existing
BV-292-013	4,678.94	4,678.13	158	8			Chipeta	Existing
C1-221-018	4,846.93	4,846.06	249.9	12	PVC		South Camp	Existing
C1-221-019	4,847.43	4,846.93	124.148	12	PVC		South Camp	Existing
C1-261-028	4,603.26	4,600.82	408.196	24	VCP		Orchard Mesa	Existing
C1-261-030	4,604.33	4,603.26	178.662	24	VCP	Upsize Diameter	Orchard Mesa	Existing
C1-261-058	4,607.44	4,606.78	110.175	24		Upsize Diameter	Orchard Mesa	Existing
C1-261-060	4,605.22	4,604.33	149.994	24	VCP	Upsize Diameter	Orchard Mesa	Existing
C1-261-062	4,606.78	4,605.22	260.432	24		Upsize Diameter	Orchard Mesa	Existing
C1-281-035	4,642.19	4,641.94	101.155	10	PVC		Unaweep Road	Existing
C2-221-030	4,846.06	4,844.64	479.4	12	PVC		South Camp	Existing
C2-221-031	4,836.04	4,821.72	162.9	12	PVC		South Camp	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
C2-221-032	4,840.59	4,839.55	170.7	12	PVC		South Camp	Existing
C2-221-033	4,841.58	4,840.59	368.7	12	PVC		South Camp	Existing
C2-221-034	4,842.57	4,841.58	361.7	12	PVC		South Camp	Existing
C2-221-035	4,843.98	4,842.57	172.1	12	PVC		South Camp	Existing
C2-221-037	4,844.64	4,843.98	502.3	12	PVC		South Camp	Existing
C2-221-065	4,839.55	4,836.04	164.7	12	PVC		South Camp	Existing
C2-261-001A	4,596.31	4,562.75	1,005.71	14	DIP		Orchard Mesa	Existing
C2-261-024	4,557.05	4,556.99	49.5	27	VCP		River Trunk	Existing
C3-212-031	4,796.10	4,792.35	273.3	12	PVC		South Camp	Existing
C3-221-003	4,821.72	4,819.43	114.997	12	PVC		South Camp	Existing
C3-221-004	4,819.43	4,813.83	280.4	12	PVC		South Camp	Existing
C3-221-005	4,811.89	4,801.75	492.3	12	PVC		South Camp	Existing
C3-221-006	4,801.75	4,796.10	342	12	PVC		South Camp	Existing
C3-221-030	4,813.83	4,811.89	97.3	12	PVC		South Camp	Existing
C3-252-002	4,556.31	4,555.59	479.142	36	RCP	Upsize Diameter	South Side	Existing
C3-261-001	4,554.75	4,553.86	725.733	21	CONCRETE		River Trunk	Existing
C3-261-002	4,557.21	4,556.31	471.205	36	polyvinyl chloride	Upsize Diameter	South Side	Existing
C3-261-004	4,555.11	4,554.75	299.7	21	CONCRETE		River Trunk	Existing
C3-261-005	4,558.11	4,557.21	303.203	36	PVC	Upsize Diameter	South Side	Existing
C3-261-007	4,555.56	4,555.11	363.588	21	RCP		River Trunk	Existing
C3-261-008	4,558.49	4,558.11	365.753	36	PVC	Upsize Diameter	South Side	Existing
C3-261-009	4,558.78	4,558.49	280.834	36	PVC	Upsize Diameter	South Side	Existing
C3-261-010	4,559.00	4,558.78	76.621	36	PVC	Upsize Diameter	South Side	Existing
C3-261-011	4,555.94	4,555.56	310.78	21	RCP		River Trunk	Existing
C3-261-012	4,559.50	4,559.00	17.843	36	RCP	Upsize Diameter	South Side	Existing
C3-261-012A	4,559.63	4,555.94	46.018	21	PVC			Existing
C3-261-013	4,560.78	4,560.00	92.693	30	RCP	Upsize Diameter	South Side	Existing
C3-261-015	4,556.22	4,555.94	227.894	21	RCP		River Trunk	Existing
C3-261-019	4,556.59	4,556.22	309.3	21	RCP		River Trunk	Existing
C3-261-021	4,556.74	4,556.59	123.197	21	RCP		River Trunk	Existing
C3-261-031	4,561.71	4,560.78	518.568	30	RCP	Upsize Diameter	South Side	Existing
C3-261-035	4,557.14	4,557.05	74.4	27	VCP		River Trunk	Existing
C3-261-040	4,561.85	4,561.71	77.933	30	RCP	Upsize Diameter	South Side	Existing
C3-261-043	4,557.18	4,557.14	31.718	27	VCP		River Trunk	Existing
C3-261-050	4,557.37	4,557.34	28	10	VCP		River Trunk	Existing
C3-261-056	4,557.50	4,557.37	80.918	10	VCP		River Trunk	Existing
C3-261-062	4,562.74	4,561.85	490.491	30	RCP	Upsize Diameter	South Side	Existing
C3-261-075	4,557.34	4,557.24	13	12	PVC		River Trunk	Existing
C3-261-076	4,557.24	4,557.18	44.4	10	VCP		River Trunk	Existing
C3-262-007	4,563.98	4,563.70	154.554	30	RCP	Upsize Diameter	South Side	Existing
C3-262-009	4,563.60	4,562.74	478.88	30	RCP	Upsize Diameter	South Side	Existing
C3-262-033	4,564.91	4,564.08	463.661	30	RCP	Upsize Diameter	South Side	Existing
C3-262-041	4,565.58	4,564.91	154.9	30	RCP	Upsize Diameter	South Side	Existing
C3-262-046	4,566.92	4,565.58	319.406	30	RCP	Upsize Diameter	South Side	Existing
C3-262-051	4,567.21	4,566.92	61.434	30	RCP	Upsize Diameter	South Side	Existing
C3-262-061	4,568.19	4,567.21	206.673	30	RCP	Upsize Diameter	South Side	Existing
C3-262-070	4,570.48	4,570.07	158.03	30	RCP	Upsize Diameter	South Side	Existing
C3-262-071	4,570.07	4,568.19	373.756	30	RCP	Upsize Diameter	South Side	Existing
C3-262-074	4,571.47	4,570.48	500.889	30	RCP	Upsize Diameter	South Side	Existing
C3-271-001	4,572.32	4,571.47	421.48	30	RCP	Upsize Diameter	South Side	Existing
C3-271-003	4,572.91	4,572.32	295.102	30	RCP	Upsize Diameter	South Side	Existing
C3-271-004	4,573.07	4,572.91	77.966	30	RCP	Upsize Diameter	South Side	Existing
C3-271-007	4,573.87	4,573.07	401.374	30	RCP	Upsize Diameter	South Side	Existing
C3-271-010	4,575.40	4,575.16	28	30	RCP	Upsize Diameter	South Side	Existing
C3-271-012	4,576.65	4,575.60	111	30	RCP	Upsize Diameter	South Side	Existing
C4-212-059	4,792.35	4,780.23	489.901	12	PVC		South Camp	Existing
C4-212-060	4,776.84	4,772.96	226	12	PVC		South Camp	Existing
C4-212-061	4,770.23	4,764.84	299.9	12	PVC		South Camp	Existing
C4-221-001	4,764.84	4,751.11	391.4	12	PVC		South Camp	Existing
C4-221-011	4,772.96	4,770.23	159.3	12	PVC		South Camp	Existing
C4-252-001	4,552.80	4,552.03	536.838	36	RCP	Upsize Diameter	South Side	Existing
C4-252-002	4,552.35	4,551.70	533.459	21	RCP		River Trunk	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
C4-252-003	4,555.59	4,554.87	297.594	36	RCP	Upsize Diameter	South Side	Existing
C4-252-004	4,552.79	4,552.35	360.57	21	RCP		River Trunk	Existing
C4-252-005	4,554.19	4,553.57	346.893	36	RCP	Upsize Diameter	South Side	Existing
C4-252-006	4,553.57	4,552.80	311.862	36	RCP	Upsize Diameter	South Side	Existing
C4-252-007	4,553.86	4,553.32	441.554	21	RCP		River Trunk	Existing
C4-252-007A	4,553.32	4,552.79	436.699	21	RCP		River Trunk	Existing
C4-252-008	4,554.87	4,554.19	377.462	36	RCP	Upsize Diameter	South Side	Existing
D1-212-011	4,745.82	4,738.58	284	12	PVC		South Camp	Existing
D1-212-012	4,738.58	4,733.37	274.602	12	PVC		South Camp	Existing
D1-212-032	4,751.11	4,745.82	500.7	12	PVC		South Camp	Existing
D1-242-011	4,625.05	4,620.05	124.968	10	PVC		Ridges	Existing
D1-242-017	4,635.90	4,625.71	275	10	PVC		Ridges	Existing
D1-242-018	4,648.75	4,636.15	294.478	10	PVC		Ridges	Existing
D1-242-019	4,652.05	4,648.85	199.457	12	PVC		Ridges	Existing
D1-242-030	4,619.95	4,600.75	399.963	10	PVC		Ridges	Existing
D1-242-031	4,600.00	4,586.00	293.724	10	PVC		Ridges	Existing
D1-242-031A	4,598.00	4,586.00	295.397	8	PVC		Ridges	Existing
D1-251-001	4,582.38	4,581.56	267.2	21			South Avenue	Existing
D1-251-005	4,586.00	4,556.00	1,267.13	10	PVC		Ridges	Existing
D1-251-005A	4,586.00	4,556.00	1,268.05	8	PVC		Ridges	Existing
D1-251-005B	4,556.00	4,551.00	343.186	10	PVC		Ridges	Existing
D1-252-001	4,549.53	4,548.08	371.427	36	RCP	Upsize Diameter	South Side	Existing
D1-252-004	4,550.10	4,549.53	309.337	36	RCP	Upsize Diameter	South Side	Existing
D1-252-005	4,548.94	4,548.69	201.72	24	VCP		River Trunk	Existing
D1-252-008	4,549.09	4,548.94	126.018	24	VCP		River Trunk	Existing
D1-252-008A	4,549.28	4,549.09	158.194	24	VCP		River Trunk	Existing
D1-252-009	4,550.62	4,550.10	292.478	36	RCP	Upsize Diameter	South Side	Existing
D1-252-010	4,549.50	4,549.28	173.25	21	VCP		River Trunk	Existing
D1-252-011	4,549.87	4,549.50	310.091	21	VCP		River Trunk	Existing
D1-252-015	4,550.86	4,550.62	133.43	36	RCP	Upsize Diameter	South Side	Existing
D1-252-018	4,551.45	4,550.86	398.159	36	RCP	Upsize Diameter	South Side	Existing
D1-252-019	4,552.03	4,551.45	260.038	36	RCP	Upsize Diameter	South Side	Existing
D1-252-023	4,550.29	4,549.87	343.449	21	VCP		River Trunk	Existing
D1-252-031	4,550.50	4,550.29	167.247	21	VCP		River Trunk	Existing
D1-252-036	4,550.70	4,550.50	164.131	21	VCP		River Trunk	Existing
D1-252-041	4,550.89	4,550.70	161.278	21	VCP		River Trunk	Existing
D1-252-042	4,551.70	4,550.89	662.626	21	VCP		River Trunk	Existing
D1-252-050	4,572.48	4,572.14	176.234	27	VCP		South Avenue	Existing
D1-252-053	4,564.58	4,564.29	272	24	RCP	Parallel	Colorado Avenue	Existing
D1-252-056	4,564.84	4,564.67	83	24	RCP	Parallel	Colorado Avenue	Existing
D1-252-057	4,565.78	4,564.84	223.762	24	RCP	Parallel	Colorado Avenue	Existing
D1-252-059	4,565.89	4,565.78	27.158	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-001	4,566.50	4,566.09	77.506	24	PVC	Parallel	Colorado Avenue	Existing
D1-261-003	4,573.60	4,572.48	723.306	27	VCP		South Avenue	Existing
D1-261-006	4,567.95	4,566.50	51.594	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-008	4,569.50	4,567.95	302.547	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-020	4,574.54	4,573.60	606.866	27	VCP		South Avenue	Existing
D1-261-021	4,570.00	4,569.50	99.515	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-023	4,577.36	4,577.02	233.241	27	VCP		South Avenue	Existing
D1-261-036	4,571.70	4,570.00	422.792	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-037	4,577.85	4,577.36	301.563	27	VCP		South Avenue	Existing
D1-261-052	4,572.10	4,571.70	440.734	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-059	4,578.49	4,577.85	481.274	27	VCP		South Avenue	Existing
D1-261-061	4,578.59	4,578.49	9.6	27	VCP		South Avenue	Existing
D1-261-075	4,573.00	4,572.10	445.227	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-084	4,579.30	4,578.59	471.5	27	VCP		South Avenue	Existing
D1-261-103	4,575.00	4,573.00	515.7	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-116	4,580.97	4,580.52	312.518	21	VCP		South Avenue	Existing
D1-261-116A	4,580.52	4,579.80	482.521	21	VCP		South Avenue	Existing
D1-261-117	4,575.50	4,575.00	54.284	24	RCP	Parallel	Colorado Avenue	Existing
D1-261-128	4,575.80	4,575.50	267.746	24	RCP	Parallel	Colorado Avenue	Existing
D1-262-025	4,576.00	4,575.80	380	24	RCP	Parallel	Colorado Avenue	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
D1-262-030	4,581.56	4,580.97	380.677	21	VCP		South Avenue	Existing
D1-262-040	4,576.50	4,576.00	264.434	24	RCP		Colorado Avenue	Existing
D1-262-067	4,578.20	4,576.50	502.758	24	RCP		Colorado Avenue	Existing
D1-262-079	4,583.87	4,582.38	495.739	21	VCP		South Avenue	Existing
D1-262-088	4,579.00	4,578.20	461.496	24	RCP		Colorado Avenue	Existing
D1-262-100	4,580.00	4,579.00	489.507	24	RCP		Colorado Avenue	Existing
D1-271-018	4,581.55	4,580.67	455.198	24	RCP		Colorado Avenue	Existing
D1-271-051	4,585.43	4,585.36	8.462	21	PVC		Colorado Avenue	Existing
D1-271-054	4,585.36	4,581.71	457.7	24	RCP		Colorado Avenue	Existing
D1-271-055	4,580.63	4,580.00	537.1	24	RCP		Colorado Avenue	Existing
D1-271-092	4,581.71	4,581.55	19.4	24	RCP		Colorado Avenue	Existing
D2-212-001	4,731.19	4,729.46	91.02	12	PVC		South Camp	Existing
D2-212-002	4,729.46	4,729.13	21.7	12	PVC		South Camp	Existing
D2-212-003	4,722.94	4,714.33	363.5	12	PVC		South Camp	Existing
D2-212-011	4,733.37	4,731.40	104.468	12	PVC		South Camp	Existing
D2-212-012	4,731.40	4,731.19	11.086	12	PVC		South Camp	Existing
D2-212-013	4,726.69	4,722.94	249.903	12	PVC		South Camp	Existing
D2-212-014	4,714.33	4,706.40	496.1	12	PVC		South Camp	Existing
D2-212-025	4,729.13	4,726.69	163	8	PVC		South Camp	Existing
D2-241-006	4,648.54	4,645.54	239.276	8	PVC		Scenic School	Existing
D2-241-007	4,645.54	4,641.85	302.842	8	PVC		Scenic School	Existing
D2-251-004	4,544.90	4,544.75	72.455	48	RCP		River Road	Existing
D2-251-005	4,545.26	4,544.90	17.81	48	RCP		River Road	Existing
D2-251-008	4,550.50	4,545.06	380	12			Ridges	Existing
D2-251-014	4,556.00	4,551.00	344.531	8	PVC		Ridges	Existing
D2-251-014A	4,551.00	4,550.50	3.246	12			Ridges	Existing
D2-252-002	4,548.08	4,547.05	523.849	36	RCP	Upsize Diameter	South Side	Existing
D2-252-004	4,547.05	4,545.56	310.878	36	RCP	Upsize Diameter	South Side	Existing
D2-252-005	4,545.56	4,545.26	318.46	48	RCP		River Road	Existing
D2-252-006	4,546.44	4,545.56	128.248	24	VCP		River Trunk	Existing
D2-252-008	4,546.82	4,546.44	330.165	24	VCP		River Trunk	Existing
D2-252-010	4,548.43	4,546.82	327.541	24	VCP		River Trunk	Existing
D2-252-011	4,549.30	4,547.05	433.714	27	PVC		Grand Avenue	Existing
D2-252-012	4,548.67	4,548.43	179.711	24	VCP		River Trunk	Existing
D2-252-014	4,548.69	4,548.67	180.728	24	VCP		River Trunk	Existing
D2-252-015	4,550.85	4,550.25	11.283	27	PVC		Grand Avenue	Existing
D2-252-026	4,551.69	4,550.85	423.546	30	VCP		Grand Avenue	Existing
D2-252-033	4,551.00	4,547.10	912.627	24	PVC		Colorado Avenue	Existing
D2-252-039	4,552.50	4,551.00	395.765	24	PVC		Colorado Avenue	Existing
D2-252-049	4,556.50	4,552.50	402.686	24	PVC		Colorado Avenue	Existing
D2-252-050	4,569.00	4,563.00	1,108.44	24	VCP		South Avenue	Existing
D2-252-052	4,569.41	4,569.00	206.443	27	VCP		South Avenue	Existing
D2-252-056	4,571.64	4,569.41	22.862	27	VCP		South Avenue	Existing
D2-252-057	4,559.50	4,556.50	278.866	24	PVC		Colorado Avenue	Existing
D2-252-062	4,559.77	4,559.50	68.9	24	PVC		Colorado Avenue	Existing
D2-252-067	4,572.14	4,571.64	400.1	27	VCP		South Avenue	Existing
D2-252-069	4,562.72	4,559.87	278.964	24	RCP		Colorado Avenue	Existing
D2-252-071	4,572.57	4,562.82	298.414	27	VCP		Grand Avenue	Existing
D2-252-085	4,564.19	4,562.81	299.202	24	RCP		Colorado Avenue	Existing
D2-252-105	4,553.17	4,551.69	749.5	24	VCP		Grand Avenue	Existing
D2-271-017	4,590.64	4,588.08	351.518	15	PVC		15th Street	Existing
D2-271-019	4,588.08	4,586.34	238.423	15	PVC		15th Street	Existing
D2-271-022	4,586.34	4,585.45	122.114	15	PVC		15th Street	Existing
D2-271-023	4,585.45	4,583.64	247.8	15	PVC		15th Street	Existing
D2-271-039	4,591.68	4,589.83	154.586	18	PVC		Colorado Avenue	Existing
D2-271-042	4,589.83	4,588.61	153.504	21	RCP		Colorado Avenue	Existing
D2-271-043	4,588.61	4,586.86	218.809	21	RCP		Colorado Avenue	Existing
D2-271-045	4,586.86	4,585.43	179.022	21	PVC		Colorado Avenue	Existing
D2-271-048	4,594.65	4,594.60	30.635	15	VCP	Parallel	Rood Avenue	Existing
D2-271-052	4,595.09	4,594.65	298.414	15	VCP	Parallel	Rood Avenue	Existing
D2-271-063	4,595.66	4,595.09	375.396	15	VCP	Parallel	Rood Avenue	Existing
D2-271-067	4,596.06	4,595.66	330.821	15	VCP	Parallel	Rood Avenue	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
D2-271-075	4,596.17	4,596.06	88.527	15	VCP	Parallel	Rood Avenue	Existing
D2-271-109	4,583.64	4,582.30	183.2	15	PVC		15th Street	Existing
D2-272-011	4,597.00	4,596.17	678.337	15	VCP	Parallel	Rood Avenue	Existing
D2-272-023	4,598.93	4,598.42	331.313	15	VCP	Parallel	Rood Avenue	Existing
D2-272-025	4,598.42	4,597.89	368.902	15	VCP	Parallel	Rood Avenue	Existing
D2-272-029	4,597.89	4,597.00	602.667	15	VCP	Parallel	Rood Avenue	Existing
D2-272-052	4,600.00	4,598.93	778.278	15	VCP	Parallel	Rood Avenue	Existing
D2-272-070	4,600.60	4,600.00	403.899	15	VCP	Parallel	Rood Avenue	Existing
D2-272-072	4,601.12	4,600.60	346.401	15	VCP	Parallel	Rood Avenue	Existing
D2-272-074	4,601.53	4,601.12	322.916	15	VCP	Parallel	Rood Avenue	Existing
D2-272-075	4,601.57	4,601.53	26.502	15	VCP	Parallel	Rood Avenue	Existing
D2-281-002	4,601.72	4,601.57	100.171	15	VCP	Parallel	Rood Avenue	Existing
D3-212-001	4,702.89	4,702.53	126.57	8	PVC		Goat Wash	Existing
D3-212-002	4,702.47	4,698.00	354.55	8	PVC		Goat Wash	Existing
D3-212-003	4,697.82	4,691.93	351.26	8	PVC		Goat Wash	Existing
D3-212-004	4,691.93	4,689.60	184.762	8	PVC		Goat Wash	Existing
D3-212-012	4,689.60	4,687.50	166.263	8	PVC		Goat Wash	Existing
D3-212-013	4,687.50	4,684.81	212.938	8	PVC		Goat Wash	Existing
D3-212-017	4,689.93	4,684.20	66.8	12	PVC		South Camp	Existing
D3-212-018	4,690.94	4,689.93	120.6	12	PVC		South Camp	Existing
D3-212-022	4,706.40	4,690.94	499.2	12	PVC		South Camp	Existing
D3-212-023	4,703.43	4,702.89	186.9	8	PVC		Goat Wash	Existing
D3-221-016	4,684.72	4,680.30	311.272	12	PVC		Goat Wash	Existing
D3-221-021	4,663.43	4,658.80	353.85	12	PVC		Goat Wash	Existing
D3-221-022	4,672.04	4,669.22	271.125	12	PVC		Goat Wash	Existing
D3-221-023	4,677.90	4,672.08	271.37	12	PVC		Goat Wash	Existing
D3-221-024	4,680.25	4,678.00	266.008	12	PVC		Goat Wash	Existing
D3-232-001	4,621.48	4,620.08	114.767	8	PVC		Scenic School	Existing
D3-232-001A	4,620.28	4,620.08	16.5	8	PVC		Scenic School	Existing
D3-232-009	4,622.35	4,621.48	71.045	8	PVC		Scenic School	Existing
D3-232-017	4,608.64	4,593.30	184.5	8	PVC		Scenic School	Existing
D3-232-018	4,620.08	4,610.69	88.61	8	PVC		Scenic School	Existing
D3-241-001	4,641.85	4,640.95	73.702	8	PVC		Scenic School	Existing
D3-241-002	4,640.95	4,638.42	207.066	8	PVC		Scenic School	Existing
D3-241-003	4,638.42	4,636.83	130.642	8	PVC		Scenic School	Existing
D3-241-004	4,636.83	4,634.94	154.75	8	PVC		Scenic School	Existing
D3-241-005	4,633.39	4,629.78	296.578	8	PVC		Scenic School	Existing
D3-241-005A	4,629.78	4,629.64	11.185	8	PVC		Scenic School	Existing
D3-241-006	4,629.64	4,625.45	343.711	8	PVC		Scenic School	Existing
D3-241-007	4,625.45	4,622.35	254.233	8	PVC		Scenic School	Existing
D3-241-009	4,634.94	4,633.39	126.674	8	PVC		Scenic School	Existing
D3-251-001	4,542.85	4,542.41	454.116	54	RCP		River Road	Existing
D3-251-002	4,543.23	4,542.85	414.428	54	RCP		River Road	Existing
D3-251-004	4,544.59	4,543.96	394	48	RCP		River Road	Existing
D3-251-008	4,543.80	4,543.63	234.094	48	RCP		River Road	Existing
D3-251-011	4,544.75	4,544.65	13.054	48	RCP		River Road	Existing
D3-251-012	4,543.63	4,543.62	24.764	48	RCP		River Road	Existing
D3-251-013	4,543.62	4,543.23	340.89	54	RCP		River Road	Existing
D3-251-014	4,545.76	4,545.63	145.304	27	PVC	Upsize Diameter	Colorado Avenue	Existing
D3-251-015	4,544.65	4,544.59	38.1	48	RCP		River Road	Existing
D3-251-016	4,543.96	4,543.80	48.1	48	RCP		River Road	Existing
D3-252-008	4,546.00	4,545.76	218.35	27	PVC	Upsize Diameter	Colorado Avenue	Existing
D3-252-012	4,547.10	4,546.00	303.63	24	PVC		Colorado Avenue	Existing
D3-252-045	4,562.82	4,560.20	113.75	24	PVC		Grand Avenue	Existing
D3-252-045A	4,560.14	4,553.17	411.8	24	PVC		Grand Avenue	Existing
D3-252-057	4,577.57	4,572.57	153.11	27	VCP		Grand Avenue	Existing
D3-261-010	4,584.00	4,577.57	196.964	27	VCP		Grand Avenue	Existing
D3-261-014	4,585.03	4,585.00	7.905	27	VCP		Grand Avenue	Existing
D3-261-025	4,586.31	4,585.03	345.646	27	VCP		Grand Avenue	Existing
D3-261-045	4,588.09	4,586.31	479.864	27	VCP		Grand Avenue	Existing
D3-261-075	4,590.00	4,588.09	504.234	27	VCP		Grand Avenue	Existing
D3-261-086	4,593.11	4,592.00	286.508	24	VCP		Grand Avenue	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
D3-261-117	4,595.78	4,593.11	681.486	24	VCP		Grand Avenue	Existing
D3-261-130	4,596.52	4,595.78	297.66	24	VCP		Grand Avenue	Existing
D3-262-017	4,597.50	4,596.52	391.37	24	VCP		Grand Avenue	Existing
D3-262-018	4,598.50	4,597.50	273.749	24	VCP		Grand Avenue	Existing
D3-262-042	4,599.50	4,598.50	468.023	24	VCP		Grand Avenue	Existing
D3-262-065	4,600.39	4,599.54	472	18	VCP		Grand Avenue	Existing
D3-262-083	4,601.61	4,600.39	482.816	18	VCP		Grand Avenue	Existing
D3-262-122	4,599.54	4,599.50	22.8	18	DIP		Grand Avenue	Existing
D3-271-013	4,603.00	4,601.61	542.184	18	VCP		Grand Avenue	Existing
D3-271-019	4,595.79	4,593.35	334.757	15	PVC		15th Street	Existing
D3-271-024	4,593.35	4,590.64	371.362	15	PVC		15th Street	Existing
D3-271-029	4,604.18	4,603.00	464.186	18	VCP		Grand Avenue	Existing
D3-271-038	4,599.05	4,595.79	445.686	15	PVC		15th Street	Existing
D3-271-055	4,601.95	4,599.05	397.208	15	PVC		15th Street	Existing
D3-271-059	4,602.09	4,601.95	19.942	15	PVC		15th Street	Existing
D3-271-068	4,610.32	4,609.63	95.022	15	PVC		15th Street	Existing
D3-271-069	4,609.63	4,607.45	298.119	15	PVC		15th Street	Existing
D3-271-070	4,607.45	4,604.42	415.97	15	PVC		15th Street	Existing
D3-271-072	4,604.42	4,602.09	318.094	15	PVC		15th Street	Existing
D3-271-075	4,610.76	4,610.32	59.991	15	PVC		15th Street	Existing
D3-271-111	4,605.40	4,604.18	441.6	18	VCP		Grand Avenue	Existing
D3-281-006	4,601.78	4,601.72	37.589	15	VCP	Parallel	Rood Avenue	Existing
D4-221-004	4,658.76	4,654.62	251.838	12	PVC		Goat Wash	Existing
D4-221-005	4,654.52	4,650.54	350.65	12	PVC		Goat Wash	Existing
D4-221-008	4,650.44	4,645.81	300.612	12	PVC		Goat Wash	Existing
D4-221-009	4,640.75	4,637.90	198.99	15	PVC		Goat Wash	Existing
D4-221-010	4,637.77	4,631.55	298.775	15	PVC		Goat Wash	Existing
D4-221-011	4,631.45	4,630.16	300.24	15	PVC		Goat Wash	Existing
D4-232-001	4,593.08	4,572.75	126.5	8	PVC		Scenic School	Existing
D4-232-002	4,572.53	4,554.95	141.3	8	PVC		Scenic School	Existing
D4-232-003	4,554.74	4,551.59	111.5	8	PVC		Scenic School	Existing
D4-232-004	4,551.41	4,549.55	131.2	8	PVC		Scenic School	Existing
D4-232-005	4,547.40	4,543.02	294.03	8	PVC		Scenic School	Existing
D4-232-006	4,542.82	4,533.87	422.7	8	PVC		Scenic School	Existing
D4-232-007	4,533.69	4,533.27	71.2	12	PVC	Upsize Diameter	Scenic School	Existing
D4-232-008	4,526.81	4,524.29	205.6	12	PVC	Upsize Diameter	Scenic School	Existing
D4-251-001	4,541.56	4,541.03	564.16	54	RCP		River Road	Existing
D4-251-005	4,541.81	4,541.60	480.618	54	RCP		River Road	Existing
D4-251-008	4,542.29	4,541.81	571.671	54	RCP		River Road	Existing
D4-251-018	4,542.41	4,542.29	125.788	54	RCP		River Road	Existing
D4-251-019	4,541.60	4,541.56	91.184	54	RCP		River Road	Existing
D4-271-014	4,620.92	4,619.45	201.031	15	PVC		15th Street	Existing
D4-271-015	4,619.45	4,616.97	339.939	15	PVC		15th Street	Existing
D4-271-018	4,616.97	4,614.52	335.413	15	PVC		15th Street	Existing
D4-271-021	4,614.52	4,610.76	515.485	15	PVC		15th Street	Existing
E1-221-001	4,630.05	4,629.03	200.12	15	PVC		Goat Wash	Existing
E1-221-001A	4,628.98	4,626.63	403.702	15	PVC		Goat Wash	Existing
E1-222-004	4,626.53	4,616.86	202.35	14	DIP		Goat Wash	Existing
E1-222-005	4,616.76	4,611.53	275.05	15	PVC		Goat Wash	Existing
E1-222-006	4,611.53	4,609.83	157.276	15	PVC		Goat Wash	Existing
E1-222-007	4,609.72	4,606.39	307.041	15	PVC		Goat Wash	Existing
E1-222-011	4,606.39	4,599.71	311.698	18	PVC		Goat Wash	Existing
E1-222-012	4,599.62	4,597.21	392.36	18	PVC		Goat Wash	Existing
E1-231-012	4,627.63	4,623.16	231.896	12	PVC	Upsize Diameter	Connected Lakes	Existing
E1-232-001	4,524.29	4,527.07	982.8	8	PVC		Connected Lakes	Existing
E1-232-025	4,527.07	4,532.08	1,164.80	8	PVC		Connected Lakes	Existing
E1-242-001	4,538.07	4,537.93	164.394	54	RCP		River Road	Existing
E1-242-002	4,539.59	4,539.31	123.689	24			Horizon Drive	Existing
E1-251-001	4,540.69	4,538.07	625.102	54	RCP		River Road	Existing
E1-251-002	4,541.03	4,540.69	421.218	54	RCP		River Road	Existing
E1-251-003	4,540.76	4,539.90	516.239	24			Horizon Drive	Existing
E1-251-004	4,541.65	4,540.89	508.531	24			Horizon Drive	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
E1-251-007	4,543.10	4,542.09	361.751	24	CONCRETE		Horizon Drive	Existing
E1-251-018	4,544.60	4,543.17	379.857	24	CONCRETE		Horizon Drive	Existing
E1-251-019	4,545.14	4,544.64	131.2	24	CONCRETE		Horizon Drive	Existing
E1-251-020	4,545.20	4,545.14	21.386	24	CONCRETE		Horizon Drive	Existing
E1-251-021	4,545.79	4,545.20	200.146	24	CONCRETE		Horizon Drive	Existing
E1-251-023	4,546.77	4,545.79	326.95	24	CONCRETE		Horizon Drive	Existing
E1-251-025	4,539.90	4,539.74	99.122	24			Horizon Drive	Existing
E1-271-068	4,628.02	4,625.04	408.4	15	PVC		15th Street	Existing
E1-271-072	4,625.04	4,621.79	444.9	15	PVC		15th Street	Existing
E1-271-076	4,621.79	4,620.92	119.097	15	PVC		15th Street	Existing
E2-202-016	4,711.65	4,705.93	307.8	8	PVC			Existing
E2-222-015	4,567.50	4,559.61	337.25	18	PVC		Goat Wash	Existing
E2-222-016	4,570.44	4,567.89	9.98	12			Goat Wash	Existing
E2-222-017	4,579.68	4,572.72	83.02	18	PVC		Goat Wash	Existing
E2-222-028	4,593.04	4,591.61	73.964	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-028A	4,596.12	4,593.14	154.521	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-029	4,591.51	4,587.75	194.799	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-030	4,587.65	4,586.97	35.03	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-031	4,586.87	4,581.37	285.36	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-036	4,559.30	4,555.83	176.628	18	PVC		Goat Wash	Existing
E2-222-037	4,555.76	4,548.93	333.084	18	PVC		Goat Wash	Existing
E2-222-040	4,571.36	4,567.89	163.213	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-044	4,590.76	4,588.22	496.38	18	PVC		Goat Wash	Existing
E2-222-048	4,581.27	4,578.95	120.146	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-050	4,578.85	4,571.46	129.166	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-222-067	4,595.73	4,590.82	434.11	18	PVC		Goat Wash	Existing
E2-222-075	4,597.10	4,596.10	86.953	18	PVC		Goat Wash	Existing
E2-231-002	4,603.37	4,596.22	370.312	12			Connected Lakes	Existing
E2-231-005	4,610.62	4,603.47	373.362	12			Connected Lakes	Existing
E2-231-006	4,615.27	4,610.72	235.57	12			Connected Lakes	Existing
E2-231-013	4,618.13	4,615.37	143.27	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-021	4,623.06	4,618.23	249.903	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-028	4,641.17	4,639.85	122.9	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-029	4,639.69	4,638.76	95.054	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-030	4,638.52	4,637.71	107.945	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-031	4,637.60	4,632.91	315.864	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-035	4,632.81	4,630.49	120.573	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-231-037	4,630.39	4,627.73	137.563	12	PVC	Upsize Diameter	Connected Lakes	Existing
E2-232-013	4,532.08	4,533.39	305.8	8	PVC		Connected Lakes	Existing
E2-232-014	4,533.39	4,643.59	1,085.30	8	PVC		Connected Lakes	Existing
E2-242-004	4,536.23	4,535.65	633.926	54	RCP		River Road	Existing
E2-242-011	4,536.71	4,536.23	604.045	54	RCP		River Road	Existing
E2-242-017	4,537.01	4,536.71	596.271	54	RCP		River Road	Existing
E2-242-024	4,537.65	4,537.01	552.418	54	RCP		River Road	Existing
E2-242-034	4,537.93	4,537.65	346.991	54	RCP		River Road	Existing
E2-251-027	4,542.09	4,541.72	192.634	24			Horizon Drive	Existing
E2-251-058	4,547.27	4,547.03	36.867	24	CONCRETE		Horizon Drive	Existing
E2-252-192	4,557.18	4,548.58	654	18	PVC		Horizon Drive	Existing
E2-252-193	4,565.18	4,557.37	475.1	18	PVC		Horizon Drive	Existing
E2-252-194	4,567.93	4,565.18	167.9	18	PVC		Horizon Drive	Existing
E2-252-196	4,557.37	4,557.18	11.8	18	PVC		Horizon Drive	Existing
E2-271-073	4,640.61	4,637.43	435.912	15	PVC		15th Street	Existing
E2-271-077	4,637.43	4,634.50	401.8	15	PVC		15th Street	Existing
E2-271-081	4,634.50	4,631.30	437.4	15	PVC		15th Street	Existing
E2-271-086	4,631.30	4,628.02	450.2	15	PVC		15th Street	Existing
E3-202-008	4,702.45	4,700.84	163.377	10	PVC			Existing
E3-202-008A	4,700.74	4,699.77	98.498	10	PVC			Existing
E3-202-009	4,705.83	4,705.23	61.23	10	PVC			Existing
E3-202-011	4,699.64	4,696.85	263.614	10	PVC			Existing
E3-202-012	4,696.79	4,687.93	301.465	10	PVC			Existing
E3-222-051	4,546.11	4,544.70	465.366	18	PVC		Goat Wash	Existing
E3-222-051A	4,547.31	4,546.11	274.16	18	PVC		Goat Wash	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
E3-222-065	4,548.83	4,547.41	187.682	18	PVC		Goat Wash	Existing
E3-231-006	4,544.56	4,542.00	900.02	21			Goat Wash	Existing
E3-241-015	4,533.01	4,531.11	896.457	54	RCP		River Road	Existing
E3-241-022	4,534.22	4,533.01	657.05	54	RCP		River Road	Existing
E3-241-028	4,534.67	4,534.22	444.899	54	RCP		River Road	Existing
E3-241-034	4,537.66	4,536.64	203.95	18	DI		24 1/2 Road	Existing
E3-241-036	4,539.03	4,537.66	247.017	18	PVC		24 1/2 Road	Existing
E3-241-048	4,541.05	4,540.95	36.539	18	PVC		24 1/2 Road	Existing
E3-241-049	4,540.95	4,539.03	252.56	18			24 1/2 Road	Existing
E3-242-002	4,535.29	4,534.67	508.006	54	RCP		River Road	Existing
E3-242-012	4,535.65	4,535.29	210.281	54	RCP		River Road	Existing
E3-252-001	4,576.93	4,575.97	435.978	18	CIP		Horizon Drive	Existing
E3-252-003	4,575.97	4,575.03	422.07	18	CIP		Horizon Drive	Existing
E3-252-004	4,575.03	4,574.81	13.5	18	PVC		Horizon Drive	Existing
E3-252-084	4,574.81	4,567.93	418.9	18	PVC		Horizon Drive	Existing
E3-252-085	4,577.07	4,576.93	62.9	18	PVC		Horizon Drive	Existing
E3-271-068	4,645.72	4,643.65	282.3	15	PVC		15th Street	Existing
E3-271-072	4,643.65	4,641.84	247.2	15	PVC		15th Street	Existing
E3-271-074	4,641.84	4,640.61	168.9	15	PVC		15th Street	Existing
E3-271-121	4,649.80	4,647.68	289.8	15	PVC		15th Street	Existing
E3-271-122	4,649.90	4,649.80	21	15	PVC		15th Street	Existing
E3-271-123	4,647.68	4,645.72	268.5	15	PVC		15th Street	Existing
E4-202-001	4,687.84	4,682.01	194.078	12	PVC			Existing
E4-202-002	4,681.87	4,674.32	398.454	12	PVC			Existing
E4-202-003	4,674.21	4,671.73	131.626	12	PVC			Existing
E4-202-007	4,667.94	4,664.29	186.042	12	PVC			Existing
E4-202-009	4,671.73	4,668.17	189.387	12	PVC			Existing
E4-202-013	4,664.14	4,658.33	295.528	12	PVC			Existing
E4-202-014	4,656.10	4,646.58	340.628	12	PVC			Existing
E4-231-005	4,542.00	4,539.69	145.009	21	DIP		Goat Wash	Existing
E4-231-006	4,539.27	4,532.41	428.663	21	DIP		Goat Wash	Existing
E4-231-007	4,531.58	4,530.60	501.23	20	DIP		Goat Wash	Existing
E4-231-008	4,532.18	4,531.58	197.882	20	DIP		Goat Wash	Existing
E4-232-016	4,529.10	4,528.53	572.95	54	RCP		River Road	Existing
E4-241-005	4,529.85	4,529.10	673.974	54	RCP		River Road	Existing
E4-241-016	4,531.11	4,529.85	543.693	54	RCP		River Road	Existing
E4-241-075	4,547.08	4,544.15	241.703	18	PVC		24 1/2 Road	Existing
E4-241-077	4,544.15	4,543.11	355.847	18	PVC		24 1/2 Road	Existing
E4-241-078	4,543.11	4,541.95	306.418	18	PVC		24 1/2 Road	Existing
E4-241-079	4,541.95	4,541.82	54.874	18	PVC		24 1/2 Road	Existing
E4-241-080	4,541.82	4,541.05	326.852	18	PVC		24 1/2 Road	Existing
E4-241-081	4,547.62	4,547.08	97.941	18			24 1/2 Road	Existing
E4-242-014	4,549.43	4,547.75	383.727	18	PVC		Paradise Hills	Existing
E4-242-029	4,550.42	4,549.43	380.382	18	PVC		Paradise Hills	Existing
E4-242-034	4,550.83	4,550.42	114.866	18	PVC		Paradise Hills	Existing
E4-242-036	4,550.91	4,550.83	20.664	18	PVC		Paradise Hills	Existing
E4-242-045	4,551.79	4,550.91	246.164	18	PVC		Paradise Hills	Existing
E4-242-057	4,552.92	4,551.79	378.446	18	PVC		Paradise Hills	Existing
E4-242-062	4,554.02	4,552.92	380.218	18	PVC		Paradise Hills	Existing
E4-242-069	4,554.85	4,554.02	378.84	18	PVC		Paradise Hills	Existing
E4-242-078	4,555.69	4,554.85	339.382	18	PVC		Paradise Hills	Existing
E4-251-001	4,555.79	4,555.69	38.606	18	PVC		Paradise Hills	Existing
E4-252-009	4,577.14	4,577.07	32.4	18	PVC		Horizon Drive	Existing
E4-252-010	4,577.18	4,577.14	21.09	18	PVC		Horizon Drive	Existing
E4-252-011	4,577.52	4,577.18	153.865	18	PVC		Horizon Drive	Existing
E4-252-013	4,581.79	4,581.35	74.39	18	RCP		Horizon Drive	Existing
E4-252-014	4,581.34	4,581.22	21.484	18	PVC		Horizon Drive	Existing
E4-252-019	4,581.14	4,580.06	386.843	18	PVC		Horizon Drive	Existing
E4-252-021	4,579.99	4,578.73	440.93	18	PVC		Horizon Drive	Existing
E4-252-023	4,578.66	4,577.52	502.758	18	PVC		Horizon Drive	Existing
E4-252-033	4,583.11	4,581.79	328.689	18	RCP		Horizon Drive	Existing
E4-252-035	4,587.99	4,583.11	328.853	18	RCP		Horizon Drive	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
E4-252-037	4,590.20	4,587.99	339.546	18	RCP		Horizon Drive	Existing
E4-271-058	4,665.16	4,664.59	291.395	15	PVC		15th Street	Existing
E4-271-060	4,664.59	4,662.15	295.725	15	PVC		15th Street	Existing
E4-271-062	4,662.15	4,659.19	261.908	15	PVC		15th Street	Existing
E4-271-063	4,659.19	4,656.13	209.297	15	PVC		15th Street	Existing
E4-271-064	4,651.17	4,649.90	227.6	15	PVC		15th Street	Existing
F1-202-005	4,624.27	4,622.35	106.797	15	PVC			Existing
F1-202-006	4,626.01	4,624.39	79.966	14	DIP			Existing
F1-202-007	4,622.23	4,616.37	206.542	15	PVC			Existing
F1-202-008	4,628.00	4,626.13	224.057	15	PVC			Existing
F1-202-009	4,636.50	4,628.11	399.701	12	PVC			Existing
F1-202-010	4,646.50	4,636.58	400.455	12	PVC			Existing
F1-231-001	4,528.61	4,527.96	499.675	21	PVC		Goat Wash	Existing
F1-231-001A	4,529.72	4,528.61	499.05	20	DIP		Goat Wash	Existing
F1-231-002	4,530.60	4,529.72	500.42	20	DIP		Goat Wash	Existing
F1-232-001	4,526.89	4,526.32	528.047	54	RCP		River Road	Existing
F1-232-002	4,527.37	4,526.89	536.214	54	RCP		River Road	Existing
F1-232-008	4,530.29	4,530.09	24.2	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-012	4,527.92	4,527.77	152.5	54	RCP		River Road	Existing
F1-232-013	4,531.41	4,530.37	346.368	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-014	4,533.42	4,533.25	29.454	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-017	4,533.11	4,531.82	401.242	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-019	4,531.76	4,531.43	108.699	18	PVC	Upsize Diameter	24 Road	Existing
F1-232-033	4,528.53	4,527.92	581.216	54	RCP		River Road	Existing
F1-232-066	4,527.77	4,527.37	421.9	54	RCP		River Road	Existing
F1-241-050	4,552.55	4,549.66	223.434	15	PVC		24 1/2 Road	Existing
F1-241-109	4,553.53	4,552.55	465	15	PVC		24 1/2 Road	Existing
F1-241-110	4,554.75	4,553.71	470.8	15	PVC		24 1/2 Road	Existing
F1-242-001	4,549.66	4,547.62	158.293	15	PVC		24 1/2 Road	Existing
F1-251-003	4,555.90	4,555.79	45.953	18	PVC		Paradise Hills	Existing
F1-251-015	4,557.63	4,555.90	358.012	15	PVC		Paradise Hills	Existing
F1-251-023	4,559.69	4,557.63	391.271	15	PVC		Paradise Hills	Existing
F1-251-031	4,561.00	4,559.69	158.358	15	PVC		Paradise Hills	Existing
F1-251-033	4,561.58	4,561.00	121.7	15	VCP		Paradise Hills	Existing
F1-251-034	4,562.43	4,561.89	139.3	15	VCP		Paradise Hills	Existing
F1-251-039	4,564.24	4,562.43	344.859	15	VCP		Paradise Hills	Existing
F1-251-040	4,565.92	4,564.24	346.106	15	VCP		Paradise Hills	Existing
F1-251-041	4,566.47	4,565.92	108.666	15	VCP		Paradise Hills	Existing
F1-251-044	4,567.63	4,566.47	228.911	15	VCP		Paradise Hills	Existing
F1-251-047	4,569.24	4,567.63	339.218	15	VCP		Paradise Hills	Existing
F1-251-048	4,571.12	4,570.21	156.948	15	VCP		Paradise Hills	Existing
F1-251-049	4,572.58	4,571.60	219.6	15	VCP		Paradise Hills	Existing
F1-251-050	4,574.53	4,572.58	329.017	15	PVC		Paradise Hills	Existing
F1-251-068	4,570.21	4,569.24	168.1	15	VCP		Paradise Hills	Existing
F1-251-106	4,561.89	4,561.58	79.3	15	VCP		Paradise Hills	Existing
F1-251-108	4,571.60	4,571.12	107.6	12			Paradise Hills	Existing
F1-252-017	4,592.37	4,590.20	209.067	18	RCP		Horizon Drive	Existing
F1-252-033	4,593.99	4,592.37	156.1	18	RCP		Horizon Drive	Existing
F1-252-039	4,598.44	4,593.99	545.1	18	RCP		Horizon Drive	Existing
F1-261-003	4,601.05	4,600.19	48.5	15	RCP		Horizon Drive	Existing
F1-261-004	4,600.19	4,598.44	112.8	18	RCP		Horizon Drive	Existing
F1-261-009	4,602.40	4,601.34	152.586	15	RCP		Horizon Drive	Existing
F1-261-026	4,603.63	4,602.40	176.4	15	RCP		Horizon Drive	Existing
F1-261-040	4,605.33	4,603.63	245	15	RCP		Horizon Drive	Existing
F1-261-048	4,607.00	4,605.33	241.9	15	RCP		Horizon Drive	Existing
F1-261-058	4,610.87	4,607.30	309.206	15	RCP		Horizon Drive	Existing
F1-261-064	4,613.31	4,610.91	239.998	15	RCP		Horizon Drive	Existing
F1-261-070	4,615.23	4,613.31	191.814	15	RCP		Horizon Drive	Existing
F1-261-075	4,615.99	4,615.23	100.106	15	RCP		Horizon Drive	Existing
F1-261-078	4,618.31	4,615.99	304.515	15	RCP		Horizon Drive	Existing
F1-261-081	4,620.40	4,619.21	215.201	15	RCP		Horizon Drive	Existing
F1-261-089	4,621.95	4,620.40	281.654	15	RCP		Horizon Drive	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
F1-261-095	4,624.44	4,623.16	229.141	15	RCP		Horizon Drive	Existing
F1-261-097	4,624.85	4,624.44	73.767	15	RCP		Horizon Drive	Existing
F1-261-106	4,625.38	4,624.85	96.038	15	RCP		Horizon Drive	Existing
F1-271-101	4,666.06	4,665.41	331.4	15	VCP		15th Street	Existing
F1-271-103	4,665.41	4,665.16	83.7	15	PVC		15th Street	Existing
F2-202-001	4,616.31	4,613.21	209.986	15	PVC			Existing
F2-202-002	4,604.15	4,599.43	331.51	15	PVC			Existing
F2-202-003	4,610.41	4,607.10	214.118	15	PVC			Existing
F2-202-004	4,597.01	4,593.69	252.855	15	PVC			Existing
F2-202-005	4,606.99	4,604.26	165.148	15	PVC			Existing
F2-202-006	4,593.41	4,585.36	264.204	15	PVC			Existing
F2-202-007	4,599.29	4,597.14	129.593	15	PVC			Existing
F2-202-023	4,613.03	4,610.44	218.907	15	PVC			Existing
F2-202-024	4,585.27	4,578.45	354.306	15	PVC			Existing
F2-231-004	4,524.32	4,523.89	701.526	54	RCP		River Road	Existing
F2-231-010	4,525.21	4,524.32	831.316	54	RCP		River Road	Existing
F2-231-016	4,525.73	4,525.21	492.361	54	RCP		River Road	Existing
F2-231-023	4,526.32	4,525.73	610.769	54	RCP		River Road	Existing
F2-231-024	4,527.82	4,527.40	464.874	21	PVC		Goat Wash	Existing
F2-232-002	4,537.77	4,536.80	323.736	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-003	4,536.76	4,535.92	287.951	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-004	4,535.89	4,535.82	24.042	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-005	4,535.76	4,534.87	326.196	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-006	4,534.71	4,533.58	344.695	18	PVC	Upsize Diameter	24 Road	Existing
F2-232-007	4,538.55	4,538.01	257.185	18	PVC	Upsize Diameter	24 Road	Existing
F2-242-055	4,555.85	4,554.92	455	15	PVC		24 1/2 Road	Existing
F2-242-056	4,557.08	4,556.03	434.7	15	PVC		24 1/2 Road	Existing
F2-251-012	4,583.65	4,583.39	37.851	15	PVC		Paradise Hills	Existing
F2-251-016	4,581.40	4,579.28	324.064	15	PVC		Paradise Hills	Existing
F2-251-017	4,579.28	4,577.52	248.854	15	PVC		Paradise Hills	Existing
F2-251-018	4,576.98	4,574.53	320.095	15	PVC		Paradise Hills	Existing
F2-251-028	4,583.39	4,581.40	285.885	15	PVC		Paradise Hills	Existing
F2-252-027	4,577.52	4,576.98	76.522	15	PVC		Paradise Hills	Existing
F2-261-053	4,635.22	4,630.88	317.242	15	RCP		Horizon Drive	Existing
F2-262-011	4,640.09	4,635.32	502.594	15	RCP		Horizon Drive	Existing
F2-262-017	4,644.05	4,640.09	263.515	15	RCP		Horizon Drive	Existing
F2-262-020	4,646.00	4,644.05	130.282	15	RCP		Horizon Drive	Existing
F2-262-029	4,650.32	4,646.00	408.262	15	RCP		Horizon Drive	Existing
F2-262-032	4,651.58	4,650.32	299.694	15	RCP		Horizon Drive	Existing
F2-262-038	4,655.55	4,653.48	291.494	15	RCP		Horizon Drive	Existing
F3-202-006	4,578.39	4,577.44	64.452	15	PVC			Existing
F3-202-007	4,577.44	4,573.23	286.902	15	PVC			Existing
F3-211-010	4,573.13	4,568.35	259.579	15	PVC			Existing
F3-211-011	4,567.19	4,563.42	253.38	15	PVC			Existing
F3-211-012	4,563.08	4,561.63	90.79	15	PVC			Existing
F3-211-013	4,561.45	4,557.41	280.014	15	PVC			Existing
F3-222-007	4,522.40	4,521.71	701.166	54	RCP		River Road	Existing
F3-222-008	4,523.05	4,522.40	694.179	54	RCP		River Road	Existing
F3-222-008A	4,523.59	4,523.05	478.3	54	RCP		River Road	Existing
F3-222-019	4,521.71	4,521.18	595.681	54	RCP		River Road	Existing
F3-231-015	4,523.89	4,523.59	478.3	54	RCP		River Road	Existing
F3-232-001	4,538.86	4,538.60	76.227	18	PVC	Upsize Diameter	24 Road	Existing
F3-232-002	4,539.70	4,538.93	323.998	18	PVC	Upsize Diameter	24 Road	Existing
F3-232-003	4,540.54	4,539.72	319.242	18	PVC	Upsize Diameter	24 Road	Existing
F3-232-004	4,548.18	4,546.81	339	18	HDPE	Upsize Diameter	24 Road	Existing
F3-232-005	4,546.75	4,545.78	342.7	18	HDPE	Upsize Diameter	24 Road	Existing
F3-232-006	4,545.74	4,544.53	294.9	18	HDPE	Upsize Diameter	24 Road	Existing
F3-232-007	4,544.53	4,540.56	330.3	18	PVC	Upsize Diameter	24 Road	Existing
F3-241-004	4,559.45	4,559.19	27.9	15	PVC		24 1/2 Road	Existing
F3-241-005	4,560.25	4,559.60	309	15	PVC		24 1/2 Road	Existing
F3-241-006	4,561.28	4,560.44	339.5	15	PVC		24 1/2 Road	Existing
F3-242-010	4,558.20	4,557.28	444.8	15	PVC		24 1/2 Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
F3-242-011	4,559.03	4,558.38	304.6	15	PVC		24 1/2 Road	Existing
F3-251-023	4,590.13	4,587.17	444.571	15	PVC		Paradise Hills	Existing
F3-251-024	4,585.33	4,583.65	324.392	15	PVC		Paradise Hills	Existing
F3-251-082	4,587.17	4,585.33	130.938	15	PVC		Paradise Hills	Existing
F3-252-001	4,593.68	4,592.21	150.027	15	PVC		Paradise Hills	Existing
F3-252-003	4,592.21	4,590.13	212.839	15	PVC		Paradise Hills	Existing
F3-262-038	4,659.00	4,655.55	301.662	15	RCP		Horizon Drive	Existing
F3-262-052	4,660.53	4,659.00	369.623	15	RCP		Horizon Drive	Existing
F3-262-057	4,664.20	4,660.53	327.869	15	RCP		Horizon Drive	Existing
F3-262-063	4,672.06	4,665.70	301.202	15	RCP		Horizon Drive	Existing
F3-271-152	4,675.11	4,673.60	300.514	15	RCP		Horizon Drive	Existing
F3-271-152A	4,673.60	4,672.36	293.2	15	RCP		Horizon Drive	Existing
F3-271-153	4,675.60	4,675.26	20.2	15	PVC		Horizon Drive	Existing
F4-0232-BV	4,552.06	4,551.69	317.28	18		Upsize Diameter	24 Road	Existing
F4-211-002	4,556.72	4,551.06	252.56	15	PVC			Existing
F4-211-003	4,544.08	4,543.65	21.976	15	PVC			Existing
F4-211-004	4,538.94	4,527.02	159.9	15	PVC			Existing
F4-211-005	4,526.75	4,523.36	133.463	15	PVC			Existing
F4-211-006	4,517.22	4,516.63	93.04	15	PVC			Existing
F4-211-007	4,516.33	4,511.16	344.892	15	PVC			Existing
F4-211-013	4,523.75	4,519.02	99.45	15	PVC			Existing
F4-211-014	4,518.73	4,517.70	106.895	15	PVC			Existing
F4-211-015	4,543.65	4,541.94	87.543	15	PVC			Existing
F4-221-022	4,519.88	4,519.04	670.202	54	RCP		River Road	Existing
F4-222-003	4,520.51	4,519.88	671.416	54	RCP		River Road	Existing
F4-222-013	4,521.18	4,520.51	603.094	54	RCP		River Road	Existing
F4-232-004	4,551.59	4,551.15	352.6	18	PVC	Upsize Diameter	24 Road	Existing
F4-232-005	4,551.10	4,549.36	308	18	HDPE	Upsize Diameter	24 Road	Existing
F4-232-006	4,549.28	4,548.22	336.6	18	HDPE	Upsize Diameter	24 Road	Existing
F4-241-002	4,558.40	4,557.49	81.5	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-003	4,560.16	4,558.53	405.014	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-004	4,561.33	4,560.16	394.781	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-005	4,562.70	4,561.33	399.963	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-006	4,565.23	4,562.70	400.357	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-007	4,566.91	4,565.23	399.734	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-008	4,568.35	4,566.91	387.401	18	PVC	Upsize Diameter	24 Road	Existing
F4-241-009	4,562.23	4,561.47	351.5	15	PVC		24 1/2 Road	Existing
F4-241-010	4,563.15	4,562.45	300	15	PVC		24 1/2 Road	Existing
F4-241-011	4,564.41	4,563.36	350	15	PVC		24 1/2 Road	Existing
F4-251-016	4,605.10	4,601.99	346.138	15	PVC		Paradise Hills	Existing
F4-251-022	4,601.99	4,599.02	349.287	15	PVC		Paradise Hills	Existing
F4-251-023	4,599.02	4,596.44	347.188	15	PVC		Paradise Hills	Existing
F4-252-003	4,596.44	4,593.68	367.786	15	PVC		Paradise Hills	Existing
F4-252-005	4,608.55	4,605.10	352.928	15	PVC		Paradise Hills	Existing
F4-271-034	4,700.50	4,699.60	93.054	15	RCP		Horizon Drive	Existing
F4-271-034A	4,699.51	4,698.60	104.1	15	RCP		Horizon Drive	Existing
F4-271-069	4,696.03	4,692.78	410	15	PVC		Horizon Drive	Existing
F4-271-070	4,680.25	4,675.60	487.7	15	PVC		Horizon Drive	Existing
F4-271-072	4,684.12	4,681.27	601.5	15	PVC		Horizon Drive	Existing
F4-271-073	4,691.57	4,685.07	573.1	15	PVC		Horizon Drive	Existing
F4-271-075	4,698.60	4,696.09	288.8	15	RCP		Horizon Drive	Existing
G1-211-001	4,507.06	4,515.66	3,785.00	12	DIP			Existing
G1-211-003	4,504.06	4,503.70	286.8	15	PVC			Existing
G1-221-001	4,516.73	4,516.37	663.61	54	RCP		River Road	Existing
G1-221-005	4,517.71	4,516.73	679.583	54	RCP		River Road	Existing
G1-221-010	4,518.56	4,517.71	678.534	54	RCP		River Road	Existing
G1-221-029	4,519.04	4,518.56	656.197	54	RCP		River Road	Existing
G1-232-012	4,552.92	4,552.15	388.96	18		Upsize Diameter	24 Road	Existing
G1-241-001	4,557.49	4,554.47	74.11	18	PVC	Upsize Diameter	24 Road	Existing
G1-241-002	4,568.73	4,568.45	59.204	18	PVC	Upsize Diameter	24 Road	Existing
G1-242-001	4,570.26	4,568.83	502.365	10	PVC		24 Road	Existing
G1-242-006	4,571.33	4,570.26	338.988	10	PVC		24 Road	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
G1-242-014	4,572.57	4,571.33	324.818	10	PVC		24 Road	Existing
G1-242-025	4,573.81	4,572.57	303.367	10	PVC		24 Road	Existing
G1-242-028	4,573.88	4,573.81	17.876	10	PVC		24 Road	Existing
G1-242-038	4,574.89	4,573.88	340.89	10	PVC		24 Road	Existing
G1-242-045	4,575.95	4,574.89	334.396	10	PVC		24 Road	Existing
G1-252-004	4,614.01	4,610.79	319.997	12	PVC		Paradise Hills	Existing
G1-252-005	4,610.79	4,608.55	354.666	15	PVC		Paradise Hills	Existing
G1-252-006	4,615.08	4,614.01	165.574	12	PVC		Paradise Hills	Existing
G1-252-007	4,616.78	4,615.08	299.53	12	PVC		Paradise Hills	Existing
G1-252-008	4,617.98	4,616.78	170.134	12	PVC		Paradise Hills	Existing
G1-252-009	4,620.11	4,617.98	310.157	12	PVC		Paradise Hills	Existing
G1-252-011	4,621.45	4,620.11	231.896	12	PVC		Paradise Hills	Existing
G1-271-007	4,700.96	4,700.50	47.954	15	RCP		Horizon Drive	Existing
G1-271-013	4,702.45	4,700.96	155.242	15	RCP		Horizon Drive	Existing
G1-271-030	4,703.94	4,702.45	263.253	15	RCP		Horizon Drive	Existing
G1-271-042	4,704.45	4,703.98	92.726	15	RCP		Horizon Drive	Existing
G1-271-047	4,710.11	4,705.74	312.814	15	RCP		Horizon Drive	Existing
G1-272-045	4,713.46	4,710.19	588.76	15	RCP		Horizon Drive	Existing
G1-272-065	4,713.80	4,713.46	61.828	15	RCP		Horizon Drive	Existing
G1-272-066	4,713.99	4,713.80	34.243	15	RCP		Horizon Drive	Existing
G2-212-001	4,511.84	4,511.66	433.386	54	RCP	Parallel	River Road	Existing
G2-212-002	4,512.35	4,512.14	80.065	54	RCP		River Road	Existing
G2-212-002A	4,512.14	4,511.84	445.326	54	RCP		River Road	Existing
G2-212-014A	4,513.89	4,512.64	145.763	18	RCP		River Road	Existing
G2-212-015	4,515.25	4,515.05	87.97	54	RCP		River Road	Existing
G2-212-032	4,515.90	4,515.45	384.9	54	RCP		River Road	Existing
G2-212-035	4,516.04	4,515.90	143.992	54	RCP		River Road	Existing
G2-212-038	4,516.31	4,516.04	241.638	54	RCP		River Road	Existing
G2-212-041	4,516.37	4,516.31	85.641	54	RCP		River Road	Existing
G2-212-047	4,515.45	4,515.25	293.6	54	RCP		River Road	Existing
G2-252-043	4,624.69	4,623.00	234.356	12	PVC		Paradise Hills	Existing
G2-252-044	4,626.85	4,624.69	348.074	12	PVC		Paradise Hills	Existing
G2-252-045	4,623.00	4,621.45	231.404	12	PVC		Paradise Hills	Existing
G2-252-046	4,629.20	4,626.85	356.962	12	PVC		Paradise Hills	Existing
G2-252-047	4,636.54	4,629.20	355.814	12	PVC		Paradise Hills	Existing
G2-272-014	4,715.85	4,713.99	357.684	15	RCP		Horizon Drive	Existing
G2-272-036	4,720.62	4,718.80	363.686	15	RCP		Horizon Drive	Existing
G2-272-049	4,721.87	4,720.62	247.902	15	RCP		Horizon Drive	Existing
G2-272-055	4,724.49	4,724.00	123.886	15	RCP		Horizon Drive	Existing
G2-272-068	4,724.93	4,724.49	111.717	15	RCP		Horizon Drive	Existing
G2-272-080	4,731.50	4,727.50	342	15	RCP		Horizon Drive	Existing
G3-211-015	4,511.57	4,511.17	336.364	54	RCP		River Road	Existing
G3-211-018	4,511.17	4,510.87	256.89	54	RCP		River Road	Existing
G3-212-006	4,515.66	4,514.91	32.997	15	PVC			Existing
G3-212-007	4,511.66	4,511.57	231.076	54	RCP	Parallel	River Road	Existing
G3-252-026	4,642.80	4,639.47	305.106	12	PVC		Paradise Hills	Existing
G3-252-027	4,650.29	4,642.80	189.617	12	PVC		Paradise Hills	Existing
G3-252-028	4,639.47	4,638.48	164.295	12	PVC		Paradise Hills	Existing
G3-252-029	4,638.48	4,636.54	299.53	12	PVC		Paradise Hills	Existing
G3-252-030	4,657.84	4,650.29	240.621	12	PVC		Paradise Hills	Existing
G3-252-031	4,659.59	4,657.84	252.101	12	PVC		Paradise Hills	Existing
G3-252-032	4,661.34	4,659.59	313.765	12	PVC		Paradise Hills	Existing
G4-252-008	4,662.47	4,661.34	158.588	12	PVC		Paradise Hills	Existing
G4-252-008A	4,663.19	4,662.47	102.303	12	PVC		Paradise Hills	Existing
G4-261-008	4,679.32	4,677.37	178.662	10	PVC	Upsize Diameter	Paradise Hills	Existing
G4-261-015	4,677.17	4,676.45	180.334	12	PVC	Upsize Diameter	Paradise Hills	Existing
G4-261-016	4,676.25	4,675.92	121.524	12	PVC	Upsize Diameter	Paradise Hills	Existing
G4-261-017	4,675.82	4,669.37	214.2	12	PVC		Paradise Hills	Existing
G4-261-018	4,667.52	4,666.30	195.652	12	PVC		Paradise Hills	Existing
G4-261-020	4,666.30	4,664.93	200.736	12	PVC		Paradise Hills	Existing
G4-261-021	4,664.93	4,663.19	228.485	12	PVC		Paradise Hills	Existing
G4-261-029	4,669.37	4,667.52	313.8	12	PVC		Paradise Hills	Existing

Pipe Input Data from Future Recommendation System								
ID	From Invert	To Invert	Length	Diameter	Pipe Material	Recommendation	Interceptor Name	Scenario
	(feet)	(feet)	(feet)	(inches)				
H1-261-006	4,701.96	4,701.33	74.3	10	PVC		Paradise Hills	Existing
H1-261-008	4,697.93	4,697.73	6	10	PVC		Paradise Hills	Existing
H1-261-009	4,697.63	4,692.71	360.308	8	PVC		Paradise Hills	Existing
H1-261-010	4,692.71	4,689.30	350.074	8	PVC		Paradise Hills	Existing
H1-261-011	4,688.00	4,682.72	388.483	8	PVC		Paradise Hills	Existing
H1-261-012	4,682.52	4,680.37	208.5	8	PVC		Paradise Hills	Existing
H1-261-015	4,680.17	4,679.52	66.3	10	PVC	Upsize Diameter	Paradise Hills	Existing
H1-261-025	4,701.02	4,698.18	225.5	10	PVC		Paradise Hills	Existing
H1-262-023	4,705.38	4,701.96	335.675	10	PVC		Paradise Hills	Existing

Notes:

1) All gravity lines have an "n-value" of 0.013

2) All force mains have a "C-value" of 110

Wet Well Input Information Future Recommendaion PWWF System Scenarios							
ID	Description	Type	Bottom Elevation	Minimum Level	Maximum Level	Initial Level	Diameter
			(feet)	(feet)	(feet)	(feet)	(feet)
9000	Connected Lakes LS	0: Cylindrical	4,518.81	0	18	0.5	6
9006	Lime Kiln Gulch LS	0: Cylindrical	4,516.82	0	15.5	0.5	6
9008	Rosevale LS	0: Cylindrical	4,530.00	0	15	3	6
9010	Tiara Rado LS	0: Cylindrical	4,487.25	1	24	1	8
9014	21 Road LS	0: Cylindrical	4,509.19	1	10	1	6
9016	Monument Road LS	0: Cylindrical	4,636.26	1	15	1	6
9018	C Road LS	0: Cylindrical	4,668.39	1	10	1	6

Pump Input Information Future RecommendationPWWF System Scenarios			
ID	Description	Pump Type	Capacity
			(mgd)
5016	Redlands Village Pump #1	0: Constant Capacity	0.279
5018	Redlands Village Pump #2	0: Constant Capacity	0.279
5020	Rosevale Pump #1	0: Constant Capacity	0.684
5022	Rosevale Pump #2	0: Constant Capacity	0.684
5024	Tiara Rado Pump #1	0: Constant Capacity	3.272
5026	Tiara Rado Pump #2	0: Constant Capacity	3.272
5038	Connected Lakes Pump #1	0: Constant Capacity	0.212
5040	Connected Lakes Pump #2	0: Constant Capacity	0.212
5046	21 Road Pump #1	0: Constant Capacity	0.35
5048	21 Road Pump #2	0: Constant Capacity	0.35
5050	Monument Road Pump #1	0: Constant Capacity	0.1
5052	Monument Road Pump #2	0: Constant Capacity	0.1
5054	C Road Pump#1	0: Constant Capacity	0.35
5056	C Road Pump#2	0: Constant Capacity	0.35
5058	Connected Lakes Pump #4	0: Constant Capacity	0.75
5060	Connected Lakes Pump #3	0: Constant Capacity	0.75

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
0C2-261-013	C2-261-013	C3-261-021	0.302	32:30 hr	1.402	0.344	0.196	0.084
0G1-271-041	G1-271-042	G1-271-041	2.769	32:30 hr	4.249	0.957	0.766	0.934
1003	1612	1614	0.339	32:30 hr	2.369	0.355	0.426	0.378
1005	1614	1660	0.494	32:45 hr	2.608	0.441	0.529	0.55
1009	1620	D4-232-007	0.831	33:15 hr	4.974	0.364	0.364	0.283
101	64	66	0.586	32:47 hr	2.596	0.667	1	1.5
1011	1622	1620	0.831	33:14 hr	2.967	0.541	0.541	0.57
1013	1624	1622	0.848	33:05 hr	2.981	0.548	0.548	0.582
1015	1626	1624	0.857	33:02 hr	2.986	0.551	0.551	0.588
1017	1628	1626	0.86	33:01 hr	2.994	0.552	0.552	0.589
1019	1630	1628	0.865	32:48 hr	3.001	0.553	0.553	0.591
1021	1632	1630	0.869	32:47 hr	3.001	0.555	0.555	0.595
1023	1634	1632	0.882	32:47 hr	3.015	0.56	0.56	0.603
1025	1636	1634	0.896	32:48 hr	3.016	0.567	0.567	0.615
1027	1638	1636	0.902	32:47 hr	3.03	0.568	0.568	0.617
1029	1640	1638	0.922	32:33 hr	3.762	0.487	0.487	0.478
103	66	68	0.577	32:48 hr	2.559	0.667	1	1.067
1031	1642	1640	0.937	32:31 hr	6.487	0.407	0.611	0.691
1033	1644	1642	0.954	32:31 hr	6.512	0.412	0.619	0.704
1035	1646	1644	0.962	32:30 hr	6.523	0.415	0.622	0.709
1037	1648	1646	0.982	32:32 hr	5.545	0.488	0.733	0.887
1039	1650	1648	0.996	32:31 hr	5.555	0.494	0.741	0.899
1041	1652	1650	1.006	32:31 hr	5.561	0.498	0.747	0.908
1043	1654	1652	1.009	32:31 hr	5.563	0.5	0.749	0.911
1045	1656	1654	1.006	32:31 hr	6.583	0.427	0.641	0.742
1047	1658	1656	0.997	32:29 hr	6.984	0.403	0.605	0.681
1049	1676	1658	1.003	32:15 hr	6.992	0.405	0.607	0.684
105	68	70	0.569	33:03 hr	2.521	0.667	1	1.123
1051	1566	G3-211-015	2.686	34:13 hr	3.04	0.969	0.554	0.592
1053	1660	9018	0.662	32:58 hr	2.787	0.532	0.638	0.737
1057	1190	G1-211-003	0.101	33:11 hr	2.703	0.148	0.222	0.108
1061	1144	140	0.11	32:49 hr	3.486	0.132	0.198	0.086
1063	1158	802	0.404	33:08 hr	4.452	0.254	0.305	0.202
1065	1344	D2-251-014	0.163	32:53 hr	4.042	0.143	0.172	0.064
1069	1356	D2-251-014	0.076	32:49 hr	2.967	0.114	0.171	0.064
107	70	74	0.576	33:00 hr	7.378	0.252	0.378	0.304
1071	1364	D2-251-014	0.121	33:44 hr	1.408	0.271	0.407	0.348
1073	1596	SS_5	6.243	33:43 hr	3.597	1.594	0.797	0.974
1075	1378	804	2.545	34:56 hr	4.592	0.824	0.659	0.771
1077	916	G1-221-010	1.085	34:25 hr	3.249	0.547	0.438	0.397
1087	G2-212-001	G3-211-015	22.827	37:44 hr	37.89	0.569	0.19	0.079
1093	D3-281-006	D2-271-039	2.28	34:16 hr	2.176	1.117	0.638	0.737
1097	D1-262-025	D2-252-085	1.508	35:05 hr	3.162	0.725	0.58	0.637
1105	1668	1676	0.229	33:43 hr	3.685	0.194	0.232	0.118
1107	14	1676	0.469	32:14 hr	18.027	0.115	0.173	0.065
1109	1688	1686	0.145	32:17 hr	4.481	0.115	0.115	0.028
111	74	76	0.577	32:59 hr	7.125	0.259	0.388	0.319
1111	1686	1684	0.264	32:32 hr	4.653	0.169	0.169	0.062
1113	1684	1682	0.346	32:35 hr	3.382	0.255	0.255	0.143
1115	1682	1680	0.539	32:30 hr	8.042	0.19	0.19	0.079
1117	1680	1678	0.725	32:40 hr	3.194	0.458	0.458	0.43
1119	1678	1700	0.758	32:44 hr	3.575	0.435	0.435	0.392
1121	1700	E2-222-050	0.765	32:54 hr	5.729	0.309	0.309	0.208
1123	1672	D3-281-006	0.559	34:10 hr	2.713	0.383	0.307	0.204
1125	1278	1302	1.092	33:07 hr	2.799	0.718	0.718	0.865

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
113	76	78	0.59	32:59 hr	8.488	0.231	0.347	0.258
1131	1118	1730	0.069	32:27 hr	1.668	0.159	0.239	0.125
1133	1730	1732	0.069	32:33 hr	2.535	0.119	0.178	0.069
1135	1732	1734	0.065	32:48 hr	2.115	0.129	0.193	0.081
1137	1734	1736	0.064	32:53 hr	2.365	0.118	0.177	0.069
1139	1736	1738	0.062	33:09 hr	1.904	0.134	0.201	0.088
1141	1738	1740	0.059	33:12 hr	2.718	0.102	0.153	0.051
1143	1742	140	0.147	33:14 hr	3.276	0.168	0.252	0.14
1145	1740	1742	0.059	33:21 hr	2.448	0.11	0.164	0.059
115	78	80	0.591	32:59 hr	8.779	0.226	0.339	0.247
117	80	82	0.591	32:59 hr	8.812	0.225	0.338	0.246
119	82	E2-222-016	0.592	33:00 hr	8.816	0.226	0.338	0.247
121	132	134	0.27	32:15 hr	7.124	0.15	0.225	0.111
123	134	136	0.27	32:15 hr	9.814	0.12	0.179	0.07
125	136	9006	0.291	32:15 hr	5.501	0.19	0.285	0.177
127	140	9006	0.243	32:31 hr	2.942	0.262	0.394	0.327
137	150	48	0.592	32:31 hr	3.674	0.448	0.672	0.793
139	C1-261-020	770	5.451	33:45 hr	4.11	1.089	0.435	0.393
141	770	772	5.453	33:46 hr	4.345	1.044	0.418	0.365
143	772	774	5.45	33:47 hr	3.656	1.191	0.476	0.46
145	774	776	5.448	33:48 hr	3.316	1.285	0.514	0.524
147	776	778	5.46	33:59 hr	4.017	1.109	0.444	0.406
153	778	780	5.459	34:02 hr	3.534	1.224	0.49	0.483
155	780	C2-261-001	5.454	33:59 hr	3.217	1.317	0.527	0.546
157	C2-261-001	C3-261-013	2.519	34:02 hr	8.679	0.556	0.556	0.597
161	802	9000	0.452	33:18 hr	2.591	0.376	0.376	0.3
163	SS_3	C3-271-012	9.848	35:32 hr	3.104	2.5	1	1.03
165	SS_1_A	C3-271-007	9.805	35:31 hr	5.085	1.463	0.585	0.646
167	SS_4	SS_3	9.859	35:32 hr	3.108	2.5	1	1.037
169	SS_5	SS_4	9.871	35:30 hr	3.111	2.5	1	1.017
171	SS_6	SS_5	3.819	35:18 hr	2.834	1.26	0.63	0.723
173	804	SS_8	3.926	35:02 hr	2.844	1.287	0.643	0.745
175	SS_8	SS_7	3.87	35:04 hr	2.836	1.274	0.637	0.734
177	SS_7	SS_6	3.822	35:17 hr	2.83	1.262	0.631	0.725
181	810	812	0.293	32:42 hr	1.977	0.333	0.333	0.239
183	812	1316	0.317	33:01 hr	2.02	0.348	0.348	0.26
185	814	F2-231-004	0.455	33:20 hr	2.342	0.408	0.408	0.349
483	1130	1132	0.141	32:21 hr	1.623	0.227	0.227	0.113
485	1132	1422	0.144	32:38 hr	1.634	0.23	0.23	0.116
487	1134	1136	0.019	32:16 hr	1.059	0.09	0.135	0.039
489	1136	1138	0.023	32:32 hr	1.929	0.067	0.101	0.021
491	1138	1140	0.052	32:27 hr	2.265	0.105	0.157	0.054
493	1140	1142	0.075	32:30 hr	2.524	0.126	0.189	0.078
495	1142	1144	0.087	32:30 hr	2.639	0.135	0.203	0.09
497	1146	1148	0.179	32:17 hr	7.088	0.113	0.169	0.062
499	1148	D4-221-009	0.245	32:30 hr	6.494	0.149	0.224	0.11
501	1150	1152	0.13	32:22 hr	3.557	0.146	0.219	0.105
503	1152	1154	0.243	32:34 hr	4.439	0.194	0.292	0.185
505	1154	1156	0.337	32:34 hr	4.867	0.231	0.346	0.257
507	1156	1158	0.381	32:31 hr	5.032	0.246	0.369	0.29
525	1176	1178	0.008	32:18 hr	1.619	0.036	0.054	0.006
527	1178	1180	0.009	32:26 hr	1.711	0.039	0.059	0.007
529	1180	1182	0.011	32:27 hr	1.82	0.043	0.064	0.008
531	1182	1184	0.062	32:30 hr	3.053	0.097	0.146	0.046
533	1184	1186	0.068	32:36 hr	2.455	0.12	0.18	0.071

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
535	1186	1188	0.067	32:53 hr	2.445	0.119	0.179	0.07
537	1188	1190	0.068	32:53 hr	2.717	0.112	0.168	0.061
567	1220	1222	0	00:00 hr	0	0	0	0
569	1222	1224	0.059	32:32 hr	1.48	0.156	0.234	0.12
57	E3-202-BV	E3-202-010	0.41	32:30 hr	3.463	0.308	0.37	0.291
571	1224	1226	0.096	32:45 hr	1.842	0.188	0.283	0.174
573	1226	1228	0.42	33:05 hr	2.7	0.434	0.651	0.759
575	1228	1230	0.525	33:20 hr	2.879	0.428	0.513	0.523
577	1230	9014	0.556	33:44 hr	2.683	0.474	0.569	0.619
581	1236	1238	0.016	32:24 hr	1.374	0.065	0.098	0.02
583	1238	1240	0.052	32:35 hr	2.508	0.098	0.147	0.047
585	1240	1572	0.099	32:45 hr	1.713	0.202	0.303	0.199
587	1242	1244	0.488	33:03 hr	2.6	0.438	0.525	0.543
589	1244	1246	0.762	33:03 hr	2.908	0.513	0.513	0.522
591	1246	1248	0.882	32:47 hr	2.858	0.585	0.585	0.646
595	1252	1254	1.719	34:01 hr	3.197	0.716	0.477	0.461
597	1254	1250	1.768	34:03 hr	3.43	0.693	0.462	0.436
599	1256	1258	0.072	32:35 hr	2.553	0.121	0.182	0.072
601	1258	1260	0.196	32:35 hr	3.255	0.208	0.312	0.211
603	1260	1262	0.44	32:44 hr	2.534	0.412	0.494	0.49
605	1262	1264	1.07	33:05 hr	3.142	0.636	0.636	0.733
607	1264	1266	1.331	33:13 hr	3.494	0.606	0.484	0.474
609	1266	1268	1.627	33:29 hr	3.67	0.683	0.546	0.579
613	1248	1250	0.979	32:57 hr	2.973	0.618	0.618	0.702
615	1272	1274	0.396	32:33 hr	3.608	0.327	0.49	0.483
617	1274	1276	0.462	32:55 hr	3.748	0.358	0.537	0.563
619	1276	1278	0.688	32:53 hr	4.076	0.467	0.7	0.838
627	1284	1286	0.251	32:21 hr	2.711	0.286	0.429	0.382
629	1286	1288	0.254	32:42 hr	2.72	0.288	0.432	0.388
631	1288	1290	0.259	32:56 hr	2.732	0.291	0.437	0.395
633	1290	1292	0.276	33:18 hr	2.781	0.302	0.453	0.421
635	1292	1294	0.284	33:24 hr	2.8	0.307	0.46	0.434
637	1294	1296	0.284	33:37 hr	3.514	0.258	0.388	0.318
639	1296	1298	0.3	33:38 hr	3.567	0.266	0.399	0.336
641	1298	1300	0.387	33:58 hr	3.704	0.314	0.471	0.451
643	1300	1302	0.453	34:04 hr	3.853	0.344	0.516	0.528
645	1302	1304	1.539	33:10 hr	3.397	0.695	0.556	0.596
647	1304	1306	1.541	33:29 hr	3.398	0.696	0.557	0.597
649	1308	1310	0.018	32:24 hr	1.838	0.06	0.09	0.017
651	1310	1312	0.036	32:47 hr	1.061	0.12	0.12	0.03
653	1312	1298	0.082	32:37 hr	1.341	0.178	0.178	0.069
655	1314	1302	0.066	32:24 hr	1.281	0.158	0.158	0.054
657	1316	814	0.341	33:13 hr	2.063	0.361	0.361	0.279
673	1332	1334	0.103	32:37 hr	1.861	0.196	0.294	0.188
677	1338	1334	0.004	32:11 hr	1.355	0.024	0.036	0.002
679	1334	1340	0.11	32:53 hr	2.896	0.15	0.225	0.111
681	1340	9016	0.108	33:00 hr	3.001	0.144	0.216	0.103
685	1346	1348	0.043	32:17 hr	3.893	0.064	0.096	0.019
687	1348	1344	0.058	32:42 hr	1.471	0.155	0.232	0.118
689	1350	1352	0.013	32:18 hr	2.123	0.044	0.065	0.009
691	1352	1354	0.043	32:28 hr	2.738	0.082	0.122	0.032
693	1354	1356	0.054	32:34 hr	1.435	0.148	0.222	0.108
695	1358	1360	0	00:00 hr	0	0	0	0
697	1360	1362	0.061	32:21 hr	3.032	0.096	0.144	0.045
699	1362	1364	0.091	32:29 hr	2.965	0.129	0.194	0.082

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
707	1372	1374	0.679	32:30 hr	3.068	0.449	0.449	0.416
709	1374	1376	1.477	32:42 hr	5	0.564	0.564	0.611
711	1380	1378	1.52	33:05 hr	6.774	0.407	0.326	0.23
713	1376	1380	1.538	33:01 hr	3.463	0.684	0.547	0.581
715	1382	1376	0.203	33:25 hr	2.086	0.297	0.446	0.409
717	1384	1382	0.109	33:05 hr	1.909	0.201	0.301	0.197
719	1386	1384	0.031	32:25 hr	2.153	0.077	0.115	0.028
727	1396	1398	2.764	32:43 hr	4.747	0.86	0.688	0.819
733	1404	1406	0.095	32:27 hr	1.956	0.178	0.267	0.156
735	1406	B2-272-021	0.267	32:41 hr	2.974	0.28	0.42	0.368
749	1422	1424	0.145	32:47 hr	1.635	0.23	0.23	0.116
751	1424	1426	0.144	32:43 hr	1.639	0.229	0.229	0.115
753	1426	E4-202-001	0.144	32:46 hr	1.64	0.229	0.229	0.115
757	1428	BV-105	0.389	09:39 hr	1.849	0.48	0.576	0.631
759	1428	1430	0.294	09:37 hr	1.694	0.48	0.719	0.867
761	1430	D2-252-004	0.294	09:44 hr	3.229	0.283	0.424	0.374
763	G2-212-014	G2-212-003	26.443	37:44 hr	12.824	1.547	0.619	0.704
773	B2-282-047	B2-282-046	1.081	32:33 hr	3.534	0.581	0.581	0.639
775	B2-282-046	B2-282-041	1.068	32:45 hr	3.281	0.612	0.612	0.693
777	B2-282-041	B2-282-037	1.069	32:46 hr	3.282	0.612	0.612	0.692
779	B2-282-037	B2-282-036	1.066	32:47 hr	3.126	0.637	0.637	0.734
781	B2-282-036	B2-282-003	1.064	32:46 hr	3.095	0.641	0.641	0.741
785	B2-282-003	B2-281-013	1.059	32:47 hr	3.093	0.639	0.639	0.738
787	B2-281-013	B2-281-027	1.047	32:47 hr	3.495	0.571	0.571	0.622
789	B2-281-027	B2-281-006	1.041	32:58 hr	3.257	0.602	0.602	0.676
791	B2-281-006	B2-281-005	1.041	33:02 hr	2.894	0.667	0.667	0.784
793	B2-281-005	B2-281-004	1.038	33:03 hr	2.98	0.648	0.648	0.753
795	B2-281-004	B2-281-003	1.028	33:01 hr	2.881	0.662	0.662	0.777
797	B2-281-003	B2-281-002	1.265	33:00 hr	2.492	1	1	1.013
799	B2-281-002	B2-281-029	1.271	33:02 hr	3.021	0.772	0.772	0.942
801	B2-281-029	B2-281-001	1.273	33:00 hr	2.947	0.793	0.793	0.969
803	B2-281-001	B2-281-022	1.277	33:02 hr	3.022	0.776	0.776	0.947
805	B2-281-022	B2-281-020	1.278	33:03 hr	3.022	0.776	0.776	0.948
807	B2-281-020	B2-272-030	1.278	33:03 hr	3.022	0.777	0.777	0.948
809	B2-272-030	B2-272-029	1.286	33:15 hr	3.021	0.781	0.781	0.954
811	B2-272-029	B2-272-028	1.29	33:15 hr	2.541	1	1	1.027
813	B2-272-028	B2-272-027	1.383	33:15 hr	3.241	0.783	0.783	0.957
85	48	50	0.662	32:32 hr	2.935	0.667	1	1.337
87	50	52	0.639	32:46 hr	2.833	0.667	1	1.614
889	B2-272-008	B2-272-005	1.174	33:01 hr	2.55	0.704	0.563	0.608
89	52	54	0.638	32:47 hr	2.83	0.667	1	1.276
891	B2-272-005	B2-271-022	1.178	33:02 hr	2.949	0.629	0.503	0.505
893	B2-271-022	B2-271-031	1.265	33:02 hr	2.604	0.736	0.589	0.652
895	B2-271-031	B2-271-020	1.264	33:00 hr	3.834	0.542	0.433	0.39
897	B2-271-020	B2-271-019	1.261	32:59 hr	6.62	0.362	0.29	0.183
91	54	56	0.632	32:46 hr	2.802	0.667	1	1.244
93	56	58	0.627	32:47 hr	2.777	0.667	1	1.177
943	1558	1560	2.652	33:51 hr	3.566	0.845	0.483	0.471
945	1560	1562	2.651	33:45 hr	3.33	0.892	0.509	0.516
947	1562	1564	2.654	33:50 hr	3.33	0.893	0.51	0.517
949	1564	1566	2.653	34:00 hr	3.33	0.892	0.51	0.517
95	58	60	0.614	32:47 hr	2.723	0.667	1	1.106
951	1250	1558	2.651	33:35 hr	3.354	0.887	0.507	0.511
953	1268	1568	1.654	33:31 hr	3.519	0.716	0.573	0.625
955	1568	1570	1.705	33:32 hr	3.543	0.73	0.584	0.645

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
957	1570	1252	1.708	33:38 hr	3.171	0.803	0.643	0.744
959	1572	1242	0.198	32:46 hr	2.072	0.293	0.44	0.4
961	1306	G1-241-002	1.548	33:31 hr	3.384	0.701	0.56	0.604
963	1574	1396	1.758	32:30 hr	4.298	0.64	0.512	0.521
965	1398	1576	2.912	32:46 hr	7.434	0.619	0.495	0.492
967	1576	1578	3.023	32:55 hr	6.729	0.69	0.552	0.59
969	1578	1580	3	33:06 hr	5.959	0.758	0.607	0.683
97	60	62	0.603	32:47 hr	2.672	0.667	1	1.137
971	1580	1394	3.061	33:06 hr	5.984	0.768	0.615	0.697
973	1394	1582	3.657	33:22 hr	4.635	0.978	0.652	0.76
975	1582	1584	3.647	33:24 hr	4.637	0.976	0.651	0.757
977	1584	1586	3.599	33:35 hr	4.62	0.968	0.645	0.748
979	1586	1588	3.531	33:41 hr	4.606	0.954	0.636	0.733
981	1588	1590	3.508	33:53 hr	4.596	0.951	0.634	0.729
987	1590	1596	3.451	34:23 hr	5.981	0.756	0.504	0.507
99	62	64	0.594	32:48 hr	2.635	0.667	1	1.242
B1-272-001	B1-272-001	B1-272-010	0.757	32:46 hr	2.568	0.563	0.563	0.609
B1-272-002	B1-272-002	B1-272-001	0.674	32:47 hr	2.844	0.531	0.637	0.734
B1-272-003	B1-272-003	B1-272-002	0.675	32:46 hr	2.718	0.553	0.663	0.779
B1-272-005	B1-272-005	B1-272-003	0.669	32:46 hr	2.872	0.523	0.628	0.719
B1-272-007	B1-272-007	B1-272-005	0.665	32:34 hr	2.46	0.597	0.716	0.863
B1-272-010	B1-272-010	B1-272-012	0.762	32:46 hr	2.836	0.523	0.523	0.539
B1-281-001	B1-281-001	B1-272-007	0.648	32:33 hr	2.709	0.535	0.642	0.744
B1-281-002	B1-281-002	B1-281-001	0.646	32:33 hr	2.737	0.529	0.635	0.731
B1-281-004	B1-281-004	B1-281-002	0.646	32:33 hr	3.25	0.459	0.55	0.586
B1-281-005	B1-281-005	B1-281-004	0.414	32:31 hr	2.836	0.36	0.432	0.388
B1-281-006	B1-281-006	B1-281-005	0.408	32:31 hr	2.76	0.364	0.437	0.395
B1-281-007	B1-281-007	B1-281-006	0.402	32:30 hr	3.57	0.297	0.356	0.272
B1-281-009	B1-281-009	B1-281-007	0.396	32:31 hr	3.516	0.297	0.356	0.272
B1-281-010	B1-281-010	B1-281-009	0.384	32:16 hr	3.448	0.294	0.353	0.268
B1-292-001	B1-292-001	B1-292-002	0.034	32:20 hr	0.964	0.131	0.157	0.054
B1-292-002	B1-292-002	B1-292-003	0.035	32:33 hr	0.873	0.143	0.172	0.064
B1-292-003	B1-292-003	B1-292-004	0.065	32:34 hr	1.262	0.17	0.203	0.091
B1-292-004	B1-292-004	B1-292-010	0.175	32:29 hr	2.752	0.197	0.237	0.123
B1-292-010	B1-292-010	B1-292-011	0.187	32:31 hr	2.828	0.202	0.242	0.129
B1-292-011	B1-292-011	B1-292-012	0.201	32:30 hr	4.213	0.161	0.193	0.081
B1-292-012	B1-292-012	B1-292-013	0.211	32:33 hr	1.441	0.361	0.433	0.389
B1-292-013	B1-292-013	B1-292-014	0.226	32:30 hr	2.521	0.279	0.418	0.366
B1-292-014	B1-292-014	B1-292-015	0.227	32:32 hr	2.143	0.284	0.341	0.25
B1-292-015	B1-292-015	B1-292-016	0.224	32:30 hr	2.717	0.237	0.284	0.176
B1-292-016	B1-292-016	B2-292-023	0.224	32:30 hr	3.782	0.206	0.309	0.207
B2-271-019	B2-271-019	B3-271-059	3.151	33:01 hr	3.592	0.893	0.446	0.411
B2-272-004	B2-272-004	B2-271-019	1.734	33:01 hr	3.093	0.832	0.665	0.782
B2-272-007	B2-272-007	B2-272-004	1.723	33:00 hr	3.075	0.832	0.665	0.782
B2-272-009	B2-272-009	B2-272-007	1.714	32:59 hr	3.087	0.825	0.66	0.773
B2-272-012	B1-272-012	B1-272-013	0.793	32:48 hr	2.847	0.477	0.382	0.31
B2-272-013	B1-272-013	B1-272-015	0.821	32:45 hr	3.023	0.469	0.375	0.299
B2-272-014	B2-272-014	B2-272-009	1.708	33:00 hr	2.462	1.021	0.817	0.997
B2-272-015	B1-272-015	B1-272-016	0.894	32:49 hr	2.712	0.542	0.433	0.39
B2-272-016	B1-272-016	B2-272-021	0.925	32:50 hr	2.487	0.595	0.476	0.459
B2-272-017	B2-272-017	B2-272-008	1.178	32:48 hr	2.649	0.685	0.548	0.582
B2-272-021	B2-272-021	B2-272-017	1.188	32:47 hr	2.683	0.682	0.546	0.579
B2-272-027	B2-272-027	B2-272-033	1.617	33:02 hr	3.185	1	1	1.202
B2-272-033	B2-272-033	B2-272-014	1.636	33:00 hr	3.925	0.765	0.765	0.933
B2-282-048	B2-282-048	B2-282-047	1.112	32:33 hr	3.137	0.658	0.658	0.77

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B2-282-051	B2-282-051	B2-282-048	1.132	32:32 hr	3.258	0.647	0.647	0.752
B2-282-054	B2-282-054	B2-282-051	1.127	32:32 hr	3.312	0.635	0.635	0.732
B2-291-024	B2-291-024	B2-291-045	0.408	32:59 hr	3.287	0.293	0.293	0.187
B2-291-025	B2-291-025	B2-291-026	0.416	33:03 hr	2.694	0.343	0.343	0.254
B2-291-026	B2-291-026	B2-291-027	0.414	33:18 hr	0.985	0.771	0.771	0.94
B2-291-027	B2-291-027	B2-291-028	0.426	33:20 hr	1.948	0.446	0.446	0.41
B2-291-028	B2-291-028	B2-291-029	0.434	33:28 hr	1.916	0.457	0.457	0.429
B2-291-029	B2-291-029	B2-291-030	0.439	33:30 hr	2.678	0.359	0.359	0.276
B2-291-030	B2-291-030	B2-282-054	0.45	33:34 hr	2.178	0.427	0.427	0.379
B2-291-045	B2-291-045	B2-291-025	0.407	33:03 hr	0.931	0.803	0.803	0.981
B2-292-001	B2-292-001	B2-292-002	0.154	32:31 hr	2.046	0.222	0.266	0.155
B2-292-002	B2-292-002	B2-292-003	0.167	32:32 hr	2.162	0.226	0.272	0.161
B2-292-003	B2-292-003	B2-292-004	0.172	32:32 hr	1.658	0.28	0.336	0.243
B2-292-004	B2-292-004	B2-292-010	0.169	32:30 hr	2.832	0.175	0.175	0.067
B2-292-008	B2-292-008	B2-292-009	0.387	32:53 hr	1.389	0.538	0.538	0.565
B2-292-009	B2-292-009	B2-291-024	0.404	32:50 hr	2.313	0.376	0.376	0.301
B2-292-010	B2-292-010	B2-292-026	0.382	32:43 hr	2.009	0.401	0.401	0.338
B2-292-011	B2-292-011	B2-292-010	0.227	32:45 hr	2.442	0.287	0.431	0.386
B2-292-012	B2-292-012	B2-292-011	0.229	32:47 hr	2.174	0.316	0.474	0.457
B2-292-017	B2-292-017	BV-292-013	0.225	32:42 hr	2.762	0.26	0.39	0.322
B2-292-018	B2-292-018	B2-292-017	0.224	32:31 hr	2.782	0.258	0.387	0.317
B2-292-022	B2-292-022	B2-292-018	0.225	32:31 hr	3.168	0.235	0.353	0.267
B2-292-023	B2-292-023	B2-292-022	0.223	32:30 hr	3.651	0.21	0.315	0.215
B2-292-026	B2-292-026	B2-292-008	0.382	32:46 hr	2.148	0.381	0.381	0.309
B2-301-001	B2-301-001	B2-292-001	0.144	32:17 hr	1.852	0.228	0.273	0.163
B3-262-023	B3-262-023	B4-262-031	5.139	33:31 hr	3.316	1.227	0.491	0.485
B3-262-027	B3-262-027	B3-262-023	5.087	33:18 hr	3.307	1.22	0.488	0.48
B3-262-031	B3-262-031	B3-262-027	5.07	33:18 hr	3.205	1.247	0.499	0.498
B3-271-003	B3-271-003	B3-262-031	3.317	33:16 hr	3.674	0.913	0.456	0.427
B3-271-006	B3-271-006	B3-271-003	3.314	33:16 hr	3.673	0.913	0.456	0.427
B3-271-018	B3-271-018	B3-271-006	3.302	33:16 hr	3.671	0.91	0.455	0.425
B3-271-026	B3-271-026	B4-271-011	3.269	33:15 hr	3.932	0.857	0.429	0.382
B3-271-032	B3-271-032	B3-271-026	3.217	33:16 hr	3.653	0.896	0.448	0.413
B3-271-039	B3-271-039	B3-271-032	3.194	33:02 hr	3.634	0.894	0.447	0.412
B3-271-042	B3-271-042	B3-271-039	3.178	33:01 hr	3.63	0.892	0.446	0.41
B3-271-045	B3-271-045	B3-271-042	3.171	33:00 hr	3.653	0.886	0.443	0.405
B3-271-054	B3-271-054	B3-271-045	3.17	33:01 hr	3.83	0.854	0.427	0.38
B3-271-058	B3-271-058	B3-271-054	3.168	33:00 hr	3.925	0.838	0.419	0.367
B3-271-058A	B3-271-063	B3-271-058	3.154	33:01 hr	3.621	0.888	0.444	0.407
B3-271-063	B3-271-059	B3-271-063	3.153	33:00 hr	3.626	0.887	0.444	0.406
B4-261-014	B4-261-014	C1-261-058	5.327	33:45 hr	5.442	0.868	0.347	0.259
B4-262-001	B4-262-001	B4-261-014	5.314	33:43 hr	5.44	0.867	0.347	0.258
B4-262-011	B4-262-011	B4-262-044	5.253	33:31 hr	5.422	0.862	0.345	0.255
B4-262-016	B4-262-016	B4-262-011	5.202	33:31 hr	5.411	0.857	0.343	0.253
B4-262-022	B4-262-022	B4-262-016	5.2	33:31 hr	5.407	0.857	0.343	0.253
B4-262-024	B4-262-024	B4-262-022	5.158	33:31 hr	3.318	1.23	0.492	0.487
B4-262-028	B4-262-028	B4-262-024	5.143	33:31 hr	3.316	1.228	0.491	0.485
B4-262-030	B4-262-030	B4-262-028	5.146	33:30 hr	3.318	1.228	0.491	0.485
B4-262-031	B4-262-031	B4-262-114	5.141	33:30 hr	3.31	1.23	0.492	0.486
B4-262-036	B4-262-036	B4-262-037	1.575	33:01 hr	2.757	0.846	0.677	0.8
B4-262-037	B4-262-037	B4-262-038	1.591	33:05 hr	2.763	0.852	0.682	0.808
B4-262-038	B4-262-038	B3-262-031	1.592	33:18 hr	2.763	0.853	0.682	0.809
B4-262-043	B4-262-044	B4-262-001	5.256	33:31 hr	5.423	0.862	0.345	0.255
B4-262-114	B4-262-114	B4-262-030	5.141	33:30 hr	3.313	1.229	0.491	0.485
B4-271-001	B4-271-001	B4-262-036	1.572	33:00 hr	2.762	0.843	0.674	0.796

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
B4-271-011	B4-271-011	B3-271-018	3.284	33:17 hr	3.665	0.908	0.454	0.423
B4-271-028	B4-271-028	B4-271-147	1.424	32:46 hr	2.973	0.728	0.582	0.641
B4-271-033	B4-271-033	B4-271-028	1.416	32:47 hr	2.969	0.725	0.58	0.638
B4-271-128	B4-271-128	B4-271-001	1.581	33:02 hr	2.76	0.848	0.678	0.803
B4-271-135	B4-271-135	B4-271-128	1.579	33:03 hr	3.039	0.779	0.623	0.711
B4-271-138	B4-271-138	B4-271-135	1.539	33:02 hr	3.024	0.765	0.612	0.693
B4-271-143	B4-271-143	B4-271-138	1.517	32:58 hr	3.014	0.758	0.607	0.683
B4-271-145	B4-271-145	B4-271-143	1.507	32:46 hr	3.011	0.755	0.604	0.678
B4-271-146	B4-271-146	B4-271-145	1.511	32:47 hr	3.012	0.756	0.605	0.68
B4-271-147	B4-271-147	B4-271-146	1.506	32:47 hr	3.008	0.755	0.604	0.678
B4-271-148	B4-271-148	B4-271-033	1.399	32:45 hr	2.961	0.719	0.576	0.63
B4-272-004	B4-272-004	B4-272-094	1.351	32:42 hr	2.936	0.704	0.563	0.608
B4-272-039	B4-272-039	B4-272-092	1.05	32:30 hr	2.582	0.747	0.747	0.907
B4-272-040	B4-272-040	B4-272-039	0.985	32:30 hr	2.527	0.718	0.718	0.864
B4-272-044	B4-272-044	B4-272-040	0.979	32:32 hr	2.551	0.707	0.707	0.848
B4-272-048	B4-272-048	B4-272-044	0.947	32:31 hr	2.354	0.739	0.739	0.896
B4-272-086	B4-272-086	B4-272-004	1.14	32:48 hr	2.743	0.763	0.763	0.93
B4-272-091	B4-272-091	B4-272-096	1.064	32:31 hr	2.717	0.721	0.721	0.869
B4-272-092	B4-272-092	B4-272-095	1.062	32:32 hr	2.583	0.755	0.755	0.919
B4-272-093	B4-272-093	B4-271-148	1.383	32:46 hr	2.953	0.714	0.571	0.623
B4-272-094	B4-272-094	B4-272-093	1.37	32:44 hr	2.938	0.712	0.569	0.619
B4-272-095	B4-272-095	B4-272-091	1.059	32:31 hr	2.707	0.72	0.72	0.868
B4-272-096	B4-272-096	B4-272-086	1.087	32:35 hr	2.726	0.733	0.733	0.887
B4-281-054	B4-281-054	B4-272-048	0.919	32:31 hr	2.525	0.674	0.674	0.796
B4-281-057	B4-281-057	B4-281-054	0.871	32:31 hr	2.594	0.628	0.628	0.72
BV-105	BV-105	D2-252-004	0.389	09:45 hr	3.44	0.298	0.357	0.273
BV-292-013	BV-292-013	B2-292-012	0.227	32:43 hr	2.355	0.296	0.443	0.406
C1-221-018	C1-221-018	C2-221-030	0.32	32:31 hr	2.192	0.33	0.33	0.235
C1-221-019	C1-221-019	C1-221-018	0.322	32:16 hr	2.315	0.319	0.319	0.22
C1-261-028	C1-261-028	C1-261-020	5.428	33:46 hr	5.471	0.877	0.351	0.264
C1-261-030	C1-261-030	C1-261-028	5.422	33:45 hr	5.466	0.877	0.351	0.264
C1-261-058	C1-261-058	C1-261-062	5.338	33:45 hr	5.446	0.869	0.348	0.259
C1-261-060	C1-261-060	C1-261-030	5.406	33:45 hr	5.455	0.876	0.35	0.263
C1-261-062	C1-261-062	C1-261-060	5.34	33:45 hr	5.447	0.869	0.348	0.26
C1-281-035	C1-281-035	B4-281-057	0.805	32:16 hr	2.283	0.833	1	1.133
C2-221-030	C2-221-030	C2-221-037	0.325	32:34 hr	2.078	0.347	0.347	0.259
C2-221-031	C2-221-031	C3-221-003	0.331	32:45 hr	6.956	0.15	0.15	0.048
C2-221-032	C2-221-032	C2-221-065	0.322	32:45 hr	2.685	0.286	0.286	0.179
C2-221-033	C2-221-033	C2-221-032	0.326	32:48 hr	2.006	0.356	0.356	0.272
C2-221-034	C2-221-034	C2-221-033	0.324	32:46 hr	2.016	0.354	0.354	0.268
C2-221-035	C2-221-035	C2-221-034	0.319	32:40 hr	2.976	0.264	0.264	0.153
C2-221-037	C2-221-037	C2-221-035	0.32	32:37 hr	1.539	0.429	0.429	0.383
C2-221-065	C2-221-065	C2-221-031	0.328	32:45 hr	4.213	0.211	0.211	0.097
C2-261-001A	C2-261-001	C3-261-013	2.935	34:02 hr	9.022	0.557	0.477	0.461
C2-261-024	C2-261-024	C2-261-013	0.195	32:29 hr	1.191	0.259	0.115	0.028
C3-212-031	C3-212-031	C4-212-059	0.414	32:45 hr	3.853	0.264	0.264	0.153
C3-221-003	C3-221-003	C3-221-004	0.389	32:44 hr	4.324	0.233	0.233	0.119
C3-221-004	C3-221-004	C3-221-030	0.391	32:45 hr	4.331	0.234	0.234	0.12
C3-221-005	C3-221-005	C3-221-006	0.411	32:43 hr	4.445	0.238	0.238	0.124
C3-221-006	C3-221-006	C3-212-031	0.415	32:45 hr	4.12	0.253	0.253	0.14
C3-221-030	C3-221-030	C3-221-005	0.407	32:43 hr	4.383	0.239	0.239	0.125
C3-252-002	C3-252-002	C4-252-003	12.353	36:18 hr	4.011	1.916	0.639	0.737
C3-261-001	C3-261-001	C3-252-001	1.636	32:53 hr	2.254	0.83	0.474	0.456
C3-261-002	C3-261-002	C3-252-002	12.367	36:17 hr	4.409	1.77	0.59	0.655
C3-261-004	C3-261-004	C3-261-001	1.665	32:47 hr	2.265	0.838	0.479	0.464

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
C3-261-005	C3-261-005	C3-261-002	12.37	36:15 hr	5.218	1.544	0.515	0.525
C3-261-007	C3-261-007	C3-261-004	1.672	32:46 hr	2.271	0.839	0.479	0.465
C3-261-008	C3-261-008	C3-261-005	12.371	36:15 hr	3.445	2.2	0.733	0.888
C3-261-009	C3-261-009	C3-261-008	12.388	36:02 hr	3.447	2.202	0.734	0.889
C3-261-010	C3-261-010	C3-261-009	12.393	36:00 hr	5.138	1.566	0.522	0.538
C3-261-011	C3-261-011	C3-261-007	1.729	32:33 hr	2.286	0.857	0.49	0.482
C3-261-012	C3-261-012	C3-261-010	12.393	35:59 hr	11.833	0.84	0.28	0.171
C3-261-012A	C3-261-012	C3-261-011	1.376	35:59 hr	9.59	0.259	0.148	0.047
C3-261-013	C3-261-013	C3-261-012	13.772	36:00 hr	7.894	1.22	0.407	0.347
C3-261-015	C3-261-015	C3-261-011	1.078	32:32 hr	2.018	0.658	0.376	0.301
C3-261-019	C3-261-019	C3-261-015	1.097	32:32 hr	2.026	0.664	0.38	0.306
C3-261-021	C3-261-021	C3-261-019	1.103	32:30 hr	2.029	0.667	0.381	0.308
C3-261-031	C3-261-031	C3-261-013	9.594	36:03 hr	4.054	1.542	0.514	0.524
C3-261-035	C3-261-035	C2-261-024	0.196	32:29 hr	1.196	0.258	0.115	0.028
C3-261-040	C3-261-040	C3-261-031	9.598	36:00 hr	4.057	1.542	0.514	0.524
C3-261-043	C3-261-043	C3-261-035	0.196	32:29 hr	1.198	0.258	0.115	0.028
C3-261-050	C3-261-050	C3-261-075	0.197	32:29 hr	1.323	0.365	0.439	0.398
C3-261-056	C3-261-056	C3-261-050	0.2	32:16 hr	1.47	0.342	0.411	0.353
C3-261-062	C3-261-062	C3-261-040	9.634	36:03 hr	4.076	1.541	0.514	0.523
C3-261-075	C3-261-075	C3-261-076	0.196	32:28 hr	2.528	0.21	0.21	0.097
C3-261-076	C3-261-076	C3-261-043	0.197	32:30 hr	1.324	0.365	0.438	0.397
C3-262-007	C3-262-007	C3-262-009	9.66	36:00 hr	4.076	1.544	0.515	0.525
C3-262-009	C3-262-009	C3-261-062	9.656	36:03 hr	4.062	1.548	0.516	0.527
C3-262-033	C3-262-033	C3-262-007	9.664	36:02 hr	4.058	1.55	0.517	0.528
C3-262-041	C3-262-041	C3-262-033	9.665	36:00 hr	5.648	1.327	0.531	0.553
C3-262-046	C3-262-046	C3-262-041	9.662	35:59 hr	5.583	1.339	0.536	0.561
C3-262-051	C3-262-051	C3-262-046	9.66	35:57 hr	5.838	1.292	0.517	0.529
C3-262-061	C3-262-061	C3-262-051	9.672	35:45 hr	5.849	1.292	0.517	0.528
C3-262-070	C3-262-070	C3-262-071	9.706	35:45 hr	4.627	1.57	0.628	0.72
C3-262-071	C3-262-071	C3-262-061	9.694	35:46 hr	5.984	1.271	0.508	0.514
C3-262-074	C3-262-074	C3-262-070	9.745	35:48 hr	4.16	1.73	0.692	0.825
C3-271-001	C3-271-001	C3-262-074	9.769	35:47 hr	4.197	1.72	0.688	0.818
C3-271-003	C3-271-003	C3-271-001	9.776	35:46 hr	4.191	1.723	0.689	0.82
C3-271-004	C3-271-004	C3-271-003	9.764	35:45 hr	4.194	1.72	0.688	0.819
C3-271-007	C3-271-007	C3-271-004	9.772	35:33 hr	4.177	1.728	0.691	0.823
C3-271-010	C3-271-010	SS_1_A	9.805	35:30 hr	7.317	1.097	0.439	0.398
C3-271-012	C3-271-012	C3-271-010	9.81	35:30 hr	7.588	1.068	0.427	0.379
C4-212-059	C4-212-059	C4-212-060	0.415	32:46 hr	4.757	0.228	0.228	0.114
C4-212-060	C4-212-060	D4-232-020	0.44	32:45 hr	4.247	0.258	0.258	0.145
C4-212-061	C4-212-061	C4-221-001	0.47	32:44 hr	4.4	0.263	0.263	0.152
C4-221-001	C4-221-001	D1-212-032	0.476	32:45 hr	5.603	0.224	0.224	0.11
C4-221-011	D4-232-020	C4-212-061	0.467	32:43 hr	4.319	0.266	0.266	0.154
C4-252-001	C4-252-001	D1-252-019	12.294	36:33 hr	3.934	1.94	0.647	0.751
C4-252-002	C4-252-002	D1-252-042	1.569	36:47 hr	2.23	0.81	0.463	0.437
C4-252-003	C4-252-003	C4-252-008	12.335	36:16 hr	4.826	1.64	0.547	0.58
C4-252-004	C4-252-004	C4-252-002	1.571	36:33 hr	2.229	0.811	0.463	0.439
C4-252-005	C4-252-005	C4-252-006	12.3	36:17 hr	4.291	1.802	0.601	0.673
C4-252-006	C4-252-006	C4-252-001	12.298	36:31 hr	4.86	1.627	0.542	0.573
C4-252-007	C3-252-001	C4-252-007	1.611	33:04 hr	2.246	0.822	0.47	0.449
C4-252-007A	C4-252-007	C4-252-004	1.584	33:05 hr	2.236	0.814	0.465	0.442
C4-252-008	C4-252-008	C4-252-005	12.32	36:17 hr	4.306	1.8	0.6	0.672
D1-212-011	D1-212-011	D1-212-012	0.512	32:45 hr	5.108	0.252	0.252	0.139
D1-212-012	D1-212-012	D2-212-011	0.519	32:45 hr	4.615	0.273	0.273	0.163
D1-212-032	D1-212-032	D1-212-011	0.5	32:46 hr	3.705	0.312	0.312	0.211
D1-242-011	D1-242-011	D1-242-030	0.04	32:28 hr	2.865	0.069	0.083	0.014

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-242-017	D1-242-017	D1-242-011	0.036	32:21 hr	2.709	0.067	0.08	0.013
D1-242-018	D1-242-018	D1-242-017	0.032	32:15 hr	2.736	0.061	0.073	0.011
D1-242-019	D1-242-019	D1-242-018	0.024	32:15 hr	1.74	0.064	0.064	0.008
D1-242-030	D1-242-030	D1-242-031	0.044	32:30 hr	3.154	0.07	0.083	0.014
D1-242-031	D1-242-031	D1-251-023	0	00:00 hr	0	0	0	0
D1-242-031A	D1-242-031	D1-251-023	0.049	32:26 hr	3.17	0.081	0.121	0.031
D1-251-001	D1-262-049	D1-262-030	0.459	32:31 hr	2.197	0.336	0.192	0.081
D1-251-005	D1-251-023	D1-251-005	0.042	32:28 hr	2.432	0.08	0.097	0.019
D1-251-005A	D1-251-023	D1-251-005	0.038	32:35 hr	2.424	0.081	0.122	0.032
D1-251-005B	D1-251-005	D2-251-014	0.071	32:30 hr	2.399	0.116	0.139	0.042
D1-252-001	D1-252-001	D2-252-002	12.231	36:31 hr	5.765	1.416	0.472	0.453
D1-252-004	D1-252-004	D1-252-001	12.245	36:31 hr	4.338	1.779	0.593	0.66
D1-252-005	D1-252-005	D2-252-014	1.604	37:00 hr	2.233	0.768	0.384	0.313
D1-252-008	D1-252-008	D1-252-005	1.605	37:00 hr	2.232	0.769	0.384	0.313
D1-252-008A	D1-252-010	D1-252-008	1.602	36:59 hr	2.23	0.768	0.384	0.313
D1-252-009	D1-252-009	D1-252-004	12.258	36:31 hr	4.279	1.801	0.6	0.673
D1-252-010	D1-252-011	D1-252-010	1.596	37:01 hr	2.238	0.818	0.467	0.445
D1-252-011	D1-252-016	D1-252-011	1.597	37:02 hr	2.239	0.818	0.468	0.445
D1-252-015	D1-252-015	D1-252-009	12.263	36:30 hr	4.299	1.795	0.598	0.669
D1-252-018	D1-252-018	D1-252-015	12.278	36:32 hr	3.984	1.917	0.639	0.738
D1-252-019	D1-252-019	D1-252-018	12.285	36:31 hr	4.674	1.678	0.559	0.602
D1-252-023	D1-252-023	D1-252-016	1.595	36:58 hr	2.239	0.817	0.467	0.445
D1-252-031	D1-252-031	D1-252-023	1.593	36:50 hr	2.239	0.817	0.467	0.444
D1-252-036	D1-252-036	D1-252-031	1.593	36:46 hr	2.238	0.817	0.467	0.444
D1-252-041	D1-252-041	D1-252-036	1.588	36:45 hr	2.238	0.815	0.466	0.443
D1-252-042	D1-252-042	D1-252-041	1.584	36:51 hr	2.235	0.814	0.465	0.442
D1-252-050	D1-252-050	D2-252-067	0.86	32:45 hr	2.178	0.475	0.211	0.098
D1-252-053	D1-252-053	D2-252-085	3.339	35:01 hr	2.549	1.23	0.615	0.698
D1-252-056	D1-252-056	D1-252-053	3.337	34:59 hr	3.273	1.004	0.502	0.503
D1-252-057	D1-252-057	D1-252-056	3.336	35:00 hr	4.268	0.818	0.409	0.351
D1-252-059	D1-252-059	D1-252-057	3.314	35:00 hr	4.205	0.823	0.412	0.355
D1-261-001	D1-261-001	D1-252-059	3.313	34:59 hr	4.635	0.765	0.383	0.311
D1-261-003	D1-261-003	D1-252-050	0.865	32:49 hr	2.018	0.503	0.223	0.109
D1-261-006	D1-261-006	D1-261-001	3.206	34:58 hr	8.362	0.488	0.244	0.13
D1-261-008	D1-261-008	D1-261-006	3.198	34:59 hr	4.537	0.757	0.379	0.305
D1-261-020	D1-261-020	D1-261-003	0.707	32:50 hr	1.903	0.455	0.202	0.089
D1-261-021	D1-261-021	D1-261-008	3.176	34:57 hr	4.496	0.759	0.379	0.306
D1-261-023	D1-261-023	D1-261-020	0.668	32:46 hr	1.831	0.449	0.2	0.087
D1-261-036	D1-261-036	D1-261-021	3.153	34:47 hr	4.137	0.803	0.401	0.339
D1-261-037	D1-261-037	D1-261-023	0.649	32:46 hr	1.887	0.431	0.192	0.08
D1-261-052	D1-261-052	D1-261-036	3.119	34:48 hr	2.358	1.24	0.62	0.706
D1-261-059	D1-261-059	D1-261-037	0.64	32:35 hr	1.751	0.45	0.2	0.088
D1-261-061	D1-261-061	D1-261-059	0.637	32:43 hr	3.604	0.272	0.121	0.031
D1-261-075	D1-261-075	D1-261-052	3.092	34:47 hr	3.195	0.963	0.482	0.469
D1-261-084	D1-261-084	D1-261-061	0.63	32:34 hr	1.821	0.433	0.192	0.081
D1-261-103	D1-261-103	D1-261-075	3.074	34:35 hr	4.055	0.8	0.4	0.337
D1-261-116	D1-262-001	D1-261-116	0.516	32:32 hr	1.739	0.43	0.246	0.132
D1-261-116A	D1-261-116	D1-261-084	0.592	32:34 hr	1.832	0.457	0.261	0.149
D1-261-117	D1-261-117	D1-261-103	3.061	34:31 hr	5.54	0.634	0.317	0.218
D1-261-128	D1-261-128	D1-261-117	3.043	34:32 hr	2.545	1.14	0.57	0.62
D1-262-025	D1-262-025	D1-261-128	2.994	34:32 hr	1.872	1.47	0.735	0.89
D1-262-030	D1-262-030	D1-262-001	0.469	32:32 hr	1.736	0.402	0.23	0.116
D1-262-040	D1-262-040	D1-262-025	4.465	34:31 hr	3.398	1.233	0.617	0.7
D1-262-067	D1-262-067	D1-262-040	4.444	34:32 hr	4.243	1.025	0.513	0.521
D1-262-079	D1-262-079	D1-262-049	0.424	32:18 hr	2.131	0.325	0.186	0.075

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D1-262-088	D1-262-088	D1-262-067	4.434	34:31 hr	3.278	1.264	0.632	0.726
D1-262-100	D1-262-100	D1-262-088	4.445	34:18 hr	3.499	1.199	0.599	0.671
D1-271-018	D1-271-017	D1-271-055	4.452	34:17 hr	3.425	1.222	0.611	0.691
D1-271-051	D1-271-051	D1-271-054	3.613	34:14 hr	5.533	0.765	0.437	0.395
D1-271-054	D1-271-054	D1-271-092	3.641	34:16 hr	5.524	0.721	0.36	0.278
D1-271-055	D1-271-055	D1-262-100	4.456	34:19 hr	2.794	1.466	0.733	0.887
D1-271-092	D1-271-092	D1-271-017	3.626	34:15 hr	5.517	0.719	0.36	0.277
D2-212-001	D2-212-001	D2-212-002	0.533	32:44 hr	4.649	0.277	0.277	0.168
D2-212-002	D2-212-002	D2-212-025	0.533	32:44 hr	4.278	0.294	0.294	0.188
D2-212-003	D2-212-003	D2-212-014	0.552	32:45 hr	5.086	0.267	0.267	0.155
D2-212-011	D2-212-011	D2-212-012	0.532	32:45 hr	4.646	0.277	0.277	0.167
D2-212-012	D2-212-012	D2-212-001	0.531	32:44 hr	4.645	0.277	0.277	0.167
D2-212-013	D2-212-013	D2-212-003	0.549	32:45 hr	4.313	0.299	0.299	0.194
D2-212-014	D2-212-014	D3-212-022	0.557	32:46 hr	4.43	0.296	0.296	0.191
D2-212-025	D2-212-025	D2-212-013	0.533	32:45 hr	4.364	0.355	0.533	0.556
D2-241-006	D2-241-006	D2-241-007	0.037	32:16 hr	1.925	0.093	0.14	0.042
D2-241-007	D2-241-007	D3-241-001	0.04	32:24 hr	1.959	0.098	0.147	0.047
D2-251-004	D2-251-004	D3-251-011	16.517	36:45 hr	4.892	1.734	0.434	0.39
D2-251-005	D2-251-005	D2-251-004	14.215	36:44 hr	10.639	0.885	0.221	0.107
D2-251-008	D2-251-008	9008	0.471	33:01 hr	4.059	0.279	0.279	0.17
D2-251-014	D1-251-005	D2-251-014	0.063	32:31 hr	2.369	0.116	0.174	0.066
D2-251-014A	D2-251-014	D2-251-008	0.385	32:59 hr	8.859	0.14	0.14	0.042
D2-252-002	D2-252-002	D2-252-004	12.231	36:46 hr	4.448	1.741	0.58	0.638
D2-252-004	D2-252-004	D2-252-005	12.682	36:46 hr	6.279	1.363	0.454	0.424
D2-252-005	D2-252-005	D2-251-005	14.243	36:46 hr	3.515	1.996	0.499	0.498
D2-252-006	D2-252-006	D2-252-005	1.606	37:13 hr	4.148	0.491	0.246	0.132
D2-252-008	D2-252-008	D2-252-006	1.604	37:03 hr	2.184	0.781	0.391	0.323
D2-252-010	D2-252-010	D2-252-008	1.603	37:01 hr	3.682	0.534	0.267	0.156
D2-252-011	D2-252-011	D2-251-004	7.777	32:46 hr	5.728	1.175	0.522	0.538
D2-252-012	D2-252-012	D2-252-010	1.604	37:01 hr	2.305	0.75	0.375	0.299
D2-252-014	D2-252-014	D2-252-012	1.602	37:01 hr	0.789	2	1	1.039
D2-252-015	D2-252-015	D2-252-011	7.787	32:45 hr	13.387	0.624	0.277	0.168
D2-252-026	D2-252-026	D2-252-015	7.908	32:47 hr	3.993	1.496	0.598	0.669
D2-252-033	D2-252-033	D3-252-012	4.928	35:05 hr	4.753	1.017	0.508	0.514
D2-252-039	D2-252-039	D2-252-033	4.944	35:02 hr	4.546	1.056	0.528	0.548
D2-252-049	D2-252-049	D2-252-039	4.955	35:01 hr	6.503	0.803	0.401	0.339
D2-252-050	D2-252-050	D2-252-026	0.843	33:05 hr	3.16	0.378	0.189	0.078
D2-252-052	D2-252-052	D2-252-050	0.842	32:58 hr	2.187	0.467	0.207	0.094
D2-252-056	D2-252-056	D2-252-052	0.843	32:57 hr	8.567	0.183	0.081	0.013
D2-252-057	D2-252-057	D2-252-049	4.961	35:00 hr	6.697	0.786	0.393	0.326
D2-252-062	D2-252-062	D2-252-057	4.853	35:00 hr	4.583	1.034	0.517	0.529
D2-252-067	D2-252-067	D2-252-056	0.855	32:48 hr	1.864	0.527	0.234	0.12
D2-252-069	D2-252-069	D2-252-062	4.858	35:00 hr	6.535	0.788	0.394	0.328
D2-252-071	D3-252-054	D2-252-071	7.475	32:30 hr	11.114	0.693	0.308	0.206
D2-252-085	D2-252-085	D2-252-069	4.862	35:01 hr	4.874	0.986	0.493	0.488
D2-252-105	D2-252-105	D2-252-026	7.246	32:37 hr	3.569	2	1	1.112
D2-271-017	D2-271-017	D2-271-019	1.1	33:17 hr	3.968	0.476	0.381	0.307
D2-271-019	D2-271-019	D2-271-022	1.093	33:16 hr	3.961	0.474	0.379	0.306
D2-271-022	D2-271-022	D2-271-023	1.089	33:15 hr	3.957	0.473	0.379	0.305
D2-271-023	D2-271-023	D2-271-109	1.087	33:16 hr	3.956	0.473	0.378	0.304
D2-271-039	D2-271-039	D2-271-042	3.516	34:15 hr	6.423	0.726	0.484	0.473
D2-271-042	D2-271-042	D2-271-043	3.513	34:15 hr	5.51	0.751	0.429	0.383
D2-271-043	D2-271-043	D2-271-045	3.511	34:15 hr	5.51	0.751	0.429	0.383
D2-271-045	D2-271-045	D1-271-051	3.611	34:15 hr	5.551	0.763	0.436	0.393
D2-271-048	D2-271-048	D2-271-039	0.924	33:30 hr	2.111	0.676	0.541	0.569

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D2-271-052	D2-271-052	D2-271-048	0.924	33:32 hr	2.104	0.678	0.542	0.572
D2-271-063	D2-271-063	D2-271-052	0.938	33:20 hr	2.128	0.68	0.544	0.575
D2-271-067	D2-271-067	D2-271-063	0.938	33:18 hr	1.95	0.73	0.584	0.644
D2-271-075	D2-271-075	D2-271-067	0.933	33:15 hr	1.968	0.721	0.577	0.632
D2-271-109	D2-271-109	D1-271-017	1.09	33:15 hr	3.96	0.473	0.379	0.305
D2-272-011	D2-272-011	D2-271-075	0.904	33:10 hr	1.943	0.711	0.568	0.617
D2-272-023	D2-272-023	D2-272-025	0.947	32:49 hr	2.144	0.681	0.545	0.577
D2-272-025	D2-272-025	D2-272-029	0.91	32:51 hr	2.069	0.679	0.543	0.574
D2-272-029	D2-272-029	D2-272-011	0.908	33:06 hr	2.09	0.672	0.538	0.565
D2-272-052	D2-272-052	D2-272-023	0.912	32:43 hr	2.035	0.689	0.551	0.587
D2-272-070	D2-272-070	D2-272-052	0.961	32:35 hr	2.122	0.695	0.556	0.595
D2-272-072	D2-272-072	D2-272-070	0.989	32:34 hr	2.145	0.705	0.564	0.609
D2-272-074	D2-272-074	D2-272-072	0.96	32:32 hr	1.998	0.73	0.584	0.644
D2-272-075	D2-272-075	D2-272-074	0.924	32:30 hr	2.116	0.675	0.54	0.568
D2-281-002	D2-281-002	D2-272-075	0.928	32:16 hr	2.112	0.678	0.543	0.573
D3-212-001	D3-212-001	D3-212-002	0.022	32:17 hr	0.982	0.104	0.155	0.052
D3-212-002	D3-212-002	D3-212-003	0.023	32:25 hr	1.67	0.074	0.111	0.026
D3-212-003	D3-212-003	D3-212-004	0.024	32:28 hr	1.869	0.071	0.106	0.024
D3-212-004	D3-212-004	D3-212-012	0.025	32:30 hr	1.723	0.078	0.117	0.029
D3-212-012	D3-212-012	D3-212-013	0.025	32:28 hr	1.713	0.077	0.116	0.028
D3-212-013	D3-212-013	D3-221-016	0.026	32:29 hr	1.733	0.078	0.118	0.029
D3-212-017	D3-212-017	D3-221-016	0.565	32:45 hr	8.079	0.195	0.195	0.084
D3-212-018	D3-212-018	D3-212-017	0.567	32:45 hr	3.528	0.354	0.354	0.268
D3-212-022	D3-212-022	D3-212-018	0.568	32:46 hr	5.642	0.253	0.253	0.14
D3-212-023	D3-212-023	D3-212-001	0.012	32:15 hr	0.827	0.079	0.118	0.029
D3-221-016	D3-221-016	D3-221-024	0.588	32:46 hr	4.312	0.314	0.314	0.214
D3-221-021	D3-221-021	D4-221-004	0.583	32:46 hr	4.177	0.319	0.319	0.221
D3-221-022	D3-221-022	D3-221-021	0.583	32:46 hr	3.846	0.339	0.339	0.248
D3-221-023	D3-221-023	D3-221-022	0.584	32:46 hr	4.988	0.281	0.281	0.173
D3-221-024	D3-221-024	D3-221-023	0.586	32:46 hr	3.574	0.359	0.359	0.276
D3-232-001	D3-232-015	D3-232-001	0.082	32:30 hr	2.414	0.139	0.208	0.095
D3-232-001A	D3-232-001	D3-232-018	0.247	32:29 hr	3.299	0.244	0.366	0.286
D3-232-009	D3-232-009	D3-232-015	0.083	32:30 hr	2.425	0.14	0.21	0.096
D3-232-017	D3-232-017	D4-232-001	0.274	32:29 hr	6.77	0.157	0.235	0.121
D3-232-018	D3-232-018	D3-232-017	0.254	32:29 hr	7.219	0.142	0.213	0.1
D3-241-001	D3-241-001	D3-241-002	0.042	32:27 hr	1.986	0.1	0.151	0.049
D3-241-002	D3-241-002	D3-241-003	0.047	32:28 hr	2.049	0.106	0.158	0.054
D3-241-003	D3-241-003	D3-241-004	0.054	32:29 hr	2.13	0.113	0.169	0.062
D3-241-004	D3-241-004	D3-241-008	0.056	32:30 hr	2.158	0.115	0.173	0.065
D3-241-005	D3-241-009	D3-241-005	0.069	32:30 hr	2.289	0.127	0.19	0.079
D3-241-005A	D3-241-005	D3-241-006	0.07	32:29 hr	2.299	0.128	0.192	0.081
D3-241-006	D3-241-006	D3-241-007	0.08	32:31 hr	2.395	0.137	0.205	0.092
D3-241-007	D3-241-007	D3-232-009	0.083	32:31 hr	2.426	0.14	0.21	0.096
D3-241-009	D3-241-008	D3-241-009	0.061	32:30 hr	2.212	0.12	0.18	0.071
D3-251-001	D3-251-001	D4-251-018	20.929	35:19 hr	3.908	2.324	0.517	0.528
D3-251-002	D3-251-002	D3-251-001	20.989	35:18 hr	3.833	2.366	0.526	0.544
D3-251-004	D3-251-004	D3-251-016	16.52	36:46 hr	4.452	1.865	0.466	0.443
D3-251-008	D3-251-008	D3-251-012	16.489	36:46 hr	3.297	2.366	0.591	0.657
D3-251-011	D3-251-011	D3-251-015	16.527	36:44 hr	7.779	1.232	0.308	0.206
D3-251-012	D3-251-012	D3-251-013	20.995	35:15 hr	2.585	4	1	1.122
D3-251-013	D3-251-013	D3-251-002	21.035	35:16 hr	4.168	2.218	0.493	0.488
D3-251-014	D3-251-014	D3-251-012	4.946	35:15 hr	2.566	1.579	0.702	0.84
D3-251-015	D3-251-015	D3-251-004	16.527	36:45 hr	4.449	1.866	0.466	0.444
D3-251-016	D3-251-016	D3-251-008	16.498	36:45 hr	5.816	1.522	0.38	0.307
D3-252-008	D3-252-008	D3-251-014	4.952	35:16 hr	2.861	1.436	0.638	0.737

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
D3-252-012	D3-252-012	D3-252-008	4.937	35:16 hr	4.468	1.069	0.535	0.559
D3-252-045	D2-252-071	D3-252-045	7.41	32:30 hr	9.854	0.795	0.397	0.333
D3-252-045A	D3-252-045	D2-252-105	7.432	32:31 hr	8.809	0.867	0.433	0.39
D3-252-057	D3-252-057	D3-252-054	7.461	32:30 hr	11.108	0.692	0.308	0.206
D3-261-010	D3-261-010	D3-252-057	7.352	32:30 hr	11.063	0.687	0.305	0.203
D3-261-014	D3-261-014	D3-261-010	6.021	32:30 hr	4.719	1.119	0.497	0.495
D3-261-025	D3-261-025	D3-261-014	5.223	32:46 hr	4.57	1.027	0.457	0.427
D3-261-045	D3-261-045	D3-261-025	5.233	32:33 hr	4.572	1.028	0.457	0.428
D3-261-075	D3-261-075	D3-261-045	5.503	32:33 hr	4.667	1.052	0.468	0.446
D3-261-086	D3-261-086	D3-261-075	5.005	32:31 hr	4.601	1.056	0.528	0.548
D3-261-117	D3-261-117	D3-261-086	5.266	32:34 hr	4.673	1.086	0.543	0.574
D3-261-130	D3-261-130	D3-261-117	5.348	32:31 hr	3.938	1.269	0.634	0.73
D3-262-017	D3-262-017	D3-261-130	5.399	32:32 hr	3.945	1.277	0.638	0.737
D3-262-018	D3-262-018	D3-262-017	3.456	32:31 hr	4.093	0.867	0.434	0.39
D3-262-042	D3-262-042	D3-262-018	1.431	32:34 hr	2.646	0.624	0.312	0.211
D3-262-065	D3-262-065	D3-262-122	1.399	32:34 hr	2.508	0.736	0.491	0.485
D3-262-083	D3-262-083	D3-262-065	1.426	32:34 hr	2.859	0.675	0.45	0.417
D3-262-122	D3-262-122	D3-262-042	1.309	32:30 hr	2.466	0.709	0.472	0.454
D3-271-013	D3-271-013	D3-262-083	1.378	32:22 hr	2.849	0.66	0.44	0.4
D3-271-019	D3-271-019	D3-271-024	1.108	33:16 hr	3.974	0.478	0.382	0.31
D3-271-024	D3-271-024	D2-271-017	1.104	33:16 hr	3.973	0.477	0.381	0.309
D3-271-029	D3-271-029	D3-271-013	0.026	32:29 hr	0.885	0.093	0.062	0.008
D3-271-038	D3-271-038	D3-271-019	1.108	33:17 hr	3.976	0.478	0.382	0.31
D3-271-055	D3-271-055	D3-271-038	1.113	33:02 hr	3.982	0.479	0.383	0.311
D3-271-059	D3-271-059	D3-271-055	1.109	33:00 hr	3.982	0.478	0.382	0.31
D3-271-068	D3-271-068	D3-271-069	1.138	33:00 hr	4.004	0.485	0.388	0.318
D3-271-069	D3-271-069	D3-271-070	1.136	33:01 hr	4.004	0.484	0.387	0.318
D3-271-070	D3-271-070	D3-271-072	1.132	33:02 hr	3.999	0.483	0.387	0.316
D3-271-072	D3-271-072	D3-271-059	1.12	33:01 hr	3.988	0.48	0.384	0.313
D3-271-075	D3-271-075	D3-271-068	1.139	33:00 hr	4.006	0.485	0.388	0.318
D3-271-111	D3-271-111	D3-271-029	0.014	32:19 hr	0.756	0.068	0.045	0.004
D3-281-006	D3-281-006	D2-281-002	0.936	32:15 hr	2.168	0.669	0.535	0.56
D4-221-004	D4-221-004	D4-221-005	0.583	32:59 hr	4.533	0.301	0.301	0.197
D4-221-005	D4-221-005	D4-221-008	0.586	33:00 hr	3.974	0.332	0.332	0.238
D4-221-008	D4-221-008	D4-221-009	0.589	33:01 hr	4.442	0.308	0.308	0.206
D4-221-009	D4-221-009	D4-221-010	0.766	32:45 hr	4.568	0.33	0.264	0.153
D4-221-010	D4-221-010	D4-221-011	0.77	32:46 hr	5.225	0.301	0.241	0.127
D4-221-011	D4-221-011	D4-221-015	0.787	32:46 hr	2.987	0.458	0.366	0.287
D4-232-001	D4-232-001	D4-232-002	0.278	32:30 hr	8.583	0.134	0.201	0.088
D4-232-002	D4-232-002	D4-232-003	0.281	32:29 hr	7.871	0.144	0.216	0.102
D4-232-003	D4-232-003	D4-232-004	0.281	32:29 hr	4.642	0.209	0.314	0.214
D4-232-004	D4-232-004	D4-232-005	0.29	32:30 hr	3.649	0.255	0.383	0.311
D4-232-005	D4-232-005	D4-232-006	0.288	32:31 hr	3.707	0.251	0.376	0.301
D4-232-006	D4-232-006	D4-232-007	0.288	32:32 hr	4.212	0.229	0.343	0.253
D4-232-007	D4-232-007	D4-232-008	0.974	33:00 hr	3.575	0.529	0.529	0.549
D4-232-008	D4-232-008	9000	0.973	33:00 hr	4.693	0.428	0.428	0.381
D4-251-001	D4-251-001	E1-251-002	21.438	35:47 hr	3.888	2.379	0.529	0.549
D4-251-005	D4-251-005	D4-251-019	21.466	35:35 hr	2.883	3.061	0.68	0.806
D4-251-008	D4-251-008	D4-251-005	20.917	35:33 hr	3.704	2.425	0.539	0.566
D4-251-018	D4-251-018	D4-251-008	20.923	35:30 hr	3.9	2.327	0.517	0.529
D4-251-019	D4-251-019	D4-251-001	21.439	35:43 hr	2.887	3.054	0.679	0.803
D4-271-014	D4-271-014	D4-271-015	1.154	32:46 hr	4.021	0.488	0.391	0.323
D4-271-015	D4-271-015	D4-271-018	1.151	33:00 hr	4.017	0.488	0.39	0.322
D4-271-018	D4-271-018	D4-271-021	1.15	33:01 hr	4.017	0.487	0.39	0.322
D4-271-021	D4-271-021	D3-271-075	1.147	33:02 hr	4.013	0.487	0.389	0.321

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E1-221-001	D4-221-015	E1-221-001	0.79	32:46 hr	3.181	0.439	0.351	0.264
E1-221-001A	E1-221-001	E1-222-004	0.8	32:47 hr	3.349	0.426	0.341	0.25
E1-222-004	E1-222-004	E1-222-005	0.8	32:45 hr	7.147	0.255	0.219	0.105
E1-222-005	E1-222-005	E1-222-006	0.807	32:45 hr	5.13	0.316	0.253	0.14
E1-222-006	E1-222-006	E1-222-007	0.813	32:45 hr	4.203	0.366	0.293	0.187
E1-222-007	E1-222-007	E1-222-011	0.821	32:46 hr	4.22	0.368	0.294	0.188
E1-222-011	E1-222-011	E1-222-012	0.825	32:58 hr	5.278	0.292	0.194	0.083
E1-222-012	E1-222-012	E2-222-075	0.83	33:00 hr	3.394	0.4	0.267	0.155
E1-231-012	E1-231-012	E2-231-021	1.794	32:16 hr	6.496	0.535	0.535	0.559
E1-242-001	E1-242-001	E2-242-034	24.072	35:31 hr	3.848	2.636	0.586	0.647
E1-242-002	E1-242-002	E1-242-001	3.794	34:07 hr	3.507	1.051	0.526	0.544
E1-251-001	E1-251-001	E1-242-001	21.419	35:47 hr	6.742	1.564	0.348	0.26
E1-251-002	E1-251-002	E1-251-001	21.43	35:47 hr	3.67	2.491	0.554	0.592
E1-251-003	E1-251-003	E1-251-025	3.813	34:04 hr	3.118	1.161	0.581	0.639
E1-251-004	E1-251-004	E1-251-003	3.812	34:03 hr	2.994	1.201	0.6	0.673
E1-251-007	E1-251-007	E2-251-027	3.775	34:00 hr	3.791	0.985	0.492	0.487
E1-251-018	E1-251-018	E1-251-007	3.782	33:47 hr	4.238	0.905	0.452	0.42
E1-251-019	E1-251-019	E1-251-018	3.781	33:45 hr	4.257	0.901	0.451	0.418
E1-251-020	E1-251-020	E1-251-019	3.771	33:45 hr	3.866	0.969	0.485	0.474
E1-251-021	E1-251-021	E1-251-020	3.779	33:46 hr	3.862	0.972	0.486	0.476
E1-251-023	E1-251-023	E1-251-021	3.786	33:46 hr	3.895	0.967	0.483	0.472
E1-251-025	E1-251-025	E1-242-002	3.797	34:00 hr	3.112	1.159	0.58	0.637
E1-271-068	E1-271-068	E1-271-072	1.173	32:47 hr	4.039	0.493	0.394	0.328
E1-271-072	E1-271-072	E1-271-076	1.158	32:47 hr	4.025	0.489	0.391	0.324
E1-271-076	E1-271-076	D4-271-014	1.147	32:45 hr	4.014	0.487	0.389	0.321
E2-202-016	E2-202-016	E3-202-009	0.404	32:16 hr	4.403	0.284	0.426	0.378
E2-222-015	E2-222-015	E2-222-036	3.625	33:15 hr	8.297	0.611	0.407	0.348
E2-222-016	E2-222-016	E2-222-015	1.437	33:00 hr	15.621	0.237	0.237	0.123
E2-222-017	E2-222-017	E2-222-016	0.845	32:59 hr	8.589	0.212	0.141	0.043
E2-222-028	E2-222-028	E2-222-029	1.677	36:45 hr	6.389	0.513	0.513	0.523
E2-222-028A	E2-222-007	E2-222-028	1.682	36:45 hr	6.393	0.514	0.514	0.524
E2-222-029	E2-222-029	E2-222-030	1.675	36:45 hr	6.388	0.513	0.513	0.522
E2-222-030	E2-222-030	E2-222-031	1.668	36:45 hr	6.38	0.512	0.512	0.52
E2-222-031	E2-222-031	E2-222-048	1.667	36:46 hr	6.38	0.512	0.512	0.52
E2-222-036	E2-222-036	E2-222-037	3.622	33:15 hr	7.78	0.641	0.427	0.38
E2-222-037	E2-222-037	E3-222-065	3.621	33:15 hr	7.903	0.633	0.422	0.371
E2-222-040	E2-222-040	E2-222-015	2.286	33:15 hr	7.129	0.604	0.604	0.679
E2-222-044	E2-222-044	E2-222-017	0.847	33:02 hr	3.199	0.423	0.282	0.174
E2-222-048	E2-222-048	E2-222-050	1.657	36:45 hr	6.369	0.51	0.51	0.517
E2-222-050	E2-222-050	E2-222-040	2.289	33:15 hr	10.368	0.449	0.449	0.414
E2-222-067	E2-222-067	E2-222-044	0.843	32:59 hr	4.237	0.346	0.23	0.116
E2-222-075	E2-222-075	E2-222-067	0.839	32:58 hr	4.256	0.343	0.229	0.115
E2-231-002	E2-231-002	E2-222-007	1.698	36:46 hr	6.409	0.517	0.517	0.529
E2-231-005	E2-231-005	E2-231-002	1.723	36:46 hr	6.414	0.523	0.523	0.539
E2-231-006	E2-231-006	E2-231-005	1.739	36:46 hr	6.447	0.525	0.525	0.542
E2-231-013	E2-231-013	E2-231-006	1.748	36:45 hr	6.455	0.526	0.526	0.545
E2-231-021	E2-231-021	E2-231-013	1.767	36:16 hr	6.472	0.53	0.53	0.551
E2-231-028	E2-231-028	E2-231-029	1.953	32:15 hr	5.256	0.687	0.687	0.816
E2-231-029	E2-231-029	E2-231-030	1.921	32:15 hr	5.041	0.702	0.702	0.841
E2-231-030	E2-231-030	E2-231-031	1.903	32:15 hr	4.484	0.779	0.779	0.952
E2-231-031	E2-231-031	E2-231-035	1.871	32:16 hr	5.929	0.596	0.596	0.665
E2-231-035	E2-231-035	E2-231-037	1.808	36:15 hr	6.508	0.537	0.537	0.564
E2-231-037	E2-231-037	E1-231-012	1.797	36:15 hr	6.498	0.535	0.535	0.56
E2-242-004	E2-242-004	E3-242-012	24.019	36:01 hr	3.954	2.572	0.572	0.623
E2-242-011	E2-242-011	E2-242-004	24.037	35:49 hr	3.745	2.693	0.598	0.669

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E2-242-017	E2-242-017	E2-242-011	24.051	35:49 hr	3.117	3.162	0.703	0.841
E2-242-024	E2-242-024	E2-242-017	24.059	35:47 hr	4.329	2.394	0.532	0.555
E2-242-034	E2-242-034	E2-242-024	24.064	35:33 hr	3.768	2.681	0.596	0.665
E2-251-027	E2-251-027	E1-251-004	3.808	34:00 hr	3.298	1.108	0.554	0.593
E2-251-058	E2-251-058	E1-251-023	3.777	33:45 hr	5.179	0.777	0.388	0.319
E2-252-192	E2-252-192	E2-251-058	3.789	33:47 hr	6.784	0.737	0.491	0.485
E2-252-193	E2-252-193	E2-252-196	3.789	33:46 hr	7.369	0.691	0.461	0.434
E2-252-194	E2-252-194	E2-252-193	3.78	33:45 hr	7.364	0.69	0.46	0.433
E2-252-196	E2-252-196	E2-252-192	3.789	33:45 hr	7.372	0.691	0.461	0.434
E2-271-073	E2-271-076	E2-271-078	1.212	32:32 hr	4.074	0.502	0.401	0.339
E2-271-077	E2-271-078	E2-271-081	1.194	32:46 hr	4.057	0.497	0.398	0.334
E2-271-081	E2-271-081	E2-271-086	1.193	32:47 hr	4.057	0.497	0.398	0.333
E2-271-086	E2-271-086	E1-271-068	1.185	32:47 hr	4.049	0.495	0.396	0.331
E3-202-008	E3-202-010	E3-202-008	0.412	32:30 hr	3.468	0.309	0.37	0.292
E3-202-008A	E3-202-008	E3-202-011	0.419	32:30 hr	3.483	0.311	0.374	0.297
E3-202-009	E3-202-009	E3-202-BV	0.406	32:29 hr	3.459	0.306	0.367	0.288
E3-202-011	E3-202-011	E3-202-012	0.423	32:31 hr	3.587	0.307	0.368	0.29
E3-202-012	E3-202-012	E4-202-001	0.424	32:30 hr	5.185	0.235	0.283	0.174
E3-222-051	E3-222-051	E3-231-006	3.618	33:17 hr	3.737	1.185	0.79	0.966
E3-222-051A	E3-222-064	E3-222-051	3.622	33:16 hr	4.385	1.019	0.679	0.804
E3-222-065	E3-222-065	E3-222-064	3.618	33:15 hr	5.442	0.847	0.565	0.611
E3-231-006	E3-231-006	E4-231-005	3.622	33:21 hr	3.765	1.039	0.594	0.661
E3-241-015	E3-241-015	E4-241-016	26.766	36:04 hr	5.577	2.133	0.474	0.456
E3-241-022	E3-241-022	E3-241-015	26.724	36:02 hr	5.29	2.22	0.493	0.489
E3-241-028	E3-241-028	E3-241-022	26.726	36:01 hr	4.211	2.667	0.593	0.659
E3-241-034	E3-241-034	E3-241-028	4.141	33:15 hr	4.74	1.072	0.715	0.86
E3-241-036	E3-241-036	E3-241-034	4.104	33:15 hr	4.942	1.024	0.682	0.81
E3-241-048	E3-241-048	E3-241-049	4.062	33:12 hr	3.556	1.5	1	1.141
E3-241-049	E3-241-049	E3-241-036	4.096	33:01 hr	5.606	0.916	0.611	0.69
E3-242-002	E3-242-002	E3-241-028	24.014	36:02 hr	4.413	2.354	0.523	0.539
E3-242-012	E3-242-012	E3-242-002	24.017	36:00 hr	5.01	2.131	0.474	0.455
E3-252-001	E3-252-001	E3-252-003	3.792	33:34 hr	3.32	1.5	1	1.188
E3-252-003	E3-252-003	E3-252-004	3.765	33:34 hr	3.296	1.5	1	1.173
E3-252-004	E3-252-004	E3-252-084	3.771	33:44 hr	7.339	0.691	0.461	0.434
E3-252-084	E3-252-084	E2-252-194	3.773	33:46 hr	7.36	0.69	0.46	0.433
E3-252-085	E3-252-085	E3-252-001	3.793	33:30 hr	3.321	1.5	1	1.19
E3-271-068	E3-271-068	E3-271-072	1.145	32:31 hr	4.019	0.486	0.388	0.319
E3-271-072	E3-271-072	E3-271-074	1.146	32:31 hr	4.013	0.486	0.389	0.32
E3-271-074	E3-271-074	E2-271-076	1.205	32:30 hr	4.068	0.5	0.4	0.337
E3-271-121	E3-271-121	E3-271-123	1.14	32:31 hr	4.011	0.485	0.388	0.318
E3-271-122	E3-271-122	E3-271-121	1.13	32:30 hr	3.419	0.543	0.434	0.391
E3-271-123	E3-271-123	E3-271-068	1.133	32:31 hr	4	0.483	0.387	0.317
E4-202-001	E4-202-001	E4-202-002	0.553	32:30 hr	5.537	0.251	0.251	0.138
E4-202-002	E4-202-002	E4-202-003	0.551	32:31 hr	4.693	0.282	0.282	0.173
E4-202-003	E4-202-003	E4-202-009	0.542	32:30 hr	4.661	0.28	0.28	0.171
E4-202-007	E4-202-007	E4-202-013	0.547	32:30 hr	4.742	0.278	0.278	0.169
E4-202-009	E4-202-009	E4-202-007	0.544	32:30 hr	4.664	0.28	0.28	0.172
E4-202-013	E4-202-013	E4-202-014	0.544	32:31 hr	4.738	0.277	0.277	0.168
E4-202-014	E4-202-014	F1-202-010	0.538	32:31 hr	5.355	0.252	0.252	0.139
E4-231-005	E4-231-005	E4-231-006	3.606	33:15 hr	7.138	0.631	0.361	0.278
E4-231-006	E4-231-006	E4-231-008	3.605	33:16 hr	7.15	0.63	0.36	0.278
E4-231-007	E4-231-007	F1-231-002	3.599	33:19 hr	3.201	1.239	0.744	0.903
E4-231-008	E4-231-008	E4-231-007	3.599	33:15 hr	3.838	1.052	0.631	0.725
E4-232-016	E4-232-016	F1-232-033	26.815	36:17 hr	4.187	2.688	0.597	0.667
E4-241-005	E4-241-005	E4-232-016	26.819	36:16 hr	4.373	2.593	0.576	0.631

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
E4-241-016	E4-241-016	E4-241-005	26.752	36:02 hr	5.764	2.078	0.462	0.436
E4-241-075	E4-241-075	E4-241-077	3.905	33:00 hr	6.629	0.769	0.512	0.521
E4-241-077	E4-241-077	E4-241-078	3.901	33:03 hr	3.416	1.5	1	1.06
E4-241-078	E4-241-078	E4-241-079	3.878	33:02 hr	4.163	1.14	0.76	0.926
E4-241-079	E4-241-079	E4-241-080	4.027	33:00 hr	3.525	1.5	1	1.22
E4-241-080	E4-241-080	E3-241-048	4.041	33:03 hr	3.538	1.5	1	1.222
E4-241-081	E4-241-081	E4-241-075	3.909	33:00 hr	4.886	0.99	0.66	0.773
E4-242-014	E4-242-014	E4-241-081	3.038	33:02 hr	4.233	0.902	0.602	0.674
E4-242-029	E4-242-029	E4-242-014	3.043	33:03 hr	3.429	1.088	0.726	0.876
E4-242-034	E4-242-034	E4-242-029	3.027	33:00 hr	3.909	0.963	0.642	0.743
E4-242-036	E4-242-036	E4-242-034	3.023	33:00 hr	3.906	0.962	0.641	0.742
E4-242-045	E4-242-045	E4-242-036	3.01	33:01 hr	3.907	0.958	0.639	0.738
E4-242-057	E4-242-057	E4-242-045	2.96	33:01 hr	3.615	1.011	0.674	0.796
E4-242-062	E4-242-062	E4-242-057	2.907	33:00 hr	3.557	1.009	0.673	0.794
E4-242-069	E4-242-069	E4-242-062	2.847	32:49 hr	3.154	1.106	0.737	0.893
E4-242-078	E4-242-078	E4-242-069	2.799	32:48 hr	3.313	1.04	0.693	0.826
E4-251-001	E4-251-001	E4-242-078	2.78	32:45 hr	3.372	1.017	0.678	0.802
E4-252-009	E4-252-009	E3-252-085	3.794	33:30 hr	3.322	1.5	1	1.191
E4-252-010	E4-252-010	E4-252-009	3.796	33:30 hr	3.323	1.5	1	1.194
E4-252-011	E4-252-011	E4-252-010	3.801	33:30 hr	3.328	1.5	1	1.19
E4-252-013	E4-252-013	E4-252-014	3.816	33:15 hr	5.001	0.95	0.634	0.729
E4-252-014	E4-252-014	E4-252-019	3.814	33:15 hr	4.888	0.969	0.646	0.75
E4-252-019	E4-252-019	E4-252-021	3.811	33:17 hr	3.337	1.5	1	1.06
E4-252-021	E4-252-021	E4-252-023	3.792	33:18 hr	3.32	1.5	1	1.042
E4-252-023	E4-252-023	E4-252-011	3.811	33:33 hr	3.337	1.5	1	1.177
E4-252-033	E4-252-033	E4-252-013	3.829	33:17 hr	4.267	1.1	0.733	0.888
E4-252-035	E4-252-035	E4-252-033	3.833	33:15 hr	7.118	0.716	0.478	0.462
E4-252-037	E4-252-037	E4-252-035	3.834	33:16 hr	5.199	0.923	0.615	0.698
E4-271-058	E4-271-058	E4-271-060	1.084	32:32 hr	2.426	0.687	0.55	0.586
E4-271-060	E4-271-060	E4-271-062	1.099	32:31 hr	4.148	0.46	0.368	0.289
E4-271-062	E4-271-062	E4-271-063	1.108	32:31 hr	4.659	0.425	0.34	0.249
E4-271-063	E4-271-063	E4-271-064	1.114	32:30 hr	5.119	0.399	0.319	0.22
E4-271-064	E4-271-064	E3-271-122	1.139	32:31 hr	3.631	0.522	0.417	0.364
F1-202-005	F1-202-005	F1-202-007	0.56	32:44 hr	4.521	0.267	0.213	0.1
F1-202-006	F1-202-006	F1-202-005	0.558	32:45 hr	4.75	0.264	0.227	0.113
F1-202-007	F1-202-007	F2-202-001	0.578	32:45 hr	5.363	0.242	0.194	0.082
F1-202-008	F1-202-008	F1-202-006	0.555	32:44 hr	3.435	0.322	0.257	0.145
F1-202-009	F1-202-009	F1-202-008	0.548	32:41 hr	4.86	0.274	0.274	0.164
F1-202-010	F1-202-010	F1-202-009	0.532	32:31 hr	5.113	0.259	0.259	0.146
F1-231-001	F1-231-001	F2-231-024	3.583	33:35 hr	2.714	1.386	0.792	0.967
F1-231-001A	F1-231-003	F1-231-001	3.587	33:33 hr	3.381	1.174	0.704	0.844
F1-231-002	F1-231-002	F1-231-003	3.581	33:20 hr	3.05	1.293	0.776	0.947
F1-232-001	F1-232-001	F2-231-023	29.292	36:18 hr	4.407	2.773	0.616	0.7
F1-232-002	F1-232-002	F1-232-001	29.299	36:18 hr	4.09	2.958	0.657	0.768
F1-232-008	F1-232-008	F1-232-066	3.352	32:30 hr	5.526	0.787	0.524	0.542
F1-232-012	F1-232-012	F1-232-066	26.796	36:16 hr	4.124	2.72	0.604	0.68
F1-232-013	F1-232-013	F1-232-008	3.433	32:33 hr	3.706	1.134	0.756	0.92
F1-232-014	F1-232-014	F1-232-017	2.81	33:56 hr	4.622	0.788	0.525	0.543
F1-232-017	F1-232-017	F1-232-019	2.827	34:01 hr	3.691	0.953	0.636	0.732
F1-232-019	F1-232-019	F1-232-013	3.433	32:30 hr	3.724	1.129	0.752	0.915
F1-232-033	F1-232-033	F1-232-012	26.808	36:18 hr	4.275	2.641	0.587	0.649
F1-232-066	F1-232-066	F1-232-002	29.305	36:17 hr	4.203	2.889	0.642	0.743
F1-241-050	F1-241-050	F1-242-001	0.891	32:45 hr	4.597	0.367	0.293	0.187
F1-241-109	F1-241-109	F1-241-050	0.894	32:49 hr	2.38	0.599	0.48	0.465
F1-241-110	F1-241-110	F1-241-109	0.867	32:48 hr	2.402	0.581	0.465	0.44

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F1-242-001	F1-242-001	E4-241-081	0.902	32:45 hr	4.613	0.369	0.295	0.19
F1-251-003	F1-251-003	E4-251-001	2.74	32:45 hr	3.256	1.036	0.691	0.823
F1-251-015	F1-251-015	F1-251-003	2.524	33:01 hr	4.131	0.9	0.72	0.867
F1-251-023	F1-251-023	F1-251-015	2.495	33:02 hr	4.275	0.862	0.69	0.821
F1-251-031	F1-251-031	F1-251-023	2.407	33:00 hr	5.079	0.721	0.577	0.632
F1-251-033	F1-251-033	F1-251-031	2.393	33:00 hr	4.073	0.868	0.694	0.828
F1-251-034	F1-251-034	F1-251-106	2.375	33:00 hr	3.731	0.935	0.748	0.91
F1-251-039	F1-251-039	F1-251-034	2.345	32:47 hr	4.221	0.825	0.66	0.773
F1-251-040	F1-251-040	F1-251-039	2.293	32:47 hr	4.072	0.835	0.668	0.786
F1-251-041	F1-251-041	F1-251-040	2.258	32:45 hr	4.13	0.814	0.651	0.758
F1-251-044	F1-251-044	F1-251-041	2.222	32:46 hr	4.119	0.805	0.644	0.746
F1-251-047	F1-251-047	F1-251-044	2.196	32:47 hr	4.002	0.816	0.653	0.761
F1-251-048	F1-251-048	F1-251-068	2.159	32:45 hr	4.314	0.754	0.604	0.678
F1-251-049	F1-251-049	F1-251-108	2.095	32:46 hr	3.869	0.807	0.646	0.749
F1-251-050	F1-251-050	F1-251-049	2.083	32:46 hr	4.32	0.731	0.585	0.646
F1-251-068	F1-251-068	F1-251-047	2.173	32:45 hr	4.319	0.758	0.606	0.683
F1-251-106	F1-251-106	F1-251-033	2.385	32:59 hr	3.729	0.94	0.752	0.914
F1-251-108	F1-251-108	F1-251-048	2.15	32:45 hr	3.888	0.822	0.658	0.769
F1-252-017	F1-252-017	E4-252-037	3.837	33:15 hr	6.225	0.797	0.531	0.553
F1-252-033	F1-252-033	F1-252-017	3.839	33:15 hr	6.226	0.797	0.531	0.554
F1-252-039	F1-252-039	F1-252-033	3.839	33:15 hr	5.68	0.858	0.572	0.624
F1-261-003	F1-261-003	F1-261-004	3.822	33:14 hr	7.57	0.76	0.608	0.686
F1-261-004	F1-261-004	F1-252-039	3.823	33:13 hr	7.232	0.706	0.471	0.451
F1-261-009	F1-261-009	F1-261-003	3.825	33:00 hr	4.823	1.25	1	1.095
F1-261-026	F1-261-026	F1-261-009	3.834	33:00 hr	4.834	1.25	1	1.098
F1-261-040	F1-261-040	F1-261-026	3.839	33:01 hr	4.84	1.25	1	1.102
F1-261-048	F1-261-048	F1-261-040	3.829	33:01 hr	4.827	1.25	1	1.099
F1-261-058	F1-261-058	F1-261-048	3.834	33:01 hr	6.368	0.887	0.71	0.852
F1-261-064	F1-261-064	F1-261-058	3.834	33:01 hr	5.987	0.941	0.753	0.916
F1-261-070	F1-261-070	F1-261-064	3.81	33:00 hr	5.982	0.936	0.749	0.91
F1-261-075	F1-261-075	F1-261-070	3.802	33:00 hr	4.793	1.25	1	1.041
F1-261-078	F1-261-078	F1-261-075	3.735	33:01 hr	4.71	1.25	1	1.023
F1-261-081	F1-261-081	F1-261-078	3.719	33:01 hr	4.689	1.25	1	1.196
F1-261-089	F1-261-089	F1-261-081	3.712	33:01 hr	4.68	1.25	1	1.194
F1-261-095	F1-261-095	F1-261-089	3.69	33:01 hr	4.652	1.25	1	1.182
F1-261-097	F1-261-097	F1-261-095	3.691	33:00 hr	4.654	1.25	1	1.183
F1-261-106	F1-261-106	F1-261-097	3.688	33:00 hr	4.65	1.25	1	1.181
F1-271-101	F1-271-101	F1-271-103	0.893	32:21 hr	2.313	0.612	0.489	0.482
F1-271-103	F1-271-103	E4-271-058	1.029	32:30 hr	2.808	0.588	0.47	0.45
F2-202-001	F2-202-001	F2-202-023	0.585	32:45 hr	4.271	0.286	0.229	0.115
F2-202-002	F2-202-002	F2-202-007	0.624	32:45 hr	4.297	0.298	0.239	0.125
F2-202-003	F2-202-003	F2-202-005	0.6	32:45 hr	4.373	0.287	0.229	0.115
F2-202-004	F2-202-004	F2-202-006	0.642	32:45 hr	4.209	0.309	0.247	0.134
F2-202-005	F2-202-005	F2-202-002	0.607	32:45 hr	4.494	0.283	0.227	0.113
F2-202-006	F2-202-006	F2-202-024	0.649	32:45 hr	5.69	0.252	0.201	0.089
F2-202-007	F2-202-007	F2-202-004	0.64	32:44 hr	4.57	0.291	0.233	0.119
F2-202-023	F2-202-023	F2-202-003	0.591	32:45 hr	3.961	0.304	0.243	0.13
F2-202-024	F2-202-024	F3-202-006	0.652	32:45 hr	4.844	0.283	0.226	0.112
F2-231-004	F2-231-004	F3-231-015	32.039	37:05 hr	3.117	4.5	1	1.011
F2-231-010	F2-231-010	F2-231-004	31.791	37:04 hr	4.458	2.946	0.655	0.764
F2-231-016	F2-231-016	F2-231-010	29.285	36:31 hr	4.382	2.786	0.619	0.704
F2-231-023	F2-231-023	F2-231-016	29.287	36:30 hr	4.217	2.879	0.64	0.739
F2-231-024	F2-231-024	F2-231-010	3.575	33:37 hr	2.3	1.75	1	1.158
F2-232-002	F2-232-002	F2-232-003	2.652	33:44 hr	3.542	0.935	0.623	0.712
F2-232-003	F2-232-003	F2-232-004	2.691	33:44 hr	3.516	0.953	0.635	0.732

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F2-232-004	F2-232-004	F2-232-005	2.723	33:43 hr	3.522	0.961	0.641	0.741
F2-232-005	F2-232-005	F2-232-006	2.747	33:46 hr	3.436	0.99	0.66	0.773
F2-232-006	F2-232-006	F1-232-014	2.795	33:46 hr	3.711	0.94	0.627	0.717
F2-232-007	F2-232-007	F2-232-002	2.635	33:32 hr	3.063	1.057	0.705	0.845
F2-242-055	F2-242-055	F1-241-110	0.828	32:36 hr	2.306	0.578	0.463	0.437
F2-242-056	F2-242-056	F2-242-055	0.792	32:34 hr	2.425	0.538	0.431	0.385
F2-251-012	F2-251-012	F2-251-028	1.929	32:30 hr	4.509	0.664	0.531	0.553
F2-251-016	F2-251-016	F2-251-017	1.945	32:46 hr	4.417	0.679	0.544	0.575
F2-251-017	F2-251-017	F2-252-027	1.957	32:45 hr	4.555	0.666	0.533	0.556
F2-251-018	F2-251-018	F1-251-050	2.053	32:46 hr	4.749	0.669	0.535	0.56
F2-251-028	F2-251-028	F2-251-016	1.94	32:31 hr	4.516	0.666	0.533	0.556
F2-252-027	F2-252-027	F2-251-018	2.036	32:45 hr	4.595	0.683	0.546	0.579
F2-261-053	F2-261-053	F1-261-106	3.412	33:01 hr	6.673	0.768	0.615	0.697
F2-262-011	F2-262-011	F2-261-053	3.416	33:02 hr	5.758	0.875	0.7	0.838
F2-262-017	F2-262-017	F2-262-011	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-020	F2-262-020	F2-262-017	3.374	33:00 hr	6.902	0.74	0.592	0.658
F2-262-029	F2-262-029	F2-262-020	3.385	33:01 hr	6.012	0.835	0.668	0.786
F2-262-032	F2-262-032	F2-262-029	3.387	33:01 hr	4.271	1.25	1	1.248
F2-262-038	F2-262-038	F2-262-032	3.335	33:01 hr	5.06	0.968	0.775	0.945
F3-202-006	F3-202-006	F3-202-007	0.664	32:44 hr	4.421	0.305	0.244	0.131
F3-202-007	F3-202-007	F3-211-010	0.688	32:45 hr	4.469	0.311	0.249	0.136
F3-211-010	F3-211-010	F3-211-011	0.726	32:45 hr	4.917	0.302	0.241	0.128
F3-211-011	F3-211-011	F3-211-012	0.729	32:45 hr	4.565	0.319	0.255	0.143
F3-211-012	F3-211-012	F3-211-013	0.78	32:44 hr	4.773	0.324	0.259	0.147
F3-211-013	F3-211-013	F4-211-002	0.785	32:44 hr	4.612	0.334	0.267	0.156
F3-222-007	F3-222-007	F3-222-019	32.015	37:19 hr	4.321	3.047	0.677	0.801
F3-222-008	F3-222-008	F3-222-007	32.022	37:18 hr	4.234	3.104	0.69	0.821
F3-222-008A	F3-222-020	F3-222-008	32.024	37:16 hr	4.569	2.902	0.645	0.748
F3-222-019	F3-222-019	F4-222-013	32.003	37:18 hr	4.145	3.164	0.703	0.842
F3-231-015	F3-231-015	F3-222-020	32.024	37:04 hr	3.115	4.5	1	1.01
F3-232-001	F3-232-001	F2-232-007	2.617	33:44 hr	3.716	0.888	0.592	0.658
F3-232-002	F3-232-002	F3-232-001	2.588	33:32 hr	3.213	0.996	0.664	0.78
F3-232-003	F3-232-003	F3-232-002	2.587	33:32 hr	3.315	0.969	0.646	0.75
F3-232-004	F3-232-004	F3-232-005	2.19	33:45 hr	3.8	0.755	0.504	0.506
F3-232-005	F3-232-005	F3-232-006	2.252	33:42 hr	3.342	0.856	0.571	0.622
F3-232-006	F3-232-006	F3-232-007	2.33	33:31 hr	3.881	0.78	0.52	0.534
F3-232-007	F3-232-007	F3-232-003	2.58	33:30 hr	5.935	0.608	0.406	0.346
F3-241-004	F3-241-004	F3-242-011	0.544	32:30 hr	3.551	0.31	0.248	0.134
F3-241-005	F3-241-005	F3-241-004	0.551	32:32 hr	2.09	0.458	0.367	0.287
F3-241-006	F3-241-006	F3-241-005	0.465	32:32 hr	2.114	0.401	0.321	0.223
F3-242-010	F3-242-010	F2-242-056	0.731	32:34 hr	2.242	0.537	0.43	0.384
F3-242-011	F3-242-011	F3-242-010	0.644	32:33 hr	2.193	0.497	0.397	0.333
F3-251-023	F3-251-023	F3-251-082	1.531	33:02 hr	4.189	0.587	0.469	0.448
F3-251-024	F3-251-024	F2-251-012	1.956	32:32 hr	4.042	0.733	0.587	0.649
F3-251-082	F3-251-082	F3-251-024	1.569	33:00 hr	5.548	0.483	0.386	0.316
F3-252-001	F3-252-001	F3-252-003	1.47	33:00 hr	4.777	0.515	0.412	0.355
F3-252-003	F3-252-003	F3-251-023	1.523	33:00 hr	4.822	0.525	0.42	0.368
F3-262-038	F3-262-038	F2-262-038	3.317	33:00 hr	6.179	0.801	0.641	0.741
F3-262-052	F3-262-052	F3-262-038	3.329	32:48 hr	4.197	1.25	1	1.236
F3-262-057	F3-262-057	F3-262-052	3.323	32:46 hr	6.129	0.808	0.646	0.75
F3-262-063	F3-262-063	F3-262-057	3.183	32:46 hr	7.756	0.642	0.514	0.523
F3-271-152	F3-271-152	F3-262-074	3.142	32:46 hr	3.961	1.25	1	1.059
F3-271-152A	F3-262-074	F3-262-063	3.197	32:47 hr	4.031	1.25	1	1.174
F3-271-153	F3-271-153	F3-271-152	3.115	32:45 hr	7.081	0.679	0.543	0.574
F4-0232-BV	F4-0232-BV	F4-232-004	2.119	33:45 hr	2.307	1.124	0.75	0.911

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
F4-211-002	F4-211-002	F4-211-003	0.791	32:44 hr	5.407	0.3	0.24	0.126
F4-211-003	F4-211-003	F4-211-015	0.793	32:44 hr	5.152	0.311	0.249	0.136
F4-211-004	F4-211-004	F4-211-005	0.801	32:44 hr	8.299	0.224	0.179	0.07
F4-211-005	F4-211-005	F4-211-013	0.807	32:44 hr	5.684	0.293	0.235	0.121
F4-211-006	F4-211-006	F4-211-007	0.837	32:45 hr	3.497	0.427	0.341	0.251
F4-211-007	F4-211-007	G1-211-003	0.843	32:45 hr	4.773	0.343	0.274	0.165
F4-211-013	F4-211-013	F4-211-014	0.827	32:44 hr	7.15	0.254	0.203	0.091
F4-211-014	F4-211-014	F4-211-006	0.833	32:45 hr	4.061	0.382	0.305	0.203
F4-211-015	F4-211-015	F4-211-004	0.796	32:44 hr	5.159	0.311	0.249	0.136
F4-221-022	F4-221-022	G1-221-029	32.007	37:33 hr	4.763	2.799	0.622	0.709
F4-222-003	F4-222-003	F4-221-022	32.012	37:33 hr	4.238	3.101	0.689	0.82
F4-222-013	F4-222-013	F4-222-003	32.015	37:18 hr	4.539	2.918	0.648	0.754
F4-232-004	F4-232-004	F4-232-005	2.134	33:46 hr	2.378	1.1	0.733	0.888
F4-232-005	F4-232-005	F4-232-006	2.14	33:45 hr	4.28	0.676	0.451	0.418
F4-232-006	F4-232-006	F3-232-004	2.148	33:46 hr	3.442	0.805	0.536	0.562
F4-241-002	F4-241-002	G1-241-001	2.013	33:41 hr	5.401	0.543	0.362	0.28
F4-241-003	F4-241-003	F4-241-002	2.012	33:32 hr	3.714	0.72	0.48	0.466
F4-241-004	F4-241-004	F4-241-003	2.008	33:33 hr	3.31	0.787	0.525	0.542
F4-241-005	F4-241-005	F4-241-004	2.007	33:32 hr	3.494	0.753	0.502	0.504
F4-241-006	F4-241-006	F4-241-005	1.963	33:32 hr	4.359	0.625	0.417	0.363
F4-241-007	F4-241-007	F4-241-006	1.92	33:32 hr	3.729	0.692	0.461	0.435
F4-241-008	F4-241-008	F4-241-007	1.815	33:32 hr	3.512	0.694	0.463	0.437
F4-241-009	F4-241-009	F3-241-006	0.379	32:32 hr	1.902	0.374	0.299	0.195
F4-241-010	F4-241-010	F4-241-009	0.289	32:31 hr	1.809	0.32	0.256	0.143
F4-241-011	F4-241-011	F4-241-010	0.191	32:18 hr	1.753	0.244	0.195	0.083
F4-251-016	F4-251-016	F4-251-022	1.451	33:01 hr	4.613	0.523	0.418	0.366
F4-251-022	F4-251-022	F4-251-023	1.454	33:01 hr	4.523	0.532	0.425	0.377
F4-251-023	F4-251-023	F4-252-003	1.468	33:01 hr	4.315	0.555	0.444	0.407
F4-252-003	F4-252-003	F3-252-001	1.47	33:02 hr	4.333	0.554	0.443	0.405
F4-252-005	F4-252-005	F4-251-016	1.405	33:01 hr	4.717	0.502	0.402	0.339
F4-271-034	G1-271-007	F4-271-034	3.073	32:30 hr	5.678	0.807	0.645	0.748
F4-271-034A	F4-271-034	F4-271-075	3.077	32:30 hr	5.455	0.836	0.669	0.788
F4-271-069	F4-271-069	F4-271-073	3.066	32:32 hr	5.246	0.863	0.691	0.823
F4-271-070	F4-271-070	F3-271-153	3.142	32:47 hr	5.683	0.822	0.657	0.769
F4-271-072	F4-271-072	F4-271-070	3.12	32:48 hr	3.933	1.25	1	1.083
F4-271-073	F4-271-073	F4-271-072	3.072	32:47 hr	6.061	0.763	0.61	0.689
F4-271-075	F4-271-075	F4-271-069	3.081	32:31 hr	5.457	0.837	0.67	0.789
G1-211-003	G1-211-003	9010	1.262	32:33 hr	2.099	0.886	0.709	0.851
G1-221-001	G1-221-001	G2-212-041	32.642	37:35 hr	3.176	4.5	1	1.1
G1-221-005	G1-221-005	G1-221-001	32.646	37:33 hr	5.054	2.707	0.602	0.675
G1-221-010	G1-221-010	G1-221-005	32.648	37:32 hr	4.781	2.837	0.63	0.724
G1-221-029	G1-221-029	G1-221-010	31.999	37:34 hr	3.808	3.428	0.762	0.928
G1-232-012	G1-232-012	F4-0232-BV	2.094	33:34 hr	2.862	0.917	0.611	0.691
G1-241-001	G1-241-001	G1-232-012	2.013	33:43 hr	8.595	0.388	0.259	0.147
G1-241-002	G1-241-002	F4-241-008	1.71	33:30 hr	3.779	0.627	0.418	0.365
G1-242-001	G1-242-001	G1-241-002	0.51	32:36 hr	2.306	0.501	0.601	0.673
G1-242-006	G1-242-006	G1-242-001	0.506	32:33 hr	2.396	0.482	0.578	0.635
G1-242-014	G1-242-014	G1-242-006	0.494	32:33 hr	2.562	0.447	0.537	0.563
G1-242-025	G1-242-025	G1-242-014	0.485	32:32 hr	2.615	0.434	0.52	0.535
G1-242-028	G1-242-028	G1-242-025	0.225	32:29 hr	2.134	0.282	0.339	0.247
G1-242-038	G1-242-038	G1-242-028	0.222	32:33 hr	1.893	0.305	0.367	0.287
G1-242-045	G1-242-045	G1-242-038	0.203	32:19 hr	1.894	0.286	0.344	0.254
G1-252-004	G1-252-004	G1-252-005	1.33	33:01 hr	4.72	0.543	0.543	0.574
G1-252-005	G1-252-005	F4-252-005	1.376	33:02 hr	3.996	0.56	0.448	0.414
G1-252-006	G1-252-006	G1-252-004	1.326	33:00 hr	3.973	0.625	0.625	0.714

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
G1-252-007	G1-252-007	G1-252-006	1.305	33:01 hr	3.761	0.646	0.646	0.75
G1-252-008	G1-252-008	G1-252-007	1.266	33:00 hr	4.071	0.589	0.589	0.653
G1-252-009	G1-252-009	G1-252-008	1.263	32:58 hr	4.027	0.593	0.593	0.66
G1-252-011	G1-252-011	G1-252-009	1.265	32:46 hr	3.764	0.629	0.629	0.721
G1-271-007	G1-271-013	G1-271-007	3.05	32:30 hr	5.668	0.803	0.642	0.743
G1-271-013	G1-271-030	G1-271-013	3.069	32:30 hr	5.678	0.806	0.645	0.747
G1-271-030	G1-271-041	G1-271-030	3.109	32:31 hr	4.527	1.01	0.808	0.987
G1-271-042	G1-271-047	G1-271-042	2.777	32:30 hr	4.265	0.956	0.765	0.933
G1-271-047	G1-272-045	G1-271-047	2.803	32:31 hr	6.432	0.674	0.539	0.567
G1-272-045	G1-272-065	G1-272-045	2.742	32:33 hr	4.435	0.909	0.728	0.879
G1-272-065	G1-272-066	G1-272-065	2.687	32:30 hr	4.422	0.895	0.716	0.862
G1-272-066	G2-272-001	G1-272-066	2.687	32:30 hr	4.422	0.895	0.716	0.862
G2-212-001	G2-212-001	G3-212-007	9.918	37:43 hr	2.357	1.929	0.429	0.382
G2-212-002	G2-212-003	G2-212-002	32.751	37:44 hr	6.355	2.255	0.501	0.502
G2-212-002A	G2-212-002	G2-212-001	32.75	37:47 hr	3.668	3.649	0.811	0.99
G2-212-014A	G2-212-014	G2-212-003	6.304	05:30 hr	5.519	1.5	1	1
G2-212-015	G2-212-015	G2-212-014	32.727	37:44 hr	6.021	2.352	0.523	0.539
G2-212-032	G2-212-032	G2-212-047	32.73	37:45 hr	4.653	2.911	0.647	0.751
G2-212-035	G2-212-035	G2-212-032	32.731	37:45 hr	4.317	3.111	0.691	0.824
G2-212-038	G2-212-038	G2-212-035	32.732	37:45 hr	4.57	2.958	0.657	0.768
G2-212-041	G2-212-041	G2-212-038	32.733	37:45 hr	3.739	3.574	0.794	0.97
G2-212-047	G2-212-047	G2-212-015	32.728	37:45 hr	3.689	3.624	0.805	0.984
G2-252-043	G2-252-043	G2-252-045	1.183	32:46 hr	4.042	0.56	0.56	0.603
G2-252-044	G2-252-044	G2-252-043	1.197	32:47 hr	3.825	0.592	0.592	0.658
G2-252-045	G2-252-045	G1-252-011	1.235	32:46 hr	3.968	0.589	0.589	0.654
G2-252-046	G2-252-046	G2-252-044	1.202	32:47 hr	3.917	0.582	0.582	0.641
G2-252-047	G2-252-047	G2-252-046	1.193	32:46 hr	5.998	0.415	0.415	0.36
G2-272-014	G2-272-014	G2-272-001	2.722	32:32 hr	4.309	0.929	0.743	0.902
G2-272-036	G2-272-036	G2-272-014	2.705	32:31 hr	4.233	0.939	0.751	0.913
G2-272-049	G2-272-049	G2-272-036	2.644	32:31 hr	4.235	0.918	0.734	0.889
G2-272-055	G2-272-055	G2-272-049	2.543	32:30 hr	3.778	0.989	0.791	0.967
G2-272-068	G2-272-068	G2-272-055	2.103	32:30 hr	3.684	0.845	0.676	0.8
G2-272-080	G2-272-080	G2-272-068	2.016	32:16 hr	5.542	0.584	0.467	0.445
G3-211-015	G3-211-015	G3-211-018	38.138	37:47 hr	4.814	3.239	0.72	0.868
G3-211-018	G3-211-018	G3-211-017	38.044	37:46 hr	4.81	3.235	0.719	0.866
G3-212-006	G3-212-006	G3-212-007	3.279	32:15 hr	8.033	0.639	0.512	0.52
G3-212-007	G3-212-007	G3-211-015	13.192	37:47 hr	2.476	2.315	0.514	0.525
G3-252-026	G3-252-026	G3-252-028	1.119	32:46 hr	4.663	0.479	0.479	0.464
G3-252-027	G3-252-027	G3-252-026	1.121	32:45 hr	7.465	0.337	0.337	0.244
G3-252-028	G3-252-028	G3-252-029	1.117	32:45 hr	3.723	0.572	0.572	0.623
G3-252-029	G3-252-029	G2-252-047	1.196	32:46 hr	3.888	0.584	0.584	0.644
G3-252-030	G3-252-030	G3-252-027	1.123	32:45 hr	6.873	0.358	0.358	0.274
G3-252-031	G3-252-031	G3-252-030	1.12	32:46 hr	3.933	0.548	0.548	0.582
G3-252-032	G3-252-032	G3-252-031	1.105	32:32 hr	3.604	0.582	0.582	0.641
G4-252-008	G4-252-008	G3-252-032	1.11	32:30 hr	3.957	0.541	0.541	0.571
G4-252-008A	G4-261-001	G4-252-008	0.954	32:45 hr	3.811	0.495	0.495	0.491
G4-261-008	G4-261-008	G4-261-015	0.973	32:31 hr	4.488	0.492	0.591	0.656
G4-261-015	G4-261-015	G4-261-016	0.968	32:31 hr	3.074	0.595	0.595	0.663
G4-261-016	G4-261-016	G4-261-017	0.954	32:31 hr	2.629	0.672	0.672	0.793
G4-261-017	G4-261-017	G4-261-029	0.949	32:30 hr	6.463	0.331	0.331	0.237
G4-261-018	G4-261-018	G4-261-020	0.946	32:31 hr	3.625	0.511	0.511	0.519
G4-261-020	G4-261-020	G4-261-021	0.946	32:45 hr	3.75	0.498	0.498	0.496
G4-261-021	G4-261-021	G4-261-001	0.954	32:45 hr	3.915	0.484	0.484	0.473
G4-261-029	G4-261-029	G4-261-018	0.956	32:32 hr	3.558	0.523	0.523	0.539
H1-261-006	H1-261-006	H1-261-025	0.85	32:30 hr	3.948	0.489	0.587	0.65

Future Recommendation System PWWF Run - Gravity Main Output

ID	From Manhole	To Manhole	Maximum Flow (mgd)	Maximum Flow Time (hour)	Maximum Velocity (ft/s)	Maximum Water Depth (ft)	Maximum d/D	Maximum q/Q
H1-261-008	H1-261-008	H1-261-009	0.896	32:29 hr	6.679	0.338	0.405	0.345
H1-261-009	H1-261-009	H1-261-010	0.904	32:31 hr	4.808	0.439	0.526	0.545
H1-261-010	H1-261-010	H1-261-011	0.919	32:32 hr	4.241	0.492	0.591	0.656
H1-261-011	H1-261-011	H1-261-012	0.948	32:31 hr	4.854	0.452	0.542	0.573
H1-261-012	H1-261-012	H1-261-015	0.948	32:31 hr	4.365	0.493	0.592	0.658
H1-261-015	H1-261-015	G4-261-008	0.971	32:30 hr	4.302	0.509	0.611	0.69
H1-261-025	H1-261-025	H1-261-008	0.861	32:30 hr	4.61	0.436	0.524	0.54
H1-262-023	H1-262-023	H1-261-006	0.825	32:17 hr	4.209	0.454	0.544	0.576

Appendix 6A

Capital Cost Detail

Appendix TM6-A
Capital Cost Detail

Trunk Extensions (updated by KCB on 07/25/09)

Name	Diameter	Length	Unit Cost ($/in-dia/ft)	Total Cost ($)	Comment
22 Road	8	5,300	18	763,200	
	10	3,100	18	558,000	
	12	3,500	18	756,000	
	21	2,800	18	1,058,400	
23 Road	8	3,850	18	554,400	
	10	1,350	18	243,000	
	12	3,650	18	788,400	
	15	5,200	18	1,404,000	
	18	2,950	18	955,800	
241/2 Road	8	4,100	18	590,400	
	10	1,200	18	216,000	
	12	2,300	18	496,800	
29 Road	15	9,250	18	2,497,500	
	18	11,750	18	3,807,000	
	24	8,900	18	3,844,800	
G Road	12	5,200	18	1,123,200	
I-70	8	9,700	18	1,396,800	
	12	3,700	18	799,200	
	15	3,600	18	972,000	
				22,824,900	

Improvement Lines (updated by KCB on 08/02/09)

Name	Diameter	Length	Unit Cost ($/in-dia/ft)	Total Cost ($)	Comment
Rood Ave	21	7,900	18	2,986,200	Parallel line
Colorado Ave	15	3,650	18	985,500	Parallel line
Connected Lakes	12	3,000	18	648,000	Replace with larger diameter
	8	3,550	18	511,200	Force Main
			LS	350,000	Replace with 1300 gpm LS
Crosby Ave	27	400	18	194,400	Replace with larger diameter
Orchard Mesa	15	4,600	18	1,242,000	Replace with larger diameter
	24	3,500	18	1,512,000	Replace with larger diameter
	30	7,250	18	3,915,000	Replace with larger diameter
Southside	30	6,400	18	3,456,000	Replace with larger diameter
	36	6,500	18	4,212,000	Replace with larger diameter
Paradise Hills	10	1,550	18	279,000	Replace with larger diameter
	12	300	18	64,800	Replace with larger diameter
24 Road	18	8,800	18	2,851,200	Replace with larger diameter
Ridges LS Abandonment	8	2,900	18	417,600	New line
and pipeline reroute	12	4,300	18	928,800	New line
River Rd	36	650	18	421,200	Parallel line
Total		65,250		**24,974,900**	

CITY OF Grand Junction COLORADO

Purchasing Division

ADDENDUM NO. 1

DATE: **November 26, 2019**
FROM: **City of Grand Junction Purchasing Division**
TO: **All Offerors**
RE: **2020 Persigo WWTP Master Plan Development Project SOQ-4728-19-DH**

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. **The Responses Due Date and Time for submittals has been changed/modified to December 16, 2019 prior to 3:30pm.**

2. The Anticipated Schedule of Activities has been changed/modified as follows:

ANTICIPATED SCHEDULE OF ACTIVITIES

• Statement of Qualifications Available	November 15, 2019
• Non-Mandatory Pre-Proposal/Site Visit Meeting	November 25, 2019
• Inquiry Deadline (no questions after this date)	December 6, 2019
• Addendum Posted	December 9, 2019
• Due Date for Submittals	December 16, 2019
• Owner Evaluations and Review	December 17-20, 2019
• Interviews (if required)	January 3, 2020
• Negotiations (if required)	January 6-10, 2020
• City Council Approval	February 5, 2019
• Contract Execution	February 6, 2019
• Contract Services Begin	Upon Contract Execution

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

CITY OF Grand Junction COLORADO

Purchasing Division

ADDENDUM NO. 2

DATE: November 27, 2019
FROM: City of Grand Junction Purchasing Division
TO: All Offerors
RE: 2020 Persigo WWTP Master Plan Development Project SOQ-4728-19-DH

Offerors responding to the above referenced solicitation are hereby instructed that the requirements have been clarified, modified, superseded and supplemented as to this date as hereinafter described.

Please make note of the following clarifications:

1. Addendum 2 is being issued due to error made while posting Addendum 1 to the Rocky Mountain E-Purchasing System.

2. **The Responses Due Date and Time for submittals has been changed/modified to December 16, 2019 prior to 3:30pm.**

3. The Anticipated Schedule of Activities has been changed/modified as follows:

ANTICIPATED SCHEDULE OF ACTIVITIES	
• Statement of Qualifications Available	November 15, 2019
• Non-Mandatory Pre-Proposal/Site Visit Meeting	November 25, 2019
• Inquiry Deadline (no questions after this date)	December 6, 2019
• Addendum Posted	December 9, 2019
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• Negotiations (if required)	January 6-10, 2020
• City Council Approval	February 5, 2019
• Contract Execution	February 6, 2019
• Contract Services Begin	Upon Contract Execution

The original solicitation for the project noted above is amended as noted.

All other conditions of subject remain the same.

Respectfully,

Duane Hoff Jr., Senior Buyer
City of Grand Junction, Colorado

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

7/4/2020

DATE (MM/DD/YYYY) 1/30/2020

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Lockton Companies
444 W. 47th Street, Suite 900
Kansas City MO 64112-1906
(816) 960-9000

CONTACT NAME:
PHONE (A/C, No, Ext): FAX (A/C, No):
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : The Continental Insurance Company	35289
INSURER B : American Casualty Company of Reading, PA	20427
INSURER C : Valley Forge Insurance Company	20508
INSURER D : Continental Casualty Company	20443
INSURER E : National Fire Insurance Co of Hartford	20478
INSURER F :	

INSURED 1472613
CAROLLO ENGINEERS, INC.
2795 MITCHELL DR.
WALNUT CREEK CA 94598-1601

COVERAGES **CERTIFICATE NUMBER:** 16551824 **REVISION NUMBER:** XXXXXXX

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY	Y	N	6050490317	12/31/2019	12/31/2020	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
							MED EXP (Any one person)	$ 25,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
E	AUTOMOBILE LIABILITY	Y	N	6050490267	12/31/2019	12/31/2020	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$ XXXXXXX
	OWNED AUTOS ONLY; SCHEDULED AUTOS						BODILY INJURY (Per accident)	$ XXXXXXX
	X HIRED AUTOS ONLY; X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$ XXXXXXX
							DED: COMP/COLL	$ 1,000
	UMBRELLA LIAB; OCCUR			NOT APPLICABLE			EACH OCCURRENCE	$ XXXXXXX
	EXCESS LIAB; CLAIMS-MADE						AGGREGATE	$ XXXXXXX
	DED; RETENTION $							$ XXXXXXX
B C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N; ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) N; If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	N	WC 6050490270 WC 6050490298	12/31/2019 12/31/2019	12/31/2020 12/31/2020	X PER STATUTE X OTH-ER	
							E.L. EACH ACCIDENT	$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
D	PROFESSIONAL LIABILITY UNLIMITED PRIOR ACTS	N	N	AEH 288354410	7/4/2019	7/4/2020	EACH CLAIM: $1,000,000; AGGREGATE: $1,000,000	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
SOQ-4728-19-DH, 2020 Persigo WTP Master Plan Development Project. City of Grand Junction and their officers and employees are additional insureds as respects general liability and auto liability, and these coverages are primary and non-contributory, as required by written contract.

CERTIFICATE HOLDER

16551824
City of Grand Junction

CANCELLATION See Attachments

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Joseph M Agnello

Attachment Code: D573125 Certificate ID: 16551824

Named Insured: Carollo Engineers, Inc.
Policy Number: 6050490267
Effective Date: 12/31/2019

ADDITIONAL INSURED – PRIMARY AND NON-CONTRIBUTORY

It is understood and agreed that this endorsement amends the **BUSINESS AUTO COVERAGE FORM** as follows:

SCHEDULE

Name of Additional Insured Persons Or Organizations
ANY PERSON OR ORGANIZATION ON WHOSE BEHALF YOU ARE REQUIRED UNDER A WRITTEN CONTRACT OR AGREEMENT.

1. In conformance with paragraph **A.1.c.** of **Who Is An Insured** of Section **II** – LIABILITY COVERAGE, the person or organization scheduled above is an insured under this policy.
2. The insurance afforded to the additional insured under this policy will apply on a primary and non-contributory basis if you have committed it to be so in a written contract or written agreement executed prior to the date of the "accident" for which the additional insured seeks coverage under this policy.

All other terms and conditions of the Policy remain unchanged.

CNA

CNA PARAMOUNT
Blanket Additional Insured - Owners, Lessees or Contractors - with Products-Completed Operations Coverage Endorsement

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

It is understood and agreed as follows:

I. WHO IS AN INSURED is amended to include as an Insured any person or organization whom you are required by written contract to add as an additional insured on this coverage part, but only with respect to liability for bodily injury, property damage or personal and advertising injury caused in whole or in part by your acts or omissions, or the acts or omissions of those acting on your behalf:
A. in the performance of your ongoing operations subject to such written contract; or
B. in the performance of your work subject to such written contract, but only with respect to bodily injury or property damage included in the products-completed operations hazard, and only if:
1. the written contract requires you to provide the additional insured such coverage; and
2. this coverage part provides such coverage.

II. But if the written contract requires:
A. additional insured coverage under the 11-85 edition, 10-93 edition, or 10-01 edition of CG2010, or under the 10¬01 edition of CG2037; or
B. additional insured coverage with "arising out of language; or
C. additional insured coverage to the greatest extent permissible by law;
then paragraph I. above is deleted in its entirety and replaced by the following:
WHO IS AN INSURED is amended to include as an Insured any person or organization whom you are required by written contract to add as an additional insured on this coverage part, but only with respect to liability for bodily injury, property damage or personal and advertising injury arising out of your work that is subject to such written contract.

III. Subject always to the terms and conditions of this policy, including the limits of insurance, the Insurer will not provide such additional insured with:
A. coverage broader than required by the written contract; or
B. a higher limit of insurance than required by the written contract.

IV. The insurance granted by this endorsement to the additional insured does not apply to bodily injury, property damage, or personal and advertising injury arising out of:
A. the rendering of, or the failure to render, any professional architectural, engineering, or surveying services, including:
1. the preparing, approving, or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; and
2. supervisory, inspection, architectural or engineering activities; or
B. any premises or work for which the additional insured is specifically listed as an additional insured on another endorsement attached to this coverage part.

V. Under COMMERCIAL GENERAL LIABILITY CONDITIONS, the Condition entitled Other Insurance is amended to add the following, which supersedes any provision to the contrary in this Condition or elsewhere in this coverage part:

Primary and Noncontributory Insurance

With respect to other insurance available to the additional insured under which the additional insured is a named insured, this insurance is primary to and will not seek contribution from such other insurance, provided that a written contract requires the insurance provided by this policy to be:
1. primary and non-contributing with other insurance available to the additional insured; or
2. primary and to not seek contribution from any other insurance available to the additional insured. But except as specified above, this insurance will be excess of all other insurance available to the additional insured.

VI. Solely with respect to the insurance granted by this endorsement, the section entitled COMMERCIAL GENERAL LIABILITY CONDITIONS is amended as follows:
The Condition entitled Duties In The Event of Occurrence, Offense, Claim or Suit is amended with the addition of the following:
Any additional insured pursuant to this endorsement will as soon as practicable:
1. give the Insurer written notice of any claim, or any occurrence or offense which may result in a claim;
2. send the Insurer copies of all legal papers received, and otherwise cooperate with the Insurer in the investigation, defense, or settlement of the claim; and
3. make available any other insurance, and tender the defense and indemnity of any claim to any other insurer or self-insurer, whose policy or program applies to a loss that the Insurer covers under this coverage part. However, if the written contract requires this insurance to be primary and non-contributory, this paragraph 3. does not apply to insurance on which the additional insured is a named insured.
The Insurer has no duty to defend or indemnify an additional insured under this endorsement until the Insurer receives written notice of a claim from the additional insured.

VII. Solely with respect to the insurance granted by this endorsement, the section entitled DEFINITIONS is amended to add the following definition:
Written contract means a written contract or written agreement that requires you to make a person or organization an additional insured on this coverage part, provided the contract or agreement:
A. is currently in effect or becomes effective during the term of this policy; and
B. was executed prior to:
1. the bodily injury or property damage; or
2. the offense that caused the personal and advertising injury;
for which the additional insured seeks coverage.

Any coverage granted by this endorsement shall apply solely to the extent permissible by law.

All other terms and conditions of the Policy remain unchanged.

This endorsement, which forms a part of and is for attachment to the Policy issued by the designated Insurers, takes effect on the effective date of said Policy at the hour stated in said Policy, unless another effective date is shown below, and expires concurrently with said Policy.

CNA75079XX (10-16)
POLICY NUMBER: 6050490317
EFFECTIVE DATE: 12/31/2019
INSURED: CAROLLO ENGINEERS, INC.
INSURANCE COMPANY: The Continental Insurance Co.