Table of Contents

File FPP-1995-081

Date 8/10/99

Present	Scanned	**A few items are denoted with a (*) are to be scanned for permanent record on the ISYS retrieval system. In some instances, not all entries designated to be scanned, are present in the file. There are also documents specific to certain files, not found on the standard list. For this reason, a checklist has been included. Remaining items, (not selected for scanning), will be marked present on the checklist. This index can serve as a quick guide for the contents of each file. Files denoted with (**) are to be located using the ISYS Query System. Planning Clearance will need to be typed in full, as well as other entries such as Ordinances, Resolutions, Board of Appeals, and etc.**
X	X	***Summary Sheet – Table of Contents**
X	X	Application form
X		Receipts for fees paid for anything
X	X	***Submittal checklist – Change of Use Review**
X	X	***General project report**
		Reduced copy of final plans or drawings
X		Reduction of assessor's map
		Evidence of title, deeds
X	X	***Mailing list**
		Public notice cards
		Record of certified mail
X	X	Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
X	X	***Final reports for drainage and soils (geotechnical reports)**
		Other bound or nonbound reports
		Traffic studies
X		Individual review comments from agencies
X	X	***Consolidated review comments list**
X	X	***Petitioner's response to comments**
X	X	***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**
		***Letters and correspondence dated after the date of final approval (pertaining to change in conditions or expiration date)**

DOCUMENTS SPECIFIC TO THIS DEVELOPMENT FILE:

X		Letter from Jody Kliska and Trent Prall to Don Haas – 8/22/96	X		Stormwater Management & Grading Plan
X		Letter to Don Haas, G.W.H.C. Inc. from Parkerson Construction re: bid- 10/31/95	X		Plan & Profile
X	X	Letter from Jody Kliska to Chris Carnes – 8/21/96	X		Street & Sewer Plan & Profile
X	X	Letter form Jody Kliska to Tom Rolland – 6/27/95	X		General Notes & Typical Sections
X	X	Planning Commission Minutes – 6/6/95	X		Location Map
X		Valley Meadows Recording Requirements	X	X	DRAINAGE MAP
X		Form for Approval of filing & recording of Subdivision Plats	X	X	PRE DRAINAGE MAP
X	X	Disbursement Agreement	X	X	VALLEY MEADOWS - FILING 2
X		Discharge Agreement			
X	X	Indemnification Agreement			
X		Treasurer's Certificate of Taxes Due			
X		Posting of Public Notice Signs			
X		Articles of Incorporation of a CO Nonprofit Corp. form & certificate			
X		Chicago Title Insurance Co. Commitment for Title Ins.			
X		Grant of Easement			
X		Letter from The Grand Valley Irrig. Co. to City re: water shares – 11/17/93			
X	X	Minutes of Special Meeting of GWHC, Inc. – 5/24/95			
X	X	Protective Covenants – Valley Meadows Subdivision			
X	X	Addendum #1 to Protective Covenants of Valley Meadows Subdivision			
X	X	Utility Composite Plan			

SUBMITTAL CHECKLIST

MAJOR SUBDIVISION: FINAL

Location: 25½ Rd & G.V. Canal Project Name: Valley Meadows

Date Received 5-1-95

Receipt # 2313

File # FPP-95-84

ITEMS		DISTRIBUTION																														
DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● City Utility Eng.	● City Property Agent	● City Parks/Recreation	● City Fire Department	● City Attorney	● City G.J.P.C. (8 sets)	○ ~~City Downtown Dev. Auth.~~	● City Police	● County Planning	○ ~~County Building Department~~	● County Surveyor	○ ~~Walker Field~~	● School Dist. #51	● Irrigation District G.V.	● Drainage District G.J.	● Water District Ute	○ Sewer District	● U.S. West	● Public Service	○ GVRP	○ CDOT	○ ~~Corps of Engineers~~	○ Colorado Geologic Survey	● U.S. Postal Service	○ ~~Persigo WWTF~~	● TCI Cable				TOTAL REQ'D.
● Application Fee $720 + $15/acre	VII-1	1																														
● Submittal Checklist*	VII-3	1																														
● Review Agency Cover Sheet*	VII-3	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1
● Application Form*	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1
● 11"x17" Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1
● Evidence of Title	VII-2	1			1			1																								
○ ~~Appraisal of Raw Land~~	VII-1	1			1	1																										
● Names and Addresses	VII-2	1																														
● Legal Description	VII-2	1			1																											
○ ~~Deeds~~	VII-1	1			1			1																								
○ ~~Easements~~	VII-2	1	1	1	1			1													1	1	1					1				
○ Avigation Easement	VII-1	1			1			1							1																	
○ ~~ROW~~	VII-3	1	1	1	1			1													1	1	1					1				
● Covenants, Conditions & Restrictions	VII-1	1	1					1																								
○ ~~Common Space Agreements~~	VII-1	1	1					1																								
● County Treasurer's Tax Cert.	VII-1	1																														
● Improvements Agreement/Guarantee*	VII-2	1	1	1				1																								
○ ~~CDOT Access Permit~~	VII-3	1	1																													
○ ~~404 Permit~~	VII-3	1	1																													
○ ~~Floodplain Permit*~~	VII-4	1	1																													
● General Project Report	X-7	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1				1
● Composite Plan	IX-10	1	2	1	1																											
● 11"x17" Reduction Composite Plan	IX-10	1				1	1	1	8	1	1	1	1				1	1	1	1	1	1	1	1	1	1		1	1				1
● Final Plat	IX-15	1	2	1	1			1						1																		
● 11"X17" Reduction of Final Plat	IX-15	1							8	1	1	1			1	1	1	1	1	1	1	1	1				1		1				1
● Cover Sheet	IX-11	1	2																													
● Grading & Stormwater Mgmt Plan	IX-17	1	2															1							1	1						
● Storm Drainage Plan and Profile	IX-30	1	2															1			1	1	1						1			
● Water and Sewer Plan and Profile	IX-34	1	2	1			1												1	1	1	1	1					1	1			
● Roadway Plan and Profile	IX-28	1	2															1														
● Road Cross-sections	IX-27	1	2																													
● Detail Sheet	IX-12	1	2																													
○ ~~Landscape Plan~~	IX-20	2	1	1					8																							
● Geotechnical Report	X-8	1	1																							1						
○ ~~Phase I & II Environmental Report~~	X-10,11	1	1																													
● Final Drainage Report	X-5,6	1	2															1														
● Stormwater Management Plan over 5 acres	X-14	1	2															1							1							
○ ~~Sewer System Design Report~~	X-13	1	2	1																1												
○ ~~Water System Design Report~~	X-16	1	2	1															1													
○ ~~Traffic Impact Study~~	X-15	1	2																					1								
○ ~~Site Plan~~	IX-29	1	2	1	1		1		8																							

NOTES:
1) An asterisk in the item description column indicates that a form is supplied by the City.
2) Required submittal items and distribution are indicated by filled in circles, some of which may be filled in during the pre-application conference. Additional items or copies may be subsequently requested in the review process.
3) Each submitted item must be labeled, named, or otherwise identified as described above in the description column.

SUBMITTAL CHECKLIST

SITE PLAN REVIEW

Location: Hwy 6&50 Project Name: REX T.V. & Appliances

SPR-95-76

ITEMS: DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● City Utility Eng.	[illegible]	[illegible]	● City Fire Department	● City Attorney	○ City Downtown Dev. Auth.	○ County Planning	● County Bldg. Dept.	● Irrigation District	● Drainage District	● Water District - Ute	○ Sewer District	● U.S. West	● Public Service	○ GVRP	● CDOT	○ Corps of Engineers	○ Walker Field	TOTAL REQ'D.
● Application Fee	VII-1	1																				
● Submittal Checklist*	VII-3	1																				
● Review Agency Cover Sheet*	VII-3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Planning Clearance*	VII-3	1																				
● 11"x17" Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Evidence of Title	VII-2	1			1			1														
○ Appraisal of Raw Land	VII-1	1			1	1																
○ Deeds	VII-1	1			1			1														
○ Easements	VII-2	1	1	1	1			1														
○ Avigation Easement	VII-1	1			1			1														
○ ROW	VII-3	1	1	1	1			1														
○ Improvements Agreement/Guarantee	VII-2	1	1	1				1														
● CDOT Access Permit	VII-3	1	1																			
○ Industrial Pretreatment Sign-off	VII-4	1		1																		
● General Project Report	X-7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
○ Elevation Drawing	IX-13	1	1																			
● Site Plan	IX-29	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1		1				
○ 11"x17" Reduction of Site Plan	IX-29					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
● Grading and Drainage Plan	IX-16	1	2										1							1		
○ Storm Drainage Plan and Profile	IX-30	1	2										1			1	1	1				
○ Water and Sewer Plan and Profile	IX-34	1	2	1			1							1	1	1	1	1				
○ Roadway Plan and Profile	IX-28	1	2										1									
○ Road Cross-Sections	IX-27	1	2																			
○ Detail Sheet	IX-12	1	2																			
● Landscape Plan	IX-20	2	1	1																		
○ Geotechnical Report	X-8	1	1								1											
● Final Drainage Report	X-5,6	1	2										1									
○ Stormwater Management Plan	X-14	1	2										1							1		
○ Phase I and II Environmental Report	X-10,11	1	1																			
○ Traffic Impact Study	X-15	1	2																1			

NOTES:
1) An asterisk in the item description column indicates that a form is supplied by the City.
2) Required submittal items and distribution are indicated by filled in circles, some of which may be filled in during the pre-application conference. Additional items or copies may be subsequently requested in the review process.
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DRAWING STANDARDS CHECKLIST

LANDSCAPE PLAN

ITEM		GRAPHIC STANDARDS	OK	NA
SECTION VIII	A	Scale: 1" = 10' or 20'		
	B	Drawing size: 24" x 36"		
	C	Primary features consist only of landscape features		
	D	Notation: All non-construction text, and also construction notation for all primary features		
	E	Line weights of existing and proposed (secondary and primary) features per City standards		
	H	Vertical control: Benchmarks on U.S.G.S. datum if public facilities other than SW are proposed		
	I	Orientation and north arrow		
	K	Title block with names, titles, preparation and revision dates		
	M	Legend of symbols used		
	N	List of abbreviations used		
	P	Multiple sheets provided with overall graphical key and match lines		
	Q	Contouring interval and extent		
	R	Neatness and legibility		

ITEM		FEATURES	OK	NA
→	1	Use the Site Plan as a base map.		
	2	Identify areas to be covered with specific landscaping materials.		
	3	Boulders, mounds, swales, water courses, rock outcroppings.		
	4	Planting Material Legend includes common and botanical names, quantities, minimum purchase sizes, mature height, groundcover/perennial spacing, types of soil, and other remarks.		
	5	Specification of soil type and preparation.		
	6	Landscape irrigation layout, design, materials, and details (if requested by City staff).		
	7	Planting/staking and other details as required.		
	8	Required note on Plan: "An underground, pressurized irrigation system will be provided."		
	9	Space for approval signature by Community Development with date and title.		

COMMENTS

1 This drawing may be eliminated if information may be put on the Site Plan. See Note (2) on the Site Plan Checklist.

DEVELOPMENT APPLICATION

Community Development Department
250 North 5th Street, Grand Junction, CO 81501
(303) 244-1430

Receipt 2313
Date 5-2-95
Rec'd By ARC
File No. FPP-95-81

We, the undersigned, being the owners of property situated in Mesa County, State of Colorado, as described herein do hereby petition this:

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
☒ Subdivision Plat/Plan	☐ Minor ☒ Major ☐ Resub	~6 acres	25½ Rd & G.V. Canal	PR	Residential
☐ Rezone				From: To:	
☒ Planned Development	☐ ODP ☐ Prelim ☒ Final				
☐ Conditional Use					
☐ Zone of Annex					
☐ Variance					
☐ Special Use					
☐ Vacation					☐ Right-of Way ☐ Easement
☐ Revocable Permit					

☐ PROPERTY OWNER	☑ DEVELOPER	☑ REPRESENTATIVE
L.O. GRIFFITH (ET AL:)	GWHC, INC.	ROLLAND ENGINEERING
Name	Name	Name
2467 COMMERCE BLVD.	2467 COMMERCE BLVD.	405 RIDGES BLVD., SUITE A
Address	Address	Address
GRAND JCT., CO 81505	GRAND JCT., CO 81505	GRAND JUNCTION, CO 81503
City/State/Zip	City/State/Zip	City/State/Zip
(970	(970) 242-1336	(970) 243-8300
Business Phone No.	Business Phone No.	Business Phone No.

NOTE: **Legal property owner is owner of record on date of submittal.**

We hereby acknowledge that we have familiarized ourselves with the rules and regulations with respect to the preparation of this submittal, that the foregoing information is true and complete to the best of our knowledge, and that we assume the responsibility to monitor the status of the application and the review comments. We recognize that we or our representative(s) must be present at all required hearings. In the event that the petitioner is not represented, the item will be dropped from the agenda, and an additional fee charged to cover rescheduling expenses before it can again be placed on the agenda.

Signature of Person Completing Application — Date: 5/1/95

Signature of Property Owner(s) - attach additional sheets if necessary — Date: May 1, 1995

VALLEY MEADOWS SUBDIVISION, FILING NO. 2
GENERAL PROJECT REPORT

PREPARED FOR:

GWHC, Inc.
2467 Commerce Blvd.
Grand Junction, CO 81505

PREPARED BY:

ROLLAND ENGINEERING
405 Ridges Boulevard
Suite A
Grand Junction, CO 81503

May 1, 1995

file: vmsnarr.wpd

Junction Engineering Department to allow storm drain water to flow directly into the Grand Valley Canal without any interim detention. It is our intention to have storm water drainage flow directly into the Grand Valley Canal with no interim detention. Direct runoff into the Grand Valley Canal is desirable due to the shallow grade of the property and no other drainage outlet preferable to the Grand Valley Canal. We have signed a drainage agreement with Grand Valley Irrigation Company to allow Valley Meadows to discharge storm water runoff directly into the Grand Valley Canal.

The geotechnical report that was generated for phase one of Valley Meadows Subdivision will be included in this submittal. Site soils and geology are addressed in this report.

No apparent geologic hazards exist on the property.

We anticipate site development for Filing No.2 to begin late summer of 1995.

file: norfinal.sam

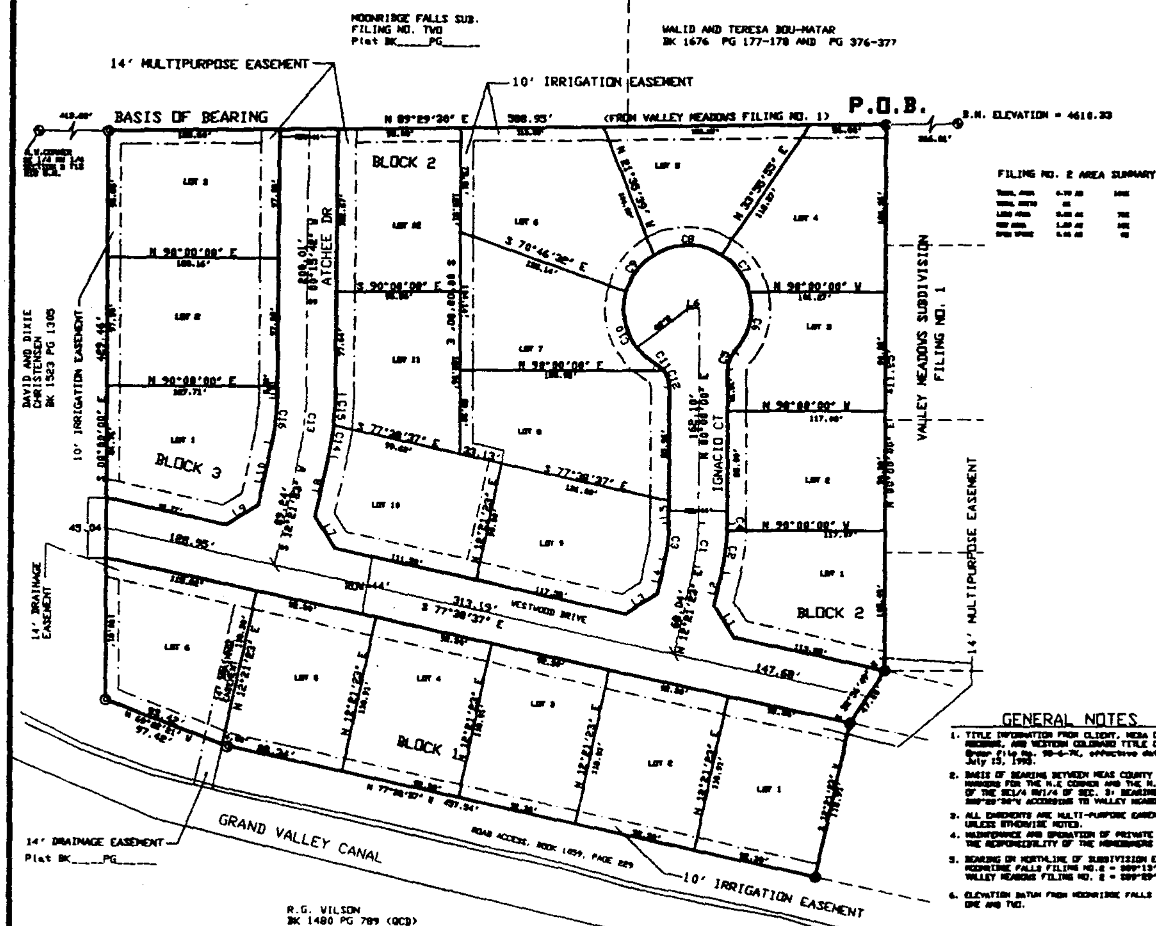
VALLEY MEADOWS - FILING No. TWO

CURVE TABLE

CURVE#	RADIUS	LENGTH	CHORD	CHORD BEARING	DELTA ANGLE	TANGENT
C1	150.00'	32.35'	32.29'	S 06°10'42" W	12°21'23"	16.24'
C2	172.00'	32.09'	32.05'	S 07°00'40" W	10°41'26"	16.09'
C3	128.00'	27.60'	27.55'	S 06°10'42" W	12°21'23"	13.86'
C4	172.00'	5.00'	5.00'	S 00°49'59" W	01°39'57"	2.50'
C5	20.00'	14.68'	14.35'	N 21°01'29" E	42°02'58"	7.69'
C6	48.00'	48.34'	46.32'	S 13°12'04" W	57°41'48"	26.44'
C7	48.00'	35.44'	34.64'	S 36°47'46" E	42°17'53"	18.57'
C8	48.00'	53.71'	50.95'	N 90°00'00" E	64°06'34"	30.06'
C9	48.00'	35.44'	34.64'	N 36°47'47" E	42°17'53"	18.57'
C10	48.00'	63.78'	59.19'	N 22°24'59" W	76°07'38"	37.59'
C11	48.00'	63.78'	59.19'	N 22°24'59" W	76°07'38"	37.59'
C12	20.00'	13.47'	13.22'	S 19°17'41" E	38°35'23"	7.00'
C13	200.00'	42.22'	42.14'	S 06°18'33" W	12°05'41"	21.19'
C14	222.00'	22.81'	22.80'	S 09°24'48" W	05°53'10"	11.41'
C15	222.00'	24.06'	24.04'	S 03°21'58" W	06°12'31"	12.04'
C16	178.00'	37.57'	37.50'	S 06°18'33" W	12°05'41"	18.86'

LINE TABLE

LINE#	BEARING	DISTANCE
L1	S 32°38'37" E	28.28'
L2	N 12°21'23" E	26.08'
L3	S 57°21'23" W	28.28'
L4	S 12°21'23" W	26.08'
L5	S 00°00'00" W	16.92'
L6	S 90°00'00" E	8.48'
L7	N 32°38'37" W	28.28'
L8	S 12°21'23" W	47.23'
L9	N 57°21'23" E	28.28'
L10	S 12°21'23" W	47.23'
L11	S 00°15'42" W	5.72'



LEGEND

- MESA COUNTY SURVEY MARKER
- FOUND 5/8" REBAR IN CONC-P.E.-L.S. 16835
- SET 5/8" REBAR IN CONC-L.S. 18469
- SET REBAR & CAP AT LOT CORNERS-L.S. 18469

SCALE 1' = 50'

NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

GENERAL NOTES

1. TITLE INFORMATION FROM CLIENT, MESA COUNTY RECORDS, AND WESTERN COLORADO TITLE Co., Order File No. 90-6-7K, effective date July 13, 1995.
2. BASIS OF BEARING BETWEEN MESA COUNTY SURVEY MARKERS FOR THE N.E CORNER AND THE N.W. CORNER OF THE SE1/4 NW1/4 OF SEC. 3: BEARING EQUALS S89°29'30"W ACCORDING TO VALLEY MEADOWS SUB.
3. ALL EASEMENTS ARE MULTI-PURPOSE EASEMENTS UNLESS OTHERWISE NOTED.
4. MAINTENANCE AND OPERATION OF PRIVATE OPEN SPACE IS THE RESPONSIBILITY OF THE HOMEOWNERS ASSOCIATION.
5. BEARING ON NORTHLINE OF SUBDIVISION EQUATION MOONRIDGE FALLS FILING NO.2 = S89°13'40"W VALLEY MEADOWS FILING NO. 2 = S89°29'30"W
6. ELEVATION DATUM FROM MOONRIDGE FALLS FILING NO. ONE AND TWO.

DEDICATION

KNOW ALL MEN BY THESE PRESENTS:

GVAC, Inc. is the owner of a parcel of land being that tract of land described at Book 2047, Page 766, Mesa County Records, and the perimeter being more particularly described, as a result of survey, by the following:

Commencing at a Mesa County Survey Marker for the Northeast Corner of the SE1/4 NW1/4 of Section Three, Township One South Range One West of the Ute Meridian, Mesa County, Colorado, from whence a Mesa County Survey Marker for the Northwest Corner of the SE1/4 NW1/4 of said Section Three bears S89°29'30"W 1318.59 feet; thence S89°29'30"W 316.81 feet to the point of beginning; thence S00°00'00"W on the west line of Valley Meadows Subdivision 411.08 feet; thence S32°56'49"W 47.00 feet; thence S12°21'23"W 110.91 feet to the Southwest Corner of said Valley Meadows Subdivision; thence leaving said west line N77°38'37"W 792.22 feet; thence N69°02'21"W 97.42 feet; thence N00°00'00"E 429.46 feet to the north line of the SE1/4NW1/4 of said Section Three; thence N89°29'30"E 388.95 feet to the beginning.

That said owners have caused the said real property to be laid out and surveyed as VALLEY MEADOWS SUBDIVISION, FILING NO. TWO, a Subdivision of a part of the County of Mesa.

That said owner does hereby dedicate and set apart real property as shown and labeled on the accompanying plat as follows:

All streets and Rights-of-Way to the City of Grand Junction for the use of the public forever;
All Multi-Purpose Easements to the City of Grand Junction for the use of the public utilities as perpetual easements for the installation, operation, maintenance and repair of utilities and appurtenances thereto including, but not limited to electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, water lines, telephone lines, and also for the installation and maintenance of traffic control facilities, street lighting, and grade structures;
All Irrigation Easements to the owners (Property/Homeowners Association) of the lots and tracts hereby platted as perpetual easements for the installation, operation, maintenance and repair of private irrigation systems;
All Drainage Easements to the owners (Property/Homeowners Association) of lots and tracts hereby platted as perpetual easements for the conveyance of runoff water which originates within the area hereby platted or from upstream areas, through natural or man-made facilities above or below ground.

All easements include the right of ingress and egress on, along, over, under, and through and across by the beneficiaries, their successors, or assigns, together with the right to trim or remove interfering trees and brush, and in Drainage and Detention/Retention easements, the right to dredge; provided, however, that the beneficiaries of said easements shall utilize the same in a reasonable and prudent manner. Furthermore, the owners of lots or tracts hereby platted shall not burden nor overburden said easements by erecting or placing any improvements thereon which may prevent reasonable ingress and egress to and from the easement.

IN WITNESS WHEREOF, said owners have caused their names to be hereunto subscribed this ________ day of ________________ A.D., 19___.

____
GVAC, Inc. Officer

STATE OF COLORADO)
) ss
COUNTY OF MESA)
The foregoing instrument was acknowledged before me this ________ day of ________________ A.D., 19___.
by Walid Bou-Matar

My commission expires: ________________

WITNESS MY HAND AND OFFICIAL SEAL.

____
Notary Public

CLERK AND RECORDER'S CERTIFICATE
STATE OF COLORADO)
) ss
COUNTY OF MESA)
I hereby certify that this instrument was filed in my office at ________o'clock ___.M., this ________ day of ________________ A.D., 19___, and is duly recorded as Reception Number ____________ in Plat Book ________, Page ________ through ________ inclusive.

________________ Clerk and Recorder ________________ Deputy ________ Fees

Covenants, Conditions and Restrictions recorded in Book 2020, Page 408 - 427.

CITY OF GRAND JUNCTION CERTIFICATE OF APPROVAL
Approved this ________ day of ________________ A.D. 1995.

________________ Mayor ________________

SURVEYOR'S CERTIFICATE
I, Richard A. Mason, do hereby certify that the accompanying plat of VALLEY MEADOWS SUB., FILING No. TWO, a subdivision of a part of the City of Grand Junction, County of Mesa, has been prepared under my direct supervision and accurately represents a field survey of the same. Also said plat conforms to all applicable survey requirements of the Zoning and Development Code of the City of Grand Junction and all applicable state laws and regulations.

City Manager

____
Richard A. Mason
Registered Professional Land Surveyor
P.L.S. No. 18469

____
Date

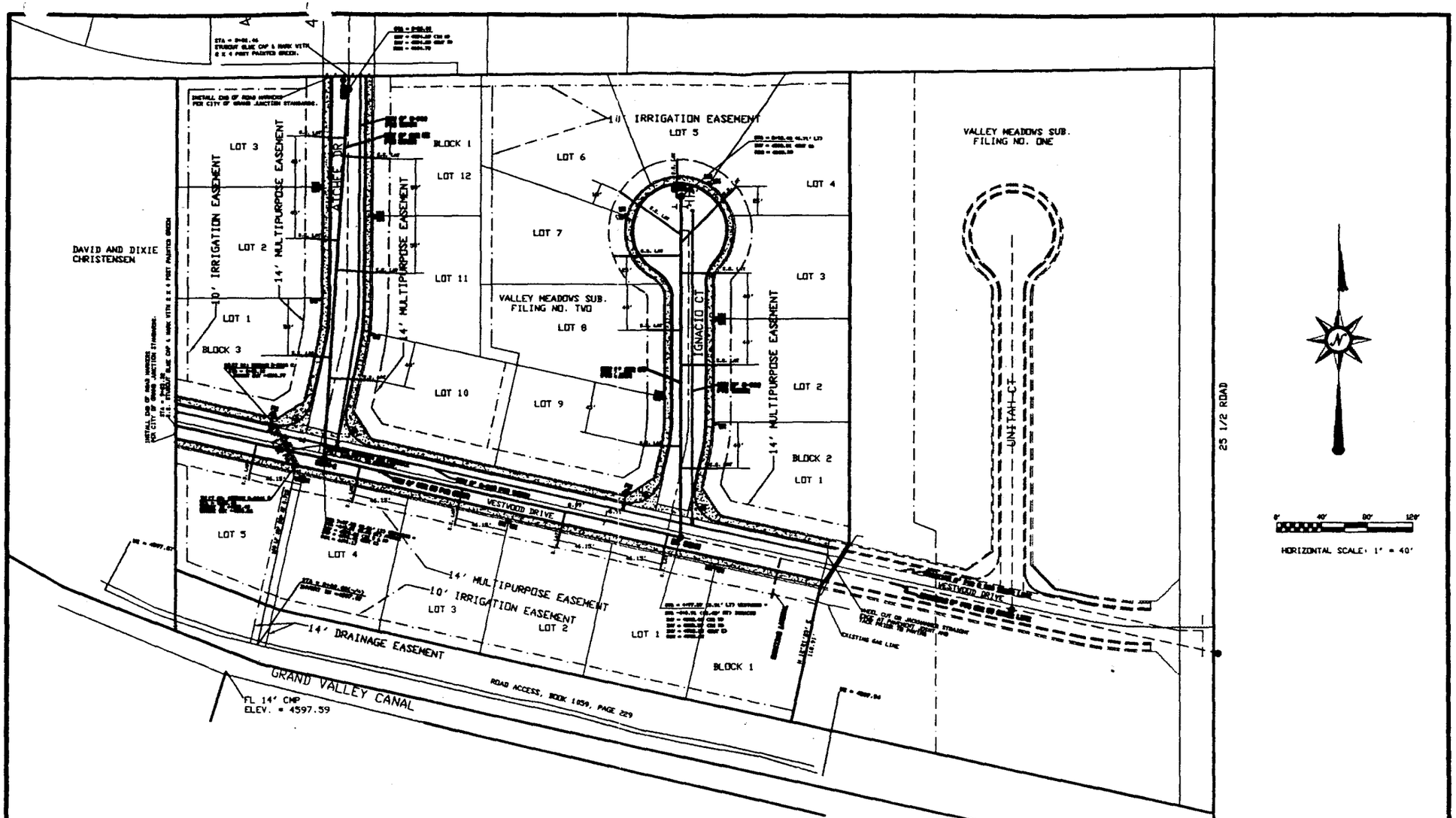
RIGHT-TO-FARM

THIS SUBDIVISION IS LOCATED IN AN AGRICULTURAL AREA, IT IS HEREBY RECOGNIZED THAT AGRICULTURAL OPERATIONS MAY CONTINUE IN THE AREA AND SHALL NOT BE CONSIDERED A NUISANCE UNLESS GROSS NEGLIGENCE IS PROVEN PURSUANT TO CRS 35-3.5-101.

ROLLAND ENGINEERING
405 Ridges Blvd
Grand Jct, CO 81503
(303) 243-8300

VALLEY MEADOWS
FILING No. 2
LOCATED IN SE1/4 NW1/4 SECTION 3, T1S, R1W, UTE MERIDIAN, MESA COUNTY, COLORADO

Designed VL	Checked RAM	VMSPLAT1.DWG	Sheet 1
Drawn VL	Date 4/27/95	REV 5/1/95	Of 1



WATER PROVIDED BY: UTE WATER

SANITARY SEWER PROVIDED BY:
CITY OF GRAND JUNCTION

ELECTRIC & GAS PROVIDED BY:
PUBLIC SERVICE COMPANY

TELEPHONE PROVIDED BY:
US WEST COMMUNICATIONS

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APPROVED FOR CONSTRUCTION

CITY DEVELOPMENT ENGINEER

DATE

CITY UTILITY ENGINEER

DATE

ACCEPTED AS CONSTRUCTED

CITY DEVELOPMENT ENGINEER

DATE

CITY UTILITY ENGINEER

DATE

ROLLAND ENGINEERING
405 Ridges Blvd
Grand Jct, CO 81503
(303) 243-8300

UTILITY COMPOSITE PLAN FOR VALLEY MEADOWS SUBDIVISION FILING NO.2

Designed ML | Checked TDR | Sheet 1
Drawn ML | Date 5/1/95 | of 1

2945-031-00-191
JOHN DAVIS
1023 24 RD
GRAND JUNCTION, CO 81505-9637

2945-032-00-195
L O GRIFFITH
3094 C RD
GRAND JUNCTION, CO 81503-9673

2945-032-00-196
RICHARD L WATSON
ETAL
653 26 RD
GRAND JUNCTION, CO 81506-1418

2945-032-24-001
L O GRIFFITH
ETAL
653 26 RD
GRAND JUNCTION, CO 81506-1418

2945-032-24-002
L O GRIFFITH
3094 C RD
GRAND JUNCTION, CO 81503-9673

2945-032-24-003
GERRY L DALTON
LARRY E DANGLER
271 W PARKVIEW DR # B
GRAND JUNCTION, CO 81503-2036

2945-032-25-007
KAMAL ZOOBI
JANICE
537 28 3/4 RD
GRAND JUNCTION, CO 81501-7114

2945-032-25-002
L O GRIFFITH
3094 C RD
GRAND JUNCTION, CO 81503-9673

2945-032-25-004
L O GRIFFITH
3094 C RD
GRAND JUNCTION, CO 81503-9673

2945-031-00-123
PATRICIA L MORAN
ETAL C/O MIKE MORAN
2951 RACE ST
DENVER, CO 80205-4557

2945-031-00-124
MARC S LAIRD
CHRISTI ANN
686 25 1/2 RD
GRAND JUNCTION, CO 81505-1002

2945-031-00-155
RICHARD L WATSON
ETAL
653 26 RD
GRAND JUNCTION, CO 81506-1418

2945-032-00-022
MOONRIDGE FALLS LTD LIABILITY COMPA
677 25 1/2 RD
GRAND JUNCTION, CO 81505-1001

2945-032-00-108
GRAND JUNCTION LIMITED PARTNERSHIP
2999 N 44TH ST STE 600
PHOENIX, AZ 85018-7253

2945-032-00-130
ROBERT G WILSON
PO BOX 60221
GRAND JUNCTION, CO 81506-8758

2945-032-00-137
DAVID V CHRISTENSEN
DIXIE
3330 NORWALK ST
GRAND JUNCTION, CO 81506-1928

2945-032-00-174
WALID BOU-MATAR
TERESA T
677 25 1/2 RD
GRAND JUNCTION, CO 81505-1001

2945-032-00-190
MOONRIDGE FALLS LTD LIABILITY COMPA
677 25 1/2 RD
GRAND JUNCTION, CO 81505-1001

2945-032-25-005
L O GRIFFITH
3094 C RD
GRAND JUNCTION, CO 81503-9673

2945-032-25-001
RODNEY E ENGLAND
668 UINTAH CT
GRAND JUNCTION, CO 81505

2945-032-25-003
DARRYL L HAYDEN
2644 HICKORY DR
GRAND JUNCTION, CO 81506

2945-032-25-006
L O GRIFFITH
ETAL
653 26 RD
GRAND JUNCTION, CO 81506-1418

2945-032-25-008
L O GRIFFITH
ETAL
653 26 RD
GRAND JUNCTION, CO 81506-1418

SUBSURFACE SOILS EXPLORATION

VALLEY MEADOWS SUBDIVISION

Grand Junction, Colorado

Prepared For:

Mr. Don Haase
563 Village Way
Grand Junction, Colorado

Prepared By:

LINCOLN-DeVORE, INC.
1441 Motor Street
Grand Junction, CO 81505

April 1, 1994

Lincoln DeVore, Inc.
Geotechnical Consultants
1441 Motor St.
Grand Junction, CO 81505

TEL: (303) 242-8968
FAX: (303) 242-1561

April 1, 1994

Mr. Don Haase
563 Village Way
Grand Junction, CO 81503

Re: SUBSURFACE SOILS EXPLORATION

VALLEY MEADOWS SUBDIVISION

Grand Junction, Colorado

Dear Mr. Haase:

Transmitted herein are the results of a Subsurface Soils Exploration for the proposed Valley Meadows Residential Subdivision, Grand Junction, Colorado.

If you have any questions after reviewing this report, please feel free to contact this office at any time. This opportunity to provide Geotechnical Engineering services is sincerely appreciated.

Respectfully submitted,

LINCOLN-DeVORE, INC.

By: _____
Edward M. Morris, E.I.T.
Western Slope Branch Manager
Grand Junction, Office

Reviewed by: _____ 4/6/94
George D. Morris, P.E.
Colorado Springs Office

GEORGE D. MORRIS REGISTERED 2051 PROFESSIONAL ENGINEER STATE OF COLORADO

LDTL Job No. 80151-J

EMM/ss

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INTRODUCTION

PROJECT DESCRIPTION

This report presents the results of our geotechnical evaluation performed to determine the general subsurface conditions of the site applicable to construction of a single family residential subdivision containing 29 lots. A vicinity map is included in the Appendix of this report.

To assist in our exploration, we were provided with a site development plan prepared by Thomas A. Logue, Development Consultant. The Boring Location Plan attached to this report is based on that plan provided to us.

Lincoln-DeVore, Inc. has not been provided with plans of any structures for this subdivision however we understand that single family construction is planned on this site. We believe the proposed structures will consist of one and two story, wood framed structures with the possibility of half basements and concrete floor slabs-on-grade construction. Lincoln DeVore has not seen a full set of building plans, but structures of this type typically develop wall loads on the order of 900 to 2200 plf and column loads on the order of 6 to 20 kips.

The characteristics of the subsurface materials encountered were evaluated with regard to the type of construction described above. Recommendations are included herein to match the described construction to the soil characteristics found. The information contained herein may or may not be valid for other purposes. If the proposed site use is changed or types of construction proposed, other than noted herein, Lincoln DeVore should be contacted to determine if the information in

this report can be used for the new construction without further field evaluations.

PROJECT SCOPE

The purpose of our exploration was to evaluate the surface and subsurface soil and geologic conditions of the site and, based on the conditions encountered, to provide recommendations pertaining to the geotechnical aspects of the site development as previously described. The conclusions and recommendations included herein are based on an analysis of the data obtained from our field explorations, laboratory testing program, and on our experience with similar soil and geologic conditions in the area.

The scope of our geotechnical exploration consisted of a surface reconnaissance, a geophoto study, subsurface exploration, obtaining representative samples, laboratory testing, analysis of field and laboratory data, and a review of geologic literature.

Specifically, the intent of this study is to:

1. Explore the subsurface conditions to the depth expected to be influenced by the proposed construction.
2. Evaluate by laboratory and field tests the general engineering properties of the various strata which could influence the development.
3. Define the general geology of the site including likely geologic hazards which could have an effect on site development.
4. Develop geotechnical criteria for site grading and earthwork.
5. Identify potential construction difficulties and provide recommendations concerning these problems.

6. Recommend an appropriate foundation system for the anticipated structure and develop criteria for foundation design.

FIELD EXPLORATION AND LABORATORY TESTING

A field evaluation was performed on February 15, 1994, and consisted of a site reconnaissance by our geotechnical personnel and the drilling of 5 shallow exploration borings. The 4 deeper exploration borings were drilled within the proposed building envelopes and the one shallow boring was placed within the roadway, near the locations indicated on the Boring Location Plan. The exploration borings were located to obtain a reasonably good profile of the subsurface soil conditions. All exploration borings were drilled using a CME 45B, truck mounted drill rig with continuous flight auger to depths of approximately 9 to 13 feet. Samples were taken with a standard split spoon sampler, California lined sampler, thin wall Shelby tubes and by bulk methods. Logs describing the subsurface conditions are presented in the attached figures.

Laboratory tests were performed on representative soil samples to determine their relative engineering properties. Tests were performed in accordance with test methods of the American Society for Testing and Materials or other accepted standards. The results of our laboratory tests are included in this report. The in-place moisture content and the standard penetration test values are presented on the attached drilling logs.

FINDINGS

SITE DESCRIPTION

The project site is located in the Southeast Quarter of the Northeast Quarter of Section 3, Township 1 South, Range 1 West of the Ute Principal Meridian, Mesa County, Colorado. More specifically the site is located North of the Grand Valley Canal and West of 25-1/2 Road. The site is approximately 1/4 mile North of the Foresight Park for Industry and is approximately 2-1/2 miles North, Northwest of the downtown business district of the City of Grand Junction. The site contains approximately 11.4 acres.

The topography of the site is relatively flat, being located on an lower portion of broad debris flow feature, which originated in the Bookcliffs to the North. The ground surface in the vicinity of the site has a slight overall gradient to the South. The exact direction of surface runoff on this site will be controlled to an extent by the proposed new construction and will be variable. Surface and subsurface drainage on this site can be described as poor.

GENERAL GEOLOGY AND SUBSURFACE DESCRIPTION

The geologic materials encountered under the site consist of a thick deposit of fine grain alluvial soils which is deposited over a very coarse grained gravel and cobble terrace deposit of the Colorado River, which in turn is deposited on the Mancos Shale Formation.

The Mancos Shale Formation is considered to be bedrock beneath the site. The geologic and engineering

properties of the materials found in our exploration borings will be discussed in the following sections.

The soils on this site consist of an alluvial deposit placed by the action of the Colorado River, covered with debris fan alluvium transported from the hills to the North. This stratification of upper soils results in a layered system of silts and clays with thin, interbedded sand lenses overlying a sand/gravel deposit. Generally, the silts and clays are soft, wet and of low density. Soil density decreases and the moisture content increases with increasing depth. The upper 2 to 4 feet of the soil profile are stiffer and relatively dry due to surface desiccation. Soil Type I is a very fine grain alluvial/debris flow deposit which was encountered in all 5 shallow exploration borings.

This Soil Type was classified as a sandy silt (ML) under the Unified Classification System. This material is of low to very low plasticity, of low to moderate permeability, and was encountered in a low density, moist to wet condition. This soil will settle after being loaded. The maximum allowable bearing capacity for this soil was found to be 1200 psf, with no minimum dead load pressure required. The finer grained portion of Soil Type I contains sulfates in detrimental quantities.

Soil Type II was encountered as thin to thick alluvial strata interbedded with Soil Type I. These soils are very similar in both visual and engineering characteristics.

This Soil Type was classified as a silty sand (SM) under the Unified Classification System. This material

is non-plastic, of moderate permeability, and was encountered in a low to medium density, moist to wet condition. This soil will settle after being loaded. The maximum allowable bearing capacity for this soil was found to be 1100 psf, with no minimum dead load pressure required. The finer grained portion of Soil Type II contains sulfates in detrimental quantities.

The exploration borings for this project were quite shallow. Based on other exploration borings in the area, it is believed the fine grain, low density alluvial soils on this site will range in thickness from 40 to 50 feet. The sandy gravels and cobbles of the ancient Colorado terrace are generally quite thin in this area, being on the order of 5 to 10 feet thick. The formation Mancos Shale is expected to be encountered at a depth of 50 to 60 feet below the existing ground surface. The Mancos Shale Formation is not expected to affect the construction and performance of residential foundations on this site.

The lines defining the change between soil types or rock materials on the attached boring logs and soil profiles are determined by interpolation and therefore are approximations. The transition between soil types may be abrupt or may be gradual.

The boring logs and related information show subsurface conditions at the date and location of this exploration. Soil conditions may differ at locations other than those of the exploratory borings. If the structure is moved any

appreciable distance from the locations of the borings, the soil conditions may not be the same as those reported here. The passage of time may also result in a change in the soil conditions at the boring locations.

GROUND WATER:

A free water table came to equilibrium during drilling at 4-1/2 to 10 feet below the present ground surface. This is probably not a true phreatic surface but is an accumulation of subsurface seepage moisture (perched water). In our opinion the subsurface water conditions shown are a permanent feature on this site. The depth to free water would be subject to fluctuation, depending upon external environmental effects.

Because of capillary rise, the soil zone within a few feet above the free water level identified in the borings will be quite wet. Pumping and rutting may occur during the excavation process, particularly if the bottom of the foundations are near the capillary fringe. Pumping is a temporary, quick condition caused by vibration of excavating equipment on the site. If pumping occurs, it can often be stopped by removal of the equipment and greater care exercised in the excavation process. In other cases, geotextile fabric layers can be designed or cobble sized material can be introduced into the bottom of the excavation and worked into the soft soils. Such a geotextile or cobble raft is designed to stabilize the bottom of the excavation and to provide a firm base for equipment.

Data presented in this report concerning ground water levels are representative of those levels at the time of our field exploration. Groundwater levels are subject to change seasonally or by changed environmental conditions.

Quantitative information concerning rates of flow into excavations or pumping capacities necessary to dewater excavations is not included and is beyond the scope of this report. If this information is desired, permeability and field pumping tests will be required.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL DISCUSSION

No geologic conditions were apparent during our reconnaissance which would preclude the site development as planned, provided the recommendations contained herein are fully complied with. Based on our investigation to date and the knowledge of the proposed construction, the site condition which would have the greatest effect on the planned development is the relatively high ground water table and the low density soils.

OPEN FOUNDATION OBSERVATION

Since the recommendations in this report are based on information obtained through random borings, it is possible that the subsurface materials between the boring points could vary. Therefore, prior to placing forms or pouring concrete, an open excavation observation should be performed by representatives of Lincoln DeVore. The purpose of this observation is to determine if the subsurface soils directly below the proposed foundations are similar to those encountered in our exploration borings. If the materials below the proposed foundations differ from those encountered, or in our opinion, are not capable of supporting the applied loads, additional recommendations could be provided at that time.

EXCAVATION:

Site preparation in all areas to receive structural fill should begin with the removal of all topsoil, vegetation, and other deleterious materials. Prior to placing

any fill, the subgrade should be observed by representatives of Lincoln DeVore to determine if the existing vegetation has been adequately removed and that the subgrade is capable of supporting the proposed fills. The subgrade should then be scarified to a depth of 10 inches, brought to near optimum moisture conditions and compacted to at least 90% of its maximum modified Proctor dry density [ASTM D-1557]. The moisture content of this material should be within + or - 2% of optimum moisture, as determined by ASTM D-1557.

In general, we recommend all structural fill in the area beneath any proposed structure or roadway be compacted to a minimum of 90% of its maximum modified Proctor dry density (ASTM D1557). This structural fill should be placed in lifts not to exceed six (6) inches after compaction. We recommend that fill be placed and compacted at approximately its optimum moisture content (+/-2%) as determined by ASTM D 1557. Structural fill should be a granular, non-expansive soil.

Allowable slope angle for cuts in the native soils is dependent on soil conditions, slope geometry, the moisture content and other factors. Should deep cuts be planned for this site, we recommend that a slope stability analysis be performed when the location and depth of the cut is known.

No major difficulties are anticipated in the course of excavating into the surficial soils on the site. It is probable that safety provisions such as sloping or bracing the sides of excavations over 4 feet deep will be necessary. Any such safety provisions shall conform to reasonable industry safety

practices and to applicable OSHA regulations. The OSHA Classification for excavation purposes on this site is Soil Class C.

STRUCTURAL SOIL IMPROVEMENT:

An extensive layer of soft to very soft native soils was encountered on this site. These soils are of low density and may not be judged suitable for support of the specific shallow foundation system. Owing to the depths to which this low density soil was encountered and the relatively shallow excavation depths anticipated, it is recommended that an overexcavation/replacement scheme be used on this site if additional soil bearing capacity is required by the structure loading conditions.

The existing low density soils should be removed to a depth of 3 feet below the proposed bottom footing elevation. Once it is felt that adequate soil removal has been achieved, it is recommended that the excavation be closely examined by a representative of Lincoln-DeVore to ensure that an adequate overexcavation depth has indeed occurred and that the exposed soils are suitable to support the proposed structural man-made fill.

Once this examination has been completed, it is recommended that a coarse-grained, non-expansive, non-free draining man-made structural fill be imported to the site. This imported fill should be placed in the overexcavated portion of this site in lifts not to exceed 6 inches after compaction. A minimum of 90% of the soils maximum Modified Proctor dry density (ASTM D-1557) must be maintained during the soil placement. These

soils should be placed at a moisture content conducive to the required compaction (usually Proctor optimum moisture content ± 2%). The granular material must be brought to the required density by mechanical means. No soaking, jetting or puddling techniques of any type should be used in placement of fill on this site. To ensure adequate lateral support, we must recommend that the zone of overexcavation extend at least 2 feet around the perimeter of the proposed footing. To confirm the quality of the compacted fill product, it is recommended that surface density tests be taken at maximum 2 foot vertical intervals.

The placement of a geotextile fabric for separation between the native soils and the structural fill is recommended to aid the fill placement and to improve the stability of the completed fill.

When The structural fill is completed, an allowable bearing capacity of 2200 psf maximum may be assumed for proportioning the footings.

DRAINAGE AND GRADIENT:

Adequate site drainage should be provided in the foundation area both during and after construction to prevent the ponding of water and the saturation of the subsurface soils. We recommend that the ground surface around the structure be graded so that surface water will be carried quickly away from the building. The minimum gradient within 10 feet of the building will depend on surface landscaping. We recommend that paved areas maintain a minimum gradient of 2%, and that landscaped areas

maintain a minimum gradient of 8%. It is further recommended that roof drain downspouts be carried across all backfilled areas and discharged at least 10 feet away from the structure. Proper discharge of roof drain downspouts may require the use subsurface piping in some areas. Planters, if any, should be so constructed that moisture is not allowed to seep into foundation areas or beneath slabs or pavements.

If adequate surface drainage cannot be maintained, or if subsurface seepage is encountered during excavation for foundation construction, a full perimeter drain is recommended for these buildings. It is recommended that this drain consist of a perforated drain pipe and a gravel collector, the whole being fully wrapped in a geotextile filter fabric. We recommend that this drain be constructed with a gravity outlet. If sufficient grade does not exist on the site for a gravity outlet, then a sealed sump and pump is recommended. Under no circumstances should a dry well be used on this site.

GROUND WATER:

No free water surface was encountered in any of the test borings to the depths drilled. However, very wet conditions were encountered in all test borings. In our opinion this wet condition is the result of seepage from irrigation ditches and from irrigation practices in the vicinity. Due to the high moisture conditions encountered, it is recommended that full basement foundations not be used on this site, and that all floor slabs be constructed over a capillary break and vapor barrier. Half basement foundations may be used if carefully

constructed and protected from soil moisture penetration.

The existing drainage on the site must either be maintained carefully or improved. We recommend that water be drained away from structures as rapidly as possible and not be allowed to stand or pond near any of the buildings. We recommend that water removed from one building not be directed onto the backfill areas of adjacent buildings. We recommend that a hydrologist or drainage engineer experienced in this area be retained to complete a drainage plan for this site.

Should an automatic lawn irrigation system be used on this site, we recommend that the sprinkler heads be installed no less than 5 feet from the building. In addition, these heads should be adjusted so that spray from the system does not fall onto the walls of the building and that such water does not excessively wet the backfill soils.

FOUNDATIONS

We recommend the use of a conventional shallow foundation system consisting of continuous spread footings beneath all bearing walls and isolated spread footings beneath all columns and other points of concentrated load. Such a shallow foundation system, resting on the alluvial fine grain soils, may be designed on the basis of an allowable bearing capacity of 1100 psf maximum. No minimum dead load is required. If a structural fill, placed in accordance with the recommendations of this report, is utilized on any of the sites, the shallow foundation system may be designed on the basis of an allowable bearing capacity of 2200 psf maximum.

Contact stresses beneath all continuous walls should be balanced to within + or - 150 psf at all points. Isolated interior column footings should be designed for contact stresses of about 150 psf less than the average used to balance the continuous walls. The criterion for balancing will depend somewhat upon the nature of the structure. Single-story, slab on grade structures may be balanced on the basis of dead load only. Multi-story structures may be balanced on the basis of dead load plus 1/2 live load, for up to 3 stories.

It should be noted that the term "footings" as used above includes the wall on grade or "no footing" type of foundation system. On this particular site, the use of a more conventional footing, the use of a "no footing", or the use of voids will depend entirely upon the foundation loads exerted by the structure. We would anticipate the use of a conventional spread footing on this site.

Stem walls for a shallow foundation system should be designed as grade beams capable of spanning at least twelve feet. These "grade beams" should be horizontally reinforced both near the top and near the bottom. The horizontal reinforcement required should be placed continuously around the structure with no gaps or breaks. A foundation system designed in this manner should provide a rather rigid system and, therefore, be better able to tolerate differential movements associated with the low density alluvial soils.

If the design of the upper structure is such that loads can be balanced reasonably well, a floating structural slab or raft type of foundation could be used on this site. Such a slab would require heavy reinforcing to resist differential bending. It is possible to design such a slab either as a solid or ribbed slab, but in either case, a rimwall must be used for confinement. Any such slab must be specifically designed for the anticipated loading. Such a foundation system will settle to some degree as the softer, underlying soils consolidate, but differential movement is held to a minimum. Because the soils may settle in varying amounts, some minor cracking and heave are possible unless the slabs are specifically designed with the movement in mind.

Raft foundations are also used to reduce the settlement of structures located above compressible soil deposits. Under these conditions, the depth at which the raft is established is sometimes made so great that the weight of the structure plus that of the raft is wholly compensated by the

weight of the excavated soil. The settlement of the structure is then likely to be insignificant. Where complete compensation is impractical, a shallow raft may be acceptable if the net increase in load is small enough to remain within tolerable settlements.

SETTLEMENT:

We anticipate that total and/or differential settlements for the proposed structures may be considered to be within tolerable limits, provided the recommendations presented in this report are fully complied with. In general, we expect total settlements for the proposed structure to be less than 1 inch.

FROST PROTECTION

We recommend that the bottom of all foundation components rest a minimum of 1-1/2 feet below finished grade or as required by the local building codes. Foundation components must not be placed on frozen soils.

CONCRETE SLABS ON GRADE

Slabs could be placed directly on the natural soils or on a structural fill. We recommend that all slabs on grade be constructed to act independently of the other structural portions of the building. One method of allowing the slabs to float freely is to use expansion material at the slab-structure interface.

Any partitions which will be located on non-structural slabs-on-grade should be constructed with a minimum space of 2 inches at the bottom of the wall. This space should allow for any future potential upward movement of the floor slabs and minimize damage to the walls and roof sections above the slabs.

It is recommended that slabs on grade be constructed over a capillary break of approximately 6 inches in thickness. We recommend that the material used to form the capillary break be free draining, granular material and not contain significant fines. A free draining outlet is also recommended for this break so that it will not trap water beneath the slab.

A vapor barrier is recommended beneath the floor slab and above the capillary break. To prevent difficulty in finishing concrete, a 2 inch sand layer should be placed above the break. An alternate method of reducing finishing problems would be to place the vapor barrier beneath approximately 6 inches of a minus 3/4 inch gravel fill. This method must be very carefully accomplished to minimize excessive puncturing and tearing of the vapor barrier.

It is recommended that floor slabs on grade be constructed with control joints placed to divide the floor into sections not exceeding 360 square feet, maximum. Also, additional control joints are recommended at all inside corners and at all columns to control cracking in these areas.

Problems associated with slab 'curling' are usually minimized by proper curing of the placed concrete slab. This period of curing usually is most critical within the first 5 days after placement. Proper curing can be accomplished by continuous water application to the concrete surface or by the placement of a 'heavy' curing compound, formulated to minimize water evaporation from the concrete. Curing by continuous water application must be carefully undertaken to prevent the wetting or saturation of the subgrade soils.

EARTH RETAINING STRUCTURES

The active soil pressure for the design of earth retaining structures may be based on an equivalent fluid pressure of 38 pounds per cubic foot. The active pressure should be used for retaining structures which are free to move at the top (unrestrained walls). For earth retaining structures which are fixed at the top, such as basement walls, an equivalent fluid pressure of 50 pounds per cubic foot may be used. It should be noted that the above values should be modified to take into account any surcharge loads, sloping backfill or other externally applied forces. The above equivalent fluid pressures should also be modified for the effect of free water, if any.

The passive pressure for resistance to lateral movement may be considered to be 290 pcf per foot of depth. The coefficient of friction for concrete to soil may be assumed to be .35 for resistance to lateral movement. When combining frictional and passive resistance, the latter must be reduced by approximately 1/3.

Drainage behind retaining walls is considered critical. If the backfill behind the wall is not well drained, hydrostatic pressures are allowed to build up and lateral earth pressures will be considerably increased. Therefore, we recommend a vertical drain be installed behind any impermeable retaining walls. Because of the difficulty in placement of a gravel drain, we recommend the use of a composite drainage mat similar to Exxon Battledrain or Tensar MD Series NS-1100. An outfall must be provided for this drain.

REACTIVE SOILS

Since groundwater in the Grand Junction area typically contains sulfates in quantities detrimental to a Type I cement, a Type II or Type I-II or Type II-V cement is recommended for all concrete which is in contact with the subsurface soils and bedrock. Calcium chloride should not be added to a Type II, Type I-II or Type II-V cement under any circumstances.

PAVEMENTS

Samples of the surficial native soils at this property that may be required to support pavements have been evaluated using the Hveem-Carmany method (ASTM D-2844) to determine their support characteristics. The results of the laboratory testing are as follows:

R =	19
Expansion @ 300 psi =	0.9
Displacement @ 300 psi =	4.02

No estimates of traffic volumes have been provided to Lincoln DeVore. However, we assume that the roads will be classified as residential. The design procedures utilized are those recognized by the Colorado Department of Highways and the 1986 AASHTO design procedure. The terminal Serviceability Index of 2.0, a Reliability of 70 and a design life of 20 years have been utilized, based on recommendations by the Highway Department. An 18 kip ESAL of 5, also recommended by the Highway Department, was used for the analysis.

Based on the soil support characteristics outlined above, the following pavement sections are recommended:

Residential Roadway:

3 inches of asphaltic concrete pavement
on 6 inches of aggregate base course
on 8 inches of recompacted native material

Full Depth Asphalt:

5 inches of asphaltic concrete pavement
on 12 inches of recompacted native material

Rigid Concrete:

6 inches of portland cement pavement
on 4 inches of aggregate base course
on 8 inches of recompacted native material

Due to the very high soil moisture in the subgrade soils, the use of a geotextile fabric for separation and minor reinforcement (such as Mirafi 500-X or 140-N) placed beneath the aggregate base course, will probably be required on this site.

We recommend that the asphaltic concrete pavement meet the State of Colorado requirements for a Grade C mix. In addition, the asphaltic concrete pavement should be compacted to a minimum of 95% of its maximum Hveem density. The aggregate base course should meet the requirements of State of Colorado Class 5 or Class 6 material, and have a minimum R value of 78. We recommend that the base course be compacted to a minimum of 95% of its maximum Modified Proctor dry density (ASTM D-1557), at a moisture content within + or -2% of optimum moisture. The native subgrade shall be scarified and recompacted to a minimum of 90% of their maximum Modified Proctor day density (ASTM D-1557) at a moisture content within + or -2% of optimum moisture.

All pavement should be protected from moisture migrating beneath the pavement structure. If surface drainage is allowed to pond behind curbs, islands or other areas of the site and allowed to seep beneath pavement, premature deterioration or possibly pavement failure could result.

We recommend that the rigid concrete pavement have a minimum flexural strength (F_t) of 650 psi at 28 days. This strength requirement can be met using Class P or AX or A or B Concrete as defined in Section 600 of the Standard Specifications for Road and Bridge Construction, Colorado DOT. It is recommended that field control of the concrete mix be made utilizing compressive strength criteria. Flexural Strength should only be used for the design process. Control joints should be placed at a minimum distance of 12 feet in all directions. If it is desired to increase the spacing of control joints, then 66-66 welded wire fabric should be placed in the mid-point of the slab. If the welded wire fabric is used, the control joint spacing can be increased to 40 feet. Construction joints designed so that positive joint transfer is maintained by the use of dowels is recommended.

Concrete with a lower flexural strength may be allowed by the agency having jurisdiction however, the design section thicknesses should be confirmed. In addition, the final durability of the pavement should be carefully considered.

The concrete should be placed at the lowest slump practical for the method of placement. In all circumstances, the maximum slump should be limited to 4 inches. Proper consolidation of the plastic concrete is important. The placed concrete must be properly protected and cured.

LIMITATIONS

This report is issued with the understanding that it is the responsibility of the owner, or his representative to ensure that the information and recommendations contained herein are brought to the attention of the individual lot purchasers for the subdivision. In addition, it is the responsibility of the individual lot owners that the information and recommendations contained herein are brought to the attention of the architect and engineer for the individual projects and the necessary steps are taken to see that the contractor and his subcontractors carry out the appropriate recommendations during construction.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in acceptable or appropriate standards may occur or may result from legislation or the broadening of engineering knowledge. Accordingly, the findings of this report may be invalid, wholly or partially, by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of 3 years.

The recommendations of this report pertain only to the site investigated and are based on the assumption that the soil conditions do not deviate from those described in this report. If any variations or undesirable conditions are encountered during construction or the proposed

construction will differ from that planned on the day of this report, Lincoln DeVore should be notified so that supplemental recommendations can be provided, if appropriate.

Lincoln DeVore makes no warranty, either expressed or implied, as to the findings, recommendations, specifications or professional advice, except that they were prepared in accordance with generally accepted professional engineering practice in the field of geotechnical engineering.

SUMMARY SHEET

Soil Sample SANDY SILT (ML) Test No. 80151-J

Location VALLEY MEADOWS SUB. G-J. Date 2-18-94

Boring No. 4 Depth 3' Test by LRS

Sample No. I

Natural Water Content (w) 18.4 %

Specific Gravity (Gs) _____ In Place Density (γ_o) 101.7 pcf

SIEVE ANALYSIS:

Sieve No.	% Passing
1 1/2"	
1"	
3/4"	
1/2"	
4	
10	100
20	99
40	99
100	94
200	76

HYDROMETER ANALYSIS:

Grain size (mm)	%
.02	50
.005	28

Plastic Limit P.L. _____ %

Liquid Limit L. L. 19 %

Plasticity Index P.I. NP %

Shrinkage Limit _____ %

Flow Index _____

Shrinkage Ratio _____ %

Volumetric Change _____ %

Lineal Shrinkage _____ %

MOISTURE DENSITY: ASTM METHOD

Optimum Moisture Content - w_o _____ %

Maximum Dry Density - γ_d _____ pcf

California Bearing Ratio (av) _____ %

Swell: _____ Days _____ %

Swell against _____ psf Wo gain _____ %

BEARING:

Housel Penetrometer (av) 800 psf

Unconfined Compression (qu) _____ psf

Plate Bearing: _____ psf

Inches Settlement _____

Consolidation % under psf

PERMEABILITY:

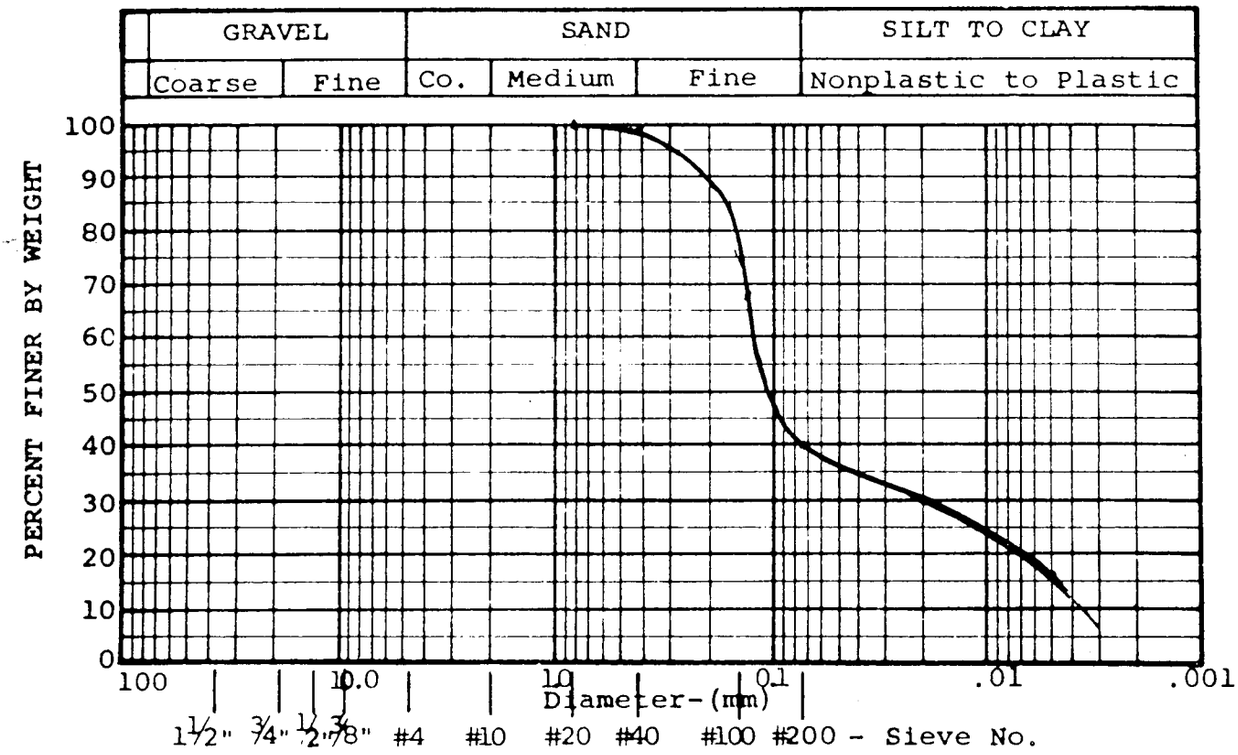
K (at 20°C) _____

Void Ratio _____

Sulfates 1000 ppm.

SOIL ANALYSIS

LINCOLN-DeVORE TESTING LABORATORY
COLORADO SPRINGS, COLORADO



Soil Sample FINE SILTY SAND (SM) Sample Location T.B. 1@3

Sample No. II

Specific Gravity

Moisture Content 24.1

Effective Size .0036

Cu

Cc

Fineness Modulus

L.L. % P.I. NP %

Bearing 800 psf

Sulfates 50 ppm

Sieve Size	% Passing
1-1/2"	
1"	
3/4"	
1/2"	
3/8"	
#4	
#10	
#20	100
#40	99
#100	68
#200	40
0.0200	30
0.0050	16

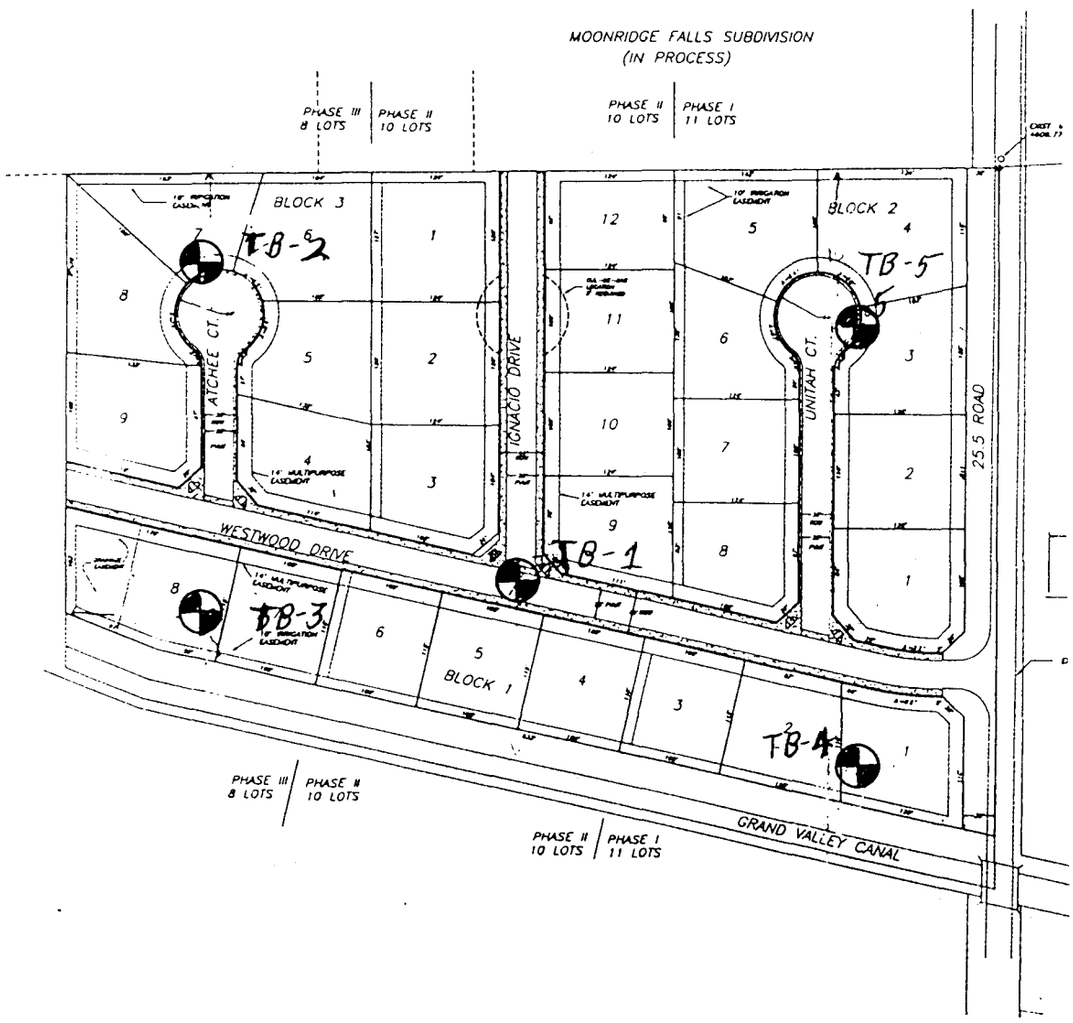
Lincoln DeVore, Inc.
Geotechnical Consultants

VALLEY MEADOWS SUB. G.J.

DATE 2-18-94

JOB NO. 80151-J

DRAWN EMM



TB1 TEST EXPLORATION BORING

Lincoln DeVore, Inc.
Geotechnical Consultants

VALLEY MEADOWS SUB. - GRAND JUNCTION		
DON HAASE		DATE 4-7-94
JOB NO. 80151-J	DRAWN EMM	

BORING NO. 1

BORING ELEVATION:

DEPTH (FT.)	SOIL LOG	DESCRIPTION	BLOW COUNT	SOIL DENSITY pcf	WATER %
		Surface reworked by Agriculture Some Organics			
		Sulfates			
	II	Alluvial , Low Density Compressible	ST	95.1	24.1%
5	SM	**Silty Sand** Very Wet to Saturated	5		
		Stratified			
		Low Density			
	I				
		Free Water Sulfates	ST	96.8	24.2%
10	ML	**Sandy Silt** Very Low Plastic Soft	10		
		Compressible			
		TD @ 9'			
15			15		
20			20		
25			25		
30			30		

Blow Counts are cumulative for each 6 inches of sampler penetration.

Free Water @ 8-1/2'
During Drilling 2-15-94

LOG OF SUBSURFACE EXPLORATION

LINCOLN - DeVORE, Inc.

Grand Junction, Colorado

VILLAGE MEADOWS SUB.
25-1/2 & F-1/2 Roads, G.J. CO

Mr. Don Haase
Grand Junction, CO

Date: **4-1-94**

Job No.: **80151-J**

Drawn: **EMM**

BORING NO. 2

BORING ELEVATION:

DEPTH (FT.)	SOIL LOG	DESCRIPTION				BLOW COUNT	SOIL DENSITY pcf	WATER %
		I ML Sandy Silt with thin sand strata		Soft				
		Sulfates						
		II Alluvial, Low Density		Compressible	ST		89.0	18.5%
5		SM Silty Sand	Very Moist	Occ. Gravels	5			
		Stratified						
		Low Density						
		II Some Coarse Sands						
		SM Silty Sand		Sulfates	CS	4/6	109.9	11.4%
10		Free Water ▼	Very Low Plastic strata	Soft	10	9/12		
		Compressible				14/18		
		I						
		ML Sandy Silt	Very Low Plastic		BULK			25.3%
15					15			
		Some flowing Sands						
		Low to Medium Density						
		Stratified Silts and Sands		Occ. Gravels				
20					20			
		TD @19'						
25					25			
30					30			

Blow Counts are cumulative for each 6 inches of sampler penetration.

Free Water @ 9-1/2'
During Drilling 2-15-94

LOG OF SUBSURFACE EXPLORATION

LINCOLN - DeVORE, Inc.

Grand Junction, Colorado

VILLAGE MEADOWS SUB.
25-1/2 & F-1/2 Roads, G.J. CO

Mr. Don Haase
Grand Junction, CO

Date: **4-1-94**

Job No.: **80151-J**

Drawn: **EMM**

BORING NO. 3

BORING ELEVATION:

DEPTH (FT.)	SOIL LOG	DESCRIPTION				BLOW COUNT	SOIL DENSITY pcf	WATER %
	I	**ML**	Sandy Silt with thin sand strata		Soft			
		Very Moist		Sulfates	Compressible			
		Free Water ▼		Water may be 'perched' in sand strata		CS	2/6	93.7	24.5%
5	II	Alluvial ,	Low Density	Wet	Occ. Gravels	5	4/12		
		SM	**Silty Sand**				6/18	93.8	25.1%
	I	**ML**		Low Density					
	I	Very Low Plastic strata			Sulfates	SPT	1/6		30.0%
10		**ML**	**Sandy Silt**		Soft	10	3/12		
				Compressible			8/18		
				Some Coarse Sands					
	I	Flowing Sands and Silts							
		ML	**Sandy Silt**	Very Low Plastic		BULK			28.4%
15						15			
		TD @ 13'							
20						20			
25						25			
30						30			

Blow Counts are cumulative for each 6 inches of sampler penetration.

Free Water @ 4'

During Drilling 2-15-94

LOG OF SUBSURFACE EXPLORATION

LINCOLN - DeVORE, Inc.

Grand Junction, Colorado

VILLAGE MEADOWS SUB.

25-1/2 & F-1/2 Roads, G.J. CO

Mr. Don Haase

Grand Junction, CO

Date: **4-1-94**

Job No.: **80151-J**

Drawn: **EMM**

BORING NO. 4

BORING ELEVATION:

DEPTH (FT.)	SOIL LOG	DESCRIPTION				BLOW COUNT	SOIL DENSITY pcf	WATER %
		I ML Reworked by Agriculture		Soft				
		Very Moist	Sulfates	Compressible				
		II			ST		91.7	18.4%
5		SM Silty Sand	Wet		5			
		Free Water ▼						
		Alluvial , Low Density	Flowing Sands and Silts					
			Occ. Gravels					
		II Stratified		Sulfates	SPT	1/6		25.5%
10		SM Silty Sand	Some Coarse Sands	Soft	10	4/12		
		I	Compressible			9/18		
		ML Sandy Silt						
		II Flowing Sands and Silts						
		SM Silty Sand	Low Density		BULK			29.2%
15		Some Coarse Sands			15			
		TD @ 13'						
20					20			
25					25			
30					30			

Blow Counts are cumulative for each 6 inches of sampler penetration.

Free Water @ 6'

During Drilling 2-15-94

LOG OF SUBSURFACE EXPLORATION

LINCOLN - DeVORE, Inc.

Grand Junction, Colorado

VILLAGE MEADOWS SUB.

25-1/2 & F-1/2 Roads, G.J. CO

Mr. Don Haase

Grand Junction, CO

Date: **4-1-94**

Job No.: **80151-J**

Drawn: **EMM**

BORING NO. 5

BORING ELEVATION:

DEPTH (FT.)	SOIL LOG	DESCRIPTION			BLOW COUNT	SOIL DENSITY pcf	WATER %
		I ML Reworked by Agriculture		Soft			
		Very Moist	Sulfates	Compressible			
		II Occ. thin clayey strata			CS	2/6	92.8	13.4%
5		SM **Silty Sand**	Very Moist		5	4/12		
		Alluvial , Low Density				7/18	95.8	21.6%
			Flowing Sands and Silts					
			Wet	Sulfates				
		II Stratified			ST			20.6%
10		SM **Silty Sand**	Soft		10			
		Free Water		Compressible				
		I	Flowing Sands and Silts					
		ML **Sandy Silt**						
		II	Low Density		BULK			27.0%
15		SM **Silty Sand**	Some Coarse Sands		15			
		TD @ 13'						
20					20			
25					25			
30					30			

Blow Counts are cumulative for each 6 inches of sampler penetration.

Free Water @ 10'
During Drilling 2-15-94

LOG OF SUBSURFACE EXPLORATION

LINCOLN - DeVORE, Inc.
Grand Junction, Colorado

VILLAGE MEADOWS SUB.
25-1/2 & F-1/2 Roads, G.J. CO
Mr. Don Haase
Grand Junction, CO
Date: **4-1-94**
Job No.: **80151-J**
Drawn: **EMM**

DRAINAGE REPORT
FOR
VALLEY MEADOWS SUBDIVISION
FILING NO.2

PREPARED FOR:
GWHC INC.
2467 COMMERCE BLVD.
GRAND JUNCTION, CO 81505

PRESENTED TO:
The CITY OF GRAND JUNCTION

ROLLAND ENGINEERING

405 RIDGES BLVD., SUITE A
GRAND JUNCTION, CO 81503
(970)-243-8300

ROLLAND ENGINEERING

405 RIDGES BOULEVARD, SUITE A
GRAND JUNCTION, COLORADO 81503
(303) 243-8300

May 1, 1995

Ms. Jody Kliska
Development Engineer
City of Grand Junction
Public Works Department
250 North 5th St
Grand Junction, CO 81501

RE: DRAINAGE REPORT FOR VALLEY MAEDOWS SUBDIVISION FILING NO.2

Dear Jody;

Enclosed you will find the Drainage Report for Valley Meadows Subdivision Filing No.2. Drainage calculations for 2 -Year and 100-Year design storms were performed for this report.

Please call us if you have any questions or need additional information. Thank you very much for your time and consideration regarding this report.

Respectfully submitted

ROLLAND ENGINEERING

WEI LI

Enclosures

COLORADO REGISTERED
MARK D. YOUNG
29912
PROFESSIONAL ENGINEER

DRAINAGE REPORT
FOR
VALLEY MEADOWS SUBDIVISION
FILING NO.2

PREPARED FOR:
GWHC INC.
2467 COMMERCE BLVD
GRAND JUNCTION, CO 81505
(970) 242-1336

PREPARED BY:

ROLLAND ENGINEERING
405 RIDGES BLVD., SUITE A
GRAND JUNCTION, CO 81503
MAY 1, 1995

TABLES OF CONTENTS

Valley Meadows Subdivision Filing No. 2 Drainage

General Location and Description

Valley Meadows Subdivision Filing No. 2 is an approximate 6.8 acres site located at SE 1/4, NW 1/4, SECTION 3, T1S, R1W, UTE MERIDIAN , MESA COUNTY, COLORADO. The Site lies immediately South of Moonridge Falls Subdivision, West of 25 1/2 Road and North of Grand Valley Canal. Immediately West of the Valley Meadows Subdivision is an undeveloped open area. The site is approximately 600 feet long and 500 feet wide. Access to this site can be gained through 25 1/2 Road. The site lies downstream of a major drainage basin which drain southwest to the Grand Valley Canal historically. There is a small swale along the North property line.

The soils on this site consist of a Billing Silty Caly Loam (Bc) and a Ravola Sandy Loam (Rf). The site is a cultivated farm land with spare grasses.

Existing Drainage Conditions

The proposed site has a slope of 1% toward southwest and drains to the Grand Valley Canal historically. There is some off-site runoff contributions from Filing No.1 of this Subdivision. There are no previously determined 100-Year floodplain on this site.

Proposed Drainage Conditions

Based on the existing conditions on the site, runoff from this site will be collected with street gutter and inlets system and then discharged to the Grand Valley Canal via a storm sewer. Due to the site restraints, no detention will be provided for this site.

Design Criteria and Approach

We are not aware of any master plans or any other limitations on this site. The Rational Method was used to perform the analysis for the 2-Year and 100-Year design storm events. The Hydrology and hydraulic computations conducted for this site utilized the **Stormwater Management Manual** (June, 1994) for the City of Grand Junction, Colorado.

Valley Meadows Subdivision Filing No.2 Drainage

SUMMMARY

Summarized below are the drainage calculations for this porject:

Project Area = 6.78 acres
Off-site Area = 0.95 acre
Total Drainage Area = 7.73 acres

Drainage Calculation Method: Rational Method

Design Storm Events: 2-Year and 100-Year Storms

Pre-development Runoff Rates:

2-Year Historic Storm:
Q_{2h} = 0.90 cfs

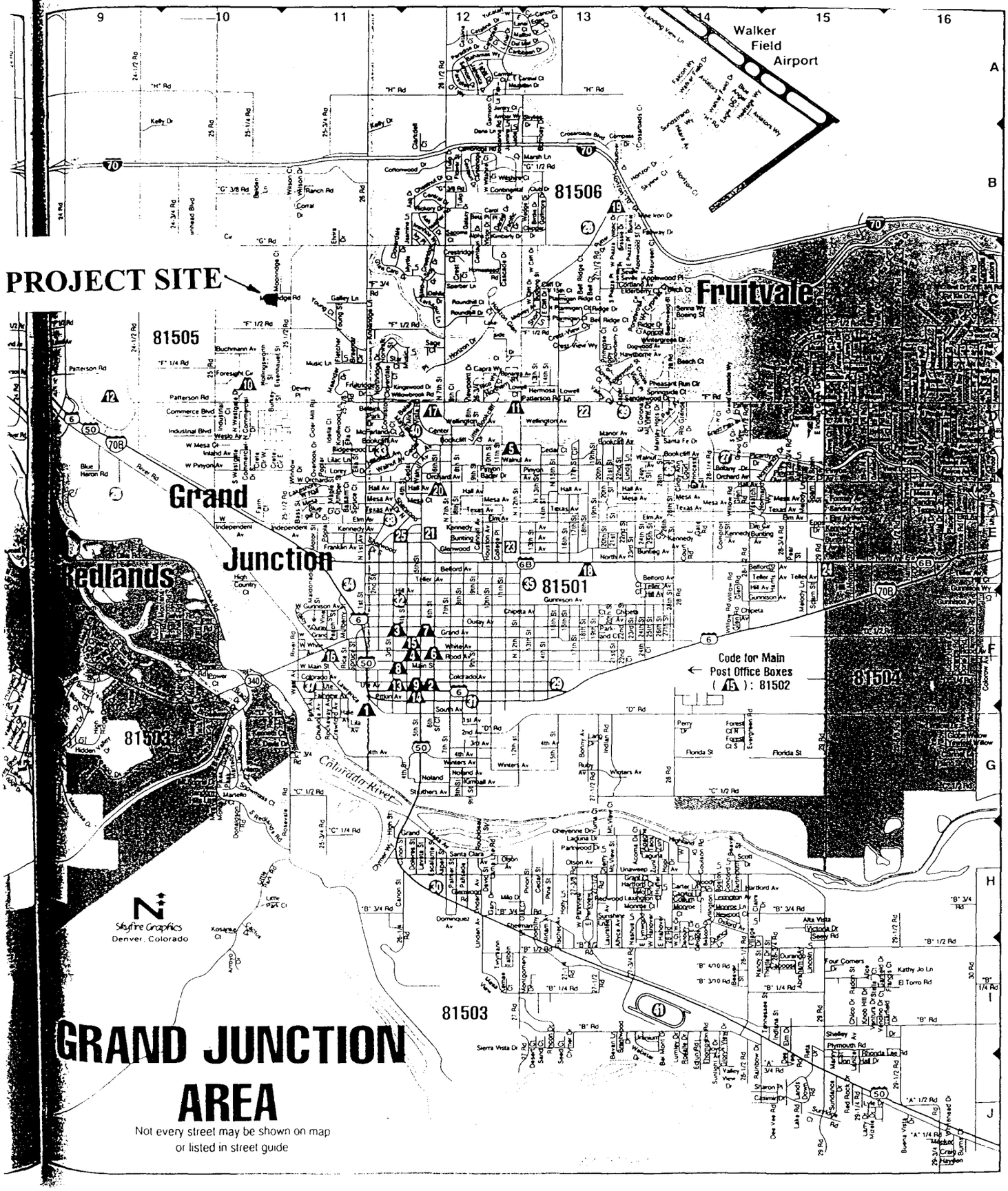
100-Year Historic Storm:
Q_{100h} = 3.14 cfs

Post-development Runoff Rates:

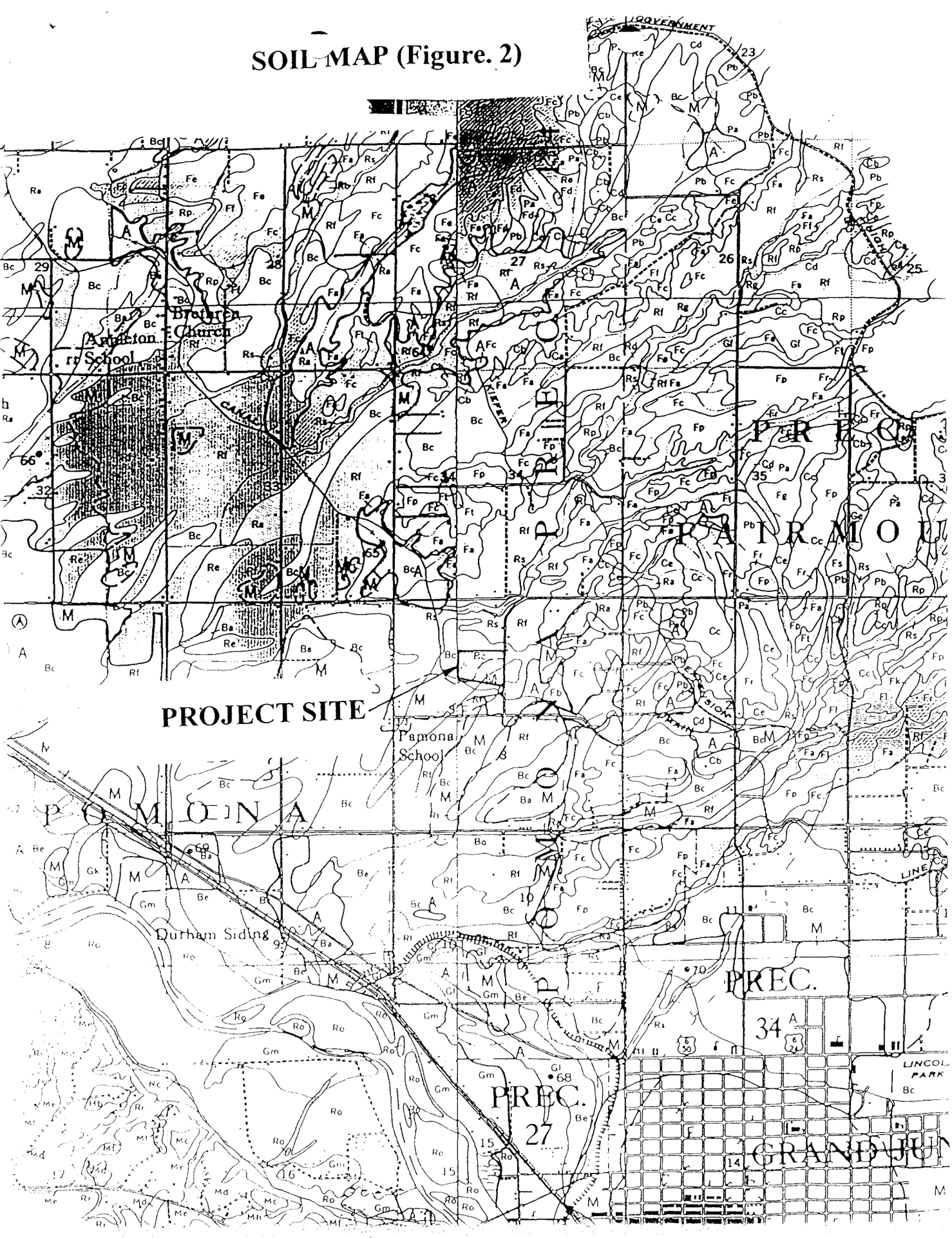
2-Year Developed Storm:
Q_{2d} = 1.82 cfs

100-Year Developed Storm:
Q_{100d} = 6.26 cfs

VICINITY MAP (Figure. 1)



SOIL MAP (Figure. 2)



APPENDIX A

Valley Meadows Subdivision Filing No.2 Drainage

HISTORIC CONDITION

1. Basin Area , A = 7.73 Acres

2-Year Storm:
SCS Hydrologica Soil Group : B C_{2h} = 0.15 (Cultivated/Agricultural; 0-2%)

(1) Overland Flow
Lo = 300 ft; S = 1.03%
$To = 1.8(1.1-C_{2h})(Lo)^{0.5}/(S)^{0.33} = 1.8(1.1-0.15)(300)^{0.5}/(1.03)^{0.33}$ = 29.3 min

(2) Shallow Concentrated Flow
Ls = 478 ft; S =1.03%
V = 0.90 ft/s (cultivated straight row)
Ts = Ls/V = 478/0.9/60 = 8.9 min

(3) Tc = To+Ts = 29.3 + 8.9 = 38.2 min ⇒ 38 min
I_{2h} = 0.78 in/hr
Q_{2h} = CIA = 0.15*0.78*7.73 = <u>0.90 cfs</u>

100-Year Storm:
SCS Hydrologica Soil Group : B C_{100h} = 0.20(Cultivated/Agricultural; 0-2%)

(1) Overland Flow
Lo = 300 ft; S = 1.03%
$To = 1.8(1.1-C_{100h})(Lo)^{0.5}/(S)^{0.33} = 1.8(1.1-0.20)(300)^{0.5}/(1.03)^{0.33}$ = 27.8 min

(2) Shallow Concentrated Flow
Ls = 478 ft; S =1.03%
V = 0.90 ft/s (cultivated straight row)
Ts = Ls/V = 478/0.9/60 = 8.9 min

(3) Tc = To+Ts = 27.8 + 8.9 = 36.7 min⇒ 37 min
I_{100h} = 2.03 in/hr
Q_{100h} = CIA = 0.20*2.03*7.73 = 3.14 <u>cfs</u>

DEVELOPED CONDITION

1. Basin Area, A = 7.73 Acres

2-Year Storm:
SCS Hydrologica Soil Group : B C_{2d} = 0.29 (Residential area 1/3 acre/unit; 0-2%)

Valley Meadows Subdivision Filing No.2 Drainage

DEVELOPED CONDITION

(1) Overland Flow
Lo = 300 ft; S = 0.94%
$To = 1.8(1.1-0.29)(300)^{0.5}/(0.94)^{0.33} = 25.8$ min

(2) Shallowed Concentrated Flow: Grassed Waterway
Ls_1 = 125 ft; S = 0.94%
V = 1.45 ft/s (Grassed Waterway)
$Ts_1 = Ls_1 /V = 125/1.45/60 = 1.4$ min

(3) Street Flow
Ls_2 = 580 ft; S = 0.51%
V = 1.45 ft (Paved Area, Sheet flow)
$Ts_2 = Ls_2 /V = 580/1.45/60 = 6.7$ min

(4) Conduit Flow
From Inlet #1 to Inlet #2 , 12" C-900 PVC Lc_1 = 39.43 ft; n = 0.009
S = 0.81%; Hydraulic Radius r = 0.25 ft
$V = 1.49(r)^{0.67}(S)^{0.5}/n = 1.49(0.25)^{0.67}(0.0081)^{0.5}/0.009 = 5.9$ ft/s
$Tc_1 = Lc_1 /V = 39.43/5.9/60 = 0.1$ min

From Inlet #2 to outlet at Grand Valley Canal, 15" RCP Lc_2 = 160 ft; n = 0.013
S = 0.71%; Hydraulic Radius r = 0.31 ft
$V = 1.49(r)^{0.67}(S)^{0.5}/n = 1.49(0.31)^{0.67}(0.0071)^{0.5}/0.013 = 4.4$ ft/s
$Tc_2 = Lc_2 /V = 160/4.4/60 = 0.6$ min

(5) $Tc = To+Ts_1+Ts_2+Tc_1+Tc_2 = 25.8+1.4+6.7+0.1+0.6 = 34.6$ min $\Rightarrow$ 35 min
$I_{2d} = 0.81$ in/hr
$Q_{2d} = CIA = 0.29*0.81*7.73 =$ <u>1.82 cfs</u>

100-Year Storm:
SCS Hydrologica Soil Group : B $C_{100d} = 0.37$ (Residential area 1/3 acre/unit; 0-2%)
(1) Overland Flow
Lo = 300 ft; S = 0.94%
$To = 1.8(1.1-0.37)(300)^{0.5}/(0.94)^{0.33} = 23.2$ min

(2) Shallowed Concentrated Flow: Grassed Waterway
Ls_1 = 125 ft; S = 0.94%
V = 1.45 ft/s (Grassed Waterway)
$Ts_1 = Ls_1 /V = 125/1.45/60 = 1.4$ min

(3) Street Flow

Valley Meadows Subdivision Filing No.2 Drainage

DEVELOPED CONDITION

Ls_2 = 580 ft; S = 0.51%
V = 1.45 ft (Paved Area, Sheet flow)
$Ts_2 = Ls_2 /V$ = 580/1.45/60 = 6.7 min

(4) Conduit Flow
From Inlet #1 to Inlet #2 , 12" C-900 PVC Lc_1 = 39.43 ft; n = 0.009
S = 0.81%; Hydraulic Radius r = 0.25 ft
$V = 1.49(r)^{0.67}(S)^{0.5}/n = 1.49(0.25)^{0.67}(0.0081)^{0.5}/0.009$ =5.9 ft/s
$Tc_1 = Lc_1 /V$ = 39.43/5.9/60 = 0.1 min

From Inlet #2 to outlet at Grand Valley Canal, 15" RCP Lc_2 = 160 ft; n = 0.013
S = 0.71%; Hydraulic Radius r = 0.31 ft
$V =1.49(r)^{0.67}(S)^{0.5}/n = 1.49(0.31)^{0.67}(0.0071)^{0.5}/0.013$ =4.4 ft/s
$Tc_2 = Lc_2 /V$ = 160/4.4/60 = 0.6 min

(5) $Tc = To+Ts_1+Ts_2+Tc_1+Tc_2$ = 23.2+1.4+6.7+0.1+0.6 = 32 min
I_{100d} = 2.19 in/hr
Q_{100d} = CIA = 0.37*2.19*7.73 = <u>6.26 cfs</u>

SUMMARY OF RUNOFF RATES

	2-Year Storm	100-Year Strom
Historic Condition	Q_{2h} = 0.90 cfs	Q_{100h} =3.14 cfs
Developed Condition	Q_{2d}= 1.82 cfs	Q_{100d}= 6.26 cfs

FLOW DEPTH IN THE STREET GUTTERS

2-Year and 100-Year storm events under developed conditions will be used to determine the flow depth in the street gutters. There will be two gutters on each street.

Formula: $Q = K\frac{Z}{n}\sqrt{S}\,(Y)^{8/3}$

Where: Q = the gutter flow (ft^3/s)
K = 0.56; a constant dependant upon unit (ft^3/s, ft)
Z = 50; the reciprocal of the transverse slope of the pavement.
n= 0.015; the roughness coefficient, typically 0.015 for concrete gutters.
S = 0.51% ; the slope of the gutter.
Y = the depth of gutter flow.

Using the above typical values and 2-Year and 100-Year runoff rates, the depth of water (Y) in the street gutter can be determined for the worst case. The worst case for this subdivision will

happened at the North side gutter of the Westwood Drive and nearby Inlet #1. The Runoff to this location can be estimated as follows:

Drainage area of North of the Westwood Drive street Centerline/Entire Drainage Area = 5.56/7.73 = 0.72

Then runoffs used to determine the flow depth will be:

2-Year $Q_2 = 0.72\ Q_{2d} = 0.72*1.82 = 1.31$ cfs

100-Year $Q_{100} = 0.72\ Q_{100d} = 0.72*6.26 = 4.51$ cfs

Therefore , $Y_2 = 0.18$ ft = 2.16 inch; $Y_{100} = 0.28$ ft = 3.36 inch

INLET CAPACITY ESTIMATE

Two single NEENAH R-3246C inlets will be placed on the Westwood Drive as shown on the drawings. The inlet capacity is as follows according to **Table "G-1" in the Stormwater Management Manual** (June, 1994) for the City of Grand Junction:

2-Year Inlet Capacity = 6.4 cfs > Q_{2d} = 1.82 cfs

100-Year Inlet Capacity = 13 cfs > Q_{100d} = 6.26 cfs

STORM SEWER DESIGN

Storm Sewer from Inlet #1 to Inlet #2: 12" C 900 PVC pipe;

L = 38 ft; S = 0.81%

V = 5.9 ft/s Q = 4.63 cfs;

Storm Sewer from Inlet #2 to the Grand Valley Canal: 15" RCP pipe;

L =160 ft; S = 0.71%

V = 4.4 ft/s

Q = 5.40 cfs; (Not all Q_{100d} will flow through the RCP pipe, about half of Block 1 area will drain directly to the Grand Valley Canal)

APPENDIX B

APPROVED FOR CONSTRUCTION

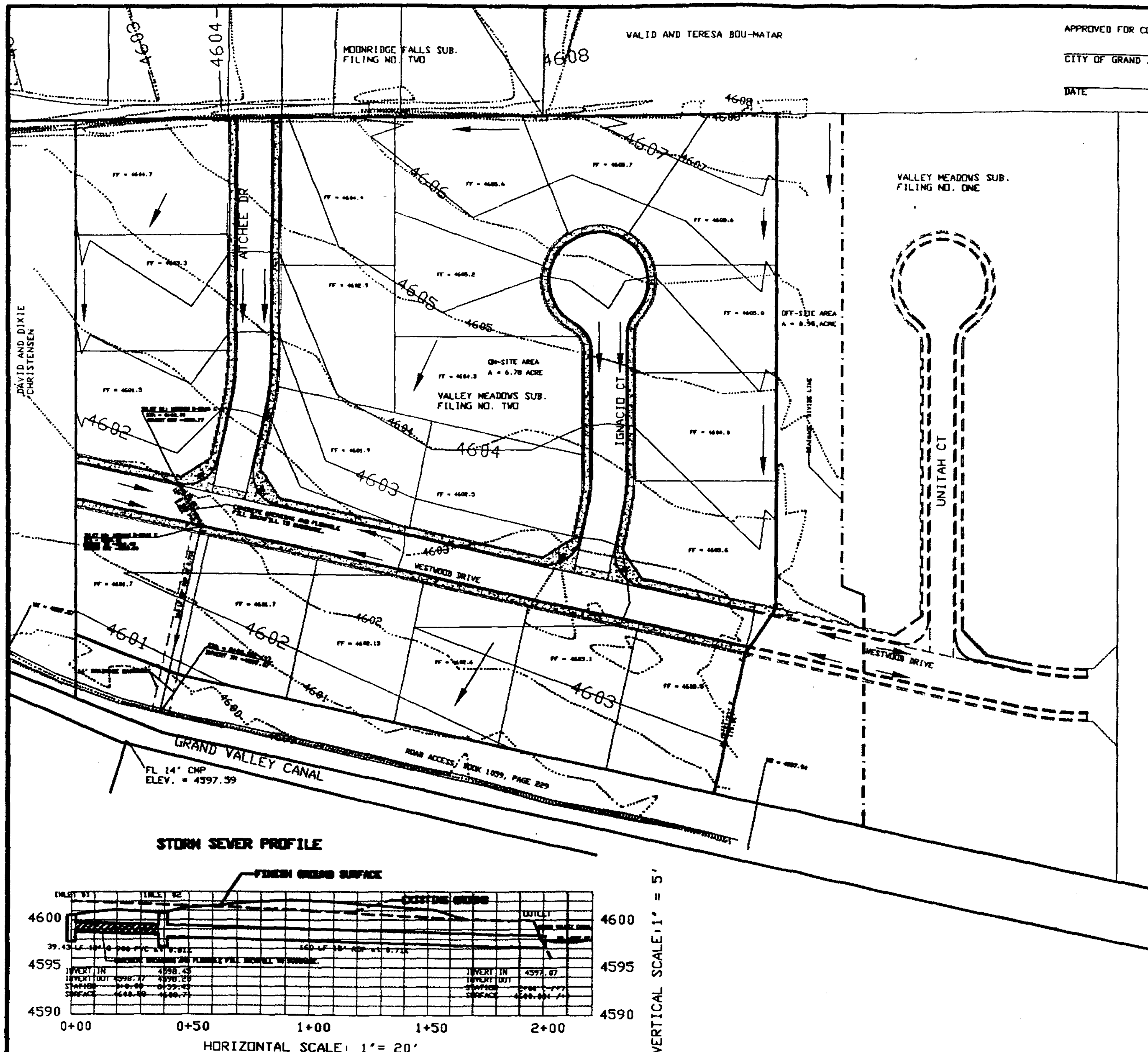
CITY OF GRAND JUNCTION ENGINEER

DATE

ACCEPTED AS CONSTRUCTED

CITY OF GRAND JUNCTION ENGINEER

DATE



DRAINAGE SUMMARY

FILING NO.2 PROJECT AREA A = 6.78 ACRE
OFF-SITE AREA A = 0.95 ACRE
TOTAL DRAINAGE AREA A = 7.73 ACRE

PRE-DEVELOPMENT RUNOFF RATES
2-YEAR HISTORIC STORM: Q_{2h} = 0.90 CFS
100-YEAR HISTORIC STORM: Q_{100h} = 3.14 CFS

POST-DEVELOPMENT RUNOFF RATES
2-YEAR DEVELOPED STORM: Q_{2d} = 1.82 CFS
100-YEAR DEVELOPED STORM: Q_{100d} = 6.26 CFS

FOR DETAILS SEE THE DRAINAGE REPORT FOR VALLEY MEADOWS SUBDIVISION FILING NO.2

LEGEND

← DRAINAGE DIRECTION
FF = MINIMUM FINISHED FLOOR ELEVATION

HORIZONTAL SCALE: 1" = 40'

POST-DEVELOPMENT DRAINAGE MAP FOR VALLEY MEADOWS SUBDIVISION

ROLLAND ENGINEERING
405 Ridges Blvd
Grand Jct. CO 81503
(303) 243-8300

Designed WL | Checked TBR | Drawn WL | Date 3/1/95 | Sheet 1 of 1

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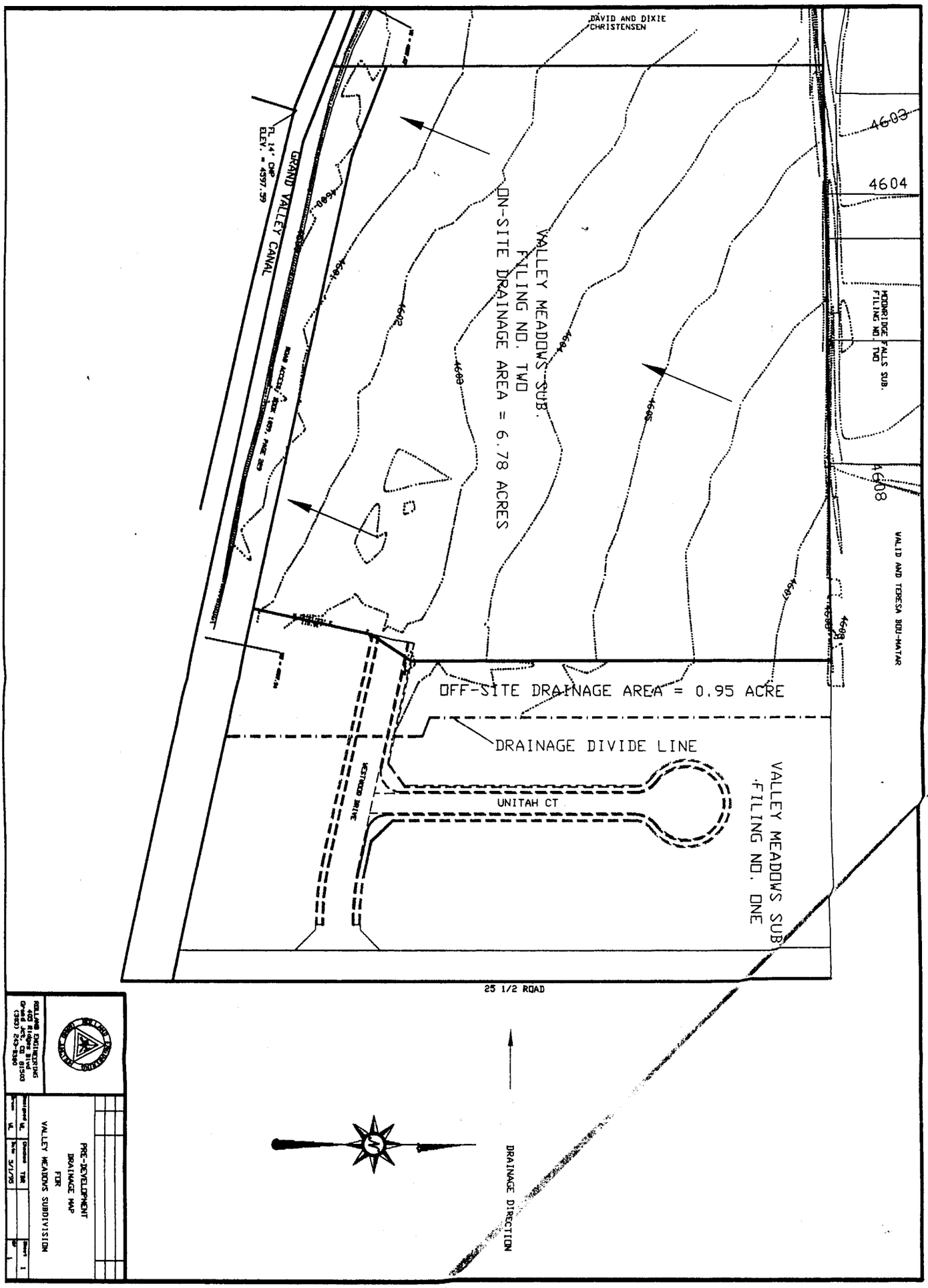


ROAD TYPE	COMBINATION INLET CAPACITY (CFS)					
	SINGLE		DOUBLE		TRIPLE	
	2-YR	100-YR	2-YR	100-YR	2-YR	100-YR
Urban Residential (local)	6.4	13	9.5	22	12.7	31
Residential Collector, Commercial and Industrial Streets	3.2	13	4.9	22	6.5	31
Collector Streets (3000 - 8000 ADT)	2.7	13	4.0	22	5.3	31
Principal and Minor Arterials	6.0	13	9.0	22	12.0	31

Inlet capacities shown above are based upon: 1) use of non-curved vane grates (similar to HEC-12 P-1 7/8-4 grates; 2) HEC-12 procedures; 3) clogging factors per Section VI; and 4) City/County standard inlets with 2-inch radius on curb face and type C grates. Capacities shown for 2-year storms are based upon depths allowed by maximum street inundation per Figure "G-3". The 100-year capacities are based upon a ponded depth of 1.0 foot. Note that only combination inlets are allowed in sag or sump conditions.

MAXIMUM INLET CAPACITIES: SUMP OR SAG CONDITION — **TABLE "G-1"**

$Q = K S^{1/2}$ $S = (Q/K)^2$

$K = Q / S^{1/2}$ $Y = K / S^{1/2}$

DIA INCHES	AREA SQ FT	K (n = 0.013)
4"	0.087	1.903
6"	0.196	5.611 1.6??
8"	0.349	12.084 17.68
10"	0.545	21.910
12"	0.785	35.628 51.46
15"	1.227	64.598
18"	1.767	105.043
21"	2.405	158.450
24"	3.142	226.220
27"	3.976	309.703
30"	4.909	410.171
33"	5.940	528.866
36"	7.069	666.984
39"	8.296	825.685
42"	9.621	1,006.098
45"	11.045	1,209.322
48"	12.566	1,436.433
51"	14.186	1,688.480
54"	15.904	1,966.491
57"	17.721	2,271.477
60"	19.635	2,604.426
63"	21.648	2,966.312
66"	23.758	3,358.091
69"	25.967	3,780.706
72"	28.274	4,235.084
75	30.680	4,722.139
78	33.183	5,242.772
81	35.785	5,797.874
84	38.485	6,385.322
87	41.282	7,014.984
90	44.179	7,676.718
93	47.173	8,380.370
96	50.265	[illegible]
99	53.456	[illegible]
102	[illegible]	[illegible]
108	63.617	[illegible]
114	70.882	[illegible]
[illegible]	[illegible]	[illegible]

HYDRAULIC PROPERTIES

FROUDE # < 1 sub, > 1 super

$FR^2 = \frac{V^2}{gY}$ ∴ $F_R = \frac{V}{\sqrt{gY}}$ Y = depth

($n = 0.009$ PVC)

SINCE $Q = \frac{1.486}{n} \times A \times R^{2/3} \times S^{1/2}$

∴ $K = \frac{Q}{S^{1/2}} = \frac{1.486}{n} \times \frac{\pi d^2}{4} \times \left(\frac{d}{4}\right)^{2/3}$

∴ $K = \frac{0.4631646 \, d^{8/3}}{n}$ (FULL PIPE)

CRITICAL

Table 7-10. For Determining the Discharge Q of a Circular Channel Flowing Part Full When Flow Is at Critical Depth

Let $\frac{\text{depth of water}}{\text{diameter of channel}} = \frac{D_c}{d}$ and let K_c' = tabulated value. Then $Q = K_c' d^{5/2}$. $K_c = Q / d^{5/2}$

D_c/d	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0		.0006	.0025	.0065	.0098	.0153	.0220	.0298	.0389	.0491
.1	.0605	.0731	.0868	.1016	.1176	.1347	.1530	.1724	.1928	.2144
.2	.2371	.2609	.2857	.3116	.3386	.3666	.3957	.4259	.4571	.4893
.3	.523	.557	.592	.628	.666	.704	.743	.784	.825	.867
.4	.910	.955	1.000	1.046	1.093	1.141	1.190	1.240	1.291	1.343
.5	1.396	1.449	1.504	1.560	1.616	1.674	1.733	1.792	1.853	1.916
.6	1.977	2.041	2.106	2.172	2.239	2.307	2.376	2.446	2.518	2.591
.7	2.666	2.741	2.819	2.898	2.978	3.061	3.145	3.231	3.320	3.411
.8	3.505	3.602	3.702	3.806	3.914	4.028	4.147	4.272	4.408	4.549
.9	4.70	4.87	5.06	5.27	5.521	5.81	6.18	6.67	7.41	8.83

AREA

Table 7-4. For Determining the Area a of the Cross Section of a Circular Conduit Flowing Part Full $a = C d^2$

Let $\frac{\text{depth of water}}{\text{diameter of channel}} = \frac{D}{d}$ and C_a = the tabulated value. Then $a = C_a d^2$.

D/d	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0	.0000	.0013	.0037	.0069	.0105	.0147	.0192	.0242	.0294	.0350
.1	.0409	.0470	.0534	.0600	.0668	.0739	.0811	.0885	.0961	.1039
.2	.1118	.1199	.1281	.1365	.1449	.1535	.1623	.1711	.1800	.1890
.3	.1982	.2074	.2167	.2260	.2355	.2450	.2546	.2642	.2739	.2836
.4	.2934	.3032	.3130	.3229	.3328	.3428	.3527	.3627	.3727	.3827
.5	.393	.403	.413	.423	.433	.443	.453	.462	.472	.482
.6	.492	.502	.512	.521	.531	.540	.550	.559	.569	.578
.7	.587	.596	.605	.614	.623	.632	.640	.649	.657	.666
.8	.674	.681	.689	.697	.704	.712	.719	.725	.732	.738
.9	.745	.750	.756	.761	.766	.771	.775	.779	.782	.784

NORMAL

Table 7-14. Values of K' for Circular Channels in the Formula

$Q = \frac{K'}{n} d^{8/3} S^{1/2}$ $K' = \frac{Q n}{d^{8/3} S^{1/2}}$

D = depth of water d = diameter of channel

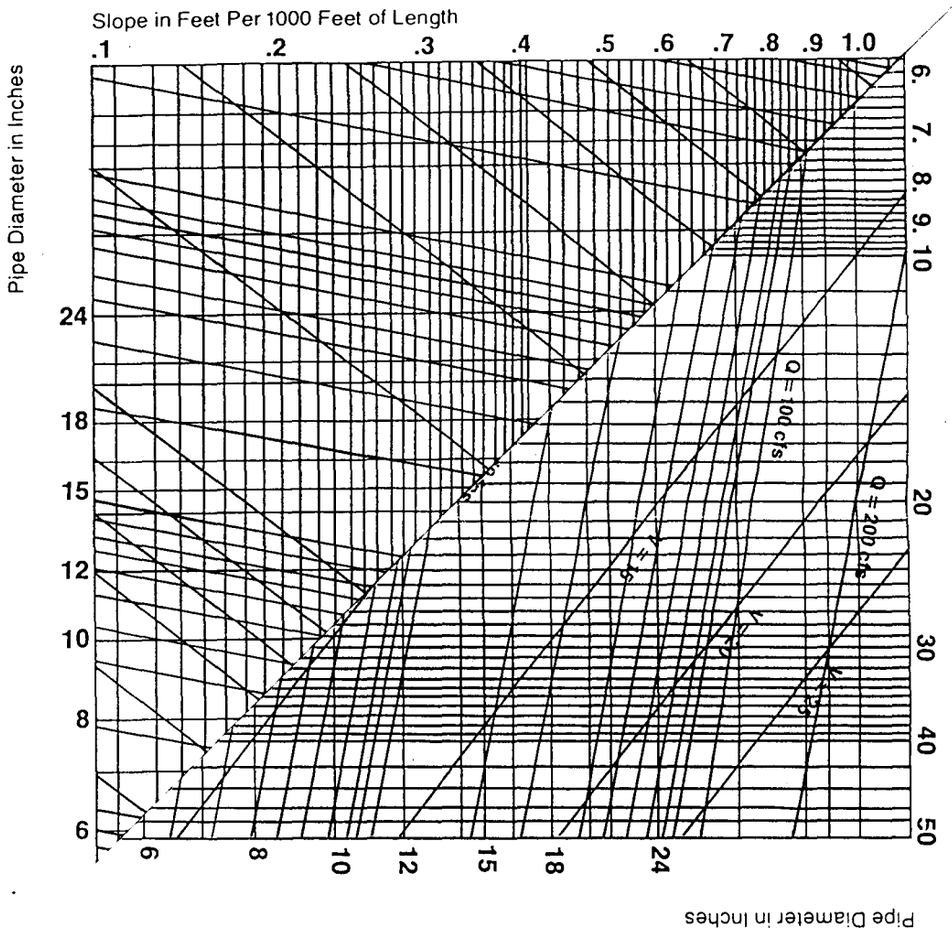
D/d	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
.0		.00007	.00031	.00074	.00138	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.1	.00967	.0118	.0142	.0167	.0195	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.2	[illegible]	.0448	.0492	.0537	.0585	[illegible]	.0686	[illegible]	[illegible]	[illegible]
.3	[illegible]	.0966	[illegible]	[illegible]	.1153	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.4	[illegible]	[illegible]	[illegible]	[illegible]	.1854	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
.5	.232	.239	.247	[illegible]	.263	.271	.279	[illegible]	[illegible]	.303
.6	[illegible]	.319	.327	.335	.343	.350	[illegible]	.366	[illegible]	.382
.7	.388	.395	.402	.409	.416	.422	[illegible]	[illegible]	[illegible]	.447
.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Flow Chart for Pipe Flowing Full

Coefficient of Flow
n = 0.009

Derived from the MANNING Formula

$$v = \frac{1.486}{n} R^{2/3} S^{1/2}$$



PVC Gravity Sewer Pipes have a efficient of n = 0.009. Their high ing capacities may often result in the use of flatter grades or in the use of smaller diameter pipe.

SUPPLEMENT

SECTION 3

HYDROLOGIC SOIL GROUPS

This section gives definition of four soil groups that are used in determining hydrologic soil-cover complexes, for estimating runoff from rainfall.

Definitions

The hydrologic soil groups, according to their infiltration and transmission rates, are:

A. (Low runoff potential). Soils have high infiltration rates even when thoroughly wetted. These consist chiefly of deep, well to excessively drained sands or gravel. These soils have a high rate of water transmission in that water readily passes through them.

B. Soils having moderate infiltration rates when thoroughly wetted. These consist chiefly of moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.

C. Soils having slow infiltration rates when thoroughly wetted. These consist chiefly of soils with a layer that impeded downward movement of water or soils with moderately fine to fine texture. These soils have a slow rate of water transmission.

D. (High runoff potential). Soils having very slow infiltration rates when thoroughly wetted. These consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission.

Source of Data

Local Soil Conservation Service field offices have soil survey data for their respective areas. Much of this existing data was mapped with soil symbols or with soil series names that may not be current. These symbols or soil series names may be converted to current names with assistance from respective SCS offices. The 1979 publication, "Soils of Colorado" has current soil series names and hydrologic groups. This information is included in Table S-2 of this publication.

Billings silty clay loam, 0 to 2 percent slopes (Bc).—This soil, locally called adobe, is one of the most important and extensive in the Grand Valley. It covers nearly one-fifth of the Grand Junction Area. The areas occur on the broad flood plains and very gently sloping coalescing alluvial fans along streams. Many large areas are north of the Colorado River.

The soil is derived from deep alluvial deposits that came mainly from Mancos shale but in a few places from fine-grained sandstone materials. The deposits ordinarily range from 4 to 40 feet deep but in places exceed 40 feet. The deposits have been built up from thin sediments brought in by the streams that have formed the coalescing alluvial fans or have been dropped by the broad washes that have no drainage channel. The thickest deposit, near Grand Junction, was built up by Indian Wash.

The color and texture of the soil profile vary from place to place. The 8- to 10-inch surface soil normally consists of gray, light-gray, light olive-gray, or light brownish-gray silty clay loam. This layer grades into material of similar color and texture that extends to depths of 3 or 4 feet. Below this depth the successive depositional layers show more variation. Although the dominant texture is silty clay loam, the profile may have a loam, clay loam, fine sandy loam, or a very fine sandy loam texture.

Where there are fairly uniform beds of Mancos shale and where the soil is not influenced by materials deposited by adjoining drainage courses, the profile varies only slightly within the upper 3 or 4 feet. In areas bordering drainage courses, however, the soil varies more in texture and color from the surface downward.

One small area about 1½ miles southeast of Loma consists of light grayish-brown or pale-brown heavy silty clay loam that shows only slight variation in texture to depths of 4 to 6 feet. The underlying soil material is more variable. Below depths of 6 to 10 feet the layers generally are somewhat thicker and have a higher percentage of coarse soil material.

Also included with this soil are several small areas totaling about 3 square miles that are dominantly pale yellow. These are located 2½ to 3½ miles northeast of Fruita, 5 miles north of Fruita, 2½ miles northeast of Loma, 3 to 5 miles north of Loma, 1½ miles northwest of Loma, and 4 miles northwest of Mack. In these areas the 8- or 10-inch surface soil is pale-yellow silty clay loam, and the subsoil is a relatively uniform pale-yellow silty clay loam to depths of 4 to 8 feet. The accumulated alluvial layers are difficult to distinguish, but in a few places transitional to Fruita soils there are small areas having a pale-brown to light-yellowish brown color. These transitional areas are included with Billings silty clay loam because they have a finer textured subsoil than is characteristic of the Ravola soils.

Although moderately fine textured, this Billings soil permits successful growth of deep-rooted crops such as alfalfa and tree fruits. Its permeability is normally not so favorable as that of the Mesa, Fruita, and Ravola soils. Its tilth and workability are fair, but it puddles so quickly when wet and bakes so hard when dry that good tilth can be maintained only by proper irrigation and special cultural practices. Runoff is slow and internal drainage is very slow.

Like all other soils in the area, this one has a low organic-matter content. Under natural conditions it contains a moderate concentration of salts derived from the parent rock (Mancos shale). In places, however, it contains so much salt that good yields cannot be obtained. Some large areas are so strongly saline they cannot be used for crops. Generally, this soil is without visible lime, but it is calcareous. In many places small white flecks or indistinct light-colored streaks or seams indicate that lime, gypsum, or salts are present.

Use and management.—About 80 percent of this soil is cultivated. The chief irrigated crops are alfalfa, corn, dry beans, sugar beets, small grains, and tomatoes and other truck crops. Where the soil is located so as to avoid frost damage, tree fruits are grown.

Most of the field crops are grown in the central and western parts of the valley, or from Grand Junction westward. The entire acreage in tree fruits—approximately 3 square miles—lies between Grand Junction and Palisade. Because the climate is more favorable near Palisade, the acreage in orchard fruits is greater there. A few small orchards are located northeast of Grand Junction in the direction of Clifton. The main fruit acreage is between Clifton and Palisade. Peach orchards predominate, but a considerable acreage is in pears, especially near Clifton. Yields depend on the age of the trees and other factors, including management, but the estimated potential yield is somewhat less on this soil than on Mesa soils. This takes into account the slower internal drainage of this soil and its susceptibility to salinity if overirrigated. Yields of other crops vary according to the length of time the land has been irrigated, internal drainage or subdrainage, salt content of the soil, management practices, and local climate.

The uncultivated areas of this soil are mostly inaccessible places adjoining the larger washes, which occur mainly in the western part of the area, and those places that cannot be cropped profitably because they have inadequate drainage and a harmful concentration of salts. The uncultivated land supports a sparse growth of greasewood, saltbush, shadscale, rabbitbrush, ryegrass, peppergrass, and saltgrass. From 70 to 90 acres are required to pasture one animal during a season.

A number of places shown on the map by small marsh symbols are low and seepy. They could be ditched, but their acreage is likely too small to justify the expense. Left as they are, their salt content makes them worthless for any use except pasture.

Sizeable acreages of this soil apparently were overirrigated in the past. Irrigation water applied at higher levels to the north seeps upward in this soil where it occurs in low areas toward the river. Even now, new saline areas are appearing, and existing areas are getting larger. The total acreage affected by salts has remained more or less the same for the last two decades, but affected areas will continue to change in size and shape because of seepage.

Most fields are ditched where necessary. Some uncultivated areas require both leveling and ditching. In places subdrainage is inadequate because irregularities in the underlying shale tend to create pockets and prevent underground water from flowing into the drainage ditches. Also, in some areas where the alluvial mantle is 30 to 40 feet thick, the ditches are not always deep enough to drain the soil. Some areas are seepy because there are no ditches running in an east-west direction to intercept lateral flow of ground water from the over-

irrigated, permeable, medium-textured, stratified soils on the upper parts of the fan to the north. After being leveled, uncultivated areas would have to be cropped for 3 years before their salt content would be reduced enough to permit good yields.

Farmers can increase the organic-matter content of this soil by applying manure liberally and by growing alfalfa or clovers at least part of the time. A combination field crop and livestock type of farming favors improvement of this soil. Many of the small imperfectly drained areas may be kept in pasture. Strawberry clover and sweetclover are well suited, and mixtures of pasture grasses grow well.

Billings silty clay loam, 2 to 5 percent slopes (BD).—This soil covers a relatively small acreage in the Grand Valley. The areas are widely scattered. Except for its stronger slope, the soil is almost the same as Billings silty clay loam, 0 to 2 percent slopes. In a few places, notably north of Loma, there are areas having a pale-yellow color rather than the gray typical of the Billings soils.

Use and management.—Only about 15 percent of this soil is cultivated. Many of the areas lie along large drainageways or washes where they are difficult to reach. Even a larger number have such an uneven surface that considerable leveling would have to be done before they could be cropped. The cost of leveling, together with the expense of controlling erosion and gullying, discourages farmers from using them.

Many of the uncultivated areas have moderate concentrations of salts, but they are not particularly difficult to reclaim because they border natural ditches or washes which afford free disposal of irrigation water. Furthermore, for the most part, they have a porous substratum.

About the same crops are grown on this soil as on Billings silty clay loam, 0 to 2 percent slopes. The average yields are approximately the same.

Billings silty clay, 0 to 2 percent slopes (BA).—This soil, locally called heavy adobe, occurs well toward the Colorado River. It is on alluvial materials—4 to about 40 feet thick—that largely came from Mancos shale. Most of this soil lies east and southeast of Grand Junction and along the railroad between Grand Junction and Fruita.

The 8- or 10-inch surface soil consists of light brownish-gray, gray, or olive-gray silty clay. The layer is similar to the surface layer of Billings silty clay loam soils but it is harder and, in many places, darker. The subsoil consists of similarly colored layers of silty clay loam, silt loam, and silty clay. In places the soil is silty clay to depths exceeding 4 feet.

The entire profile is firm when moist and has a massive structure. The subsoil has many small irregularly shaped light-gray specks or indistinct mottles. Poorly defined light-colored streaks indicate the presence of lime, gypsum, or salts. The surface soil and subsoil are calcareous, the lime being well distributed. The fine texture of the soil greatly retards penetration of roots, moisture, and air.

Surface runoff is very slow to slow where the slope is less than 1 percent. Internal drainage is very slow because the subsoil is massive and very slowly permeable. Even with ample drainage ditches, the discharge of irrigation water is slow.

Tilth and workability are not good, because the soil has a fine texture and a low content of organic matter. Moreover, some fields contain areas 20 to 60 feet across that have excessive amounts of salts. Slick spots also occur. These salty areas and slick spots produce low or negligible yields of most crops and are extremely difficult to eliminate.

Use and management.—About 75 percent of this soil is cultivated. Most of the rest is affected by salts. Small grains, beans, sugar beets, and alfalfa are the chief crops. They yield less than on Billings silty clay loam, 0 to 2 percent slopes. Ordinarily, newly broken fields are cropped to oats or other small grains the first few seasons so that excess salts can be removed. Afterwards, if drainage is adequate, they may be planted to pinto beans, sugar beets, corn, or alfalfa. The very slow permeability of this soil makes it unsuitable for orchard crops. Also, it is located mainly in areas where the frost hazard is great. Probably the greater part of the irrigable acreage is used for sugar beets. Small grains, alfalfa, and pinto beans usually follow in the order named.

Billings silty clay, 2 to 5 percent slopes (BB).—This soil is similar to Billings silty clay, 0 to 2 percent slopes. It differs mainly in having greater slopes and a slightly finer textured and darker gray surface soil. In places, below depths of 3 or 4 feet, the silty clay or clay material is light olive gray.

The tilth and workability are poor. Surface runoff is medium, and internal drainage is very slow. The soil is better suited to irrigation than most of the larger nearly level areas of Billings silty clay, 0 to 2 percent slopes, many of which are affected by salts. Approximately 12 acres of this soil is in peach orchards. All the rest is normally used for cultivated crops, principally corn, pinto beans, and alfalfa. This soil is suited to about the same crops as Billings silty clay, 0 to 2 percent slopes, but it generally produces better yields.

Billings silty clay, moderately deep over Green River soil material, 0 to 2 percent slopes (BE).—This soil occurs on the outer margin of coalescing alluvial fans where 1 to 4½ feet of fine-textured deposits derived from shale overlies Green River soil materials.

Except for a few strips only a few rods wide that adjoin low-lying areas of Green River soils, this soil has not been altered by high overflows from the Colorado River. It is not likely that the main part of the soil will be covered by floodwaters from the Colorado River, as it lies well above the level of normal overflow.

Use and management.—About 85 percent of this soil is cultivated. The principal crops are alfalfa, corn, sugar beets, and pinto beans. A few peach orchards are on this soil near Clifton. Because the underlying strata are coarser, crops produce better on this soil than on most areas of the other Billings silty clay soils. Drainage and saline conditions have to be corrected before the soil will produce well.

Uncultivated acreages of this soil northwest of Grand Junction are saline, imperfectly drained, or both. Their tilth and workability are poor because they have a fine texture and a low content of organic matter.

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comparatively sharp rises or undulations having slopes of more than 5 percent that extend 4 to 6 feet above the prevailing level or in small irregularly shaped bodies on relatively smooth topography. Wherever the areas of Chipeta soil occur, they are too small and too intricately associated with the Persayo soil to be mapped separately.

Use and management.—About 25 percent of this complex is cultivated, but practically all of it could be. The Chipeta soil is not difficult to level, but the expense of leveling and the isolated location of the areas have not favored development for irrigation and cropping. The kinds of crops grown, the management practiced, and the yields produced are approximately the same as for Persayo-Chipeta silty clay loams, 0 to 2 percent slopes.

Ravola clay loam, 0 to 2 percent slopes (RA).—This soil, the second most extensive in the area, has developed in material that consists largely of reworked Mancos shale but includes an appreciable amount of sandy alluvium from the higher Mesaverde formation. The surface of these deposits is relatively level, but the depth of the deposits ranges from 5 to 30 feet. The soil is associated with the Billings silty clay loams and the Ravola fine sandy loams. The most important areas are east, northeast, and southeast of Fruita, north and northwest of Palisade, and north and northwest of Clifton.

The soil is much like the Billings silty clay loams but more porous because it contains more fine sand, especially in the subsoil. Ordinarily, the 10- or 12-inch surface layer consists of light brownish-gray to very pale-brown light clay loam. The underlying layers vary from place to place in thickness and texture and become more sandy below depths of 4 to 5 feet. The range in the subsoil is from fine sandy loam to clay loam.

Small fragments of shale and sandstone are common from the surface downward and are especially noticeable in areas nearest the source of the soil material. The entire profile is calcareous and friable, so internal drainage is medium and development of plant roots is not restricted. The surface is smooth. Most areas are at slightly higher levels than the associated areas of Billings silty clay loams and therefore have better drainage and a lower content of salts. The soil, however, is slightly saline under native cover, and in places it has strongly saline spots and a high water table.

Use and management.—About 95 percent of this soil is cultivated. The chief crops are alfalfa, corn, pinto beans, small grains, and, where climate is favorable, orchard fruits. Practically all the acreage used for tree fruits is near Clifton and Palisade. The acreage used for field crops varies from year to year, but by rough estimate about 30 percent is cropped to corn, 25 percent to alfalfa, 15 percent to pinto beans, 13 percent to orchard fruits, 10 percent to small grains, and the rest to sugar beets, tame hay, tomatoes, and various vegetable crops.

In general, the tilth and workability of this soil are favorable. The content of organic matter is generally less than 1 percent, but many farmers are improving the supply by growing more alfalfa and by using other improved management.

Ravola clay loam, 2 to 5 percent slopes (RB).—This soil differs from Ravola clay loam, 0 to 2 percent slopes, mainly in having greater slopes. Although the combined areas total only seven-tenths of a square mile, this soil is important because the largest single area—

approximately 300 acres—is located southeast of Palisade in the Vinelands and is used for peach growing. The remaining areas, widely scattered over the valley, total about 150 acres and are of minor importance.

The large area occupies a position intermediate between the Green River soils and the higher Mesa soils. Its underlying gravel and stone strata consist not only of sandstone but also of granite, schist, basalt, and lava. Much of the lava was deposited by drainage from the southeast. This large area was included with the soil unit largely because its color was similar to that of the other soil areas. Not many years ago subdrainage became inadequate for existing tree fruits and it was not until a number of tile drains were laid, as deep as 7 to 8 feet in places, that subdrainage was corrected in parts of this particular area.

Use and management.—All of the large soil area is in peaches. On it peach yields average as high as in any section of the valley, primarily because the danger of frost damage is negligible. Some of the orchards are now more than 50 years old but have produced steadily and still yield more than 400 bushels an acre according to reports from local growers. About half of the small scattered areas are cultivated. They are used largely for field crops because climatic conditions are not so favorable for peach growing. In building up the organic matter content, the growing of legumes, application of manure in large amounts, and use of commercial fertilizer generally are practiced.

Ravola very fine sandy loam, 0 to 2 percent slopes (RF).—This extensive and important soil occurs either along washes or arroyas extending from the north or on broad coalescing alluvial fans. The alluvial material from which the soil has developed was derived from sandstone and shale and ranges from 4 to 20 feet deep. The principal areas of the soil are north and northwest of Grand Junction and north, northwest, and southwest of Fruita.

This soil is much like Ravola fine sandy loam, 0 to 2 percent slopes, but is generally more uniformly level. The texture is prevailingly very fine sandy loam, but the percentage of silt is noticeably higher in some places. A few small areas that have a loam texture are included.

The 10- or 12-inch surface layer consists of light brownish-gray to very pale-brown very fine sandy loam. In some places the underlying thin depositional layers vary only slightly in color or texture. In other places, especially near drainage courses, the layers are more variable and may grade to loam, silt loam, or fine sandy loam. Nevertheless, layers of very fine sandy loam are more numerous. Below depths of 4 to 5 feet, the texture is sandier, and at depths of 8 to 12 feet strata of loamy fine sand, gravel, and scattered sandstone rock are common.

Disseminated lime occurs from the surface downward. Owing to the friable consistence of the successive layers, the tilth, internal drainage, available supply of moisture for plants, permeability to plant roots, and other physical properties are favorable and assure a wide suitability range for crops. The organic-matter content, however, is low. The soil is slightly saline under native cover and has a few strongly saline spots. Occasionally the water table is high.

Use and management.—More than 99 percent of this soil is cultivated. The chief crops are alfalfa, corn, pinto beans, small grains,

and truck crops. Corn is planted on an estimated 35 percent of the area, alfalfa on 20 percent, beans on 20 percent, small grains on 10 percent, and potatoes, tomatoes, sugar beets, and irrigated pasture on the rest. The percentage of land planted to the various crops fluctuates considerably. Yields have been increased by using improved soil management, such as application of barnyard manure; the growing of clovers and alfalfa frequently after corn, potatoes, sugar beets, and other crops; and the more liberal use of treble superphosphate and mixed commercial fertilizer.

Ravola very fine sandy loam, 2 to 5 percent slopes (RG).—This soil, of minor importance because of its limited extent, occurs chiefly in the northwestern part of the county. Except for greater slope, it is very similar to Ravola very fine sandy loam, 0 to 2 percent slopes. Most of it is not cultivated. If it were leveled and cultivated, it would need about the same management as Ravola very fine sandy loam, 0 to 2 percent slopes, and should produce approximately the same yields.

Ravola fine sandy loam, 0 to 2 percent slopes (RC).—This soil, fairly important agriculturally, occurs mostly east, northeast, and north of Fruita. The soil-forming material is derived largely from sandstone but has some admixture of silt or finer sediments of shale origin.

The 10- or 12-inch surface layer consists of light brownish-gray, pale-brown, or very pale-brown fine sandy loam. The underlying depositional layers generally range from 1 to 3 inches thick; they may have a fine sandy loam, fine sandy clay, very fine sandy loam, or loam texture. The gradation in texture from one layer to another is almost imperceptible in some places, but fairly distinct in others. In most places the material below 4 feet is more sandy and slightly lighter gravish brown than that above.

The soil is calcareous from the surface downward, but the lime is not visible. Because the successive layers are friable, deep-rooted crops are well suited. Internal drainage is medium to rapid, and moisture relations are favorable. Though the organic-matter content is low, other physical properties are favorable and allow good tilth, good drainage, and moderate permeability for deep-rooted crops. The soil is slightly saline under native cover and strongly saline in a few spots. It is subject to an occasional high water table.

Use and management.—About 98 percent of this soil is cultivated. The most important field crops are potatoes, corn, alfalfa, and pinto beans. Comparatively smaller acreages are in sugar beets, small grains, and tomatoes, cucumbers, and other truck crops. An estimated 30 percent of the cultivated acreage is cropped to corn, 25 percent to alfalfa, 20 percent to potatoes, 15 percent to pinto beans, 5 percent to small grains, and the rest to truck crops, largely tomatoes.

The trend in recent years has been toward larger acreages of potatoes, tomatoes, and pinto beans. In earlier days, a considerable acreage was used for tree fruits, mainly pears. Severe blight, excessive cost of growing and marketing the fruit, and unsuitable climate have caused gradual conversion to field crops.

With proper management, this soil should remain productive indefinitely. Definite rotations normally are not followed. Frequently, alfalfa is grown 4 or 5 years, corn 1 or 2 years, then oats or wheat, and finally pinto beans. Manure, if available, generally is applied to the corn crop. The most common fertilizer is treble superphosphate, applied at the rate of 100 to 150 pounds an acre for field crops and truck crops. Some potato growers use commercial fertilizer at the rate of about 150 pounds an acre.

Ravola fine sandy loam, 2 to 5 percent slopes (RD).—Except for scattered areas totaling about 25 acres, most of this soil is in the Vinelands section east of Palisade. The soil-forming material is mostly local alluvium derived from shale and sandstone that has been brought down the drainage courses from the southeast. In areas east of Palisade a few scattered, rounded igneous gravel, cobbles, stones, and boulders in the lower subsoil indicate that there has been some admixture of sediments deposited in the past by the Colorado River.

The 10- or 12-inch surface layer is light brownish-gray or very pale-brown loam. The subsoil layers are similarly colored and dominantly of a fine sandy loam texture. Nevertheless, in places fine sandy loam, loam, and clay loam textures are represented in the subsoil. The soil is calcareous throughout. Although the organic-matter content is low, other physical properties insure good tilth, drainage, and permeability to deep-rooted crops. The soil is slightly saline under native cover and includes some strongly saline spots. Occasionally the water table is high.

Use and management.—Practically all of this soil is cultivated; deep-rooted crops are well suited. The two areas east of Palisade are in peach orchards and produce yields comparing favorably with those on Ravola clay loam soils in the same area. These two areas are small but valuable because they are located where the climate is ideal for tree fruits. The productivity of this soil, especially for orchard fruits, is practically the same as that of Mesa clay loam soils.

Ravola loam, 0 to 2 percent slopes (RE).—This soil is not extensive, but it is important agriculturally. It occupies relatively broad alluvial fans and flood plains along streams. It is at a slightly higher elevation than the bordering areas of Billings silty clay loam soils. It has developed in an alluvial deposit derived largely from Mancos shale and to lesser extent from the fine-grained sandstone of the Mesaverde formation. The soil is very similar to Ravola very fine sandy loam, 0 to 2 percent slopes, but it contains less very fine sand and a definitely larger amount of silt. In a number of small areas the texture approaches, or may be, a silt loam. From the Ravola clay loam soils, this soil differs in being coarser textured and not so gritty.

In the larger areas near Clifton, the 10- or 12-inch surface layer consists of light brownish-gray to pale-yellow, calcareous, heavy loam. The subsoil, similar to the surface soil in color, invariably contains a higher percentage of silt than the subsoil of the Ravola very fine sandy loams. Differences among the thin alluvial layers in the subsoil are almost imperceptible to depths of 3 to 4 feet. At depths greater than this, however, 1- to 3-inch layers of either silt or very fine sandy loam commonly occur among the more numerous layers of loam. The thin layers of silt or very fine sandy loam are most noticeable in the larger and broader areas west of Palisade.

Northeast of Fruita, northwest of Mack, and southeast and northeast of Loma, this soil consists of pale-yellow to light-gray surface

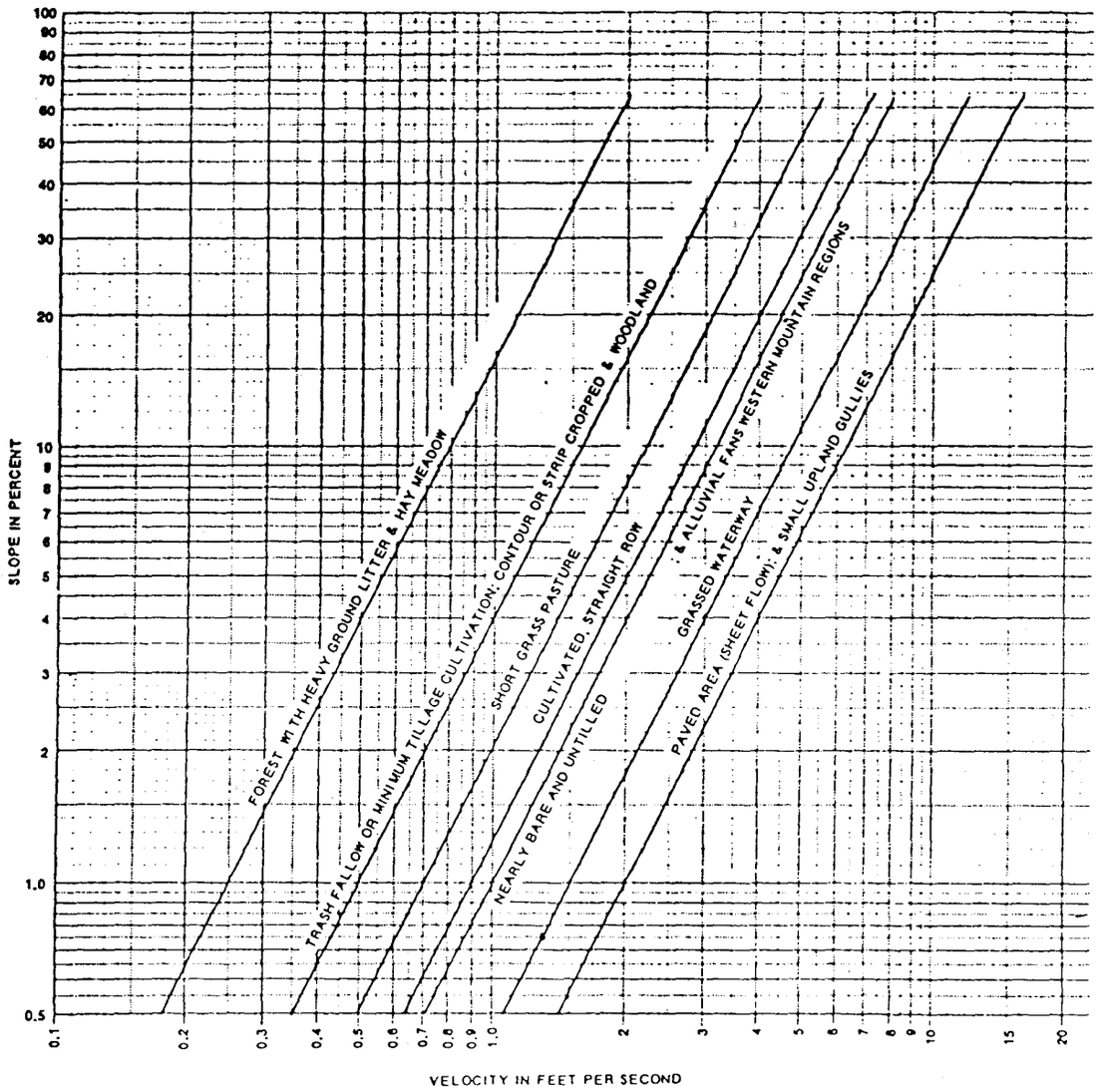
REFERENCES

TABLE "A-1"
INTENSITY-DURATION-FREQUENCY (IDF) TABLE

Time (min)	2-Year Intensity (in/hr)	100-Year Intensity (in/hr)	Time (min)	2-Year Intensity (in/hr)	100-Year Intensity (in/hr)
5	1.95	4.95	33	0.83	2.15
6	1.83	4.65	34	0.82	2.12
7	1.74	4.40	35	0.81	2.09
8	1.66	4.19	36	0.80	2.06
9	1.59	3.99	37	0.79	2.03
10	1.52	3.80	38	0.78	2.00
11	1.46	3.66	39	0.77	1.97
12	1.41	3.54	40	0.76	1.94
13	1.36	3.43	41	0.75	1.91
14	1.32	3.33	42	0.74	1.88
15	1.28	3.24	43	0.73	1.85
16	1.24	3.15	44	0.72	1.82
17	1.21	3.07	45	0.71	1.79
18	1.17	2.99	46	0.70	1.76
19	1.14	2.91	47	0.69	1.73
20	1.11	2.84	48	0.68	1.70
21	1.08	2.77	49	0.67	1.67
22	1.05	2.70	50	0.66	1.64
23	1.02	2.63	51	0.65	1.61
24	1.00	2.57	52	0.64	1.59
25	0.98	2.51	53	0.63	1.57
26	0.96	2.46	54	0.62	1.55
27	0.94	2.41	55	0.61	1.53
28	0.92	2.36	56	0.60	1.51
29	0.90	2.31	57	0.59	1.49
30	0.88	2.27	58	0.58	1.47
31	0.86	2.23	59	0.57	1.45
32	0.84	2.19	60	0.56	1.43

Source: Mesa County 1991

REPRODUCED FROM FIGURE 15.2, SCS 1972



DETERMINATION OF "Ts"	FIGURE "E-3"

Valley Meadows Recording requirements

1. Final Plat and County Surveyor's Certificate ✓
2. Development Improvements Agreement to be recorded. ✓
3. Disbursement Agreement to be filed with City Clerk. ✓
4. Grant of Easement (recorded in Book 2153, Page 293) ✓
5. Discharge Agreement. to be recorded ✓
6. Indemnification Agreement. to be recorded ✓
7. Parks and Open Space fees--$225 x 21 lots = $4,725 Receipt # in file
8. Proof of Formation of Homeowner's Association. — will bring copy of articles of inc. sent on Friday
9. Request for TCP credit with specific costs for 25 1/2 Road improvements.

REVIEW COMMENTS

FILE #SPR-95-76 **TITLE HEADING:** Site Plan Review - Rex Radio & Television Retail Store

LOCATION: 2465 Hwy 6 & 50

PETITIONER: Rex TV & Appliances Inc.

PETITIONER'S ADDRESS/TELEPHONE: 2875 Needmore Road
Dayton, Ohio 45414
513-276-3931

PETITIONER'S REPRESENTATIVE: Clark, Geer, Latham & Associates Inc.

STAFF REPRESENTATIVE: Michael Drollinger

NOTE: WRITTEN RESPONSE (4 COPIES) BY THE PETITIONER TO THE REVIEW COMMENTS IS REQUIRED. A PLANNING CLEARANCE WILL NOT BE ISSUED UNTIL ALL ISSUES HAVE BEEN RESOLVED.

CITY UTILITY ENGINEER **04/26/95**
Bill Cheney **244-1590**

Sewer: At this time there is no guarantee that sewer will be available June 30 as originally anticipated. The City is having problems getting clearance from the railroad to construct the line in railroad right-of-way.

Re-orient the drawing so "north" is pointing towards the top of the sheet as per SSID manual requirements.

CITY ATTORNEY **04/26/95**
Dan Wilson **244-1501**

No Comments.

CITY DEVELOPMENT ENGINEER **04/28/95**
Jody Kliska **244-1591**

1. The last two (end) parking spaces in front of the building (east side) will have difficulty with cars getting out. The cutout provided does not appear to have sufficient depth for cars to back out. Same concern for the last space along west side of property.
2. Transportation Capacity Payment (TCP) - $406.70/1000 sq. ft. X 11.985 = $4,874.30 based on trip generation for specialty retail. Curb, gutter and sidewalk improvements along the frontage road frontage are required. The TCP will be credited in the amount of the actual costs of construction.

PUBLIC SERVICE COMPANY **4/26/95**
Dale Clawson **244-2695**

No objections.

GRAND JUNCTION FIRE DEPARTMENT **4/27/95**
Hank Masterson **244-1414**

The Fire Department has no problems with this site plan proposal. Access is acceptable and the location of the existing hydrant should be adequate.

In order to receive a Building Permit Clearance, complete building plans must be submitted to the Fire Department for:

1. A required flow survey to determine if existing hydrants and fire flows are adequate.
2. A Fire Department plan review.

UTE WATER DISTRICT **5/3/95**
Gary R. Mathews **242-7491**

1. Ute Water has an 8" main line in the frontage road. This line will supply sufficient fire flow requirements. If sprinkler system, a double check valve is required.
2. Policies and fees in effect at the time of application will apply.

MESA COUNTY BUILDING DEPARTMENT **5/2/95**
Bob Lee **244-1656**

No comments. Appears to be in compliance with the Uniform Building Code for site review.

GRAND JUNCTION DRAINAGE DISTRICT **5/2/95**
John L. Ballagh **242-4343**

The pipe culvert under the railroad identified in the drainage report IS NOT a Grand Junction Drainage District facility. The drainage district does not know who has jurisdiction/authority over that CMP culvert. It does seem that there is such a short distance to the Colorado River that surface runoff should have a pretty direct route to the river.

COMMUNITY DEVELOPMENT DEPARTMENT **5/8/95**
Michael Drollinger **244-1439**

See attached comments.

Also attached to original:
- Improvements Agreement
- Directions

STAFF REVIEW

FILE: #SPR 95-76
DATE: May 8, 1995
STAFF: Michael Drollinger
REQUEST: Site Plan Review - Rex TV & Appliances
LOCATION: 2465 Hwy 6&50
ZONING: C-2

STAFF COMMENTS:

1. Landscaping Plan incomplete - see attached Landscape Plan checklist for missing items. Also see attached Code regarding planting size requirements.

2. Please identify the groundcover material proposed for the north end of the site.

3. We suggest shrubs and/or berming be provided along street frontage to a height of 2 to 2 1/2 feet which would screen the cars in the lot from the street.

4. Landscaping provided meets minimum area required by Code.

5. Section 5-5-1H of the Code requires that bicycle parking be provided sufficient to hold three bicycles or the number of bicycles equal to ten percent of the required off-street parking spaces for the use, whichever is greater. Please revise Site Plan to indicate location of parking (which should be convenient to entrance to store) and provide a bicycle rack detail (sample attached).

6. Section 5-4-15G requires that the entire area in the public right-of-way be landscaped (ordinance attached). Please indicate proposed landscaping on plans.

7. Section 5-4-15H pertains to street tree requirements. As per Code, four (4) street trees are required to be spaced at forty (40) foot spacing along the frontage and may be located on the subject parcel or in the ROW. Street trees must be irrigated.

8. Improvements Agreement for the required half-street improvements (see Development Engineer's comments) is attached. City requires that improvements within the public right-of-way be guaranteed prior to issuance of a Planning Clearance. Please follow attached instructions to prepare the Improvements Agreement.

REVISED PLANS ARE REQUIRED. PLEASE SUBMIT FOUR (4) COPIES OF REVISED, STAMPED PLANS WITH YOUR RESPONSE TO COMMENTS.

STAFF REVIEW

FILE: FPP-95-81

DATE: May 31, 1995

STAFF: Kathy Portner

REQUEST: Final Plat--Valley Meadows, Filing #2

LOCATION: NW of 25 1/2 Road and Grand Valley Canal

APPLICANT: GWHC, Inc.

EXISTING LAND USE: Undeveloped

PROPOSED LAND USE: Single Family Residential, 2.8 units per acre

SURROUNDING LAND USE:

NORTH:	Single Family Residential, 2.3 units per acre
SOUTH:	Grand Valley Canal and Undeveloped
EAST:	Single Family Residential, 3.8 units per acre
WEST:	Proposed Country Crossing Subdivision (3.8 units per acre)

EXISTING ZONING: Planned Residential (PR), 2.8 units per acre

PROPOSED ZONING: No change

SURROUNDING ZONING:

NORTH:	PR 2.3
SOUTH:	County AFT
EAST:	PR 3.8
WEST:	PR 3.8

RELATIONSHIP TO COMPREHENSIVE PLAN:

No Comprehensive Plan exists for this area.

STAFF ANALYSIS:

Valley Meadows Subdivision, located west of 25 1/2 Road and north of the Grand Valley Canal, consists of 11.4 acres and was zoned PR 2.8 (Planned Residential with a density not to

exceed 2.8 units per acre) at the time of annexation. A Preliminary Plan for 29 lots, with the possible addition of up to 3 more lots was approved by the City Planning Commission. Filing 1, consisting of 11 lots on 4.13 acres has been recorded and all improvements are complete. The proposal for filing #2 is for 21 single family lots on approximately 7 acres.

The setbacks as approved with the Preliminary Plan are as follows:

Front Yard--20'
Side Yard--10'
Rear Yard--20'
25 1/2 Road--30'

The maximum allowable building height is 30'.

The Valley Meadows Subdivision was reviewed by the Colorado Geological Survey and the comments of the Survey staff are a part of Mesa County Development File #C104-93. The recommendation notes that because of soil conditions and shallow ground-water table each building site should be investigated by a qualified soils and foundation engineer to determine the soils types present and their bearing capacity for the structural load(s) to be placed on them. That requirement was made a part of the City Planning Commission approval of the Preliminary Plan.

The petitioner has indicated in the response to comments that they do not own the strip of land between this development and the canal bank. Therefore they cannot dedicate such for trail use. If at some point the strip of land and the land it attaches to is developed the City will pursue the dedication of the canal bank for trail use.

The petitioner has obtained a discharge agreement from the Grand Valley Irrigation Company to discharge the run-off from the development directly into the Canal. However, the agreement is that the permit can be revoked at some time in the future. If it is revoked there would need to be provisions in place to take care of the runoff. The Discharge Agreement must be permanent or a detention facility must be designed for the subdivision.

STAFF RECOMMENDATION:

Staff recommends approval of the final plat for Valley Meadows, Filing #2 with the following conditions:

1. The revised CCR's must be reviewed and approved by the City prior to recording the plat.
2. Proof of formation of Homeowner's Association is required prior to recording the plat.
3. The petitioner must obtain a discharge agreement that cannot be revoked or redesign to accommodate detention on site.
4. All other review agency comments have been adequately addressed by the petitioner in the response to comments or will be prior to recording the plat.

RECOMMENDED PLANNING COMMISSION MOTION:

Mr. Chairman, on item #FPP-95-81, I move we approve the final plat for Valley Meadows, Filing #2.

REVIEW COMMENTS

FILE #FPP-95-81 **TITLE HEADING:** Final Plan/Plat - Valley Meadows, Filing #2

LOCATION: 25 1/2 Road & Grand Valley Canal

PETITIONER: L.O. Griffith etal

PETITIONER'S ADDRESS/TELEPHONE: GWHC, Inc.
2467 Commerce Boulevard
Grand Junction, CO 81505
242-1336

PETITIONER'S REPRESENTATIVE: Rolland Engineering

STAFF REPRESENTATIVE: Kathy Portner

NOTE: THE PETITIONER IS REQUIRED TO SUBMIT FOUR (4) COPIES OF WRITTEN RESPONSE AND REVISED DRAWINGS ADDRESSING ALL REVIEW COMMENTS ON OR BEFORE 5:00 P.M., MAY 24, 1995.

GRAND JUNCTION FIRE DEPARTMENT **5/5/95**
Hank Masterson **244-1414**

1. Hydrants are needed on Atchee Drive and Ignacio Court. They must be located so that all lot frontages are within 250' of the nearest hydrant.
2. Since Atchee Drive will connect to Moonridge Falls Subdivision in the future, no cul-de-sac for emergency vehicle access will be required.

U.S. POSTAL SERVICE **5/8/95**
Cheryl Fiegel **244-3435**

Mail delivery options:
1. Centralized - available immediately
2. Curbside or behind the sidewalk - available after 50% of homes complete (10 in this filing).

GRAND JUNCTION DRAINAGE DISTRICT **5/8/95**
John Ballagh **242-4343**

The Drainage District does not have any existing or planned facilities on the site. The owner/ petitioner has not sought assistance from the Drainage District. The improvements will not become part of the Drainage District's system.

CITY POLICE DEPARTMENT **5/8/95**
Dave Stassen **244-3587**

While I don't agree with the idea that this subdivision has to have an interior connection to Moonridge Falls Subdivision, I can't see any other concerns for the Police Department.

CITY PARKS & RECREATION **5/10/95**
Don Hobbs **244-1542**

1. Open space fees based upon 21 units at $225.00 = $4,725.00.
2. Specific dedication of the area adjacent to the canal for future path/trail should be included. Access from this dedication to the interior of the subdivision should be considered.

CITY ATTORNEY **5/14/95**
Dan Wilson **244-1505**

1. Title work shows property owned by other than applicant; this needs to be clarified by applicant; proof of contract interest or new deed.
2. Need proof of formation of Homeowner's Association before plat.
3. CCR's need to provide for assessments as lien on property; once resubmitted by applicant, I need to see the resubmittal.
4. CCR's are set up to be signed by other than applicant.
5. Section 28 of Improvements Agreement needs to be complete: i.e. which form of security is being proposed?
6. New CCR's should provide for integration with existing association (if possible).
7. Need dedication, or quit claim, for whatever interests owner has, to City for trails purposes, of Grand Valley Canal right-of-way easement.
8. Plat notes say title info is partly based on "client information" - this is not acceptable.

CITY DEVELOPMENT ENGINEER **5/15/95**
Jody Kliska **244-1591**

1. Improvements Agreement - increase the City inspection fees to $1,000 and increase the amount for signs.
2. Please submit a copy of the signed agreement to discharge stormwater runoff to the canal. Also provide a copy of the 14' easement to be recorded (shown on plat and drainage plan).
3. Street name signs, stop signs and end of road markers are to be furnished and installed by the developer. Please show on plans.
4. Soils report indicated the possibility of needing fabric under base course. Please not on street plans or in general notes that subgrade must be inspected by City prior to placement of base material.

CITY PROPERTY AGENT **5/15/95**
Steve Pace **244-1452**

ON THE PLAT

1. The west line of subdivision call of N00°00'00"E - 411.85' should be S00°00'00"W - 411.85'
2. The East line of subdivision call of S00°00'00"E - 429.46' should be N00°00'00"E - 429.49
3. The B.M. Elevation = 4610.33, should also be labeled N.E. Corner, SE1/4 NW1/4, Section 3, T1S, R1W, U.M.
4. Remove City Manager that is typed under the Surveyor's Certificate.
5. In the Dedication Boundary Description, the call of N77°38'37"W - 792.22' should be N77°38'37"W - 457.54'.

GRAND VALLEY IRRIGATION DISTRICT **5/15/95**
Phil Bertrand **242-2762**

1. See attached November 17, 1993 review comments.
2. Two original Discharge Agreements must be completed and signed.

PUBLIC SERVICE COMPANY **5/15/95**
Dale Clawson **244-2695**

No objections.

UTE WATER DISTRICT **5/12/95**
Gary R. Mathews **242-7491**

1. An 8" C-900 line is required for Westwood Drive and Atchee Drive.
2. A 4" C-900 line can be installed in Ignacio Court if no fire plug.
3. The line in Ignacio Court must be out from under the curb and installed in oil, approximately 3' from curb.
4. A valve is required near the end of Atchee Drive. Lot stub outs are installed 3' from the property lines.
5. Policies and fees in effect at the time of application will apply.

MESA COUNTY SCHOOL DISTRICT #51 **5/15/95**
Lou Grasso **242-8500**

SCHOOL	CURRENT CAPACITY/ENROLLMENT	IMPACT
Pomona Elementary	325 / 305	5
West Middle School	500 / 530	3
Grand Junction High School	1630 / 1548	4

COMMUNITY DEVELOPMENT DEPARTMENT **5/16/95**
Kathy Portner **244-1446**

See attached comments.

CITY UTILITY ENGINEER **5/16/95**
Trent Prall **244-1507**

SEWER: City
1. Maintain 0.30% slope westward after SSMH-1 to accommodate future expansion.
2. Clay plugs are required 20' upstream of each manhole.
3. Run pipe straight through SSMH-B on PP-3 maintaining 0.30% slope.
4. Please get revised Exhibit "I". Revision dated 6/15/94.

LATE COMMENTS

TCI CABLEVISION **5/26/95**
Glen Vancil **245-8777**

See attached comments.

TO DATE, COMMENTS HAVE NOT BEEN RECEIVED FROM:
Mesa County Planning
Mesa County Surveyor
U.S. West

We're taking television into tomorrow.

TCI Cablevision of Western Colorado, Inc.

May 26, 1995

Valley Meadows Sub., Fil. 2
GWHC., Inc.
% Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Ref. No. TCICON.069

Dear Sir or Madame;

We are in receipt of the plat map for your new subdivision, **Valley Meadows Sub. Fil. 2**, We will be working with the other utilities to provide service to this subdivision in a timely manner.

I would like to take this opportunity to bring to your attention a few details that will help both of us provide the services you wish available to the new home purchasers. These items are as follows:

1. We require the developers to provide, at no charge to TCI Cablevision, an open trench for cable service where underground service is needed. This trench may be the same one used by other utilities.

2. We require developers to provide, at no charge to TCI Cablevision, fill-in of the trench once cable has been installed in the trench.

3. We require developers to provide, at no charge to TCI Cablevision, a 4" PVC conduit at all utility road crossings where cable TV will be installed. This 4" conduit will be for the sole use of cable TV.

4. Should your subdivision contain cul-de-sac's the driveways and property lines (pins) must be clearly marked prior to the installation of underground cable. If this is not done, any need to relocate pedestals or lines will be billed directly back to your company.

5. TCI Cablevision will provide service to your subdivision so long as it is within the normal cable TV service area. Any subdivision that is out of the existing cable TV area may require a construction assist charge, paid by the developer, to TCI Cablevision in order to extend the cable TV service to that subdivision.

6. TCI will normally not activate cable service in a new subdivision until it is approximately 30% developed. Should you wish cable TV service to be available for the first home in your subdivision it will, in most cases, be necessary to have you provide a construction assist payment to cover the necessary electronics for that subdivision.

Should you have any other questions or concerns please feel free to contact me at any time. If I am out of the office when you call please leave your name and phone number with our office and I will get back in contact with you as soon as I can.

Sincerely,

Glen Vancil

Glen Vancil,
Construction Supervisor 245-8777

RECEIVED GRAND JUNCTION
PLANNING DEPARTMENT
MAY 30 REC'D

2502 Foresight Circle
Grand Junction, CO 81505
(303) 245-8750

VALLEY MEADOWS SUBDIVISION, Filing No. 2

Response to Comments

Petitioner:

GWHC, Inc.
2467 Commerce Blvd.
Grand Junction, CO 81505

Petitioner's Representative:

ROLLAND Engineering
405 Ridges Blvd., Suite A
Grand Junction, CO 81503

May 24, 1995

file:vmrespnd.wpd

G.J. Fire Department

1) Fire hydrant locations revised so that all lot frontages are within 250 feet of nearest fire hydrant.
2) Noted: No requirement for cul-de-sac.

U.S. Postal Service

Valley Meadows desires curbside or behind the sidewalk mail service to individual homes.

Grand Junction Drainage District

As noted, The Drainage District does not have any existing or planned facilities on the Valley Meadows Site.

City Police Department

It is noted that the Grand Junction Police Department has no concerns with this site.

City Parks and Recreation

1) Open space fees of $225 per lot will be paid prior to recording plat.
2) The area adjacent to the canal is not part of the Valley Meadows Subdivision. The strip of land between the canal and the southern boundary of Valley Meadows Subdivision is an access drive for the property to the west of Valley Meadows subdivision.

City Attorney

1) Property ownership will be clarified. An addendum signature sheet will be added to the Valley Meadows Subdivision application.
2) Proof of formation of Homeowners Association will be provided prior to recording of the plat.
3) Item 25 of the CCR's allows for "Enforcement of these covenants shall be by proceedings at law or in equity against any...." which should provide for assessments as lien on property if it becomes necessary.
4) The CCR's as shown are in place for the original first phase of Valley Meadows. They will be revised to add GWHC, Inc. as additional signature.
5) Section 28 of Improvements agreement will be completed prior to any recording of the final plat.
6) The CCR's will provide for integration of Valley Meadows as a whole.
7) The strip of land between the canal and the southern boundary of Valley Meadows Subdivision does not belong to GWHC, Inc. nor is it part of the Valley Meadows Subdivision.
8) Item 8 noted.

file:vmrespnd.wpd

City Development Engineer

1) Improvements Agreement-- City inspection fees will be increased to $1,000 and the amount for signs will be increased.
2) Signed Discharge Agreement will be included in package. A draft copy of the grant of easement, 14 foot easement for stormwater to Canal, will also be included in package.
3) Plans will be revised to show signs and road markers being furnished and installed by the developer.
4) Notes will be added to general notes that subgrade must be inspected by City of Grand Junction prior to placement of base material.

City Property Agent

Items 1 through 5 have been revised.

Grand Valley Irrigation District

1) Referring to original Grand Valley Irrigation District comments;
   - Homeowner's Association will be formed.
2) Two original Discharge Agreements have been completed and signed.

Public Service Company

No objections noted.

Ute Water District

Items I through 5 noted and revised as necessary. Item 3 has been discussed with Ute Water, Gary Mathews and Rodney Tooker. They agreed, that at present, the water line may remain as shown but care should be taken to try and keep any fittings or couplings out from under cement.

Mesa County School District #51

Noted.

Community Development Department

1) We will submit a drawing showing connection of Atchee Lane to Moonridge Falls.
2) The easement will be correctly shown as a multi-purpose easement.
3) Atchee Drive will be changed to Atchee Lane.
4) GWHC, Inc. does not own the land between the canal bank and the southern boundary of Valley Meadows Subdivision. The Road Access designation allows the owner of the land to the west of Valley Meadows to gain access to his/her land.
5) Developer will request credit, in writing, for improvements to 25 ½ Road.

file:vmrespnd.wpd

City Utility Engineer

Items 1 through 4 have ben revised on the drawings.

file:vmrespnd.wpd

MINUTES OF SPECIAL MEETING
OF
GWHC, INC.

BOARD HEREBY WAIVES THE NOTICE REQUIREMENTS FOR HOLDING THIS SPECIAL MEETING TO DETERMINE WHO CAN SIGN THE DOCUMENTS TO SUBDIVIDE VALLEY MEADOWS SUBDIVISION, FILING #2.

IT WAS MOVED/SECONDED/PASSED THAT ANY ONE OF THE BOARD OF DIRECTORS SHALL BE AUTHORIZED TO SIGN ALL SUCH DOCUMENTS NECESSARY TO PROPERLY SUBDIVIDE FILING # 2 OF VALLEY MEADOWS SUBDIVISION, IN MESA COUNTY, COLORADO.

DATED THIS 24TH DAY OF MAY, 1995.

L.O. GRIFFITH

RICHARD L. WATSON

DONALD G. HAASE

DAVID V. CHRISTENSEN

ADDENDUM #1 TO PROTECTIVE COVENANTS OF VALLEY MEADOWS SUBDIVISION

GWHC, INC AS SUBDIVIDER OF VALLEY MEADOWS SUBDIVISION FILING #2 HEREBY ADOPTS THE PROTECTIVE COVENANTS RECORDED WITH FIRST FILING OF VALLEY MEADOWS SUBDIVISION WITH FOLLOWING ADDITIONS THERETO:

1. NO STOCK PILING OF DEBRIS, GRASS CLIPPINGS, BRUSH, VEHICLES, ANIMAL REFUSE, ETC, ON CANAL RIGHT OF WAY.
2. NO HORIZONTAL OR VERTICAL ENCROACHMENT OF CANAL RIGHT OF WAY BY LIVE TREES OR SHRUBS.
3. NO RUNOFF OF IRRIGATION, GARDEN OR LAWN WATER, ETC IS TO COME ONTO CANAL RIGHT OF WAY THAT WOULD INHIBIT RIGHT OF WAY USE OR DAMAGE SUCH ACCESS ROAD.

DATED THIS 24TH DAY OF MAY 1995.

Richard L Watson
RICHARD L WATSON-SECRETARY OF GWHC, INC.

STATE OF COLORADO)
) ss.
COUNTY OF MESA)

The foregoing instrument subscribed and sworn to before me this 24 day of May, 1995 by Richard L. Watson - Secretary of GWHC, INC.

Frances Latcham
Notary Public

My commission expires May 2, 1999

VALLEY MEADOWS SUBDIVISION, FILING NO. 2

Addendum to Development Application dated May 1, 1995.
Signature Sheet of Property Owners

Dated this 24th day of May, 1995.

L.O. GRIFFITH

RICHARD L. WATSON

DONALD G. HAASE

DAVID V. CHRISTENSEN

STATE OF COLORADO)
)ss.
COUNTY OF MESA)

The foregoing instrument subscribed and sworn to before me this 24th day of May, 1995.

Frances Latcham
Notary Public in and for
the State of Colorado

My Commission expires: May 2, 1999

Address: 2467 Commerce Blvd
Grand Jct. Co 81505

file: vmsapp1.wpd

PROTECTIVE COVENANTS

VALLEY MEADOWS SUBDIVISION

WITNESSETH:

WHEREAS, the undersigned are the owners of the hereinafter described real property, situated in the County of Mesa, State of Colorado, to wit;

VALLEY MEADOWS SUBDIVISION

AND,

WHEREAS, said owners do desire to restrict the use of said property to increase the value and desireability of the lots to future purchasers, said owners do hereby contract with the future purchasers of said lots as follows:

1. Land use. No site shall be used except for residential purposes. Only residential dwellings and attached garages for not less than two and for not more than three cars, and other accessory buildings directly incidental to residential use shall be erected, altered, placed or permitted to remain on any site.

2. Architectural Control. No building or exterior imporvements of any kind shall ever be constructed, placed or altered on any site until the construction plans and specifications, and a plan showing the location of the structure have been approved by the Architectural Control Committee.

a) Committee Membership. The Architectural Control Committee shall be composed of not less than three members nor not more than five members appointed by the developer. In the event of death or resignation of any member of the Committee, the remaining members shall have full authority to designate a successor. Neither the members of the Committee, nor such representatives as it may designate, shall be entitled to any compensation for services performed pursuant to this covenant. At any time the then recorded owners of seventy-five percent (75%) of the lots shall have the power through a duly recorded instrument, to change the membership of the Committee or to withdraw from the Committee or restore to it any of it's powers and duties.

b) Procedure. Two complete sets of plans and specifications for construction shall be submitted at time of application, in which one copy will be retained by the Architectural Control Committee for its records. The Committee's approval or disapproval shall be in writting. In the event the Committee, or its designated representative, fails to approve within thirty (30) days after plans and specifications have been submitted to it, or in the event, if no suit to enjoin the construction has been commenced prior to the completion thereof, approval will not be required and the related covenants shall be deemed to have been fully complied with.

c) Criteria of Consideration. In addition to all the other criteria herein set forth, the Committee shall generally determine whether the proposed improvements will protect the then value and future values of the properties then located in the subdivision, and to be erected therein. The Committee shall in the exercise of its judgment and determination, use reason and good faith. Among the other considerations applied, the Committee will determine and base its approval or rejection upon the fact of whether said proposed improvements are reasonably compatible with other improvements erected and planned in said subdivision as to quality of workmanship and materials and harmony of external design and color with existing structures.

d) Liability. Neither the Architectural Control Committee nor the owners shall be held liable for damages to any person or association for failure to act or failure to approve or disapprove any such plans and specifications submitted.

3) Dwellings. The ground floor area of the main structure, exclusive of open porches and garages, shall not be less than 1,600 square feet, outside measurements; provided, however, the following exceptions shall apply:

a) If the residence shall have a second story, the ground floor area of the main structure, exclusive of open porches and garages shall be not less than 1,000 square feet, outside measurements, with a total living space on the first and second floor of not less than 1,800 square feet, outside measurements.

b) If the residence shall be a split-level residence, the greatest outside measurements, exclusive of open porches and garages, shall be used to determine square footage and, therefore, different floor levels which are superimposed upon each other shall be included only once in such measurement.

c) "Basement", as used herein, shall mean a floor space, the floor of which is more than four (4) feet below the grade of the surface at the exterior of the building. Such floor space shall not be included in complying with the minimum floor space requirements herein.

4) Term of Completion. Upon approval of any proposed improvements, the same shall be completed with due diligence in conformity with conditions of approval. Failure to begin construction of the improvements within six (6) months after date of approval shall operate to revoke the approval given by the Architectural Control Committee and plans must therefore be resubmitted. Each single family dwelling shall be completed no later than one (1) year after commencement of construction. No structure shall be occupied prior to its completion.

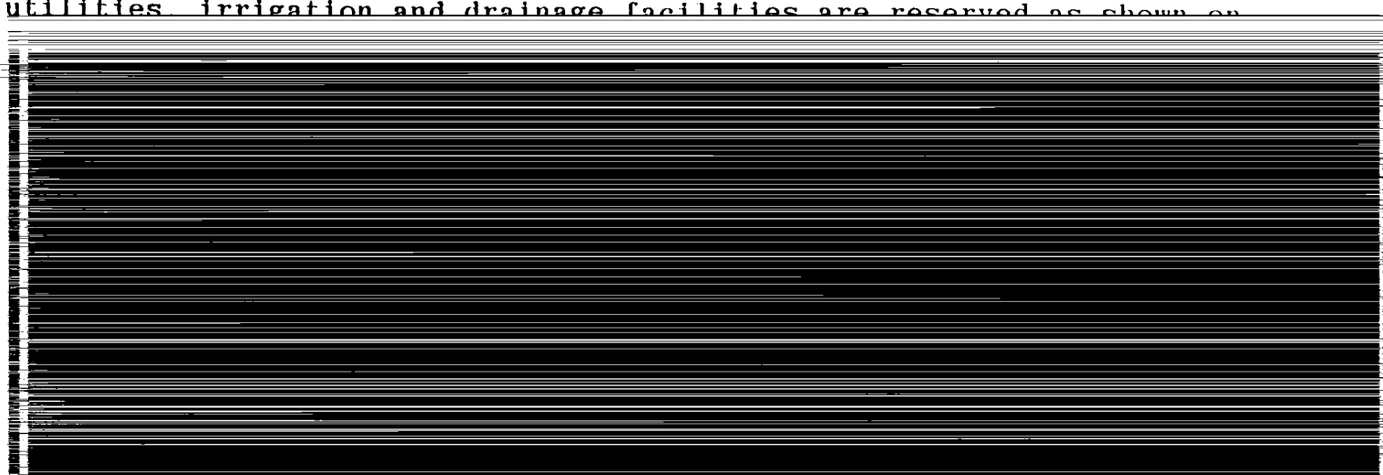
5) Exterior Building Materials. All exterior building materials must comply with the approval of the Architectural Control Committee. Only wood shakes, tile or architectural fiberglass asphalt roofing shingles are permitted; common three tab asphalt shingles are not permitted. Only exterior siding such as wood, brick, stucco, or slump block will be allowed on the fronts of dwellings. A minimum of 250 square feet of masonry or stucco is required on the front of each dwelling. Material and color chips are to be submitted at the time of plans submittal for the Architectural Control Committee's review and comment. Any variances to the materials used must be approved by the Committee.

6) Building Height. No building shall be constructed with a total height of over thirty (30) feet when measured from the highest point of intersection of said building with the natural grade to the highest point on said structure, excluding the chimneys.

7) Move and Set. All construction within the subdivision shall be new construction and no previously erected building, structure, or improvement shall be moved and set upon any lot from any other location. Detached accessory building or outbuildings shall blend and conform to the general design and materials of the dwelling.

8) Set Backs. No structure shall be located nearer than twenty (20) feet to the front property line. Side yard setbacks shall be no nearer than ten (10) feet and rear setbacks shall be no nearer than twenty (20) feet for primary dwelling structures.

9) Easements. Easements for installation and maintenance of utilities, irrigation and drainage facilities are reserved as shown on



10) Temporary Structures. Except for construction and marketing facilities of the Developer, its successors and assigns, no structure of a temporary nature, tent, garage, basement, trailer houses, barns, or other outbuildings ahall be used at any time as either a temporary or permanent residence.

11) Fences. No fences shall be constructed within the subdivision without prior approval of the Architectural Control Committee. No fences higher than seventy-three (73) inches will be allowed.

12) Landscaping. All landscaping on the front thirty-five (35) feet of each lot, or that portion of each lot which will be visible from the street shall be completed by or on behalf of the owner of such lot, in accordance with the plans approved by the Architectural Control Committee with one (1) year from and after the date on which the dwelling on such lot is occupied or permitted for occupancy, whichever is earlier, provided however, for good cause, the Committee may allow a lot owener a one-time extension of time for an additional ninety (90) days.

13) Signs. No signs of any kind shall be displayed to public view on any lot except one professional sign of not more than one square foot, one sign of not more than five square feet advertising the property for sale or rent, or signs used by builders to advertise the property during the construction and sales period, and except for signs of any dimensions used by the developer, its successors and assigns; for marketing purposes during its development, construction and sales period.

14) Animals. No animals, livestock, or poultry of any kind shall be raised, bred, or kept on any lot except that dogs, cats, or other household pets may be kept provided that they are not kept, bred, or maintained for commercial purposes. Household pets must be kept fenced in at all times and must not be allowed to run loose.

15) Nuisance. No noxious, hazardous, or offensive activity shall be carried on upon any site, nor shall anything be done or placed thereon which may be or may become an annoyance or nuisance in the neighborhoor.

16) Oil and Mining Operations. No oil drilling, oil development operations, oil refining or mining operations of any kind shall be permitted upon or in any site, nor shall oil wells, tanks, tunnels, mineral excavations or shafts be permitted upon or in any site. No derrick or other structure designed for use in boring for oil or natural gas shall be erected, maintained or permitted upon any site.

17) Garbage and Refuse Disposal. No site shall be used or maintained as a dumping ground for rubbish. Trash, garbage or other waste shall not be kept except in sanitary containers. All equipment for the storage or disposal of such material shall be kept in clean and sanitary condition and shall be kept inside a building or screened from public view.

18) Parking. All residences shall be constructed so as to provide sufficient offstreet parking to accomadate not less than four automobiles, inclusive of garage and driveway. On street parking of any vehicles by the owners, occupants, or guests ahall be limited to temporary parking. No vehicles of owners, occupants, or guests shall be regularly or permanently parked or stored on the street. Vehicular maintenance or repair which renders any vehicle inoperable for more than forty-eight (48) hours is prohibited on any street, driveway, yard, or other visible location in the subdivision. No commercial vehicular repair or other repair of vehicles not owned by the lot owner shall be conducted within the subdivision.

19) Recreational Vehicles. All recreational vehicles, including trucks, campers, boats, snowmobiles, motorbikes or any other recreational vehicles that are stored on any lot shall be kept behind the principal buildings front setback line. The Architectural Control Committee shall have authority to require any owner to install screening to shield the stored vehicles from public view.

20) Maintenance of Lots and Improvements. The owners shall keep, maintain, and repair their Lots and Improvements, including landscaping, in a neat, clean, cultivated, attractive and well maintained condition, free from trash and other debris. In the event that the owners fail to keep and maintain their Lots and Improvements in accordance herewith, the association may (but is not obligated to) conduct such maintenance and repairs and assess the cost thereof to the owner whose lot or improvement such maintenance or repairs were conducted.

21) Driveways. Driveways shall be composed of asphalt, concrete or other hard surface. Dirt or loose gravel driveways are expressly prohibited.

22) Irrigation System. The irrigation system provided in the subdivision shall be maintained by the owners of the lots served, and said owners shall share equally the cost of maintenance, and/or repairs of such system. The irrigation system will be initially installed by the developer and he shall share in the maintenance cost until 50% of the lots have been sold, at which time the owners will take over full maintenace of said irrigation system and will so elect their own board of directors or owner's association to care for, collect money from those served by the system, and do all things necessary to keep it in good repair.

23) Home Owners Association. The developer shall hereafter organize a Home Owners Association under the Non-Profit Corporation Act of the State of Colorado. In accepting a deed or contract for any lot, the grantee therein agrees to and shall be a member of the Association and shall be subject to the obligations upon such members, and agrees to abide by the provisions of the Association Articles of Incorporation, By-laws, and rules. At the time of establishment of such Association, the authority for choosing the members of the Architectural Control Committee shall be transferred from the developer to the Association.

24) Term. These covenants are to run with the land and shall be binding on all parties and all persons claiming under them for a period of twenty (20) years from the date they are recorded after which time said covenants shall be automatically extended for successive periods of ten (10) years unless an instrument signed by a majority of the then owners of the sites has been recorded, agreeing to terminate said covenants, or change them in whole or in part. These covenants and restrictions may be amended during the first twenty (20) years from the date recorded by a recorded instrument signed by all owners of not less than seventy-five percent (75%) of the lots.

25) Enforcement. Enforcement of these covenants shall be by proceedings at law or in equity against any person or persons violating or attempting to violate any covenants, either to restrain from violation or to recover damages, or both.

26) Invalidation. Invalidation of any one of these covenants by judgment or court order shall in no way effect any of the other provisions, which shall remain in full force and effect.

Dated this _____ day of _____, 1993.

L.O. GRIFFITH

RICHARD L. WATSON

DONALD G. HAASE

DAVID V. CHRISTENSEN

STATE OF COLORADO)
) ss.
COUNTY OF MESA)

The foregoing instrument subscribed and sworn to before me this _____ day of _____, 1993 .

Notary Public in and for
the State of Colorado

My Comission expires:

Address:

Valley Meadows #2 file

June 27, 1995

Mr. Tom Rolland
Rolland Engineering
405 Ridges Boulevard
Grand Junction, CO

City of Grand Junction, Colorado
250 North Fifth Street
81501-2668
FAX: (303) 244-1599

RE: Valley Meadows Filing 2 Subdivision

Dear Tom,

The final plan and plat for the Valley Meadows Filing 2 Subdivision was approved by the City of Grand Junction Planning Commission on June 6, 1995.

As you begin the construction phase outlined in the Submittal Standards for Improvements and Developments (SSID), there are several items which must be completed prior to construction. I have included a Construction Phase Submittal Chart, a Construction Approval and Progression Form, and Submittal Requirements for Final Acceptance of Improvements for your information.

Prior to submittal of four sets of construction drawings for approval, the drainage issue must be resolved.

An improvements agreement/guarantee must be recorded prior to sign of of construction drawings.

A pre-construction notice as detailed in Section VII-3 of SSID is required and a meeting should be scheduled.

Please contact me if I can answer any questions. My number is 244-1591.

Sincerely,

Jody Kliska
City Development Engineer

cc: Kathy Portner

CONSTRUCTION PHASE SUBMITTAL CHART

Location: 25½ Rd. BETWEEN F½ & G Project Name: VALLEY MEADOWS FILING 2

STEP	ACTIVITY	SUBMITTAL ITEMS	SSID REF.
1	None	● City Approval of Construction Drawings	VII-3
		● Pre-construction Notice	VII-3
		○ Work within Public ROW Permit	VII-4
		○ NPDES Permit	VII-4
		● Improvements Agreement/Guarantee	
		○ _____	_____
2	Grading Street Rough Cut Sanitary Sewer Water Irrigation Other Utilities Subgrade Base Course Concrete Placement	● Construction Report: Grading and Pipeline Phase	X-4
		● As-built Grading Drawing	IX-6
		● As-built Drainage Drawing	IX-5
		● As-built Water & Sewer Drawing	IX-9
		○ _____	_____
		● Construction Report: Concrete and Pavement Preparation	X-3
		○ Flowline Grade Sheets	VII-4
		○ Revised Asphalt Design (if necessary)	VII-4
		● Request City Lamping of Sewerline	VII-4
3	Asphalt Pavement Traffic Control Facilities Monumentation Permanent On-Site Benchmark (Subdivisions Only)	● Construction Report: Concrete and Pavement Placement	X-2
		● Complete Set of As-Built Drawings	IX-5 to IX-9
		● Request for City Initial Inspection	VII-4
		○ _____	_____
4	Warranty Period	● Request for City Final Inspection	VII-4

NOTES:

1. Only those submittal items which are preceded by a shaded-in circle are required for the project. At the time of construction drawing approval, City Engineering will submit to the developer one signed approved set of drawings and a copy of this form which has been completed for the specific project, and one completed copy of Form VI-4 and VI-5.

2. City Engineering approval of submittal items is required prior to commencement of subsequent steps. The City will make every effort to provide timely approvals in order to accommodate construction schedules. If information is submitted for Step 2 in a timely manner as construction proceeds, then City Engineering review of remaining items may be done within ½ working day.

City of Grand Junction
Construction Approval & Progress

Project Name: VALLEY MEADOWS FILING 2
Location: 25½ RD. & GRAND VALLEY CANAL
Developer: GWHC, INC.
Engineer: ROLLAND ENGINEERING
A Licensed Professional Engineer is required to oversee construction of public improvements.

Date Construction Plans Approved: _____
Submittal of four sets of prints is required for approval and signature. Distribution: Development Engineer, City Inspector, Community Development, Developer/Contractor.

Improvements Agreement in Place: _____

Construction Meeting: _____
1. Attendance by developer's engineer, contractor(s), testing lab, city engineering representative, city inspector is required.
2. Submit list of contractors and approximate starting dates.
3. Submit quality assurance plan for testing and inspection. A test location map will be required prior to final acceptance of work.
4. Notification of city inspector 24 hours prior to commencement of work is required.

Permit for Construction and Installation of Facilities in Public Right of Way required: _____

Date of Final Inspection : _____
Reinspections: _____
Final Acceptance: _____
Warranty Period Ends: _____

Note: City inspection of work does not relieve developer or contractor of their duties regarding inspection, monitoring, and testing.

Submittal Requirements for Final Acceptance of Improvements

The following items must be submitted prior to the acceptance of streets, drainage, and utilities by the City of Grand Junction.

X As-Built Drawings (Reference SSID IX-5,6,7,8,9)

- Sealed by a Professional Engineer
- Two Blue-line copies
- One Mylar Copy
- One 3 1/2" Floppy Disk with drawing files

X Report (Reference SSID X-2,3,4)

- Testing Location Map
- Inspection Diaries
- Testing Reports

__ Certification of Detention/Retention Basin (Reference SSID IX-6)

- Sealed by a Professional Engineer

Note: A one-year warranty period begins once public facilities are accepted by the City of Grand Junction. Any defects or deficiencies which occur during this period must be corrected by the developer. (Reference Zoning and Development Code 5-4-12, A-4)

file in Valley Meadows #2
FPP-95-81

August 22, 1996

Don Haas
GWHC, Inc.
2467 Commerce Boulevard
Grand Junction, CO 81503

City of Grand Junction, Colorado
250 North Fifth Street
81501-2668
FAX: (970)244-1599

Subject: Valley Meadows Filing 2 Subdivision

Dear Mr. Haas:

A final inspection of the streets, sewer and drainage facilities in Valley Meadows Filing 2 Subdivision was conducted on June 13, 1996. As a result of this inspection, a list of remaining items was given to Trevor Brown of Rolland Engineering for completion. These items were reinspected and found to be satisfactorily completed.

"As Built" record drawings and required test results for the streets and drainage facilities were received on May 13, 1996. These have been reviewed and found to be acceptable.

In light of the above, the streets, sewer and drainage improvements are eligible to be accepted for future maintenance by the City of Grand Junction one year after the date of substantial completion. The date of substantial completion is June 13, 1996.

Your warranty obligation for all materials and workmanship for a period of one year beginning with the date of substantial completion will expire upon acceptance by the City.
If you are required to replace or correct any defects which are apparent during the period of the warranty, a new acceptance date and extended warranty period will be established by the City.

Thank you for your cooperation in the completion of the work on this project.

Sincerely,

Jody Kliska
City Development Engineer

Sincerely,

Trenton Prall
City Utility Engineer

cc: Don Newton
Doug Cline
Walt Hoyt
Kathy Portner
Rolland Engineering
Jerry O-Brien

Mark do we need to release DIA's for these. KP