RECEIPT OF APPLICATION

DATE BROUGHT IN: 4/18/03

CHECK #: 2542 **AMOUNT:** 980.00

DATE TO BE CHECKED IN BY: 4/23/03

PROJECT/LOCATION: E side 27½ Rd, SE of Pianza

Items to be checked for on application form at time of submittal:

- ☑ Application type(s)
- ☑ Acreage
- ☑ Zoning
- ☑ Location
- ☑ Tax #(s)
- ☑ Project description
- ☑ Property owner w/ contact person, address & phone #
- ☑ Developer w/ contact person, address & phone #
- ☑ Representative w/ contact person, address & phone #
- ☑ Signatures of property owner(s) & person completing application

DEVELOPMENT APPLICATION

Community Development Dept
250 North 5th Street
Grand Junction CO 81501
(970) 244-1430

We, the undersigned, being the owner's of the property adjacent to or situated in the City of Grand Junction, Mesa County, State of Colorado, as described herein do hereby petition this:

Petition for (check all appropriate boxes):

☐ Subdivision Plat/Plan - Simple	☐ Site Plan Review - Major	☐ Concept Plan
☐ Subdivision Plat/Plan - Major Preliminary	☐ Site Plan Review - Minor	☐ Minor Change
☒ Subdivision Plat/Plan - Major Final	☐ Conditional Use Permit	☐ Change of Use
☐ Planned Development - ODP	☐ Vacation, Right-of-Way	☐ Revocable Permit
☐ Planned Development - Preliminary	☐ Vacation, Easement	☐ Variance
☐ Planned Development - Final	☐ Extension of Time	
☐ Annexation/Zone of Annexation	☐ Rezone	☐ Growth Plan Amendment
From: _____	From: _____	From: _____
To: _____	To: _____	To: _____

Site Location: SE corner of 27 Road & Cortland		
Site Tax No.(s): 2945-014-54-001	**Site Acreage/Square footage:** 15.464 AC. +/-	**Site Zoning:** PD
Project Description: 19 Single family Lots and remainder for Future Filings		

Property Owner Name	Developer Name	Representative Name
O.P. Development Co.,LLC	O.P. Development Co.,LLC	Vista Engineering Corp
Address: 3695 Ridge Drive	Address: 3695 Ridge Drive	Address: 2777 Crossroads Blvd.
City/State/Zip: Grand Jct., CO 81506	City/State/Zip: Grand Jct., CO 81506	City/State/Zip: Grand Jct., CO 81506
Business Phone No.: (970) 241-2373	Business Phone No.: (970) 241-2373	Business Phone No.: (970) 243-2242
E-Mail:	E-Mail:	E-Mail: banner@wic.net
Fax Number:	Fax Number:	Fax Number: (970) 243-3810
Contact Person:	Contact Person:	Contact Person: David Chase
Contact Phone No.:	Contact Phone No.:	Contact Phone No.: (970) 243-2242, ex.202

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 may 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: Robert C. Brand Manager — Date: 4/7/03

Required Signature of Legal Property Owner(s) - attach additional sheets if necessary: OP Development Company LLC By Robert C. Brand MANAGER — Date: 4/7/03

GENERAL PROJECT REPORT
THE KNOLLS SUBDIVISION - FILING SIX

A. Project Description

This proposal requests approval of the Final Plan/Plat for the sixth filing of **The Knolls Subdivision** located approximately 1,000 feet south of Cortland Avenue, along the east side of 27½ Road. The last four filings, Filings #4 through #7, of **The Knolls Subdivision** are part of a Planned Residential development with a zoning of PR-2.5. The developed area of Filing #6 is approximately 15.5 acres in size and is made up of 19 single family lots and one open space tract approximately 0.7 acres in size intended for stormwater detention. Filing #6 is in accordance with the approved Preliminary Plan which was approved by the Grand Junction Planning Commission on July 18, 2000.

B. Public Benefit

The Knolls Subdivision continues to provide an excellent "in-fill" development in this area of Grand Junction. Well established, upscale subdivisions surround this area including Spring Valley Subdivision located to the east and south, Crown Heights Subdivision is located to the north across Cortland Avenue, and Ptarmigan Ridge North and Bell Ridge Subdivisions located directly to the west across 27½ Road. In addition to these existing developments, this proximity to Horizon Drive, Patterson Road, Bookcliff Country Club helps make this area attractive to new home buyers. In developing the design of this project, these surrounding areas have been recognized. Amenities that make these areas attractive, i.e. larger lots, water features, curvalinear streets, etc., have all been implemented into **The Knolls Subdivision**.

C. Project Compliance, Compatibility, and Impact

During the submittal and approval process of the Preliminary Plan, there were no major concerns identified regarding utilities or public services associated with Filing #6. Previous phases of the development extended Piazza Way, the main access into **The Knolls** from Cortland Avenue, to 27½ Road thereby providing the required second access into past, present, and future filings of the subdivision. Utility services will be provided by both extending existing utilities from previous improvements within **The Knolls** as well as proposing new connections and extension from 27½ Road.

In addition to approving the Preliminary Plan for the remaining filings, the Applicant also went through a Growth Plan Amendment and Rezone for these filings. Information presented and in follow-up discussions pertaining to these requests, indicated that this project is in compliance with land use goals for Grand Junction as well as complying with the surrounding area.

OLD CODE

BILL 4-24-02

SUBMITTAL CHECKLIST

EXPIRES 10.24.02

MAJOR SUBDIVISION: FINAL

Location: E SIDE 27 1/2 RD, SE OF PIAZZA Project Name: THE KNOLLS FILING 6

Date Received 4/24/03

Receipt # 18794

File # FPP-2003-078

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. (Mesa)	O City Downtown Dev. Auth.	● City Police	O County Planning	O County Building Department	● County Surveyor	● Walker Field	● School Dist. #51	● Irrigation District GVWU	O Drainage District	● Water District UTE	O Sewer District	● U.S. West	● Public Service	● [illegible] CITY TRANSIT	● CDOT CITY ACCESS	O Corps of Engineers	O Colorado Geologic Survey	● U.S. Postal Service	● Persigo WWTF	● TCI Cable			TOTAL REQ'D.
● Application Fee $740 + 15/AC	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			
● Application Form*	VII-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	1			
● 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	1	1	1	1	1	1	1	1			
● Evidence of Title	VII-2	1			1			1																								
O Appraisal of Raw Land	VII-1	1			1	1																										
● Names and Addresses* $50	VII-2	1																														
● Legal Description*	VII-2	1			1																											
● Deeds FREE FROM FORM	VII-1	1	1	1	1		1	1											1													
O Easements	VII-2	1	1	1	1			1													1	1	1						1			
O Avigation Easement	VII-1	1			1			1							1																	
O ROW / IF APPLICABLE	VII-2	1	1	1	1			1													1	1	1						1			
● Covenants, Conditions & Restrictions	VII-1	1	1					1																								
O 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																								
O CDOT Access Permit	VII-3	1	1																													
O 404 Permit	VII-3	1	1																													
O Floodplain Permit*	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	2	1	1	1	1	1	1	1			
● Composite Plan	IX-10	1	2	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			
● 11"x17" Reduction Composite Plan	IX-10	1				1	1	1	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	1	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 Final Plat	IX-15	1						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			1			
O 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															
O Road Cross-sections	IX-27	1	2																													
● Detail Sheet	IX-12	1	2																													
● Landscape Plan (FOR ANY OPEN SPACE)	IX-20	2	1	1				1																								
● Geotechnical Report	X-8	1	1																						1							
O Phase I & II Environmental Report	X-10,11	1	1																													
● Final Drainage Report	X-5,6	1	2														1															
● Stormwater Management Plan	X-14	1	2														1							1								
O Sewer System Design Report	X-13	1	2	1															1													
O Water System Design Report	X-16	1	2	1														1														
O Traffic Impact Study	X-15	1	2																													
O Site Plan	IX-29	1	2	1	1		1		8															1								

NOTES: * An asterisk in the item description column indicates that a form is supplied by the City.

D. Development Schedule and Phasing

The Knolls Subdivision contains two remaining filings, Filings #6 and #7, containing single family lots. It is anticipated that construction of Filing #6 will begin as soon as the final plan is approved. Completion of Filing #6 is anticipated by late 2003. It is projected that a final plan/plat for Filing #7 will be submitted for review and approval within the next twelve months. It is anticipated that construction on Filing #7 will take place during 2004. The exact schedule to complete Filing #7 is unknown but it would be estimated for completion by 2005.

APPLICATION COMPLETENESS REVIEW

Use "N/A" for items which are not applicable

Date: 4/24/03

Project Name: The Knolls, Filing 6 (if applicable)

Project Location : E. side of 27½ Rd, SE of Hwy 24 (address or cross-streets)

Check-In Staff — Community Development: PC — initials of check-in staff members
Development Engineer: _____

APPLICATION TYPE(S): FPP (Old Code / Public hearing)
(e.g. Site Plan Review) _____

_____

FEE PAID: Application: 740.00
Acreage: 240.00
Public Works: _____

BALANCE DUE:
° Yes amount $_____
° No

COMPLETENESS REVIEW:

Originals of all forms received w/signatures? ° Yes ° No, list is missing items below

- _____
- _____
- _____

Missing drawings, reports, other materials: ° No ° Yes, list missing items below
Note: use SSID checklist

- _____
- _____
- _____

Incomplete drawings, reports, other materials? ° No ° Yes, list missing items below
Note: Attach SSID checklist(s) w/incomplete information identified

- _____
- _____
- _____

Professional stamp/seal missing from drawings/reports?

° No ° Yes, list missing items below

- /
-
-

Other: Please list below

PROJECT ASSIGNMENT AND PROCESSING

Project Manager: Lori

Special Processing Instructions:

NOTICE OF DEVELOPMENT APPLICATION

An application for the development proposal described below, located near property you own, has been received by the Grand Junction Community Development Department. The Department encourages public review of proposed development prior to public hearings. The application, including plans, reports and supporting documentation, is available for review during normal business hours (7:30 A.M. - 5:30 P.M. Monday-Thursday and 7:30 A.M. - 5:00 P.M on Friday) at City Hall, 250 North 5th Street. City Planning staff is also available to answer questions and explain the development review process.

FPP-2003-078 – THE KNOLLS, FILING 6 – SE of 27½ and Piazza
Request approval of the Final Plan/Plat for 15.5 acres tc develop 19 Single Family lots and one open space tract in a PD (Planned Development) zone.
Planner **Lori Bowers**

Courtesy notification cards will be mailed to adjoining property owners prior to a public hearing on this item. However, we encourage you to also verify scheduling in one of the following ways:

- call the Community Development Department at (970) 244-1430
- look for a display ad in the Daily Sentinel one day prior to the public hearing (held on the second and sometimes the third Tuesday of each month)
- You may receive a FAX copy of the Planning Commission agendas by calling CITY DIAL at (970) 244-1500 ext. 211.
- Agendas for Planning Commission, City Council, and Board of Appeals items are available prior to the hearing at City Hall, 250 North 5th Street.

Please do not hesitate to contact the Community Development Department at (970) 244-1430 if you have any questions.

CITY OF GRAND JUNCTION
COMMUNITY DEVELOPMENT DEPARTMENT
250 N 5TH STREET
GRAND JUNCTION, CO 81501

FIRST

U.S. POSTAGE
00.22

CITY OF GRAND JUNCTION
COMMUNITY DEVELOP
250 NORTH 5TH STREET
GRAND JUNCTION, CO 81501

NOTICE OF DEVELOPMENT APPLICATION

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Telephone: (970) 244-1430
Fax: (970) 256-4031
E-mail: CommDev@ci.grandjct.co.us

Review Agency Comment Sheet

(Petitioner: Please fill in blanks in this section only unless otherwise indicated)

Date: April 2, 2003

To Review Agency: City Community Dev.

File No: FPP-2003-078
(To be filled in by City Staff)

Staff Planner: Lori Bowers
(To be filled in by City Staff)

Project Name: The Knolls Subdivision, Filing 6

Location: Lot 1, Block 6, The Knolls Subdivision, Filing 4

Development Review Meeting Date: 5/20/03
(To be filled in by City Staff)

Comments

(For Review Agency Use)

Outside Review Agencies: Please email comments to: CommDev@ci.grandjct.co.us, FAX comments to (970) 256-4031 or mail written comments to the above address. **NOTE:** If this form is not returned, additional review information will not be provided.

City Review Agencies: Please type your comments in Impact AP.

All comments must be returned to the Community Development Department no later than

(To be filled in by City Staff) 5/19/03

NOTE: Please identify your review comments on plan sets by printing the date, your name and company/agency for future reference.

Review By

Date

Email Address

Telephone

FPP-2003-078

The Knolls, Filing 6

Rick Dorris

August 29, 2003

ROUND TWO

MISCELLANEOUS

1. Field work for Filings 4 and 5 punch lists has been completed but there are still testing issues to resolve. Dave Chase is aware of these. I also have a few minor comments on the as-builts for filing 5. These redlines are included with these comments. Filing 6 of the Knolls will not be approved for construction until filings 4 and 5 have been closed out and accepted by the City.
2. A construction activity permit from the state must be in hand prior to plan approval.

DRAINAGE REPORT AND PLAN

3. The SWMM requires that retention basins drain completely in 48 hours because mosquitos breed in 48 hours. This is especially important with the onslaught of West Nile Virus. Most existing retention basins around town hold water continually or take a long time to drain. The City has implemented new requirements for the modeling of retention basins. Please model the basin according to the new criteria, attached, or make it a detention basin.
4. I didn't find the plans for piping drain D.
5. We can delay the v-pan discussion until filing 7 but the City much prefers a storm sewer system rather than a v-pan. They are easier to maintain and a v-pan won't be needed for traffic calming in the middle of the curve.
6. Sheet 20 is not included in the response to comment. I assume because this is now delayed to filing 7.
7. Sign the report.

DIA

8. Provide the disbursement agreement.

PLANS

9. Please see the attached redline drawings with minor comments. Respond to each comment in a different color and return with the written response.
10. *The grading plan has a table for top of concrete elevation. The grading administration regulation requires minimum and maximum finished floor elevations.*

Are the top of concrete elevations the only elevations are is there flexibility? Make this conform to the reference regulation. THIS ORIGINAL COMMENT STILL STANDS. The County is not the entity that gets the phone call when a higher lot drains onto a lower lot and it causes the owner headache or damage. The highest elevation is to ensure that houses on adjacent lots don't get constructed at radically different elevations that preclude proper drainage.

11. I didn't find the letter from the building department said to be included. Please furnish them the new plan and geotechnical report and provide a letter from them stating receipt.
12. The retaining wall on the south side of filing 6 needs to be designed and shown on the plans and constructed as part of this filing.
13. Stamp and sign the plans.

Entire project 66. 7 acres
MAX units 175 / 160

PROJECT The Knolls, Filing 6 FPP-2003.078 Old Code requires P.C. appvl
PHYSICAL LOCATION: SE of 27½ + Piazza Way
LEGAL DESCRIPTION
ACERAGE: 15.464 ac PROPOSED USE Residential - S.F. 191 lots + 1 open space 0.7 ac. detention
PUBLIC BENEFIT
HOURS OF OPERATION N/A NUMBER OF EMPLOYEES N/A

ZONING, SETBACKS (BLUK REQUIREMENTS, min. lot area, max. height, front set back from CL, min. side and rear), LANDSCAPING, SCREENING, BUFFERING, ENCLOSURES, APPLICABLE CORRIDOR GUIDELINES, ACCESS, CIRCULATION, PARKING, (REVOCABLE PERMIT IF REQUIRED) LIGHTING, TREATMENT OF ROW, DRAINAGE, FLOOD PLAIN, WETLANDS, SIGNAGE, FENCING, UTILITIES, EASEMENTS, LAND USE COMPATIBILITY, TRAFFIC GENERATION, SOILS, AVIGATION EASEMENTS, PREVIOUS COUNCIL ACTIONS

Prelim. approved July 18, 2000

Zoning - P.D. MAX 175 dwelling units (P.R. 2.5)

Irrigation + Drainage Easements - need to be signed, dated + notorized + recorded.

Quit Claim Deed to be Finalized - to H.O.A. - recorded

DIA - date - Exhibit B refers to the City of Fruita (5-4-01? latest + greatest / what will secure it?

Landscape Plan for detention / Openspace

GVWUA - Indemification agreement is required prior to #6 + 7

Storm water detention / retention?

CC+R's provided (Filing 1) 27 pgs Book 2300 pg. 217 2-14-97

> Landscaping Plan for Tract A

CITY OF GRAND JUNCTION
Community Development Dept. • 250 N. 5th Street • Grand Junction, CO 81501

May 5, 2003

ACCEPTANCE LETTER

A submittal for The Knolls, Filing 6 (FPP-2003-078) has been accepted for review.

If you have any questions regarding the status of this project review, please contact Lori Bowers, the project planner, at 256-4033 or lorib@ci.grandjct.co.us.

Review comments for the project will be available on 5/27/03 after 4:00 P.M., approximately 5 weeks from the application submittal date.

If this project requires a public hearing, a sign must be posted on the property a minimum of ten (10) days in advanced of the hearing. There will be a $50.00 refundable deposit required at the time the sign is picked up from Community Development.

cc: FPP-2003-078

PDR-1996-217
Phasing: A 4 phased plan is proposed for construction over a 3 year period. The townhomes are proposed for construction in the third phase. By building single family homes in the first two phases, the developer risks opposition to the final plat and plan for the townhomes from home buyers in filings 1 and 2. Particularly home buyers in phase 2 should be made aware of the proposal to construct townhomes within this subdivision. Staff recommends that a note be placed on the plat for filings 1 and 2 notifying potential lot owners that the townhomes are proposed as part of this subdivision.

#GPA-2000-103.
SUMMARY: The preliminary plan for The Knolls has expired. The applicant proposes a new plan with a reduced density. A Growth Plan Amendment from Residential Medium (4 to 8 du/ac) to Residential Medium Low (2 to 4 du/ac) is proposed to allow a lower density. A rezone to a new Planned Development (PD) zone and a Preliminary Plan under the old code is also proposed. Former zoning under the old code was PR 2.7. A mixed-use development with 16 patio homes and 64 single-family homes is proposed. A variation in the street standard for the patio homes is also required. Staff recommends approval of all requests with conditions.
The preliminary plan for the Knolls has since expired and the developer has acquired an additional 6.6-acre parcel. The overall density now proposed by the applicant is only slightly less at 2.5 dwellings per acre. However, since the preliminary plan expired and a rezone to a lower density is needed, this triggers the need to amend the Growth Plan to bring the development's density in conformance with the Growth Plan Future Land Use Map.

Strategy S.S.

New Ord. 3286 Aug. 16, 2003
Remaining 32.52 ac w/ new acquisition

80 du
64 du
16 patio homes – done

GPA-2000-103. It is not expected that Filing 1 would be completed prior to 2005.

From: "jim daugherty" <jdaugherty@utewater.org>
To: "Comm Dev" <CommDev@ci.grandjct.co.us>
Date: Mon, May 5, 2003 10:08 AM
Subject: THE KNOLLS FL 6

Ute Water Conservancy District
Review Number
FPP-2003-078
Review Name
THE KNOLLS FL 6

* COMMENT
* Move southern valve at Briar Ridge Wy to south of last metered service and extend water line 40'.
* Move southern valve at Woodgate Dr. to south of last metered service and extend water line 40'.
* Move fire hydrant to between water meters at lot 3 & 4, block 4 or to southeast corner of lot 5, block 3.
* Water mains shall be C900, Class 150 PVC. Installation of pipe, fittings, valves, and services, including testing and disinfection shall be in accordance with Ute Water standard specifications and drawings
* Developer is responsible for installing meter pits and yokes (pits and yokes supplied by Ute Water).
* Construction plans required 48 hours before construction begins. If plans are changed the developer must submit a new set of plans.
* Electronic drawings of the utility composite for the subdivision, in Autocad.dwg format, must be provided prior to final acceptance of water infrastructure.
* Water meters will not be sold until final acceptance of the water infrastructure.
* ALL FEES AND POLICIES IN EFFECT AT TIME OF APPLICATION WILL APPLY
If you have any questions concerning any of this, please feel free to contact Ute Water.

Edward Tolen P.E.
Project Engineer, Ute Water

Jim Daugherty
New Services Coordinator, Ute Water

DATE 5/5/03

PHONE OFFICE 242-7491
FAX 242-9189
EMAIL jdaugherty@utewater.org

CC: "Vista Engineering" <banner@wic.net>

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Telephone: (970) 244-1430
Fax: (970) 256-4031
E-mail: CommDev@ci.grandjct.co.us

Review Agency Comment Sheet

AP 5/8/03

(Petitioner: Please fill in blanks in this section only unless otherwise indicated)

Date: April 2, 2003

To Review Agency: AT&T Broadband

File No: FPP-2003-078
(To be filled in by City Staff)

Staff Planner: Lori Bowers
(To be filled in by City Staff)

Project Name: The Knolls Subdivision, Filing 6

Location: Lot 1, Block 6, The Knolls Subdivision, Filing 4

Development Review Meeting Date: 5/20/03
(To be filled in by City Staff)

Comments

(For Review Agency Use)

Outside Review Agencies: Please email comments to: CommDev@ci.grandjct.co.us, FAX comments to (970) 256-4031 or mail written comments to the above address. **NOTE:** If this form is not returned, additional review information will not be provided.

City Review Agencies: Please type your comments in Impact AP.

All comments must be returned to the Community Development Department no later than

(To be filled in by City Staff) 5/19/03

NOTE: Please identify your review comments on plan sets by printing the date, your name and company/agency for future reference.

Chuck Wiedman — Review By

5-5-03 — Date

cwiedman@bresnan.com — Email Address

263-2313 — Telephone

Bresnan Communications
2502 Foresight Circle
Grand Junction, CO 81505
970-263-2313 telephone
970-245-6803 fax

BRESNAN
Communications

May 6, 2003

The Knolls Subdivision, Filing 6
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Dear, O.P. Development Co., LLC

We are in receipt of the plat map for your new subdivision, **The Knolls Subdivision, Filing 6.** I would like to notify you that 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 to have available to the new home purchasers. These items are as follows:

1. We require the developers to provide, at no charge to Bresnan Communications, an open trench for cable service where underground service is needed and when a roadbore is required, the developer too must provide that. The trench may be the same one used by other utilities however; **the road-bore must have a 2" conduit for the sole use of cable TV.**

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

3. **We require developers to provide, at no charge to Bresnan Communications, a 4" PVC conduit at all utility road crossings where cable TV will be installed. The cable TV crossings will be in the same location as power and telephone crossing. If the conduit is not installed, we will be unable to place our lines until one is 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. Any need to relocate pedestals or lines will be billed directly back to your company.

5. Bresnan Communications 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 Bresnan Communications in order to extend the cable TV service to that subdivision.

6. Should Bresnan Communications be required to perform work on any existing aerial or underground cable TV lines to provide service to the subdivision, Bresnan Communications may require a construction assist charge, to be paid by the developer.

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,

Chuck Wiedman,
Construction Supervisor
Phone: 263-2313

Lori

AP
5/9/03

May 8, 2003

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501
FILE: FPP-2003-078: The Knolls, Filing 6

Walker Field Airport Authority has reviewed the proposed Knolls Subdivision, Filing 6. This development is directly beneath the common air traffic patterns for the approach to Runway 4 and departure from Runway 22. The property appears to be adjacent to and outside of the critical zone for Runway 4/22. All of the property lies within the Airport Area of Influence. It does not lie within this runway's noise contours as currently defined.

Given the location of this development relative to an airport critical zone and the proscribed and historic approach and departure procedures for Runway 4/22, **residences in this subdivision will be affected by aircraft overflight, often directly overhead at relatively low altitudes.**
If this proposed development is approved, the Walker Field Airport Authority requests that an Avigation Easement specific to this property be filed with the City of Grand Junction with a copy provided to the Airport Authority.

All exterior lighting must be downward directional and lighting elements must be chosen to reduce or eliminate any possible glare that might affect aircraft operations.

We appreciate the ability to comment. If there are any questions or concerns, please contact our office at 244-9100.

Sincerely,

Gary Mancuso
Properties Manager

AP
5/14/03

From: <LGrassojr@aol.com>
To: <CommDev@ci.grandjct.co.us>
Date: Tue, May 13, 2003 1:12 PM
Subject: school district 51 reviews

Following are estimated student impacts for two developments. I have identified the development and then listed the Program/Schedule School capacity, 2/03 enrollment and estimated student impact at the attendance area schools. Please contact me at 242-8500 if you have questions or need additional information.

Knolls Filing 6:
Orchard Ave. Ele: 406/415/4 East MS:398/450/2
GJHS:1667/1600/2

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Telephone: (970) 244-1430
Fax: (970) 256-4031
E-mail: CommDev@ci.grandjct.co.us

RECEIVED
MAY 01 2003
By

Review Agency Comment Sheet

(Petitioner: Please fill in blanks in this section only unless otherwise indicated)

Date: April 2, 2003

To Review Agency: Grand Valley Water Users

File No: FPP-2003-078 *(To be filled in by City Staff)*

Staff Planner: Lori Bowers *(To be filled in by City Staff)*

Project Name: The Knolls Subdivision, Filing 6

Location: Lot 1, Block 6, The Knolls Subdivision, Filing 4

Development Review Meeting Date: 5/20/03 *(To be filled in by City Staff)*

Comments

(For Review Agency Use)

Outside Review Agencies: Please email comments to: CommDev@ci.grandjct.co.us, FAX comments to (970) 256-4031 or mail written comments to the above address. **NOTE:** If this form is not returned, additional review information will not be provided. PLEASE SEE ATTACHED LETTER

City Review Agencies: Please type your comments in Impact AP.

All comments must be returned to the Community Development Department no later than

(To be filled in by City Staff) 5/19/03

NOTE: Please identify your review comments on plan sets by printing the date, your name and company/agency for future reference.

Richard L. Proctor, Manager Grand Valley Water Users' Association 5/19/03

Review By Date

970-242-5065

Email Address Telephone

GRAND VALLEY WATER USERS ASSOCIATION

GRAND VALLEY PROJECT, COLORADO

1147 24 Road (970) 242-5065 FAX (970) 243-4871
GRAND JUNCTION, COLORADO 81505

May 19, 2003

Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Re: FPP-2003-078 Knolls Subdivision, Filing 6

Dear Ladies and Gentlemen:

Grand Valley Water Users' Association (GVWUA) has studied the review information provided by the City of Grand Junction on the subject proposal and makes the following comments.

1. The subject property is covered by Grand Valley Water Users Association (GVWUA) Stock Subscription Number 603. Article XV, Section 2 of the subscription document reads, "The undersigned furthermore grants to the United States, over land described herein, as may be required in connection with the works constructed or controlled by the United States, for the use and benefit of the stockholders, necessary right-of-way for the construction, operation and maintenance of canals, tunnels. and other water conduits, telephone and electric transmission lines, drains, dikes, and other works for irrigation, drainage, and reclamation." Said stock subscription was recorded at the Mesa County Recorders Office on March 4, 1926 in Book 209 at Page 51 and covers the entire N2/3NW1/4SE1/4 and S 11 Acres SW1/4NE1/4 of Section 1, T1S, R1W, Ute Meridian.

2. There are two facilities of the Grand Valley Project that will be impacted by the Knolls Subdivision, Filing 6 development. One is Lateral 2C and the second is a portion of Drain D. The Grand Valley project was constructed by the United States Bureau of Reclamation (Reclamation) and is operated and maintained by the GVWUA pursuant to a contract between the GVWUA and Reclamation.

3. Lateral 2C, a buried pipeline, is an irrigation water delivery system that is located along the east property line of the subject property which is common to the Spring Valley Subdivision. The subject property is burdened by the Lateral 2C pipeline and or by the easement for Lateral 2C to the extent that such will exist on the Knolls Subdivision, Filing 6.

4. A portion of the GVWUA Drain D system exists along the southern part of the Knolls Subdivision. The Drain D drain ditch is not located in the Filing 6 area. However, the developer has expressed a desire to pipe and cover said portion of Drain D while developing the Knolls Subdivision, Filing 6.

5. The GVWUA's permission is needed before any changes are made to Lateral 2C or to the existing condition of Drain D. Prior to discussing any changes to its facilities with the developer, the GVWUA requires that the developer enter into an agreement with the GVWUA, detailing the review process and requiring that the developer reimburse the GVWUA for all costs incurred by the GVWUA.

6. The easements for Lateral 2C and Drain D needs to be depicted on the subject plat. GVWUA expects and demands that all recorded and apparent rights-of-way and easements for all GVWUA/Grand Valley Project features are depicted on the subject plat along with book and page of the grant of easement source document. This is an affirmation of the requirements of C.R.S. 38-51-106 (1)(b) as it pertains to "platted subdivisions" and the Colorado State Board of Registration for Engineers and Surveys Board Policy Number 17.

7. The GVWUA understands that the Developer may desire to discharge storm water from the Subdivision into Drain D. The GVWUA cannot authorize or allow such discharges. The GVWUA must abide by Reclamation's directives when considering whether to allow discharges of storm water into Grand Valley Project facilities. The guidance from Reclamation to the GVWUA on this issue states in part as follows:

   > Authorization for urban storm water discharge shall only be granted to established city or county governmental entities because individual developers will be literally "here today and gone tomorrow." ...Individual or corporate developers who apply should be advised to seek inclusion of their development within the appropriate local municipal storm drainage system. Reclamation

can then do business with the local governmental entity responsible for that system.

Accordingly, the GVWUA cannot authorize the Developer to discharge storm water from the Knolls Subdivision into Drain D. The Developer will need to make other arrangements to handle storm water from the Subdivision.

If you have any questions concerning the GVWUA position, please feel free to contact GVWUA at 242-5065.

Sincerely,

Richard Proctor

Richard L. Proctor, Manager

xc: O.P. Development Co., LLC
David Chase, Vista Engineering

1 of 1

From: "Basford, John A" <John.Basford@XCELENERGY.COM>
To: "review agency" <CommDev@ci.grandjct.co.us>
Date: Wed, May 21, 2003 9:50 AM
Subject: Fpp-2003-078 Knolls filing 6

No Objections. Xcel Energy reserves the right to request and be granted addition easement if necessary.

John A. Basford
Planner Design Group
2538 Blichmann Ave.
Grand Junction Co. 81505
Ph.(970)244-2630
Fax (970)244-2661
john.basford@xcelenergy.com

AP 5/22/03

May 20, 2003

Re: **FPP-2003-078**
KNOLLS SUBDIVLISION, FILING 6

REVIEW COMMENTS

Sheet 1 of 2

All lettering shall be a minimum 1/8" in height (except within the vicinity sketch).

Sheet 2 of 2

1. All lettering shall be a minimum of 1/8" in height.
2. Verify the area indicated for Lot 2, Block 1.
3. Block 5 cannot adjoin Blocks 1, 2 and 4 per State definition of a Block.
4. The final Plat shall be signed and sealed by the Surveyor on both sheets of the Plat.
5. Indicate the right of way width, from the centerline, of all interior roads.
6. A field inspection will be performed to verify that exterior boundary corners indicated on the Plat are in place and identified as noted on the Plat.

By: Peter T. Krick
Professional Land Surveyor for
The City of Grand Junction

FAX TRANSACTION

Grand Valley Water Users' Association
Grand Valley Project, Colorado
1147 24 Road
Grand Junction, CO 81505-9639

Phone: (970) 242-5065 FAX: (970) 243-4871

Date: May 20, 2003

To: Lori Bowers Fax No: 256-4031

Firm: Community Development Department

From: Richard Proctor, Manager

Re: FPP-2003-078 Knolls Subdivision, Filing 6

Hard copy to be put in todays mail.

NUMBER OF PAGES (INCLUDING COVER SHEET): 5

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Telephone: (970) 244-1430
Fax: (970) 256-4031
E-mail: CommDev@ci.grandjct.co.us

Review Agency Comment Sheet

(Petitioner: Please fill in blanks in this section only unless otherwise indicated)

Date: April 2, 2003

To Review Agency: Grand Valley Water Users

File No: FPP-2003-078 *(To be filled in by City Staff)*

Staff Planner: Lori Bowers *(To be filled in by City Staff)*

Project Name: The Knolls Subdivision, Filing 6

Location: Lot 1, Block 6, The Knolls Subdivision, Filing 4

Development Review Meeting Date: 5/20/03 *(To be filled in by City Staff)*

Comments

(For Review Agency Use)

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All comments must be returned to the Community Development Department no later than

(To be filled in by City Staff) 5/19/03

NOTE: Please identify your review comments on plan sets by printing the date, your name and company/agency for future reference.

Richard L. Proctor, Manager Grand Valley Water Users' Association 5/19/03
Review By Date

970-242-5065
Email Address Telephone

GRAND VALLEY WATER USERS ASSOCIATION
GRAND VALLEY PROJECT, COLORADO

1147 24 Road (970) 242-5065 FAX (970) 243-4871
GRAND JUNCTION, COLORADO 81505

May 19, 2003

Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Re: FPP-2003-078 Knolls Subdivision, Filing 6

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Sincerely,

Richard Proctor

Richard L. Proctor, Manager

xc: O.P. Development Co., LLC
David Chase, Vista Engineering

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Telephone: (970) 244-1430
Fax: (970) 256-4031
E-mail: CommDev@ci.grandjct.co.us

Review Agency Comment Sheet

(Petitioner: Please fill in blanks in this section only unless otherwise indicated)

Date: April 2, 2003

To Review Agency: City Property Agent

File No: FPP-2003-078
(To be filled in by City Staff)

Staff Planner: Lori Bowers
(To be filled in by City Staff)

Project Name: The Knolls Subdivision, Filing 6

Location: Lot 1, Block 6, The Knolls Subdivision, Filing 4

Development Review Meeting Date: 5/20/03
(To be filled in by City Staff)

Comments

(For Review Agency Use)

Outside Review Agencies: Please email comments to: CommDev@ci.grandjct.co.us, FAX comments to (970) 256-4031 or mail written comments to the above address. **NOTE:** If this form is not returned, additional review information will not be provided.

City Review Agencies: Please type your comments in Impact AP.

SEE ATTACHED COMMENTS

All comments must be returned to the Community Development Department no later than

(To be filled in by City Staff) 5/19/03

NOTE: Please identify your review comments on plan sets by printing the date, your name and company/agency for future reference.

PETER T. KRICK — Review By

5/20/2003 — Date

Email Address

Telephone

May 20, 2003

Re: **FPP-2003-078**
KNOLLS SUBDIVLISION, FILING 6

REVIEW COMMENTS

Sheet 1 of 2

All lettering shall be a minimum 1/8" in height (except within the vicinity sketch).

Sheet 2 of 2

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3. Block 5 cannot adjoin Blocks 1, 2 and 4 per State definition of a Block.
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5. Indicate the right of way width, from the centerline, of all interior roads.
6. A field inspection will be performed to verify that exterior boundary corners indicated on the Plat are in place and identified as noted on the Plat.

By: Peter T. Krick
Professional Land Surveyor for
The City of Grand Junction

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Telephone: (970) 244-1430
Fax: (970) 256-4031
E-mail: CommDev@ci.grandjct.co.us

RECEIVED
MAY 01 2003
By

Review Agency Comment Sheet

(Petitioner: Please fill in blanks in this section only unless otherwise indicated)

Date: April 2, 2003

To Review Agency: Grand Valley Water Users

File No: FPP-2003-078
(To be filled in by City Staff)

Staff Planner: Lori Bowers
(To be filled in by City Staff)

Project Name: The Knolls Subdivision, Filing 6

Location: Lot 1, Block 6, The Knolls Subdivision, Filing 4

Development Review Meeting Date: 5/20/03
(To be filled in by City Staff)

RECEIVED
MAY 20 2003
COMMUNITY DEVELOPMENT DEPT.

5/20/03

Comments
(For Review Agency Use)

Outside Revi ...us. FAX comments to (970) 256 ... If this form is not returned, ac ...

City Review

Grand Valley Water Users' Association has two facilities that will be impacted by this project. One is a lateral pipeline and the other is an open drainage ditch. I have needed to be out of the office on other matters and will try to get our comments in on the Knolls Sub on Tuesday May 20, 2003. ...inting

Richard Proctor
Review By

5-19-03
Date

242-5065
Email Address

Telephone

REVIEW COMMENTS

May 27, 2003

FILE #FPP-2003-078 **TITLE HEADING: The Knolls, Filing 6**

LOCATION: SE of 27½ and Piazza

PETITIONER: O.P. Development Company, LLC – Robert Knapple

PETITIONER'S ADDRESS/TELEPHONE: 3695 Ridge Dr
241-2373

PETITIONER'S REPRESENTATIVE: Vista Engineering Corp – David Chase
243-2242

STAFF REPRESENTATIVE: Lori Bowers

NOTE: THE PETITIONER IS REQUIRED TO SUBMIT AND LABEL A RESPONSE TO COMMENT FOR EACH AGENCY OR INDIVIDUAL WHO HAS REQUESTED ADDITIONAL INFORMATION OR REVISED PLANS, INCLUDING THE CITY, ON OR BEFORE 5:00 P.M. AUGUST 27, 2003.

CITY COMMUNITY DEVELOPMENT **5/12/03**
Lori Bowers **256-4033**

1. The separate instruments for irrigation and drainage easements need to be signed, dated, notarized and recorded.
2. Quit Claim Deed for the HOA will need to be finalized.
3. Exhibit B of the DIA refers to the City of Fruita, please revise to "City of Grand Junction".
4. What form of security will be used for the DIA?
5. A landscape plan for the detention/open space area designated as Tract A, is required.

CITY DEVELOPMENT ENGINEER **5/23/03**
Rick Dorris **256-4155**

MISCELLANEOUS

1. The punch lists for Filings 4 and 5 have not yet been completed and they have therefore not been accepted by the City. These filings were paved a couple of years ago and many, if not all, homes are built. The Developer and his Engineer have been contacted by the City several times to remind of the need to complete the project. Unfortunately, Filing 6 of the Knolls will not be approved for construction until filings 4 and 5 have been closed out and accepted by the City.
2. Will need construction activity permit from the state prior to plan approval.

DRAINAGE REPORT AND PLAN

3. The report needs to discuss the downstream facilities and their ability to handle the flow being discharged.
4. What is happening on drain D? Is it being piped or left open?
5. The drainage report shows a v-pan and sidewalk drain trough to collect the water at the low point of Woodgate Drive. There is plenty of grade available to install two inlets and a storm pipe. Please design as such.
6. Why is the weir plate in the outlet structure removable? Seems like this will just encourage the HOA to remove it and defeat the purpose of the detention basin.
7. The C values for developed flow seem to be low. They are 0.29 and 0.38 which are the lower end of the 0 - 2% category. The slopes for these filings are greater than 2% and the C-value should be larger. Please check all other C-values. If I'm correct, this will change the pond and pipe design.

PLAT

8. It appears there is a 20' jog in right of way on 27 ½ Road in block 5. Is this correct or is it really a jog around the landscape tract?

DIA

9. How about using the City's DIA form for exhibit B and insert the standard Engineering and miscellaneous fees?
10. Provide the guarantee.
11. The $36 per ton for asphalt is way low.
12. The $14 per foot for sewer pipe is low. At least $4 maybe higher.
13. The $3 per square foot for v-pans and fillets and ramps is low. Same as above.

PLANS

14. Please see the attached redline drawings. Respond to each comment in a different color and return with the written response.
15. The grading plan has a table for top of concrete elevation. The grading administration regulation requires minimum and maximum finished floor elevations. Are the top of concrete elevations the only elevations are is there flexibility? Make this conform to the reference regulation.
16. Provide the grading and drainage plan and geotechnical report to the building department and provide a letter from them stating they have received them.
17. There is a significant amount of debris, both organic and inorganic, along with a lot of dumped soil. The plans need to address how these items will be addressed. It needs to be blatantly clear to the contractor that these materials will not be allowed in the fill.

CITY FIRE DEPARTMENT **5/8/03**
Norm Noble **244-1473**

1. Available Fire Flow is acceptable for the project.
2. Relocate the fire hydrant located on lot line between lots 4&5 block 4 to the intersection of Autumn Ash Ave. & Woodgate Dr. (southeast corner of lot 5 block 3). Make necessary corrections and resubmit utility composite.

CITY TRANSPORTATION ENGINEER **5/18/03**
George Miller **256-4123**

Proposal is to develop 19 single family lots on approx. 15.5 acres, as part 6 of 7 total phases of a single project. Site fronts on 27 ½ Rd, but will take access from two roadways (Briar Ridge Wy and Woodgate Dr).

Proposal Comments:

1. There will need to be blade type "no outlet" signs posted on both Briar Ridge and Fairwood Pl. at Piazza Wy, if not already provided. Sheet 5 of 20 will need the note" Contact the City Traffic Operations Supervisor (970 / 244-1573) prior to any signing material order or installation.
2. There are no internal Urban Trails concerns for this site. A bike lane will be required along the site's 27 ½ Rd frontage, however.
3. Traffic calming will be required on Briar Ridge, Woodgate, and Autumn Ash. Intersection calming (such as restricted widths on all three legs) will work well on Briar Ridge and on Woodgate. Mid-block calming, such as a chicane or width restriction, will be required on Autumn Ash. For future reference, additional calming will be required on Woodgate (between Autumn Ash and Briar Dr) in phase 7. Call 256-4123 for design guidelines.

CITY UTILITY ENGINEER **4/30/03**
Trent Prall **244-1590**

DIA: Unless bids have been received, please increase the $/LF of item 603 8" SDR-35 PVC Pipe to $16/LF.

No other sanitary sewer utility related concerns with proposed alignments and grades.

CITY PROPERTY AGENT **5/20/03**
Peter Krick **256-4123**

REVIEW COMMENTS

Sheet 1 of 2

All lettering shall be a minimum 1/8" in height (except within the vicinity sketch).

Sheet 2 of 2

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5. Indicate the right of way width, from the centerline, of all interior roads.
6. A field inspection will be performed to verify that exterior boundary corners indicated on the Plat are in place and identified as noted on the Plat.

BRESNAN COMMUNICATIONS **5/8/03**
Chuck Wiedman **263-2313**

We are in receipt of the plat map for your new subdivision, The Knolls Subdivision, Filing 6. I would like to notify you that 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. There items are as follows:

1. We require the developers to provide, at no charge to Bresnan Communications, an open trench for cable service where underground service is needed and when a roadbore is required, that too must be provided by the developer. The trench may be the same one used by other utilities, however the roadbore must provide a 2" conduit for the sole use of cable TV.
2. We require developers to provide, at no charge to Bresnan Communications, fill-in of the trench once cable has been installed in the trench.
3. We require developers to provide, at no charge to Bresnan Communications, a 4" PVC conduit at all utility road crossings where cable TV will be installed. The cable TV crossing will be in the same location as power and telephone crossings. If the conduit is not installed, we will be unable to place our lines until one is installed. This 4" conduit will be for the sole use of cable TV.
4. Should your subdivision contain cul-de-sacs, the driveways and property lines (pins) must be clearly marked prior to the installation of underground cable. Any need to relocate pedestals or lines will be billed directly back to your company.
5. Bresnan Communications 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 Bresnan Communications in order to extend the cable TV service to that subdivision.
6. Should Bresnan Communications be required to perform work on any existing aerial or underground cable TV lines to provide service to the subdivision, Bresnan Communications may require a construction assist charge, to be paid by the developer.

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 out office and I will get back in contact with you as soon as I can.

GRAND VALLEY WATER USERS **5/20/03**
Richard Proctor **242-5065**

Grand Valley Water Users' Association has two facilities that will be impacted by this project. One is a lateral pipeline and the other is an open drainage ditch. I have needed to be out of the office on other matters and will try to get our comments in on the Knolls Subdivision on Tuesday, May 20, 2003.

UTE WATER **5/5/03**
Jim Daugherty **242-7491**

COMMENT

* Move southern valve at Briar Ridge Wy to south of last metered service and extend water line 40'.
* Move southern valve at Woodgate Dr. to south of last metered service and extend water line 40'.

* Move fire hydrant to between water meters at lot 3 & 4, block 4 or to southeast corner of lot 5, block 3.
* Water mains shall be C900, Class 150 PVC. Installation of pipe, fittings, valves, and services, including testing and disinfection shall be in accordance with Ute Water standard specifications and drawings
* Developer is responsible for installing meter pits and yokes (pits and yokes supplied by Ute Water).
* Construction plans required 48 hours before construction begins. If plans are changed the developer must submit a new set of plans.
* Electronic drawings of the utility composite for the subdivision, in Autocad.dwg format, must be provided prior to final acceptance of water infrastructure.
* Water meters will not be sold until final acceptance of the water infrastructure.
* ALL FEES AND POLICIES IN EFFECT AT TIME OF APPLICATION WILL APPLY

If you have any questions concerning any of this, please feel free to contact Ute Water.

MESA COUNTY SCHOOL DISTRICT #51 **5/14/03**
Lou Grasso **242-8500**

Following are estimated student impacts for two developments. I have identified the development and then listed the Program/Schedule School capacity, 2/03 enrollment and estimated student impact at the attendance area schools. Please contact me at 242-8500 if you have questions or need additional information.

Knolls Filing 6:
Orchard Ave. Ele: 406/415/4 East MS:398/450/2
GJHS:1667/1600/2

WALKER FIELD AIRPORT **5/9/03**
Gary Mancuso **244-9100**

Walker Field Airport Authority has reviewed the proposed Knolls Subdivision, Filing 6. This development is directly beneath the common air traffic patterns for the approach to Runway 4 and departure from Runway 22. The property appears to be adjacent to and outside of the critical zone for Runway 4/22. All of the property lies within the Airport Area of Influence. It does not lie within this runway's noise contours as currently defined.

Given the location of this development relative to an airport critical zone and the proscribed and historic approach and departure procedures for Runway 4/22, residences in this subdivision will be affected by aircraft overflight, often directly overhead at relatively low altitudes.
If this proposed development is approved, the Walker Field Airport Authority requests that an Avigation Easement specific to this property be filed with the City of Grand Junction with a copy provided to the Airport Authority.

All exterior lighting must be downward directional and lighting elements must be chosen to reduce or eliminate any possible glare that might affect aircraft operations.

We appreciate the ability to comment. If there are any questions or concerns, please contact our office at 244-9100.

XCEL **5/22/03**
John Basford **244-2630**

No Objections. Xcel Energy reserves the right to request and be granted addition easement if necessary.

Comments not available as of 5/27/03:
City Addressing
City Attorney
Parks & Recreation
Police Department
Persigo WWTF
Qwest
US Postal Service

EXHIBIT B

IMPROVEMENTS COST ESTIMATE

DATE: 8-Aug-03
DEVELOPMENT NAME: KNOLLS FILING 6
LOCATION: 27 1/2 ROAD, SOUTH OF PIAZZA WAY
PRINTED NAME OF PERSON PREPARING: PATRICK M. O'CONNOR

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
A.	**SANITARY SEWER**				
1	8 " PVC Sanitary Sewer Main	LF	2372	$ 16.00	$ 37,952.00
2	____ " PVC Sanitary Sewer Main	LF			$ -
3	____ " PVC Sanitary Sewer Main	LF			$ -
4	Sewer services	LF	1589	$ 10.00	$ 15,890.00
5	Sanitary Sewer Manhole	EA	11	$ 1,500.00	$ 16,500.00
6	Sanitary Sewer Drop Manhole	EA			$ -
7	Connection to Existing Manhole	EA	1	$ 500.00	$ 500.00
8	Concrete Encasement	LF	30	$ 30.00	$ 900.00
	Subtotal Part A Sanitary Sewer				**$ 71,742.00**
B.	**DOMESTIC WATER**				
1	8" PVC Water Main	LF	1397	$ 18.00	$ 25,146.00
2	____ " PVC Water Main	LF			$ -
3	____ " PVC Water Main	LF			$ -
4	8" Gatevalve	EA	6	$ 550.00	$ 3,300.00
5	____ " Gatevalve	EA			$ -
6	____ " Gatevalve	EA			$ -
7	Water Services	LF	737	$ 9.00	$ 6,633.00
8	Connect to Existing Water Line	EA	2	$ 500.00	$ 1,000.00
9	Fire Hydrant with Valve	EA	2	$ 2,350.00	$ 4,700.00
10	Utility Adjustments	EA			$ -
11	Blowoff	EA	2	$ 300.00	$ 600.00
					$ -
					$ -
					$ -
	Subtotal Part B - Domestic Water				**$ 41,379.00**

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
C1	STREETS				
1	8" PVC Utility/Irrigation sleeves	LF	90	$ 15.00	$ 1,350.00
2	4" PVC Utility/Irrigation sleeves	LF	160	$ 10.00	$ 1,600.00
3	Reconditioning	SY	6475	$ 1.50	$ 9,712.50
4	Aggregate Base Course (Class 3)	TN			$ -
5	Aggregate Base Course (Class 6) (8" Compacted Thickness)	TN	1990	$ 11.25	$ 22,387.50
6	Aggregate Base Course (Class 6) (__" Compacted Thickness)	SY			$ -
7	Hot Bituminous Paving, Grading C (3" thick)	TN	750	$ 40.00	$ 30,000.00
8	Hot Bituminous Paving, Grading__ (__" thick)	SY			$ -
9	Hot Bituminous Paving, Patching (___" Thick)	SY			$ -
10	Geotextile	SY			$ -
11	Concrete Curb (__" Wide by __"	LF			$ -
12	Concrete Curb and Gutter (2' wide)	LF			$ -
13	Concrete Curb and Gutter (1.5' wide)	LF			$ -
14	Monolithc, Vertical Curb, Gutter and Sidewalk (__' Wide)	LF			$ -
15	Drive Over Curb, Gutter, and Sidewalk (6.5' Wide)	LF	2540	$ 17.50	$ 44,450.00
16	Concrete Sidewalk (__' Wide)	LF			$ -
17	Concrete Gutter and Driveway Section (__" Thick)	SY			$ -
18	Concrete Drainage Pan (6' Wide, 8"	SF	336	$ 3.00	$ 1,008.00
19	Concrete Corner Fillet	SY			$ -
20	Concrete Curb Ramp	SY			$ -
21	Complete Concrete Corner	SF	1323	$ 3.00	$ 3,969.00
22	Concrete Driveway (__" Thick)	SY			$ -
23	Driveway/Concrete Repair	SY			$ -
24	Retaining Walls	LF	500	$ 18.50	$ 9,250.00
25	Street Signs	EA	5	$ 200.00	$ 1,000.00
26	Striping (New, Remove/Replace)	LF			$ -
27	Street Lights	EA	4	$ 1,200.00	$ 4,800.00
28	Signal Construction or Reconstructio	LS			$ -
29	Flowable Fill	CY			$ -
30	Sleeves, ____", ____ PVC	LF			$ -
					$ -
					$ -

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
C2	BRIDGES				
					$ -
1	Box Culvert Pre-Cast	LS			$ -
2	Box Culvert Cast-in-Place	LS			$ -
3	Wingwalls	LS			$ -
4	Parapet Wall	LS			$ -
5	Railing (handrail, guardrail)	LS			$ -
					$ -
					$ -
	Subtotal Part C - Streets and Bridges				**$ 129,527.00**
D1	EARTHWORK				
1	Mobilization	LS	1	$ 1,500.00	$ 1,500.00
2	Clearing and Grubbing	LS	1	$ 2,000.00	$ 2,000.00
3	Unclassified Excavation	CY	5200	$ 2.00	$ 10,400.00
4	Unclassified Embankment	CY	4800	$ 2.50	$ 12,000.00
5	Silt Fence	LF	40	$ 4.00	$ 160.00
6	Watering (Dust Control)	LS	1	$ 1,500.00	$ 1,500.00
D2	REMOVALS AND RESETTING				
1	Removal of Asphalt	SY			$ -
2	Removal of Miscellaneous Concrete	SY			$ -
3	Remove Curb and Gutter	LF			$ -
4	Removal of Culverts	LF			$ -
5	Remove Structures	EA			$ -
6	Remove Signs	EA			$ -
7	Remove Fence	LF			$ -
8	Adjust Manhole	EA	11	$ 100.00	$ 1,100.00
9	Adjust Valvebox	EA	6	$ 100.00	$ 600.00
10	Relocate or Adjust Utilities	LS			$ -
D3	SEEDING AND SOIL RETENTION				
1	Sod	SY			$ -
2	Seeding (Native)	SY or AC			$ -
3	Seeding (Bluegrass/Lawn)	SY or AC			$ -
4	Hydraulic Seed and Mulching	SY or AC			$ -
5	Soil Retention Blanket	SY			$ -

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
D4	TORM DRAINAGE FACILITIES				
1	Finish Grading (incl. Channels, Swales, and Ponds)	CY	2000	$ 2.00	$ 4,000.00
2	15" RCP Storm Drain Pipe	LF	246	$ 25.00	$ 6,150.00
3	18" RCP Storm Drain Pipe	LF	1150	$ 30.00	$ 34,500.00
4	____" _____Storm Drain Pipe	LF			$ -
5	____" _____Storm Drain Pipe	LF			$ -
6	____" _____Storm Drain Pipe	LF			$ -
7	___" Flared End Section	EA			$ -
8	___" Flared End Section	EA			$ -
9	48" Storm Drain Manhole	EA	4	$ 1,200.00	$ 4,800.00
10	60" Storm Drain Manhole	EA			$ -
11	72" Storm Drain Manhole	EA			$ -
12	Manhole with Box Base	EA			$ -
13	Connection to Existing MH	EA			$ -
14	Single Curb Opening Storm Drain Inl	EA			$ -
15	Double Curb Opening Storm Drain In	EA			$ -
16	Area Storm Drain Inlet	EA			$ -
17	Detention Area Outlet structure	EA			$ -
18	Rip-Rap D_{50} = 8"	CY	4	$ 50.00	$ 200.00
19	Sidewalk Trough Drain	EA			$ -
20	Pump Systems including Electrical	LS	1	$ 1,000.00	$ 1,000.00
	Subtotal Part D - Grading and Drainage				$ 79,910.00

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
E1	**IRRIGATION**				
1	Connect to Existing Pipe	LS	1	$ 500.00	$ 500.00
2	4" PVC Irrigation Pipe	LF	1570	$ 8.00	$ 12,560.00
3	___" ____ Irrigation Pipe	LF			$ -
4	Fittings and Valves	LS	1	$ 200.00	$ 200.00
5	Services	EA	14	$ 80.00	$ 1,120.00
6	Pump System and Concrete Vault	LS			$ -
7	Irrigation Structure	EA			$ -
8	Vacuum Relief and/or Air Release Va	EA			$ -
E2	**LANDSCAPING**				
1	Design/Architecture	LS			$ -
2	Earthwork	CY			$ -
3	Hardscape Features	LS			$ -
4	Plant Material & Planting	LS			$ -
5	Irrigation System	LS			$ -
6	Curbing	LF			$ -
7	Retaining Walls & Structures	LS			$ -
8	1 Year Maintenance Agrmnt.	LS			$ -
9	Topsoil				$ -
					$ -
					$ -
E	**Subtotal Part E - Landscaping and Irrigation**				**$ 14,380.00**

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
F.	**Miscellaneous Items**				
1	Construction staking/surveying	%	2.00%	$ 336,938.00	$ 6,738.76
2	Developer's inspection cost	%	0.50%	$ 336,938.00	$ 1,684.69
3	General construction supervsn	%	0.50%	$ 336,938.00	$ 1,684.69
4	Quality control testing	%	2.00%	$ 336,938.00	$ 6,738.76
5	Construction traffic control	%		$ 336,938.00	$ -
6	City inspection fees	%	0.50%	$ 336,938.00	$ 1,684.69
7	As-builts	%	2.00%	$ 336,938.00	$ 6,738.76
E	**Subtotal Part F - Miscellaneous Items**				**$ 25,270.35**

% = Percentage of total site construction costs

G.	**COST SUMMARY**	
1	**Total Improvement Costs**	**$ 362,208.35**
2	**City Security (20%)**	**$ 72,441.67**
3	**Total Guarantee Amount**	**$ 434,650.02**

NOTES
1. All prices shall be for items complete in place and accepted.
2. All pipe prices shall include excavation, pipe, bedding, backfill, and compaction.
3. Water main shall include pipe, excavation, bedding, backfill, bends, and appurtenances not itemized elsewhere.
4. All concrete items shall include Aggregate Base Course where required by the drawings.
5. Fill in the pipe type for irrigation pipe and sleeves.
6. Reconditioning shall be calculated to at least 6" outside of back of walk on both sides.
7. Units can be changed if desired, simply annotate what is used.
8. Additional lines or items may be added as needed.

_____

Signature of Developer Date
(If corporation, to be signed by President and attested to by Secretary together with the corporate seals.)

I have reviewed the estimated costs and time schedule shown above and, based on the construction drawings submitted to date and the current cost of construction, I take no exception to the above.

_____

City Development Engineer Date

_____

Community Development Date

REVIEW COMMENT RESPONSES
August 8, 2003

THE KNOLLS SUBDIVISION, FILING 6 - FINAL PLAN
File # FPP-2003-078

These responses correspond with review comments provided by the City of Grand Junction for the above-referenced project dated May 27, 2003.

Lori Bowers - City Community Development

1. Separate instruments for the drainage and irrigation easements will be executed prior to, or simultaneous with, plat recording.

2. Deeds for the HOA will be executed prior to, or simultaneous with, plat recording.

3. The DIA has been corrected.

4. A "Disbursements Agreement" will be the DIA security.

5. Landscaping is not proposed for the temporary retention facility proposed for Filing 6, but will be provided for the permanent facility located in future Filing 7 and a landscaping plan will be submitted at that time..

Rick Dorris - City Development Engineer

MISCELLANEOUS
1. To the best of our knowledge, the punch-list items have been completed and "As-builts" have been submitted. Please let us know if there are specific items remaining to be accomplished.

2. A construction activity permit application has been submitted to the State and will be forwarded to the City once it is processed.

DRAINAGE REPORT AND PLAN
3. Filing 6 will not discharge runoff directly to Drain "D", given the temporary retention pond now proposed. Therefore, downstream facilities should not be affected. The report previously submitted is written for completion of Filings 6 and 7 (complete project build-out), an amendment to the report is provided with this response to provide information regarding the interim retention.

4. Drain "D" will be piped and covered during Filing 6. Additional plans have been produced to cover this and are included.

5. It is the petitioner's desire to eliminate underground piping of stormwater where possible (given the inevitable potential to plug and create flooding) and, given the traffic engineer's request

for "traffic-calming", this appears to be a reasonable location for a v-pan.

6. The weir-plate is not intended to be "easily" removable. The ability to do so without damage to the box should not be completely eliminated. A sealing caulk is now shown to be installed.
7. Coefficients used were consistent with previous reports and calculations performed on similar areas throughout the earlier filings. Interpolation of "C" values between 1/3 acre and ½ acre lots (these lots average 0.42 acres) indicates values of 0.30 and 0.38 (almost identical to the 0.29 and 0.38 used) for 2 year and 100 year storms, respectively. In addition, historic flowrates would also be increased (given the respective increase in historic condition "C" values) creating little overall effect on the stormwater management.

PLAT
8. The plat is correct and based on dedications provided in Filing 4.

DIA
9. A revised DIA is included and has been prepared using the City's new format.

10. The improvements guarantee will be a disbursements agreement.

11, 12, & 13. Unit prices listed in the DIA are based on our experience and review of recent project bids. Please provide specific prices requested if our values are not acceptable, or better yet, provide all unit prices in the DIA form and see that all projects are using the same values consistently.

PLANS
14. Redlines in the plan review set have been addressed in the revised drawings.

15. Maximum foundation elevations require specific knowledge of the precise location of the foundation. This information is very seldom known at the time of plan production. I have discussed this with Bob Lee of the Mesa County Building Department who concurs that the information should not be required. Most builders will hesitate to bring foundations any higher than they have to and will generally not create driveways which are too steep.

16. A copy of the letter, acknowledged by Bob Lee, is enclosed.

17. The developer is in complete agreement that large debris and organic material will not be used as fill material for streets or overlot grading for Filing 6. Much of the stockpiled material has been placed there in anticipation of the need for fill material for Drain "D". Unacceptable material will be separated out and disposed of.

Norm Noble - City Fire Department

The relocated hydrant is shown on the Revised Utility Composite. Thank you for indicating acceptance of the available fire flow during your review.

George Miller - City Transportation Engineer

1. Blade-type "No Outlet" signs and the requested note are now shown on the revised drawings.

2. A bike lane is now indicated along 27 ½ Road as requested.

3. Traffic-calming for Filing 6 will consist of the chicane proposed on Autumn Ash Avenue as discussed. This is reflected in the revised drawings.

Trent Prall - City Utility Engineer

1. Unit prices listed in the DIA are based on our experience and review of recent project bids. The unit price for sanitary sewer has been increased to $16.00/L.F., as requested.

Peter Krick - City Property Agent
Sheet 1 of 2
Lettering has been corrected as requested.

Sheet 2 of 2
1. Lettering has been corrected as requested.

2. The area has been corrected.

3. Block 5 has been changed to "Tract B", as requested.

4. The final plat will be sealed prior to recording.

5. Right-of-way dimensions have been added, as requested.

Chuck Wiedman - Bresnan Communications

Informational, no response required. Your comments have been forwarded to the petitioner.

Richard Proctor - Grand Valley Water Users

1, 2, & 3. Informational comment, no response required.

4 & 5. Piping of Drain "D" is now proposed to occur during Filing 6. Additional plans are included to illustrate this proposal. The developer will work with GVWUA on all required agreements.

6. The Lateral 2C and Drain "D" easements have been depicted on the plat, as requested.

7. An amendment of the drainage plan indicates that a temporary retention pond will collect runoff from developed Filing 6 and undeveloped Filing 7 for the time being. Detention and discharge of these flows into Drain "D" will be delayed until Filing 7 to allow resolution of runoff acceptance issues.

Jim Daugherty - Ute Water

1. Valve relocated and line extended, as requested.

2. Valve relocated, as requested. The end-of-line is already over 40' from this point.

3. Hydrant relocated to the SE corner of lot 5, block 3, as requested.

4 & 5. This information is included in the general notes of the construction drawings.

6, 7, 8, & 9. Informational comment, no response required.

Lou Grasso - Mesa County School District #51

1. Informational comment, no response required.

Gary Mancuso - Walker Field Airport

1. Informational comment, no response required.

2. The requested avigation easement was recorded earlier (for the entire Knolls project), during platting of previous filings.

3. A lighting note has been added to the utility composite.

John Basford - Xcel Energy

1. Informational comment, no response required.

Memorandum

DATE: August 12, 2003

TO: Rick Dorris, Community Development Engineer
Norm Noble, City Fire Department
Peter Krick, Property Agent
Trent Prall, Utility Engineer
George Miller, Transportation Engineer
John Basford, Xcel Energy
Jim Daugherty, Ute Water
Richard Proctor, Grand Valley Water Users
Lou Grasso, Mesa County School District #51
Gary Mancuso, Walker Field Airport
Chuck Wiedman, Bresnan Communications

FROM: Lori Bowers, Senior Planner

SUBJECT: Response to Comments – The Knolls, Filing 6 (FPP-2003-078).

Attached are the revised comments for this project. Please review and return any further comments you have to me by Tuesday, August 26, 2003.

If you have any questions please contact me at:
Phone #: 256-4033
Fax #: 256-4031
E-mail: lorib@ci.grandjct.co.us

RESPONSE TO REVIEW COMMENTS

THE KNOLLS SUBDIVISION, FILING 6

O.P. Development Company, LLC

City Community Development

Lori Bowers

Lori

August 22, 2003

Re: **FPP-2003-078**
KNOLLS SUBDIVISION, FILING 6

REVIEW COMMENTS

Sheet 1 of 2

All lettering shall be a minimum 1/8" in height (except within the vicinity sketch).

Sheet 2 of 2

All lettering shall be a minimum of 1/8" in height. It appears that lettering within the Curve and Line tables are less than the minimum size requirement.

By: Peter T. Krick
Professional Land Surveyor for
The City of Grand Junction

GRAND VALLEY WATER USERS ASSOCIATION
GRAND VALLEY PROJECT, COLORADO

1147 24 Road (970) 242-5065 FAX (970) 243-4871
GRAND JUNCTION, COLORADO 81505

August 26, 2003

Ms. Lori Bowers
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Re: FPP-2003-078 Knolls Subdivision, Filing 6

Dear Ms. Bowers:

Grand Valley Water Users' Association (GVWUA) submitted comments on the subject proposal to the Community Development Department in a letter dated May 19, 2003.

GVWUA received a Memorandum from the City, dated August 12, 2003, which included information titled Review Comment Responses – The Knolls, Filing 6 (FPP-2003-078), dated August 8, 2003.

GVWUA continues to work with the developer on all of the required agreements that will provide sufficient easement protections for the GVWUA Lateral 2C pipeline and the GVWUA Drain D drain ditch. An agreement is also being developed concerning the piping and covering of said Drain D. The developer has agreed not to discharge stormwater run-off from the subdivision on or into GVWUA facilities.

The Review Comment Response No. 7 listed under the section titled Grand Valley Water Users' Association states: "An amendment of the drainage plan indicates that a temporary retention pond will collect runoff from developed Filing 6 and undeveloped Filing 7 for the time being. Detention and discharge of these flows into Drain "D" will be delayed until Filing 7 to allow resolution of runoff acceptance issues."

GVWUA has been informed that the temporary retention pond is to be drained by pumping the stormwater into 27 ½ Road. Retention means to keep, not to capture and pump into the street. Stormwater that is pumped into 27 ½ Road

flows south, downhill for less than ¼ of a mile towards Patterson Road, then is discharged into another branch of the GVWUA Drain D drain system. The stormwater from the Knolls Subdivision, Filing 6 will still get discharged into GVWUA's Drain D system. Such a indirect discharge by the subdivision is not authorized. As quoted above, "Detention and discharge of these flows into Drain "D" will be delayed until Filing 7 to allow resolution of runoff acceptance issues." What happens if these acceptances issues are not resolved before the developer wants to construct Filing 7? How can Filing 7 be constructed if the temporary retention pond needs to become permanent? How is the subdivision going to take care of its stormwater runoff in the long term?

GVWUA believes that construction activities such as those proposed for the construction of the Knolls Subdivision require a discharge permit from the Colorado water Quality Control Division. See Regulation No. 61, Water Quality Control Commission, Section 61.3(2)(e)(iii)(J).

The pumping of stormwater runoff directly into 27 ½ Road (a public right-of-way) is still a point source discharge, first to the public right-of-way and then to the GVWUA Drain D, which was originally constructed as an irrigated agriculture drain system.

Even if a discharge permit is issued by the Division, such a permit does not give the Applicant permission or authority to discharge stormwater to GVWUA drain ditches. See Regulation No. 61.8(9) and (10).

GVWUA had to comply with the Colorado Water Quality Control Division requirements and obtain a Non-Standard Municipal Separate Storm Sewer Systems (MS4) Discharge Permit because of its operation of irrigation and drainage facilities within the urbanized area of greater than 10,000 population. The requirements of the permit and Regulation No. 61.8 (11) direct GVWUA to eliminate illicit discharges into the GVWUA's facilities.

In 1996, the United States, Department of Interior, Bureau of Reclamation (Reclamation) adopted a policy regarding the discharge of stormwater into Reclamation facilities. The written guidance from Reclamation to GVWUA on this issue states in part as follows:

> Authorization for urban storm water discharge shall only be granted to established city or county governmental entities because individual developers will be literally "here today and gone tomorrow."... Individual or corporate developers who apply should be advised to seek inclusion of their development within the appropriate local municipal storm drainage

system. Reclamation can then do business with the local governmental entity responsible for that system.

Accordingly, the GVWUA cannot authorize this project to discharge stormwater into GVWUA drain ditches. No permits exist between Reclamation and any local governmental entity for the discharge of stormwater into GVWUA drain ditches. The discharge of stormwater off the subject site will be considered an illicit point source discharge to the GVWUA operated drain ditches and therefore, is not allowed. The developer will need to make other arrangements to handle stormwater from the property.

If you have any questions, please contact the GVWUA at (970) 242-5065.

Sincerely,

Richard Proctor

Richard L. Proctor, Manager

FAX TRANSACTION

Grand Valley Water Users' Association
Grand Valley Project, Colorado
1147 24 Road
Grand Junction, CO 81505-9639

Phone: (970) 242-5065 FAX: (970) 243-4871

8/27/03

Date: August 27, 2003

To: Lori Bowers Fax No: 256-4031

Firm: Community Development Department

From: Richard Proctor, Manager

Re: Response to Comments – The Knolls, Filing 6 (FPP-2003-078).

I am faxing my Response to Comments on the Knolls, Filing 6. A hard copy of my letter has been sent by U.S. Mail.

By Richard Proctor

NUMBER OF PAGES (INCLUDING COVER SHEET): 4

GRAND VALLEY WATER USERS ASSOCIATION
GRAND VALLEY PROJECT, COLORADO

1147 24 Road (970) 242-5065 FAX (970) 243-4871
GRAND JUNCTION, COLORADO 81505

August 26, 2003

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Grand Junction, CO 81501

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If you have any questions, please contact the GVWUA at (970) 242-5065.

Sincerely,

Richard Proctor

Richard L. Proctor, Manager

REVIEW COMMENTS

September 8, 2003

FILE #FPP-2003-078 **TITLE HEADING: The Knolls, Filing 6**

LOCATION: SE of 27½ and Piazza

PETITIONER: O.P. Development Company, LLC – Robert Knapple

PETITIONER'S ADDRESS/TELEPHONE: 3695 Ridge Dr
241-2373

PETITIONER'S REPRESENTATIVE: Vista Engineering Corp – David Chase
243-2242

STAFF REPRESENTATIVE: Lori Bowers

NOTE: THE PETITIONER IS REQUIRED TO SUBMIT AND LABEL A RESPONSE TO COMMENT FOR EACH AGENCY OR INDIVIDUAL WHO HAS REQUESTED ADDITIONAL INFORMATION OR REVISED PLANS, INCLUDING THE CITY, ON OR BEFORE 5:00 P.M. OCTOBER 8, 2003.

CITY COMMUNITY DEVELOPMENT **8/26/03**
Lori Bowers **256-4033**

1. It appears that the retaining wall could be in conflict with the 20 foot irrigation and drainage easement. Please verify. If it is not in conflict, a separate Planning Clearance, (for building permit) will need to be obtained prior to construction of the retaining wall.

CITY DEVELOPMENT ENGINEER **8/29/03**
Rick Dorris **256-4155**

MISCELLANEOUS

1. Field work for Filings 4 and 5 punch lists has been completed but there are still testing issues to resolve. Dave Chase is aware of these. I also have a few minor comments on the as-builts for filing 5. These redlines are included with these comments. Filing 6 of the Knolls will not be approved for construction until filings 4 and 5 have been closed out and accepted by the City.
2. A construction activity permit from the state must be in hand prior to plan approval.

DRAINAGE REPORT AND PLAN

3. The SWMM requires that retention basins drain completely in 48 hours because mosquitos breed in 48 hours. This is especially important with the onslaught of West Nile Virus. Most existing retention basins around town hold water continually or take a long time to drain. The City has implemented new requirements for the modeling of retention basins. Please model the basin according to the new criteria, attached, or make it a detention basin.

4. I didn't find the plans for piping drain D.
5. We can delay the v-pan discussion until filing 7 but the City much prefers a storm sewer system rather than a v-pan. They are easier to maintain and a v-pan won't be needed for traffic calming in the middle of the curve.
6. Sheet 20 is not included in the response to comment. I assume because this is now delayed to filing 7.
7. Sign the report.

DIA

8. Provide the disbursement agreement.

PLANS

9. Please see the attached redline drawings with minor comments. Respond to each comment in a different color and return with the written response.
10. The grading plan has a table for top of concrete elevation. The grading administration regulation requires minimum and maximum finished floor elevations. Are the top of concrete elevations the only elevations are is there flexibility? Make this conform to the reference regulation. THIS ORIGINAL COMMENT STILL STANDS. The County is not the entity that gets the phone call when a higher lot drains onto a lower lot and it causes the owner headache or damage. The highest elevation is to ensure that houses on adjacent lots don't get constructed at radically different elevations that preclude proper drainage.
11. I didn't find the letter from the building department said to be included. Please furnish them the new plan and geotechnical report and provide a letter from them stating receipt.
12. The retaining wall on the south side of filing 6 needs to be designed and shown on the plans and constructed as part of this filing.
13. Stamp and sign the plans.

CITY FIRE DEPARTMENT **8/14/03**
Norm Noble **244-1473**

1. Response to comments are acceptable.
2. Plan for filing 6 is approved for planning clearance.

CITY TRANSPORTATION ENGINEER **8/25/03**
George Miller **256-4123**

DevRev Autumn Ash Knolls Filing 6 8-25-03 Miller (FPP-2003-078)

Comments pertain to plan set and plans and comment responses received 8-11-03. The previous comments (from 5-03) are appended at the end of this comment set.

Comments:

1. As requested in the 5-03 comments (#1), blade type "no outlet" were to be provided. They are shown on the plan set (5 of 20), but are not located correctly. These signs are to face approaching Piazza traffic to be effective. Each assembly will involve 2 signs (one facing each approach, at each intersection).
2. The requested note (see note one from the 5-03 comments - "Add note to sheet 5 of 20 that "City Traffic Operations Supervisor to be contacted (970/244-1573) prior to any

signing material order or installation.") still needs to be provided. This note ensures that the signing contractor uses the correct materials and installation process.

3. The shown width restriction on 16 of 20 will work well. Alternate, preciously requested calming placements on Briar Ridge and Woodgate have been waived due to border line continuous block lengths.
4. The width restrictions will need supplemental reflectorization for night time visibility. Each bulb-out will have 3 white reflectorized buttons placed on the curb top. One button will be placed mid-way between the full width and restricted width, as viewed on each approach on Autumn Ash, and the third button will be placed at the point of maximum width restriction. As such, each bulb-out will present two white reflectorized images, at curb height, for each approach of Autumn Ash. This plan sheet will also show the note to contact the City Traffic Operations Supervisor.

(5-03 Comments)
Proposal is to develop 19 single family lots on approx.15.5 acres, as part 6 of 7 total phases of a single project. Site fronts on 27 ½ Rd, but will take access from two roadways (Briar Ridge Wy and Woodgate Dr).

Proposal Comments:

1. There will need to be blade type "no outlet" advisory signs posted on both Briar Ridge and Fairwood Pl. at Piazza Wy, if not already provided. Add note to sheet 5 of 20 that "City Traffic Operations Supervisor to be contacted (970/244-1573) prior to any signing material order or installation.
2. There are no internal Urban Trails concerns for this site. A bike lane will be required along the site's 27 ½ Rd frontage, however.
3. Traffic calming will be required on Briar Ridge, Woodgate, and Autumn Ash. Intersection calming (such as restricted widths on all three legs) will work well on Briar Ridge and on Woodgate. Mid-block calming, such as a chicane or width restriction, will be required on Autumn Ash. For future reference, additional calming will be required on Woodgate (between Autumn Ash and Briar Dr) in phase 7. Call 256-4123 for design guidelines.

CITY UTILITY ENGINEER **8/13/03**
Trent Prall **244-1590**
No further comments.

CITY PROPERTY AGENT **8/25/033**
Peter Krick **256-4123**
REVIEW COMMENTS
Sheet 1 of 2
All lettering shall be a minimum 1/8" in height (except within the vicinity sketch).
Sheet 2 of 2
All lettering shall be a minimum of 1/8" in height. It appears that lettering within the Curve and Line tables are less than the minimum size requirement.

GRAND VALLEY WATER USERS **8/27/03**
Richard Proctor **242-5065**

Grand Valley Water Users' Association (GVWUA) submitted comments on the subject proposal to the Community Development Department in a letter dated May 19, 2003.

GVWUA received a Memorandum from the City, dated August 12, 2003, which included information titled Review Comment Responses - The Knolls, Filing 6 (FPP-2003-078), dated August 8, 2003.

GVWUA continues to work with the developer on all of the required agreements that will provide sufficient easement protections fro the GVWUA Lateral 2C pipeline and the GVWUA Drain D drain ditch. An agreement is also being developed concerning the piping and covering of said Drain D. The developer has agreed not to discharge sotrmwater run-off from the subdivision on or into GVWUA facilities.

The Review Comment Response No. 7 listed under the section titled Grand Valley Water Users' Association states: "An amendment of the drainage plan indicates that a temporary retention pond will collect runoff from developed Filing 6 and undeveloped Filing 7 for the time being. Detention and discharge of these flows into Drain "D" will be delayed until Filing 7 to allow resolution of runoff acceptance issues."

GVWUA has been informed that the temporary retention pond is to be drained by pumping the stormwater into 27½ Road. Retention means to keep, not to capture and pump into the street. Stormwater that is pumped into 27½ Road flows south, downhill for less than ¼ of a mile towards Patterson Road, then is discharged into another branch of the GVWUA Drain D drain system. The stormwater from the Knolls Subdivision, Filing 6 will still get discharged into GVWUA's Drain D system. Such indirect discharge by the subdivision is not authorized. As quoted above, "Detention and discharge of these flows into Drain "D" will be delayed until Filing 7 to allow resolution of runoff acceptance issues." What happens if these acceptances issues are ot resolved before the developer wants to contruct Filing 7? How can Filing 7 be constructed if the temporary retention pond needs to become permanent? How is the subdivision going to take care of its sotrmwater runoff in the long term?

GVWUA believes that construction activities such as those proposed for the conastruction of the Knolls Subdivision require a discharge permit from the Colorado Water Quality Control Division. See Regulation No. 61, Water Quality Control Commission, Section 61.3(2)(e)(iii)(J).

The pumping of stormwater runoff directly into 27½ Road (a public right-of-way) is still a point source discharge, first to the public right-of-way and then to the GVWUA Drain D, which was originally constructed as an irrigated agriculture drain system.

Even if a discharge permit is issued by the Division, such a permit does not give the Applicant permission or authority to discharge sotrmwater to GVWUA drain ditches. See Regulation No. 61.8(9) and (10).

GVWUA had to comply with the Colorado Water Quality Control Division requirements and obtain a Non-Standard Municipal Separate Sotrm Sewer Systems (MS4) Discharge Permit because of its operation of irrigation and drainage facilities within the urbanized area of greater than 10,000 population. The requirements of the permit and Regulation No. 61.8(11) direct GVWUA to deliminate illicit discharges into the GVWUA's facilities.

In 1996, the United States, Department of Interior, Bureau of Reclamation (Reclamation) adopted a policy regarding the discharge of stormwater into Reclamation facilities. The written guidance from Reclamation to GVWUA on this issue states in part as follows:

Autorization for urban storm water discharge shall only be granted to established city or county governmental entities because individual developers will be literally "here today and gone tomorrow."¿ Individual or corporate developers who apply should be advised to seek inclusion of their development within the appropriate local municipal storm drainage system. Reclamation can then do business with the local governmental entity responsible for that system.

Accordingly, the GVWUA cannot authorize this project to discharge stormwater into GVWUA drain ditches. No permits exist between Reclamation and any local governmental entity for the discharge of stormwater into GVWUA drain ditches. The discharge of stormwater off the subject site will be considered an illicit point source discharge to the GVWUA operated drain ditches and therefore, is not allowed. The developer will need to make other arrangements to handle stormwater from the property.

If you have any questions, please contact the GVWUA at 970-242-5065.

September 11, 2003

TO: MICHAEL BONDS FAX:
FROM: LORI BOWERS

RE: PLANNING DEPARTMENT FEES, BASED ON APPROVAL

PARKS AND OPEN SPACE FEES $225.00 PER DWELLING UNIT
DUE PRIOR TO PLAT BEING RECORDED (19 x 225.00 = $4,275.00)

SCHOOL IMPACT FEES $292.00 PER DWELLING UNIT, DUE WHEN PLANNING CLEARANCE IS ISSUED

TCP FEES DUE WHEN PLANNING CLEARANCE IS ISSUED $500.00 PER SINGLE FAMILY RESIDENCE

CONTACT JODI ROMERO IN CUSTOMER SERVICE FOR SEWER TAP FEES
CONTACT UTE WATER FOR WATER TAP FEES

RECORDING FEES
- PLAT $10.00 PER PAGE + $1.00 DOC FEE
- CC&R'S/ DIA'S, ETC. $5.00 PER PAGE + $1.00 DOC FEE
- EASEMENTS $5.00 PER PAGE + $1.00 DOC FEE

This item does need to go to Planning Commission for approval.
To make the October 14th agenda, all materials need to be submitted for final review by September 16th.

To make the October 28th meeting, a complete and acceptable response must be provided by September 30.

Hope this helps with your questions from yesterday.

Lori

LEGEND

- PROPOSED SANITARY SEWER/MANHOLE/SERVICE (8"ø PVC SDR-35 MAINS, 4"ø PVC SDR-35 SERVICES)
- PROPOSED WATERLINE/VALVE/FIRE HYDRANT/SERVICE WATER METER PIT/THRUST BLOCK (8"ø PVC C-900, 3/4"ø TYPE K, 30FT COPPER SERVICES) (3W4SED INDICATES FUTURE, OR EXISTING, INSTALLATION)
- PROPOSED STREET LIGHT
- PROPOSED IRRIGATION SLEEVE
- PROPOSED GANG MAILBOX
- PROPOSED PRESSURIZED IRRIGATION LINE/RISER (6" PVP CL 160 MAINS, 2" PVP CL 160 RISER W/GATE VALVE)
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER/MANHOLE
- EXISTING IRRIGATION LINE

UTILITY VENDORS

SANITARY SEWER	City of Grand Junction
DOMESTIC WATER	Ute Water Conservancy District
NATURAL GAS	Public Service Co. of Colorado
ELECTRIC	Public Service Co. of Colorado
TELEPHONE	US West Communications
TELEVISION	TCI Cablevision
IRRIGATION	Grand Valley Water Users Assoc.
DRAINAGE	Grand Valley Water Users Assoc.

N

FEET 40 0 40 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 40 FEET

NOTE:

1. ALL EXTERIOR LIGHTING MUST BE DOWNWARD DIRECTIONAL AND LIGHTING ELEMENTS MUST BE CHOSEN TO REDUCE OR ELIMINATE ANY POSSIBLE GLARE THAT MIGHT AFFECT AIRCRAFT OPERATIONS.
2. CITY TRAFFIC OPERATIONS SUPERVISOR TO BE CONTACTED (970) 244-1573 PRIOR TO ANY SIGNING MATERIAL ORDER OR INSTALLATION.

NOTE:
CITY TRAFFIC OPERATIONS SUPERVISOR TO BE CONTACTED (970/244-1573) PRIOR TO ANY SIGNING MATERIAL ORDER OR INSTALLATION.

EXISTING FIRE HYDRANT

INSTALL BLADE TYPE "NO OUTLET" SIGN (DUAL-SIDED) W14-3P

REMOVE PLUG AND THRUST RESTRAINT IN ORDER TO EXTEND WATERLINE TO THE EAST

PROPOSED 12" 100 psi PVP

LOT 1

LOT 2

LOT 3

LOT 4

LOT 5

LOT 6

WATERLINE ELBOW:
NORTHING 3527.75
EASTING 8068.68
CL WOODGATE DRIVE
INSTALL 8"ø 90° ELBOW AND THRUST RESTRAINT

MH A-7
STA. 16+27.88
RIM = 4732.35

STREET SIGNS

FAIRWOOD PLACE LINE A

118.0 LF. 8"ø C-900 PVC WATER LINE

139.00'

MH 1-B
STA 14+14.23

BLOCK FOUR

FIRE HYDRANT:
STA. 5+67.31, 24.00' LT.
CL AUTUMN ASH AVENUE
INSTALL FIRE HYDRANT ASSEMBLY
8x8x8 TEE, 8" GATE VALVE,
8"ø PVC C-900, AND THRUST RESTRAINT

PROPOSED GANG MAILBOX

WATERLINE INTERSECTION:
STA. 5+65.88, 11.00' LT.
CL WOODGATE DRIVE
INSTALL 8x8x8 TEE
(2) 8" GATE VALVES
THRUST RESTRAINT

MH A-6
STA. 13+91.83, LINE A
STA. 0+00.00, LINE D
RIM = 4719.88

(1) 8" GATE VALVES

STA: 8+61.47

WATERLINE ELBOW:
STA. 8+61.47, 11.00' LT.
CL WOODGATE DRIVE
INSTALL 8"ø 22 1/2° ELBOW AND THRUST RESTRAINT

MH A-5
STA. 12+16.16
RIM = 4714.00

INSTALL END OF ROAD PANELS

BLOCK THREE

BLOCK TWO

BLOCK ONE

REMOVE END OF ROAD PANELS

REMOVE PLUG AND THRUST RESTRAINT IN ORDER TO EXTEND WATER LINE TO THE SOUTH

WATERLINE INTERSECTION:
STA. 2+42.67, 11.00' LT.
CL BRIAR RIDGE WAY
INSTALL 8x8x8 TEE
8" GATE VALVE
THRUST RESTRAINT

MH B-2
STA 2+80.41
RIM = 4727.74

STOP AND STREET SIGNS

AUTUMN ASH AVENUE LINE C

177.2 LF. 8"ø SDR-35 PVC SEWER LINE

MH C-1
STA. 1+77.16
RIM = 4731.49

MH D-1
STA. 3+76.91
RIM = 4732.98

605.88 LF. 8"ø C-900 PVC WATER LINE, LINE B

278.91 LF. 8"ø SDR-35 PVC SEWER LINE

MH B-1
STA. 0+00.00, LINE C
STA 2+38.11, LINE B
RIM = 4725.24

FIRE HYDRANT:
STA. 2+86.88, 25.85' LT.
CL BRIAR RIDGE WAY
INSTALL FIRE HYDRANT ASSEMBLY
8x8x8 TEE, 8" GATE VALVE,
6"ø PVC C-900, AND THRUST RESTRAINT

IRRIGATION SLEEVE
8"ø C-900
44 LF.

(1) 8" GATE VALVES

INSTALL TYPE "A" BLOW-OFF WITH PLUG AND THRUST RESTRAINT AT END OF FILING 6 CONSTRUCTION

IRRIGATION SLEEVE
8"ø C-900
44 LF.

INSTALL TYPE "A" BLOW-OFF WITH PLUG AND THRUST RESTRAINT AT END OF FILING 6 CONSTRUCTION

MH A-2
STA. 5+94.32, LINE A=
STA. 0+00.00, LINE B
RIM = 4715.20

MH J1 (EXISTING)
STA. 0+00.00
RIM = 4702.07

S 89°37'37" E
121.3 LF. 8"ø SDR-35 PVC SEWER LINE

MH A-1
STA. 1+31.33
RIM = 4717.85

WOODGATE DRIVE LINE A

S 89°31'36" E
430.0 LF. 8"ø SDR-35 PVC SEWER LINE

S 89°31'36" E
428.6 LF. 8"ø SDR-35 PVC SEWER LINE

WOODGATE DRIVE LINE A

MH A-3
STA. 9+72.84
RIM = 4712.98

N 00°27'36" E
127.6 LF. 8"ø SDR-35 PVC SEWER LINE

MH A-4
STA. 10+84.52
RIM = 4712.47

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.083
EASTING 8878.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 36+38.80
NORTHING 3880.552
EASTING 8878.783

CALL 1-800-922-1987 UTILITY NOTIFICATION CENTER OF COLORADO

APPROVED FOR CONSTRUCTION:	
Ute Water Conservancy Dist.	Date
ACCEPTED AS CONSTRUCTED:	
Ute Water Conservancy Dist.	Date
APPROVED FOR CONSTRUCTION:	
City of Grand Junction	Date
ACCEPTED AS CONSTRUCTED:	
City of Grand Junction	Date

DRAWN BY: S.G.S.
DESIGNED BY: P.M.O.
CHECKED BY: P.M.O.

REVIEWED _____ DATE: _____ FOR _____

REVIEWED _____ DATE: _____ FOR VISTA ENGINEERING CORP

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO
2	9-26-03	REVISED AS PER 2ND ROUND REVIEW COMMENTS	FJB	PMO

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

SCALE: 1" = 40' | JOB NO. 4003.06-02 | DATE: 4-28-03

UTILITY COMPOSITE
THE KNOLLS, FILING SIX

SHEET NO. 5 of 20

Memorandum

DATE: September 29, 2003

TO: Rick Dorris, Community Development Engineer
Peter Krick, Property Agent
George Miller, Transportation Engineer
Richard Proctor, Grand Valley Water Users Association

FROM: Lori Bowers, Senior Planner

SUBJECT: Response to Comments – The Knolls, Filing 6 (FPP-2003-078).

Attached is the Response to Comments for this project. Please review and return any further comments you have to me by Monday, October 13, 2003.

If you have any questions please contact me at:
Phone #: 256-4033
Fax #: 256-4031
E-mail: lorib@grandjct.co.us

Disbursement Agreement - not signed + no DIA?
Exhibit B

Maps Oct. 27 - report due 29th

Nov. 11th P.C.

RESPONSE TO 2ND ROUND REVIEW COMMENTS

THE KNOLLS SUBDIVISION, FILING 6

O.P. Development, LLC

City Property Agent

Peter Krick

RESPONSE TO 2nd ROUND REVIEW COMMENTS

FILE: #FPP-2003-078

TITLE HEADING: Final Plan/Plat
The Knolls Sub., Filing #6

LOCATION: SE of 27½ Road and Piazza Way

PETITIONER: O.P. Development Company, LLC - Robert Knapple

PETITIONER'S ADDRESS/TELEPHONE: 3695 Ridge Drive
Grand Junction, CO 81506
241-2373

PETITIONER'S REPRESENTATIVE: Vista Engineering Corp. - Pat O'Connor (243-2242)

STAFF REPRESENTATIVE: **Lori Bowers** (256-4033)

CITY COMMUNITY DEVELOPMENT - Lori Bowers

1. The retaining wall will not conflict with the irrigation line as they will be offset from each other. The wall, however, may be located within the easement.

CITY DEVELOPMENT ENGINEER - Rick Dorris

MISCELLANEOUS:

1. We are working to complete Filing #4 and #5 punch list items, including obtaining a test location drawing from the geotechnical engineer. We anticipate that these items will be completed in the next few weeks.

2. A construction activity permit application has been submitted to the State and will be forwarded to the City once it is processed. It is understood that the permit must be returned from the State and in hand prior to plan approval.

DRAINAGE REPORT AND PLAN

3. The sump-pump in the retention pond has been upgraded to discharge 90 gpm to 27 ½ Road to be capable of evacuating the 100 year volume (34,028 cubic-feet, see sheet 18) in less than 48 hours.

4. The construction plans for the piping of Drain D were not prepared as part of the improvements for Filing #6 but rather were prepared as an independent project working with the Grand Valley Water Users Association. As requested, we have recently provided a set of these plans to the City.

5. We agree to delay the discussion regarding the need for piping versus v-pan.

6. You are correct, the pond grading details are for the detention pond in Filing 7 and have been omitted from this Filing 6 submittal. The sheet numbers should have been changed to reflect this.

7. A signed copy of the report is included with this response.

D.I.A.

8. A copy of the disbursements agreement is included.

PLANS

9. Redlines in the plan review set have been addressed and corrected in the revised drawings.

10. As requested, a maximum top of concrete elevation has been added to the table.

11. A copy of the letter, acknowledged by Mr. Bob Lee of the Mesa County Building Dept., is enclosed.

12. Details for the construction of the retaining wall has been added to the improvement plans for Filing 6.

13. The revised plans have been signed and stamped and are enclosed to you.

CITY FIRE DEPARTMENT - Norm Noble

No response required.

CITY TRANSPORTATION ENGINEER - George Miller

1. Blade-type "No Outlet" signs, per our 9/25/03 meeting, are now shown on the revised drawings. Thank you for the input.

2. The note has been added to sheets 5 and 16, as requested.

3. Traffic-calming for Filing 6 will consist of the chicane proposed on Autumn Ash Avenue (see sheet 16), as discussed and approved. This is reflected in the revised drawings.

4. The curb-top reflectors have been added and are indicated on the Sheet 16 of the revised plans.

CITY UTILITY ENGINEER - Trent Prall

No response required.

CITY PROPERTY AGENT - Peter Krick

Sheet 1 of 2

Lettering on the Final Plat has been corrected as requested, however, we would like to take this opportunity to voice our strong disagreement with this requirement. With all due respect, we understand the reasoning behind the 1/8-inch text height, but we do not agree that the City should be making drafting standards on Final Plats that meet Colorado state statutes. The 1/8-inch height is larger than the Leroy L120 size which excessively large for plat work. This requirement will lead to plats being prepared that are more difficult to read because you will not be able to fit text within the map portion of the plat, thus requiring more tables to refer to.

Sheet 2 of 2

Lettering has been corrected as requested.

GRAND VALLEY WATER USERS ASSN - Richard Proctor

Paragraphs 1, 2, 3, & 4 are informational in nature and require no specific response.

Paragraph 5 - The City insists that all **retention** ponds have the ability to drain within 48 hours. The logical, and historic, discharge location is Drain D, however, after countless efforts of trying to obtain approval to do so, that option is presently not available to us. The next alternative is to drain periodic stormwater accumulations into 27 ½ Road, which we understand as being the case on several other developments. The Developer understands that Filing 7 can not be constructed under these current issues, be we feel as though we have been very up-front with long term intentions, i.e., stormwater discharging into Drain D. We are aware of efforts between the City and the U.S. Bureau of Reclamation for the City to take over jurisdiction of Drain D. We are confident that this transaction will ultimately happen, and, in the best interests of the citizens of this area, it should.

Paragraph 6 - A stormwater discharge permit application is in process.

Paragraphs 7 through 12

Information contained in these paragraphs is not new and continues to be included on Review Comments even after the Developer has met with GVWUA and was under the assumption that any outstanding issues had been resolved.

Consequently, there are several statements we would like to make as part of these responses. First of all, it is unfair to make policy decisions on the idea that "developers are here today and gone tomorrow". Developers are required to establish a homeowners association which are then incorporated and registered with the Colorado Secretary of State. This H.O.A. then has the responsibility of maintaining subdivision facilities such as irrigation and drainage systems. These H.O.A.'s are probably just as good at maintaining their facilities as the city would because they have a smaller amount of work to do and they are going to take pride in their subdivision. The Developer was never meant to be here today, tomorrow, and forever. It is the homeowners that live in this subdivision who will be there to take care of these facilities.

Secondly, this development is not the only project that has been, or is currently being, built along 27½ Road. Nor is this the last development that will need to work with the GVWUA on issues similar to this. What is different between these other projects and The Knolls? They all have stormwater that has to be handled and directed to the historic drainage paths. What is being done on these projects in order to obtain approvals and to be constructed? We understand that some of these project are discharging stormwater in the same manner that is being proposed for The Knolls, Filing 6, in fact, it was Mr. Proctor who informed us of this and he never made any mention that this was going to be unacceptable. The Developer of The Knolls has worked diligently with the GVWUA on this issue and on the issue of getting Drain D piped. The Developer is paying a significant sum of money for this piping which will certainly improve the aesthetics of the property, but will also assist the GVWUA in reduced maintenance costs.

Lastly, the city of Grand Junction is a growing community. Areas that were for years agricultural are now being developed into commercial and residential areas. This is not a bad thing, we all live and shop in these areas. In fact, many times it does not make sense to continue agricultural uses in these areas. As part of this transition, the City and agencies like the GVWUA need to work together to evolve their facilities to meet these new changes. Developers can not do it all, but if we could in this case, we would. We feel as though the long term drainage plan for The Knolls project is well engineered and will protect the surrounding residents. But it can not be made to work until the City and the Bureau of Reclamation come together and agree that this drain should be taken over by the City.

From: Rick Dorris
To: Lori Bowers
Date: 10/8/03 11:58AM
Subject: Knolls

My comments for Knolls #6 are in impact. They still don't have previous filings accepted. I have a couple of very minor design issues on the plans. OK with me if you go to PC.

Thanks,

Rick Dorris
Development Engineer
City of Grand Junction
250 N. 5th Street
Grand Junction, CO 81501
voice 970-256-4034
fax 970-256-4031
email: rickdo@ci.grandjct.co.us

From: Peter Krick
To: Lori Bowers; Wendy Spurr
Date: 10/3/03 11:25AM
Subject: FPP-2003-078 (The Knolls)

There are no further comments or suggestions concerning this project. The concerns of the Surveyor concerning lettering height requirements is duly noted. However, the opportunity to express concerns was during the formation of the regulation when the Surveyor had ample opportunity to state his desires.
Peter

REVIEW COMMENTS

3rd Round

October 14, 2003

FILE #FPP-2003-078(3) **TITLE HEADING: The Knolls, Filing 6**

LOCATION: SE of 27½ and Piazza

PETITIONER: O.P. Development Company, LLC – Robert Knapple

PETITIONER'S ADDRESS/TELEPHONE: 3695 Ridge Dr
241-2373

PETITIONER'S REPRESENTATIVE: Vista Engineering Corp – David Chase
243-2242

STAFF REPRESENTATIVE: Lori Bowers

NOTE: THE PETITIONER IS REQUIRED TO SUBMIT AND LABEL A RESPONSE TO COMMENT FOR EACH AGENCY OR INDIVIDUAL WHO HAS REQUESTED ADDITIONAL INFORMATION OR REVISED PLANS, INCLUDING THE CITY, ON OR BEFORE 5:00 P.M. NOVEMBER 14, 2003.

CITY COMMUNITY DEVELOPMENT **10/13/03**
Lori Bowers **256-4033**

We can schedule this item for the November 12th Planning Commission meeting.

CITY DEVELOPMENT ENGINEER **10/8/03**
Rick Dorris **256-4155**

MISCELLANEOUS

1. I am still waiting on the concrete and asphalt tests for Filings 4 and 5. Once all information is in, I'll review it. Hopefully there won't be any testing issues to resolve. In the mean time, 6 of the Knolls will not be approved for construction until filings 4 and 5 have been closed out and accepted by the City.
2. Please forward the construction activity permit with the next response. It must be in hand prior to plan approval.

DRAINAGE REPORT AND PLAN

3. I did not receive a new copy of the report that is signed and stamped.

PLANS

4. On sheet 18, in the plan portion at the retention pond pump it still calls out the pump as 60GPM. Please revise to 90. I assume you have the pump in a sump and automatically controlled.
5. How are you discharging the water into 27 ½ Road? Is it piped to top back of walk? Probably need to provide a detail or describe in a note. Should stop pipe a little distance back of walk and concrete to BOW.

FYI

The vertical curve comments on the last round of redlines don't relate to filing 6 so they are fine. Let's talk about this when it is handy. I think there is flexibility with K values and the City doesn't want to see bird baths created by long vertical curves in either sag or crest situations.

CITY PROPERTY AGENT	**10/3/03**
Peter Krick	**256-4123**

There are no further comments or suggestions concerning this project. The concerns of the Surveyor concerning lettering height requirements is duly noted. However, the opportunity to express concerns was during the formation of the regulation when the Surveyor had ample opportunity to state his desires.

CITY OF GRAND JUNCTION
PLANNING COMMISSION

MEETING DATE: November 12, 2003
STAFF PRESENTATION: Lori V. Bowers

AGENDA TOPIC: The Knolls, Filing #6, FPP-2003-078

ACTION REQUESTED: Approve the Planned Development Final Plan
(This is an Old Code project)

BACKGROUND INFORMATION					
Location:		SE of 27 ¼ Road and Piazza Way			
Applicants:		O.P. Development Company, LLC, owner Vista Engineering, David Chase, representative			
Existing Land Use:		Vacant land			
Proposed Land Use:		19 single family lots			
Surrounding Land Use:	North	Single family (The Knolls & Crown Heights)			
	South	Single family (Spring Valley)			
	East	Single family (Spring Valley)			
	West	Single family (Ptarmigan Ridge North & Bell Ridge Subdivisions)			
Existing Zoning:		PD			
Proposed Zoning:		No change proposed			
Surrounding Zoning:	North	Planned Development			
	South	RMF-5			
	East	RSF-4 & RMF-5			
	West	RMF-5			
Growth Plan Designation:		Residential medium low 2 to 4 units per acre			
Zoning within density range?		X	Yes		No

PROJECT DESCRIPTION: The applicants request approval of the Final Plan/Plat for Filing 6, of the Knolls Subdivision, located on 15.5 acres. 19 single family lots and one open space tract intended for storm water detention is proposed.

RECOMMENDATION: Approval

ANALYSIS:

1. Background: The Knolls Planned Development originally approved in 1997, was 66 acres in size. The plan expired and the developer added another 6.6 acres to the Plan. On July 18, 2000, the Planning Commission approved a new preliminary plan for The Knolls Subdivision. The approval allowed for a Growth Plan Amendment from Residential Medium (4 to 8 du/ac) to Residential Medium Low (2 to 4 du/ac). With the reduced density a rezone to a new Planned Development (PD) zone was approved, with a density of 2.7 dwelling units per acre, all under the old Code. The entire Knolls Subdivision is 32.518 acres in size. This proposal is for Filing 6 only. Filing 7 will be the last filing for this subdivision.

2. Consistency with the Growth Plan: The Growth Plan was amended to residential medium low, 2 to 4 dwelling units per acre. This proposal is consistent with the plan.

3. **Section 7-5-5 of the Zoning and Development Code / Old Code**

Final Development Plan and Final Subdivision Plat:
The Planning Commission shall review the Final Plan and Plat at its public meeting. Upon final approval, the plan and plat shall be recorded with the information that is pertinent to the PD (Planned Development).

All proposed public and commonly owned site improvements will be covered in the Development Improvements Agreement. The applicants anticipate that construction of Filing 6 will begin as soon as the final plan is approved. Completion of Filing 7 is estimated for 2005.

a. Road grading, surfacing, signs and lighting:

All streets are dedicated to the City of Grand Junction. Access is obtained from 27 ½ Road onto Piazza Way. Heading east on Piazza Way, the road forks to Fairwood Place and then turns south to Woodgate Drive. Autumn Ash Avenue comes off of Woodgate and then connects to Briar Ridge Way, which connects back to Piazza Way. Street signs, stop signs and street lights will need to be installed as indicated on the plans. End of road panels will need to be installed at the southern end of Briar Ridge Way and the southern end of Woodgate Drive. Both of these roads are to be extended in Filing 7. Any lighting provided should be downcast directional and elements must be chosen to reduce or eliminate any possible glare that might affect aircraft operations. While Filing 6 is out the airport critical zone, an Avigation Easement was recorded for the entire subdivision.

b. Curbs/gutters:

Curb, gutter and walk, complete with handicapped access ramps are shown on the plans.

c. Sidewalks/pedestrian walks/trails/ associated structures:
Sidewalks are adjacent to all the proposed streets. Pedestrian trails were provided in previous filings and may be accessed from the proposed sidewalks.

d. Sanitary sewers stubbed to each lot:
This is shown on the plans.

e. Water lines stubbed to each lot, including fire hydrants:
Water lines are shown on the plans as well as placement of the proposed fire hydrants. Ute water is the service provider.

f. Drainage structures/improvements:
Tract A, dedicated to the Home Owners Association, is for the purpose of detaining/retaining runoff water which originates from the area being platted, also for the conveyance of runoff from upstream areas. The applicant proposes Tract A to be a temporary facility until a resolution with Grand Valley Water Users Association can be reached. Drainage and irrigation facilities have been provided a separate deed of easement, dedicated to the HOA for the installation, operation, maintenance and repair of the those facilities and appurtenances. Shown on the plat are the Lateral 2C and Drain D easements.

Piping of Drain "D" is now proposed to occur during Filing 6. Additional plans were included to illustrate this proposal. The developer states that they will work with GVWUA on all required agreements

g. Open space improvements/facilities/landscaping:
Tract A, as discussed above, is proposed as a temporary detention facility. The applicants have requested that they not landscape the detention facility due to its temporary nature. Filing 7 will house the permanent detention facility and will be landscaped at that time. The HOA will be required to keep weeds from growing in this area and maintain the facility as required.

h. Structures/parking areas:
Structures for this site are to be single family residential homes. Required parking will need to be provided on each lot and reviewed as each Planning Clearance is issued.

I. Irrigation water system for open space:
Open space, in the previous filings, has been provided irrigation. The temporary detention facility does not propose irrigation at this time due to its temporary nature.

j. Irrigation water delivery system for all lots:
Irrigation easements have been provided across all lots for access to irrigation water.

FINDINGS OF FACT/CONCLUSIONS

After reviewing the Knolls Filing 6 application, FPP-2003-078 for Final Plat and Plan, staff makes the following findings of fact and conclusions:

1. The requested Final Plat and Plan for The Knolls Subdivision, a Planned Development, is consistent with the Growth Plan.

2. The review criteria in Section 7-7-5 of the old Zoning and Development Code have all been met.

3. The Final Plat and Plan are consistent with the approved Preliminary Plan for the Knolls Subdivision, file numbers PP-1996-111 and PDR-1996-217.

STAFF RECOMMENDATION: Staff recommends that the Planning Commission approve the requested Final Plat and Plan for The Knolls Subdivision Planned Development, Filing 6, FPP-2003-078, with the findings and conclusions listed above.

RECOMMENDED PLANNING COMMISSION MOTION: Mr. Chairman, on item number FPP-2003-078, the Final Plat and Plan for The Knolls Subdivision, Filing 6, I move that we find the project consistent with the Growth Plan, Section 7-7-5 of the old Zoning and Development Code and adjacent property usage, and approve the final plan, subject to the recommended conditions included in the staff report.

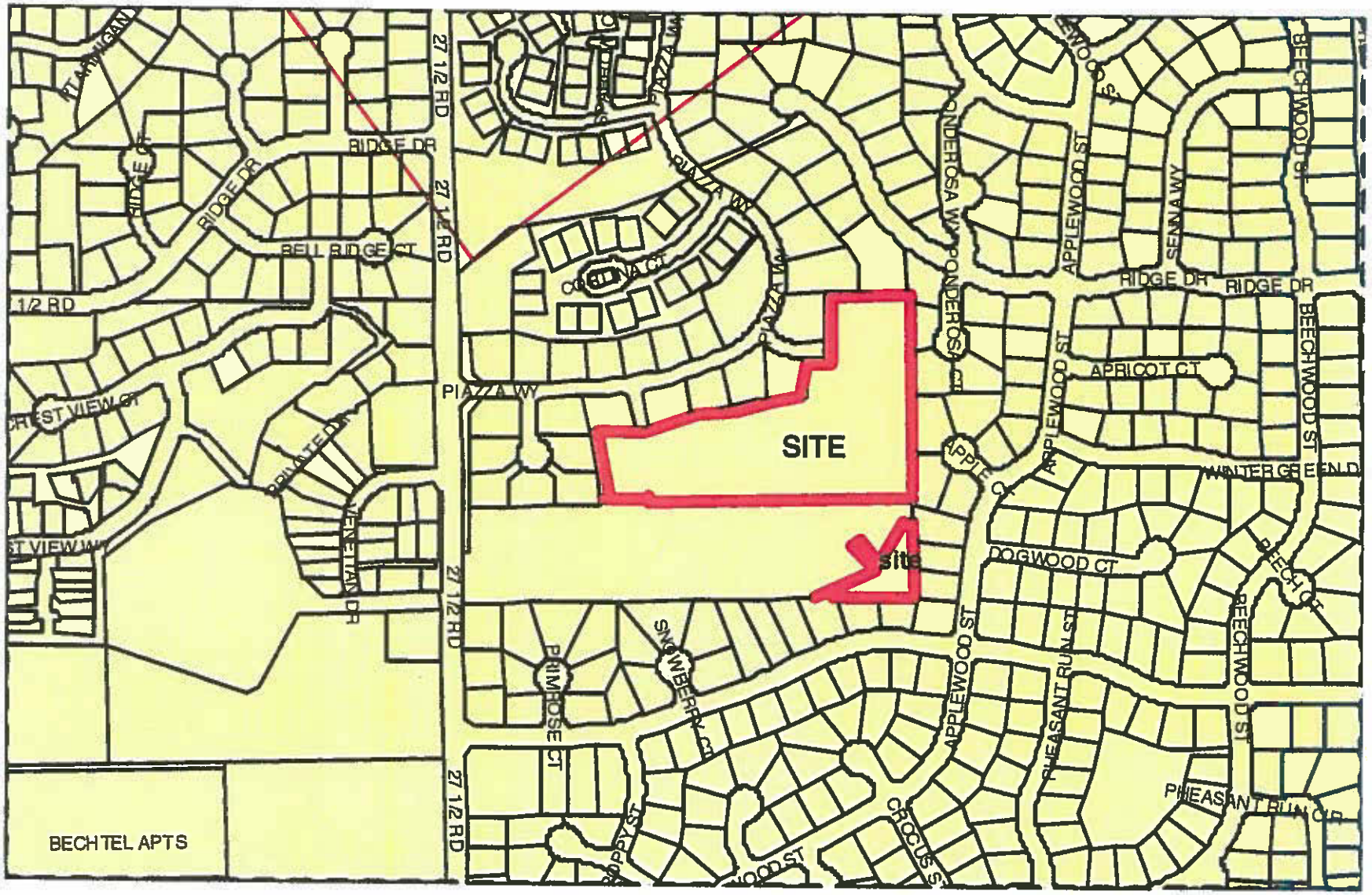
Attachments:

Vicinity Map
Aerial Photo
Growth Plan Map
Zoning Map
Subdivision plat

Site Location Map

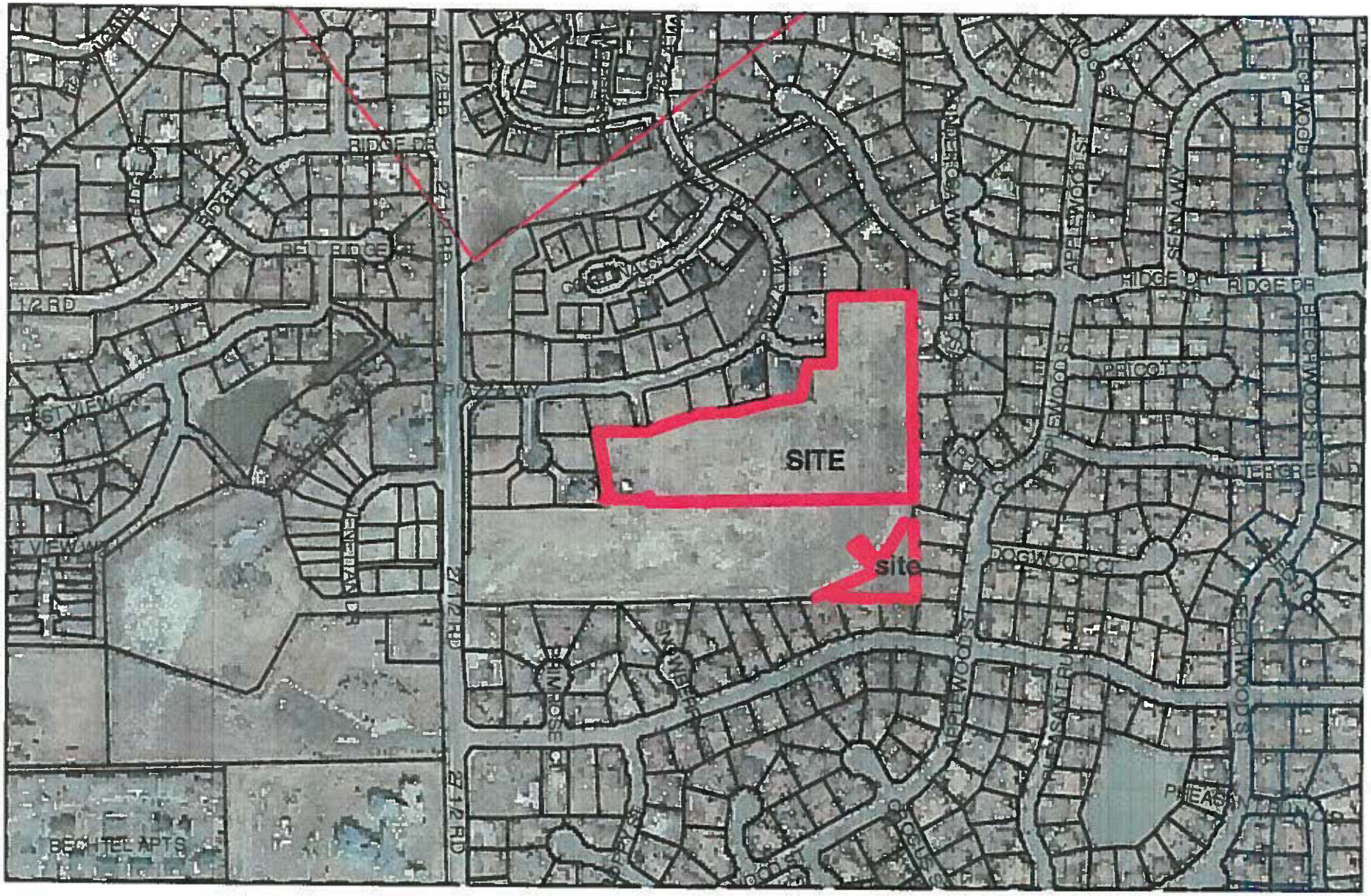
Figure 1

Site entirely within the City Limits



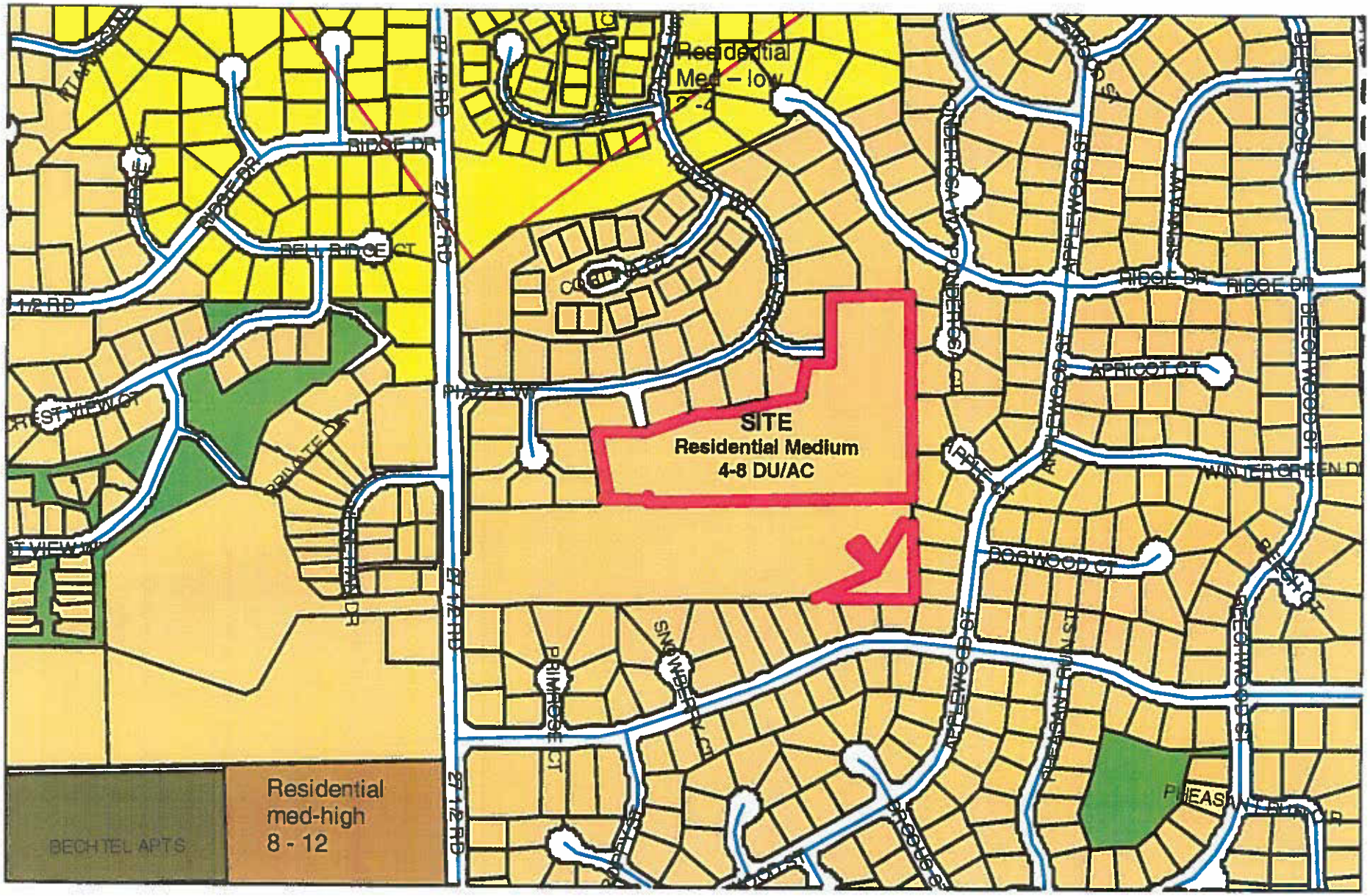
Aerial Photo Map

Figure 2



Future Land Use Map

Figure 3



Existing City and County Zoning

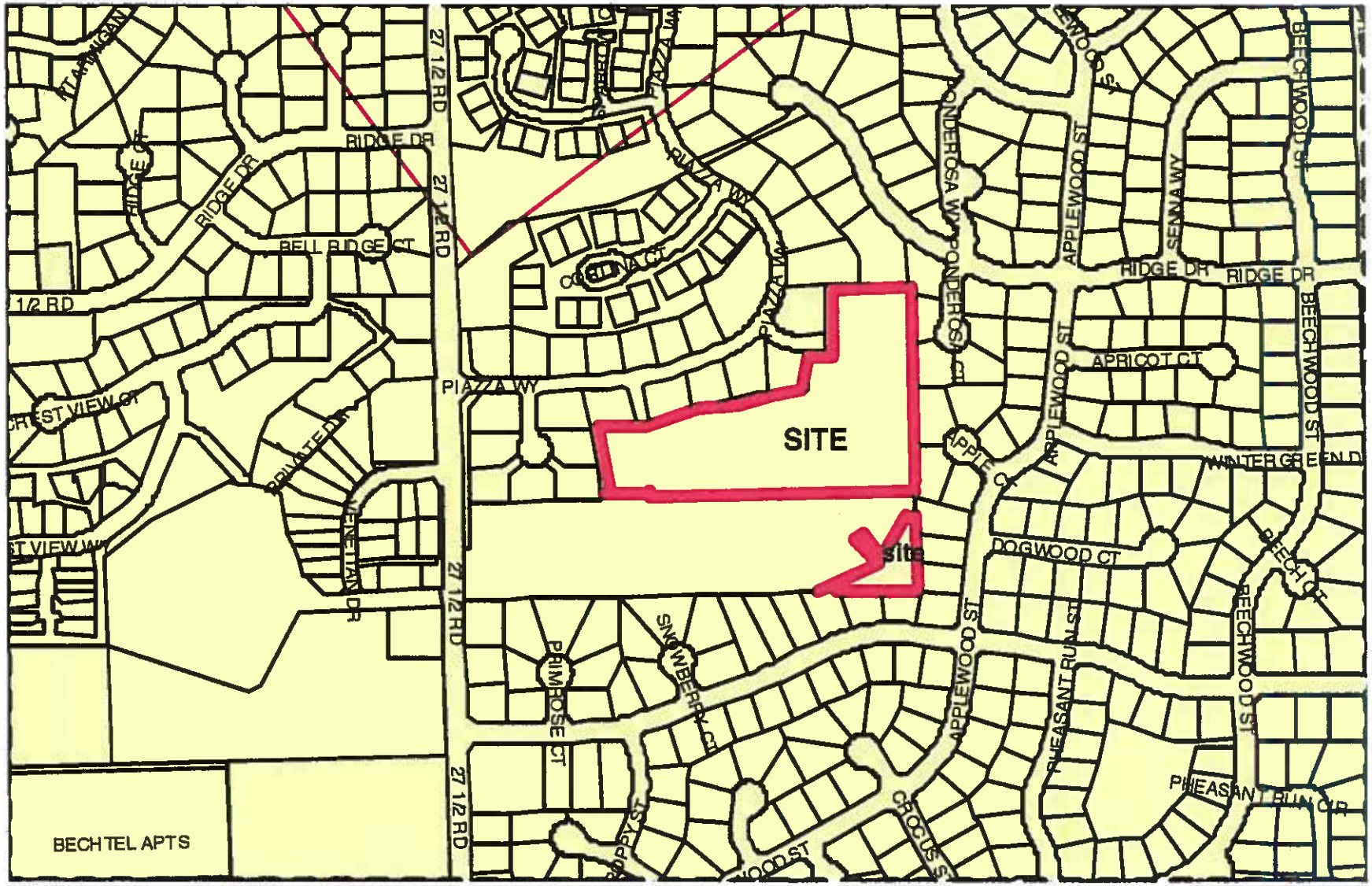
Figure 4

NOTE: Mesa County is currently in the process of updating their zoning map. Please contact Mesa County directly to determine parcels and the zoning thereof."

Site Location Map

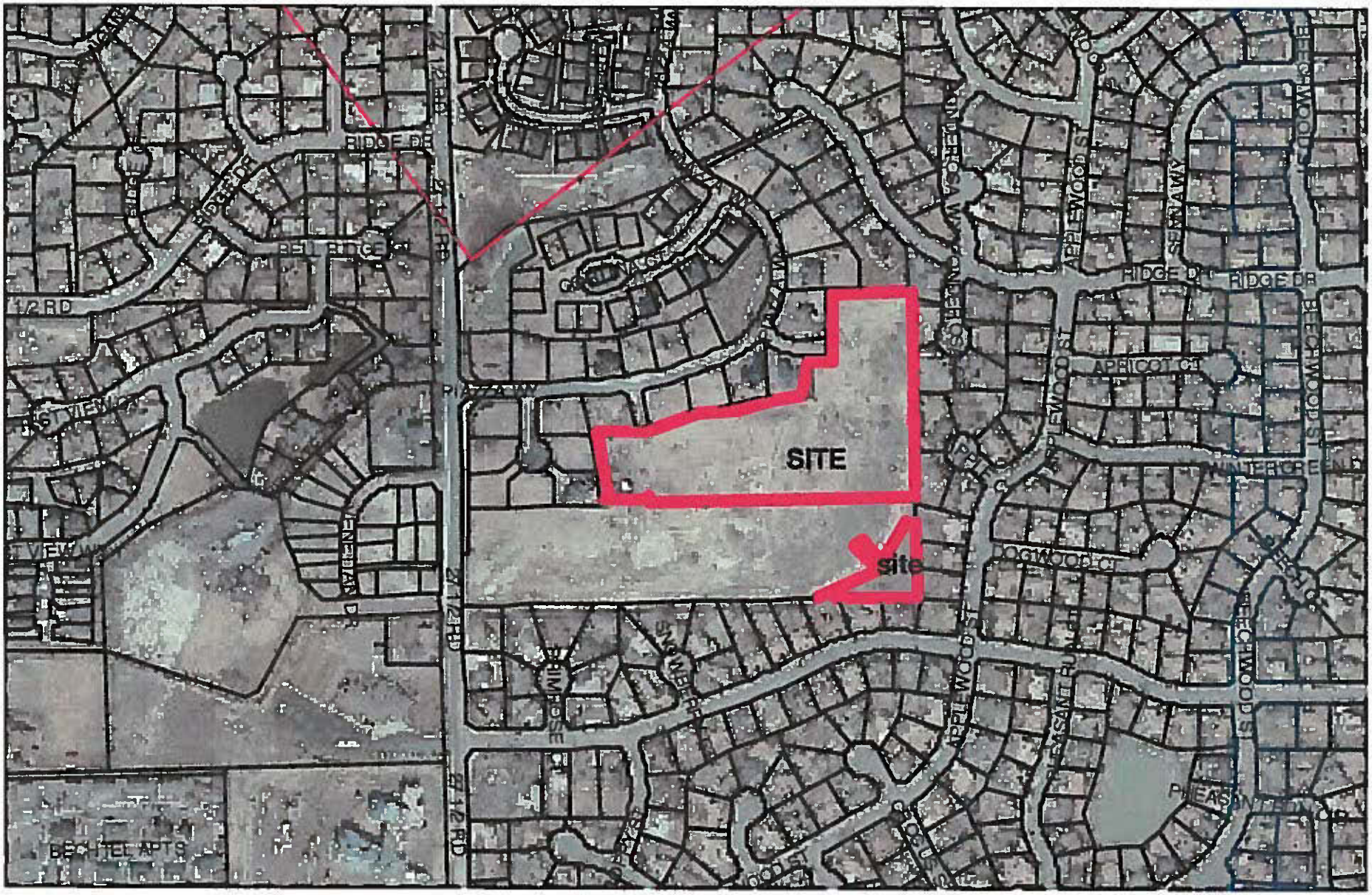
Figure 1

Site entirely within the City Limits



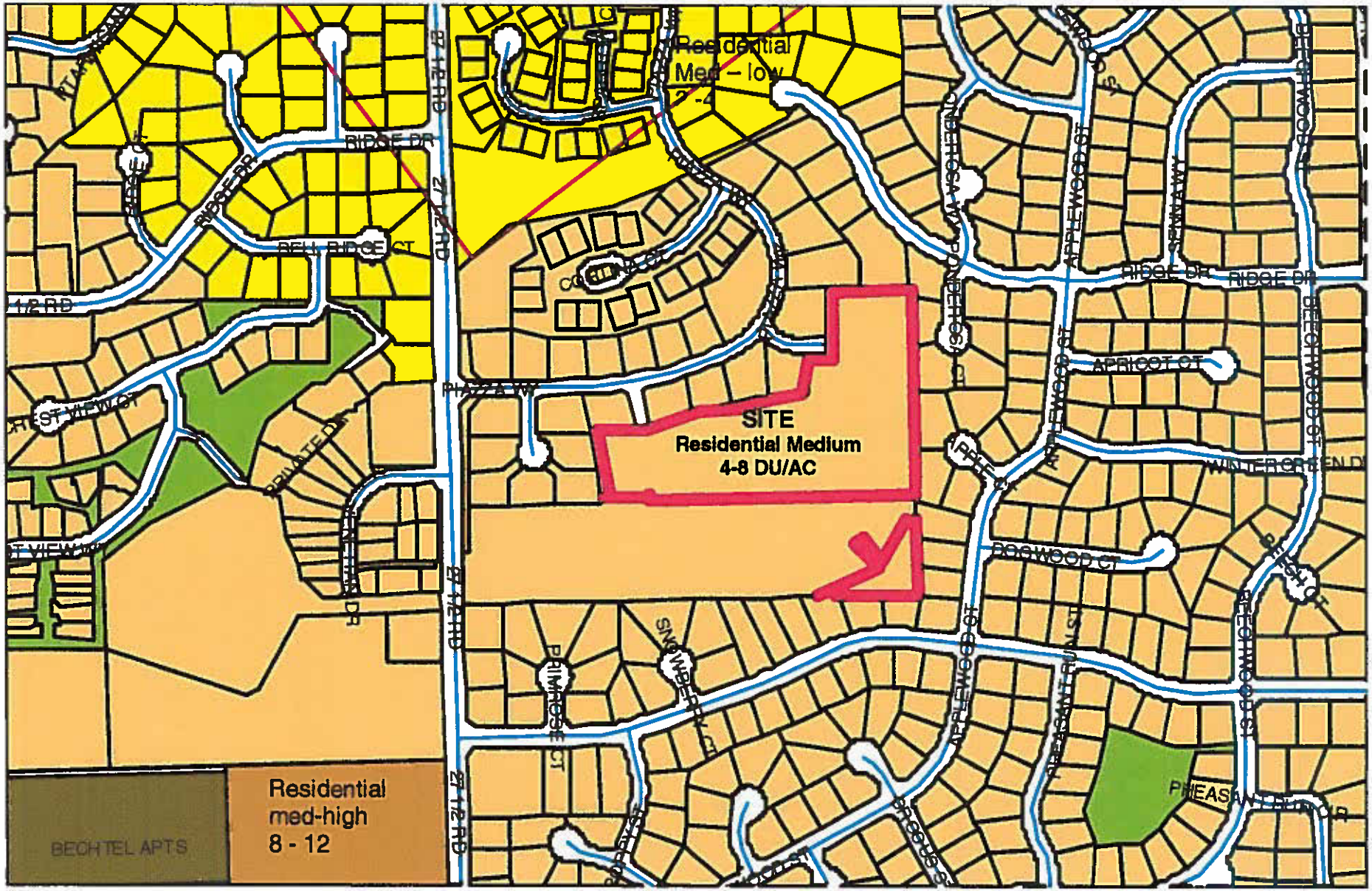
Aerial Photo Map

Figure 2



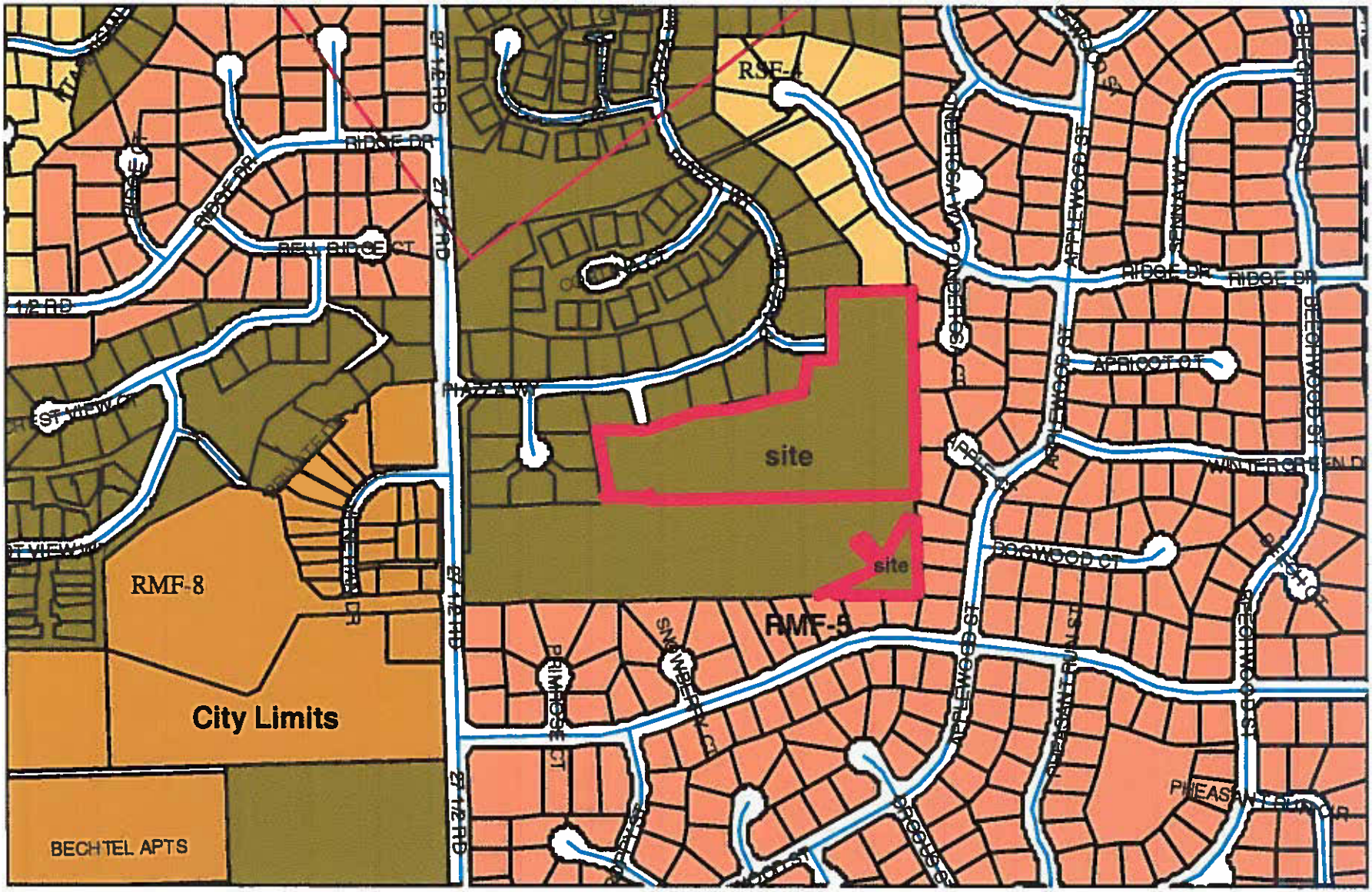
Future Land Use Map

Figure 3



Existing City and County Zoning

Figure 4



NOTE: Mesa County is currently in the process of updating their zoning map. Please contact Mesa County directly to determine parcels and the zoning thereof."

City of Grand Junction, Colorado
Community Development Department
RECORD OF DECISION / FINDINGS OF FACT

PROJECT:	The Knolls Subdivision, Filing 6
LOCATION:	SE of 27 1/4 Road and Piazza Way
FILE #:	FPP-2003-078
DATE:	November 17, 2003
PLANNER:	Lori V. Bowers
PROJECT IS:	**APPROVED with conditions**

On Tuesday, November 12, 2003, a Public Hearing was held by the City of Grand Junction Planning Commission to consider a request for Subdivision of The Knolls, Filing 6. The Knolls Subdivision, Filing 6 was reviewed in accordance with Chapter 6, of the Zoning and Development Code and was found to be compliant (Old Code). The properties are located south of Piazza Way. The approval of this subdivision creates 19 single-family lots on 15.5 acres with one open space tract intended for storm water detention. This detention area is to be temporary. This item was placed on the Consent Calendar. The approval of this subdivision is conditioned by the following items:

1. *An indemnification agreement shall be required for discharges of storm water into the GVWUA drain prior to Filings Six or Seven being recorded.*
2. *The concerns of the Development Engineer shall be addressed to his satisfaction, as listed in his attachment to the Staff report dated December 12, 2000.*
3. *That GVWUA, the City of Grand Junction, and affected utilities approve the location of the lateral 2CA and the effective wording on the final plat.*
4. *The DIA needs to be on the new form and recording memorandum.*
5. *Is exhibit B acceptable?*
6. *Need signatures on Disbursement Agreement.*
7. *Deed of easement to be recorded?*
8. *Quit Claim Deed?*

When these items are complete and to the satisfaction of the Community Development Department and Development Engineer, please provide us with the original plat on mylar, with signatures. All signatures should be in permanent black non-smearing ink. We will then collect all the necessary City signatures. The plat information in AutoCAD format should also be provided on a disk or preferably send via email to stevesm@ci.grandjct.co.us A check for $21.00, pd. made out to the Mesa County Clerk and Recorder, is required to cover the cost

of recording fees. This covers the cost of recording the plat. An additional
Pd. $31.00 is due to the City for the cost of making the required additional copies.

This approval is good for one year from the date of the Planning Commission meeting (November 12, 2004). The plat shall be recorded within one year, or the approval will expire.

All construction drawings should be presented on mylar for signatures. When signatures are complete, please provide us with 3 (three) sets of bluelines for the project. At that time a pre-construction meeting will need to take place prior to any work commencing on the site.

Paid 16 dwelling units @ $225.00 = the parks impact fee of $4,275.00. This fee is due prior to recording of the plat. No other fees are due prior to recording. TCP fee and School Impact Fees will be collected at the time the Planning Clearances are issued.

Should you have any further questions regarding this project, please feel free to contact me at 256-4033.

Lori V. Bowers, Senior Planner
Community Development Department

GRAND JUNCTION PLANNING COMMISSION
NOVEMBER 12, 2003 MINUTES
7:03 P.M. to 7:10 P.M.

The regularly scheduled Planning Commission hearing was called to order at 7:03 P.M. by Chairman Paul Dibble. The public hearing was held in the City Hall Auditorium.

In attendance, representing the City Planning Commission, were Dr. Paul Dibble (Chairman), John Evans, William Putnam, Bill Pitts, Travis Cox and Roland Cole. Commissioner John Redifer arrived following consideration of the Consent Agenda. Commissioner Richard Blosser was absent.

In attendance, representing the City's Community Development Department, were Kathy Portner (Planning Manager), Pat Cecil (Development Services Supervisor), Lori Bowers (Sr. Planner), Lisa Cox (Sr. Planner).

Also present were John Shaver (Asst. City Attorney) and Rick Dorris (Development Engineer).

Terri Troutner was present to record the minutes.

There were approximately six interested citizens present during the course of the hearing.

I. APPROVAL OF MINUTES

Available for consideration were the minutes from the October 14, 2003 public hearing.

MOTION: (Commissioner Cole) "Mr. Chairman, I would move for approval of the minutes as printed."

Commissioner Evans seconded the motion. A vote was called and the motion passed by a vote of 4-0, with Commissioners Cox and Pitts abstaining.

II. ANNOUNCEMENTS, PRESENTATIONS AND/OR VISITORS

There were no announcements, presentations and/or visitors.

III. CONSENT AGENDA

Offered for placement on the Consent Agenda was item FPP-2003-078 (Final Plat/Plan--The Knolls, Filing #6). No objection was raised from the audience, planning commissioners or staff on this item.

MOTION: (Commissioner Pitts) "Mr. Chairman, I would move for approval of the Consent Agenda as presented."

Commissioner Cole seconded the motion. A vote was called and the motion passed unanimously by a vote of 6-0.

IV. FULL HEARING

The following item was continued from the October 28, 2003 public hearing. The Planning Commission deferred consideration of the plat pending a final decision by City Council on the vacation request, which was rendered on November 6, 2003.

PLANNING COMMISSION
NOTICE OF PUBLIC HEARING

DATE: NOV 1 2 2003 TIME: 7:00 p.m.

PLACE: City Hall Auditorium, 250 North 5th Street

A petition for the following request has been received and tentatively scheduled for a public hearing on the date indicated above.

If you have any questions regarding this request or to confirm the hearing date, please contact the Grand Junction Community Development Department at (970) 244-1430 or stop in our office at 250 North 5th Street.

FPP-2003-078 – THE KNOLLS, FILING 6 – SE of 27½ and Piazza

Request approval of the Final Plan/Plat for 15.5 acres to develop 19 Single Family lots and one open space tract in a PD (Planned Development) zone.

Planner **Lori Bowers**

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

U.S. POSTAGE 00.268
METER 716591

JERRY C LINDSAY
KATHALEEN I LINDSAY
3595 W BOARDWALK CIR
HIGHLANDS RANCH, CO 80129-4639

LINDS95 801293060 1802 22 11/14/03
FORWARD TIME EXP RTN TO SEND
LINDSAY SR
622 SIERRA CT
GRAND JUNCTION CO 81503-1018

RETURN TO SENDER

81501/2668

City of Grand Junction
Community Development Department
250 North 5th Street
Grand Junction, CO 81501

FRANK J UELENTRUP
GENICE DELORES MATZK
2226 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4127

3-4-04
11-5-03

NIXIE 2001 1 04 11/06/03
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD

KN01156

CITY OF GRAND JUNCTION
COMMUNITY DEVELOP
250 NORTH 5TH STREET
GRAND JUNCTION, CO 81501

CITY OF GRAND JUNCTION
WENDY - COMM DEV
250 NORTH 5TH STREET
GRAND JUNCTION, CO 81501

CRESTVIEW HOA
BRUCE HILL
1648 CRESTVIEW DRIVE
GRAND JUNCTION, CO 81506

BELL RIDGE HOA
CHRIS OR ALTON CRISM
1819 RIDGE COURT
GRAND JUNCTION, CO 81506

PTARMIGAN RIDGE HOA
JIM HECHT
3616 RIDGE COURT
GRAND JUNCITON, CO 81506

SPRING VALLEY HOA
DON MC FARLAND
P.O. BOX 9164
GRAND JUNCTION, CO 81502

HOWARD M MCDOWELL
SANDRA K
3510 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8416

NANCY K KOHLMAN HOLL
3605 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8413

LOUISE S MULLINS
2220 RIDGE DR
GRAND JUNCTION, CO 81506-8462

DICK OLSEN
DORRIS JEAN
PO BOX 3565
GRAND JUNCTION, CO 81502-3565

MARK A TWARDOWSKI
DEBORAH
3610 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8483

GORDON N MCFERRON
MARY C
3520 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8458

PAMELA D GARDNER
3525 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8415

ROBERT D YOUNGQUIST
GAIL L
3620 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8483

JAMES E FRASER
GUDRUN H FRASER
3530 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8458

DUANE A BEYENHOF
LINDA M BEYENHOF
3535 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8415

ROBERT H BLOM
KARALEE P
3526 RIDGE DR
GRAND JUNCTION, CO 81506-8478

CARL R COOK
3618 RIDGE DR
GRAND JUNCTION, CO 81506-8497

RODNEY SUNDHEIM
SHERI
3615 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8444

RICK L BAMFORD
M KELLY BAMFORD
3626 RIDGE DR
GRAND JUNCTION, CO 81506-8497

JACK C STOUT
KATHERINE E STOUT
3515 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8482

HAROLD E DANIELS
CLAUDELL DANIELS
2276 CORTINA CT
GRAND JUNCTION, CO 81506-4190

W E PUTNAM
W W PUTNAM- LIVING T
2270 CORTINA CT
GRAND JUNCTION, CO 81506-4190

MONUMENT HOMES
DEVELOPMENT INC
759 HORIZON DR STE A
GRAND JUNCTION, CO 81506-8737

J CHRISTOPHER COMSTOCK
ROSALEE G COMSTOCK
2267 CORTINA CT
GRAND JUNCTION, CO 81506-4190

JAMES B MCDONALD
ZELMA MCDONALD
2277 CORTINA CT
GRAND JUNCTION, CO 81506-4190

GENE C COLEMAN
KARLA A COLEMAN
3604 PIAZZA WAY
GRAND JUNCTION, CO 81506-4194

GERTRAUD E JONES
3614 PIAZZA WAY
GRAND JUNCTION, CO 81506-4194

ROBERT D FREDERICK
CATHLEEN A FREDERICK
3517 RIDGE DR
GRAND JUNCTION, CO 81506-8477

STEVEN M IRION
LAURIE R IRION
3525 RIDGE DR
GRAND JUNCTION, CO 81506-8477

JOHN C BRICKER
GLORIA A BRICKER
3615 RIDGE DR
GRAND JUNCTION, CO 81506-8477

MARIAN M MILLER
3655 RIDGE DR
GRAND JUNCTION, CO 81506-8477

CHILTON A ALEXANDER
PENELOPE L ALEXANDER
3675 RIDGE DR
GRAND JUNCTION, CO 81506-8477

DONALD M GUTENTAG
TRACI D SIMMS
3622 PIAZZA WAY
GRAND JUNCTION, CO 81506-6000

STEVEN J ACQUAFRESCA
637 27 1/2 RD
GRAND JUNCTION, CO 81506-4161

GENEVA I HYDE
633 27 1/2 RD
GRAND JUNCTION, CO 81506-4161

CALVARY BIBLE CHURCH
629 27 1/2 RD
GRAND JUNCTION, CO 81506-4161

COLORADO WEST REGIONAL MENTAL
PO BOX 40
GLENWOOD SPRINGS, CO 81602-0040

JAY T COPELAND
MARJORIE L
3318 CRESTVIEW WAY UNIT A
GRAND JUNCTION, CO 81506-4071

SCOTT E MCINNIS
LORI
3320 CRESTVIEW WAY
GRAND JUNCTION, CO 81506-4071

DAVID J HUNT
SHERRI G HUNT
1755 CRESTVIEW DR APT A
GRAND JUNCTION, CO 81506-5236

GORDON E DUNN
WILMA JEAN DUNN
1755 CRESTVIEW DR APT B
GRAND JUNCTION, CO 81506-5236

ROBERT D TORLINE
FRANCES TORLINE
1755 CRESTVIEW DR APT C
GRAND JUNCTION, CO 81506-5236

ALICE R ELDER
1755 CRESTVIEW DR APT D
GRAND JUNCTION, CO 81506-5236

HILLTOP HEALTH SERVICES CORPOR
1331 HERMOSA AVE
GRAND JUNCTION, CO 81506-4099

GRAND JUNCTION DEVELOPERS LLC
2616 H 3/4 RD
GRAND JUNCTION, CO 81506

DONALD L KNUDSEN
LINDA L KNUDSEN
2928 27 1/2 RD
GRAND JUNCTION, CO 81506-4108

JOSEPH J JUESCHKE
LAURA O JUESCHKE
1937 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4120

WILLIAM A SCHOUNTZ
REBECCA A STAUDENMAI
1941 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4120

SUTTON J POWERS
PAMELA K POWERS
3019 POPPY ST
GRAND JUNCTION, CO 81506-4145

LINCOLN N HALL
MICHELLE M HALL
2190 PIAZZA WAY
GRAND JUNCTION, CO 81506-4192

JEROME L MULLIKIN
BONNIE K
2931 LILY PL
GRAND JUNCTION, CO 81506-4136

GLORIA PETERSEN
2604 BAIS PL
HACIENDA HEIGHTS, CA 91745-5532

PRASANTA K MISRA
SWAYAMPRAVA
2926 LILY PL
GRAND JUNCTION, CO 81506-4136

TERRIE J KLOBERDANZ
3031 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4155

MICHAEL P NEIL
JANET L NEIL
3039 CROCUS CT
GRAND JUNCTION, CO 81506-4119

JOHN P JAY
STACIE J JAY
3041 CROCUS CT
GRAND JUNCTION, CO 81506-4119

NANCY F ZELLNER
3042 CROCUS CT
GRAND JUNCTION, CO 81506-4119

ROBERT F LOCICERO
JACQUELINE L LOCICER
3036 CROCUS CT
GRAND JUNCTION, CO 81506-4119

KENNETH G GESKE
SHERIAN A GESKE
3101 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4153

BEVERLY K STATES
3111 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4153

SHIRLEY M PALMER
TRUST
5000 W LAKERIDGE RD
DENVER, CO 80219-5633

ROBERT WAYNE CAMPBELL
MARJORIE M
3141 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4153

ROBERT A MICHELS
RUTH Y
2151 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4164

JAMES D PICKENS
TERRY L
2141 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4124

RICHARD C MOG
MARY J
2129 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4124

SCOTT S HANSEN
CRISTIN D HANSEN
2119 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4124

ROBERT A RIDOUT
SANDRA E
2107 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4124

RICHARD E GODWIN
JEAN H
2057 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4165

GINA L MARTINEZ
RALPH E MARTINEZ
2041 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4122

JEFFREY W BUCHANAN
EMILY E BUCHANAN
2027 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4122

DAVID M WEST
JUDITH C
2015 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4122

WILLIAM E THOMPSON
Z E & J M THOMPSON
3028 POPPY ST
GRAND JUNCTION, CO 81506-4146

RICHARD HUGH GAMBLE
3012 POPPY ST
GRAND JUNCTION, CO 81506-4146

LYLE D ANTHONY
LOIS L
3150 27 1/2 RD
GRAND JUNCTION, CO 81506-4112

JON R HIEBERT
CAROL L
3130 27 1/2 RD
GRAND JUNCTION, CO 81506-4112

CHARLES A TORLINE
1910 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4103

SCOTT F TURNER
M EILEEN TURNER
1920 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4103

DANIEL F BRENNECKE
SANDRA M
3151 PRIMROSE CT
GRAND JUNCTION, CO 81506-4147

JOSEPH D DE VENCENTY
3201 PRIMROSE CT
GRAND JUNCTION, CO 81506-4147

KIMBERLY S SUPLIZIO
3210 PRIMROSE CT
GRAND JUNCTION, CO 81506-4147

STEVEN D RIMA
KATHY J RIMA
3202 PRIMROSE CT
GRAND JUNCTION, CO 81506-4147

HAVEN S SKOGEN
BEVERLY B
3152 PRIMROSE CT
GRAND JUNCTION, CO 81506-4147

DONA B TIFFANY
1940 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4121

GREGORY R KUHN
DEBRA K
1950 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4121

ROBERT J SCHROEDER
KAREN A GOLDEN
3151 SNOWBERRY CT
GRAND JUNCTION, CO 81506-4149

MICHAEL E MADSON
SHARON A
3201 SNOWBERRY CT
GRAND JUNCTION, CO 81506-4149

BRUCE A BENNETT
MARY R
3210 SNOWBERRY CT
GRAND JUNCTION, CO 81506-4149

TIMOTHY J STUBBS
3202 SNOWBERRY CT
GRAND JUNCTION, CO 81506-4149

GARY L ALSTATT
DORA J
2040 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4123

JERRY C LINDSAY
KATHALEEN I LINDSAY
3595 W BOARDWALK CIR
HIGHLANDS RANCH, CO 80129-4639

GREGORY D RAIT
2110 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4125

VERNON WILEY CHRISTOPHER
SANDRA L PATRICK
2120 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4125

FREDERICK J CRABTREE
SHERYL L
2130 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4125

IDONA M GAYLOR
2140 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4125

E E MECHEM
LINDA J
2150 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4125

JAMES C WILKINSON
SHARON E
3201 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8421

JAMES W ADAMS
BETTY J
3205 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8421

PHILLIP D MALCOM
BETTY J MALCOM
3211 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8421

BYRON V BOGGS
DONNA M
3215 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8421

RUTH V HOLT
3225 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8421

KENNETH D DAUB
PATRICIA A
2145 APPLE CT
GRAND JUNCTION, CO 81506-8425

JOHN P YOUNG
JANET B YOUNG - LIVI
2140 APPLE CT
GRAND JUNCTION, CO 81506-8425

HOLLIS W BECKER
LOIS A
2150 APPLE CT
GRAND JUNCTION, CO 81506-8425

JOE MCMILLIN
CLEO MCMILLIN-LIVING
2160 APPLE CT
GRAND JUNCTION, CO 81506-8425

VAN K GRAHAM
MARY ANN
3245 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8479

LAURA J CONANT
3315 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8419

SCOTT D HOLZSCHUH
LESLIE B HOLSCHUH
3325 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8419

JEFFERSON CLYNE WOFFORD
CLAUDINE ANN WOFFORD
3415 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8417

ROBERT L WILLIAMS
MARGARET L
2221 RIDGE DR
GRAND JUNCTION, CO 81506-8463

KEITH E CLUTTER
DORI J
3430 PONDEROSA CT
GRAND JUNCTION, CO 81506-8457

STACY W MILLARD
TONI K MILLARD
3420 PONDEROSA CT
GRAND JUNCTION, CO 81506-8457

JOHN F FORBES
GERIANNE M FORBES
3410 PONDEROSA CT
GRAND JUNCTION, CO 81506-8457

LINDA MARIE OTIS
JAMES DOUGLAS
3415 PONDEROSA CT
GRAND JUNCTION, CO 81506-8457

DEBRA A MITCHELL
DALE E MITCHELL
3425 PONDEROSA CT
GRAND JUNCTION, CO 81506-8457

JEFFREY W BOWMAN
SHARON R BOWMAN
3435 PONDEROSA CT
GRAND JUNCTION, CO 81506-8457

ROY O COTTINGHAM
SHIRLEY A
3112 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4154

PATRICIA S PHILLIPS
3126 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4154

JOHN E SOMERS
MARY A
3132 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4154

HAROLD M CUNNINGHAM
CAROLINE L CUNNINGHA
3142 APPLEWOOD ST
GRAND JUNCTION, CO 81506-4154

RICHARD BARTHOLOMAY
MARILYN
3037 PHEASANT RUN ST
GRAND JUNCTION, CO 81506-4141

ROBERT G OSBORN
SUSAN E OSBORN
3025 PHEASANT RUN ST
GRAND JUNCTION, CO 81506-4141

LAURA JEANNE URBACH
3009 PHEASANT RUN ST
GRAND JUNCTION, CO 81506-4141

MICHAEL K TUCKER
SUSANNE
2202 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4127

ERNEST J DECASPER
SHERI L DECASPER
2214 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4127

FRANK J UELENTRUP
GENICE DELORES MATZK
2226 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4127

KENNETH W HOBBS
PATRICIA
2306 HAWTHORNE AVE
GRAND JUNCTION, CO 81506-4129

DAVID L LEE
2305 WINTERGREEN DR
GRAND JUNCTION, CO 81506-8403

LAWRENCE M MORAN
MARY T
3240 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8428

SHEILA D PORTER
SUSAN E DRAKE
3230 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8428

DONALD E EAKINS
JUNE E EAKINS
2202 DOGWOOD CT
GRAND JUNCTION, CO 81506-8402

ROBERT R MILLER
KATHY S MILLER
2214 DOGWOOD CT
GRAND JUNCTION, CO 81506-8402

JOHN W BULL
2226 DOGWOOD CT
GRAND JUNCTION, CO 81506-8402

SCOTT L THOMAS
KRISTIN R THOMAS
2306 DOGWOOD CT
GRAND JUNCTION, CO 81506-8473

LORETTA M BOARDMAN
JAMES J BOARDMAN
2305 DOGWOOD CT
GRAND JUNCTION, CO 81506-8474

MICHAEL E LUBY
GINA M
2225 DOGWOOD CT
GRAND JUNCTION, CO 81506-8438

THOMAS J LIESZ
PAMELA J STANDLEY-LI
2215 DOGWOOD CT
GRAND JUNCTION, CO 81506-8438

THELMA F TARRANT
3210 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8422

ZVONIMIR S BABIC
SHARON J
2301 RIDGE DR
GRAND JUNCTION, CO 81506-8465

RUTH J ROGERS
2302 APRICOT CT
GRAND JUNCTION, CO 81506-8450

RICHARD L BAMFORD
BELVA J BAMFORD
2305 APRICOT CT
GRAND JUNCTION, CO 81506-8459

RONATHA C HOLAWAY
2302 WINTERGREEN DR
GRAND JUNCTION, CO 81506-8404

LEONARD M POLZINE
SYNTHIA L POLZINE
2251 CORTINA CT
GRAND JUNCTION, CO 81506

LUCILLE J CRUMBAKER
2257 CORTINA CT
GRAND JUNCTION, CO 81506-4190

HAROLD M JOHNSON
MARY V JOHNSON
2185 PIAZZA WAY
GRAND JUNCTION, CO 81506-4192

CAROLYN LOVE LENDERMAN
M GENE LENDERMAN
3510 HOLLOW CT
GRAND JUNCTION, CO 81506-4191

TILMAN M BISHOP
WYNDELL LA FAYE BISH
2255 PIAZZA WAY
GRAND JUNCTION, CO 81506-4193

ROBIN P MORENG
NATHAN T MORENG
2305 FAIRWOOD PL
GRAND JUNCTION, CO 81506-4195

CAROL A CADEZ TRUST
3550 PIAZZA WAY
GRAND JUNCTION, CO 81506-4194

O P DEVELOPMENT CO LLC
% KNAPPLE
3695 RIDGE DR
GRAND JUNCTION, CO 81506-8477

City of Grand Junction
Fire Department
New Development Fire Flow

Instructions: To process the application, the developer/applicant's engineer should first fill out all items in Section A, and then deliver/mail this form to the appropriate water purveyor.[1] Once the water supplier has signed and given the required information, deliver/mail the completed and fully signed form to the Fire Department.[2]

SECTION A

Date: April 8, 2003
Project Name: The Knolls Subdivision, Filing #6
Project street address: 27½ Road & Piazza
Assessor's Tax Parcel Number: 2945-014-54-001
Property Owner name: O.P. Development Co., LLC
City's project file #:
Name of Water Purveyor: Ute Water Conservancy District

1. If the project includes one or more one or two-family dwelling(s):
   a. The maximum fire area[1] for each one or two family dwelling will be 3600 square feet.
   b. All dwelling units will ☐, will not ☒ include an approved automatic sprinkler system.
   Comments: Dwelling units larger than 3600 S.F. should be evaluated during building permit process to assure conformance with IFC 2000.
2. If the project includes a building other than one and two-family dwelling(s):
   a. List the fire area and type of construction for all buildings used to determine the minimum fire flow requirements:
   b. List each building that will be provided with an approved fire sprinkler system:
3. List the minimum fire flow required for this project (based on Appendix B and C): 1000 GPM (Larger units to be evaluated for avail. flow vs. bldg. materials or sprinklers)
   Comments: 1000 G.P.M. requirement is for dwelling units 3600 S.F. or less.

Note: Fire Flow Rule: The City's Fire Code[3] sets minimum fire flows for all structures and new development. In general, for single family dwellings, at least 1000 g.p.m at 20 p.s.i. residual pressure must be continuously available at each structure. Duplex, other residential and all non-residential uses must have more fire flows in order to fight fires. Inadequate fire flows are normally due to water supply pipes that are too small or too little water pressure, or a combination of both.

Note for the Applicant/Project engineer: Refer to Appendix B and C, IFC 2000, to determine the minimum fire flow required for this project, based on the Water Purveyor's information (*i.e.*, location, looping and size of water lines; water pressure at the site, *etc.*) and the type, density and location of all structures. Base your professional judgment on the City approved utility plans and Water Provider information shown on this Form. Each time the utility plans/other information relating to treated water changes, resubmit this form just as you did the first time.

[End of Section A. Section B continues on the reverse side of this page]

[1] Fire area is defined on page 357 of the IFC.

Look Up: | Grap | Calculat | Refres

Pressure Hydrant: 1886 **Entered By:** CM

Testing Info

By: SRD
Date: 03/15/2002
Time: 3:30 AM

Pressure PSI

Static: 85
Residual: 80

NFPA AA

Comments: BRIAR RIDGE & PIAZZA WAY

Total GPM: 860 **Predicted Flow @ 20** 3,436 **Gals Used:** 3,440

Flow Hydrant	Pitot	Flow Device	Duration	Comment	GPM
1887	26	A	4	3550 PIAZZA WAY	860

TREASURER'S CERTIFICATE OF TAXES DUE

Date: 03/31/2003 Certificate No: 16493

STATE OF COLORADO
COUNTY OF MESA

I, the undersigned do hereby certify that the entire amount of taxes and assessments due upon the real estate or personal property described below, and all sales of the same for unpaid taxes or assessments shown by the books in my office, from which the same may still be redeemed, with the amount required for redemption, are as noted herein:

Title Co	: INDIVIDUAL REQUEST	Order #:	
Seller	:	Buyer	:
Lender	:	Ordered:	VISTA ENGINEERING
Tax Year	: 2002	User ID:	
Schedule #:	2945-014-54-001		

Description:
LOT 1 BLK 6 KNOLLS SUBDIVISION FILING 4 SEC 1 1S 1W & AN UND INT IN OPEN SPACE - 15.46AC

Amounts Due as of Certificate Date

Current Taxes		Base	Penalty
02 REAL	$	1,951.49	
Total Due	$	1,951.49	

BEFORE PAYING TOTAL DUE, PLEASE CALL FOR UPDATED FIGURES
IF PENALTY IS DUE OR IF THERE ARE OUTSTANDING TAX SALES

-- Continued --

MESA COUNTY TREASURER CORPORATE SEAL COLORADO

2945-014-54-001
Tax Charges Distribution for Taxing Year `02:

Description	Rate	Amount	Description	Rate	Amount
COLO RIVER	0.2550	6.82			
MESA COUNTY	21.8090	583.18			
GRAND JCT	8.0000	213.92			
SCH DST 51	34.3100	917.44			
LIBRARY	3.0000	80.22			
UTE WATER	2.0000	53.48			
SCH D51BOND	3.9370	105.28			
GJ TMLR*	-0.3310	-8.85			
			Totals ----->	72.9800	1951.49

MONIKA TODD
Mesa County Treasurer

By: _____

CERTIFIED DATE

March 31, 2003

MESA COUNTY TREASURER CORPORATE SEAL COLORADO

ABSTRACT & TITLE CO.
OF MESA COUNTY, INC.

1114 N. 1st Street, Suite 201, P.O. Box 3736, Grand Junction, CO 81502 970 242-8234 Fax 970 241-4925

CC's To:

Vista Engineering - Steve

"Where Title Examination is a Science ... and Closing is an Art"

Issuing Agent For

TRANSNATION
TITLE INSURANCE COMPANY

ABSTRACT & TITLE CO.
OF MESA COUNTY, INC.

Issuing Agent
TRANSNATION
TITLE INSURANCE COMPANY

1114 N. 1st., Suite 201, Grand Junction, CO 81501, • (970) 242-8234 • FAX: (970) 241-4925

O.P. Development Company, LLC
c/o Vista Engineering Company
2777 Crossroads Blvd.
Grand Junction, CO 81506

	AMOUNT	PREMIUM
OWNER	$	$ 242.00
MORTGAGE	$	$
COST OF TAX CERTIFICATE		$
FORM 100		$
ALTA 8.1		$
		$
		$

Your Reference The Knolls Filing 6

CC's To: (2) Vista Engineering - Steve

No. 00909936 C

Tax Schedule No. 2945-014-54-001

Property Address vacant, Grand Junction, CO 81506

— COMMITMENT TO INSURE —

Transnation Title Insurance Company, an Arizona corporation, herein called the Company, for a valuable consideration, hereby commits to issue its policy or policies of title insurance, as identified in Schedule A, in favor of the proposed insured named in Schedule A, as owner or mortgagee of the estate or interest covered hereby in the land described or referred to in Schedule A, upon payment of the premiums and charges therefor; all subject to the provisions of Schedules A and B and to the conditions and stipulations shown on the reverse side.

Customer Contact: Donna-Title
Phone: (970) 242-8234

By Donna M. Tolen
AUTHORIZED SIGNATURE

The effective date of this commitment is March 17, 2003 at 7:00 A.M.
At which time fee title was vested in:

O.P. Development Company LLC, a Colorado limited liability company

SCHEDULE A

1. Policies to be issued:
   (A) Owners'

   Informational commitment only

   (B) Mortgagee's

SCHEDULE A — Continued

2. Covering the Land in the State of Colorado, County of Mesa
Described as:

All of Block 6 of
THE KNOLLS SUBDIVISION, FILING 4

SCHEDULE A — Continued

REQUIREMENTS

3. The following are the requirements to be complied with prior to the issuance of said policy or policies. Any other instrument recorded subsequent to the date hereof may appear as an exception under Schedule B of the policy to be issued. Unless otherwise noted, all documents must be recorded in the office of clerk and recorder of the county in which said property is located.

   NONE

Commitment No. 00909936

File No. 00909936

SCHEDULE B — Section 2

Schedule B of the policy or policies to be issued will contain exceptions to the following matters unless the same are disposed of to the satisfaction of the Company.

1. Rights or claims of parties in possession not shown by the public records.

2. Easements, or claims of easements, not shown by the public records.

3. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, and any facts which a correct survey and inspection of the premises would disclose and which are not shown by the public records.

4. Any lien, or right to a lien, for services, labor, or material heretofore or hereafter furnished, imposed by law and not shown by the public records.

5. Unpatented mining claims; reservations or exceptions in patents or in Acts authorizing the issuance thereof.

6. Any and all unpaid taxes, assessments and unredeemed tax sales.

7. Reservation of right of proprietor of any penetrating vein or lode to extract his ore, in U.S. Patent recorded February 7, 1896 in Book 11 at Page 428.

8. Right of way as may be necessary for canals, tunnels, telephone and transmission lines as granted in Subscription for Stock recorded March 4, 1926 in Book 209 at Page 251.

9. Notice of Right of Way, including the terms and conditions thereof, recorded February 23, 2001 in Book 2806 at Page 849.

10. Right of way, whether in fee or easement only, as granted to Grand Valley Rural Power Lines, Inc. by instrument recorded December 19, 1938 in Book 373 at Page 499, as set forth on the sheet attached hereto.

11. Terms, Agreements, Provisions, Conditions, Obligations (including common expenses, fees and costs under the Common Interest Ownership Act), and Restrictions which do not contain a forfeiture or reverter clause, but deleting any restrictions indicating any preference, limitation or discrimination based on race, color, religion, sex, handicap, familial status or national origin, as set forth in Declaration for THE KNOLLS TOWNHOMES recorded September 29, 1998 in Book 2493 at Page 627, and First Amendment recorded February 8, 1999 in Book 2549 at Page 25.

12. Development Improvements Agreement, including the terms and conditions thereof, recorded February 8, 2001 in Book 2801 at Page 421.

13. Minimum Setbacks as noted on the recorded Plat of said Subdivision.

14. NOTE: as shown on recorded Plat of said Subdivision: Portions of this development lies within the Airport Critical Zone as well as within the Southwest boundaries of the Airport Area of Influence. Portions are situated directly underlying the common air traffic pattern for arrival and departure of aircraft from the secondary Runway 4-22 as outlined in the Airport's Master Plan.

15. Note #11 items a through f, as shown on the recorded Plat of said Subdivision, as set forth on the sheet attached hereto.

SCHEDULE B — Section 2 Continued

16. All easements over subject property as shown on the recorded plat of said Subdivision.

17. Right of way, whether in fee or easement only, as granted to U S West Communications by instrument recorded September 24, 1997 in Book 2361 at Page 497, as set forth on the sheet attached hereto.

18. Right of way, whether in fee or easement only, as granted to the City of Grand Junction by instrument recorded April 23, 1999 in Book 2579 at Page 1, as set forth on the sheet attached hereto.

19. Right of way, whether in fee or easement only, as granted to the City of Grand Junction by instrument recorded April 23, 1999 in Book 2579 at Page 4, as set forth on the sheet attached hereto.

20. Right of way, whether in fee or easement only, as granted to the City of Grand Junction by instrument recorded April 23, 1999 in Book 2579 at Page 7, as set forth on the sheet attached hereto.

21. Deed of Trust from : O.P. Development Company, LLC
to the Public Trustee of the County of Mesa
for the use of : Wells Fargo Bank West, National Association
to secure : two promissory notes in the amounts of $1,589,000.00 and $3,000,000.00
dated : February 15, 2001
recorded : February 27, 2001 in Book 2808 at Page 638.

22. Deed of Trust from : O.P. Development Company, LLC
to the Public Trustee of the County of Mesa
for the use of : Wells Fargo Bank West, N.A.
to secure : $100,000.00
dated : May 30, 2002
recorded : June 27, 2002 in Book 3103 at Page 685.

NOTE: EXCEPTION N/A WILL NOT APPEAR IN THE MORTGAGE POLICY TO BE ISSUED HEREUNDER.

ABSTRACT & TITLE CO.
OF MESA COUNTY, INC.

Issuing Agent For
TRANSNATION
TITLE INSURANCE COMPA

— CONDITIONS AND STIPULATIONS —

Please read carefully

1. This is a Commitment to issue one or more policies of title insurance in our Standard Form when the requirements set forth in the Commitment have been satisfied. The policy is available and should be examined before this Commitment is used if there is any question about coverage.

2. Only the policies shown are committed to. If there are any changes in the transaction, order an amendment from us.

3. The date on this Commitment is important. Nothing after that date has been considered by us.

4. This Commitment is good for 6 months only. Extensions should be ordered from us if they are needed.

PURSUANT TO SENATE BILL 91-14 (CRS 10-11-122) NOTICE IS HEREBY GIVEN THAT:

(a) THE SUBJECT REAL PROPERTY MAY BE LOCATED IN A SPECIAL TAXING DISTRICT;

(b) A CERTIFICATE OF TAXES DUE LISTING EACH TAXING JURISDICTION SHALL BE OBTAINED FROM THE COUNTY TREASURER OR THE COUNTY TREASURER'S AUTHORIZED AGENT;

(c) INFORMATION REGARDING SPECIAL DISTRICTS AND THE BOUNDARIES OF SUCH DISTRICTS MAY BE OBTAINED FROM THE BOARD OF COUNTY COMMISSIONERS, THE COUNTY CLERK AND RECORDER, OR THE COUNTY ASSESSOR.

NOTE:

A TAX CERTIFICATE WILL BE ORDERED FROM THE COUNTY TREASURER BY THE COMPANY AND THE COSTS THEREOF CHARGED TO THE PROPOSED INSURED UNLESS WRITTEN INSTRUCTIONS TO THE CONTRARY ARE RECEIVED BY THE COMPANY PRIOR TO THE ISSUANCE OF THE TITLE POLICY ANTICIPATED BY THIS COMMITMENT.

1114 N. 1st Street, Suite 201
P.O. Box 3738
Grand Junction, CO 81501
970/242-8234
FAX 970/241-4925

HOMES

October 29, 2002

City of Grand Junction
Public Works Department
250 N 5th Street
Grand Junction, Co. 81501

Attention: Mark Relph
Public Works Director

Dear Mark,

As we discussed on the phone today, we are in the process of starting our next filing in the Knolls Subdivision.

Over the past year or so we have had discussions with the Grand Valley Water Users Association and the Bureau of Reclamation regarding the drainage ditch which is located on the South end of our property. It is our desire to pipe and cover that ditch so that further maintenance is not necessary. Grand Valley Water Users has taken the position that covering the ditch is acceptable; however, under no circumstances can we discharge run off water into that drainage. This puts us in an awkward position as we have no where else to discharge our run off water. (See attached letter from Grand Valley's attorney Mark Hermundstad)

We are scheduling a meeting with Community Development to start our approval process but are concerned about this potential problem. It seems to me that this problem is one that is occurring in other parts of the community and needs to be resolved. Let me know if there is something we can do to help.

Best regards,

Denny Granum
President

CC: Kelly Arnold, City Manager
Bob Blanchard, Community Development Director

Williams, Turner & Holmes, P.C.

ATTORNEYS AT LAW

Mark A. Hermundstad
mherm@wth-law.com
(970) 242-6262, ext 223

September 4, 2002

Robert Knapple, Manager
O.P. Development Company, LLC
3695 Ridge Dr.
Grand Junction, CO 81506

Re: Grand Valley Water Users Association

Dear Mr. Knapple:

We represent the Grand Valley Water Users Association (the "Association"). The Association has asked us to direct this letter to you.

As you are aware from our past discussions during the construction of the initial filings for the Knolls, the Grand Valley Project is a federal reclamation project. The Grand Valley Project was constructed by the United States Bureau of Reclamation ('Reclamation") and is operated by the Association.

We understand that O.P. Development Company, LLC ("Developer") is developing Filings 6 and 7 of the Knolls subdivision (the "Subdivision"). As part of that development, the Developer may desire to take certain actions with respect to Grand Valley Project facilities. These actions, as we understand them, may include the following:

A. Relocating Grand Valley Project Lateral 2C.

B. Piping and covering Drain D, a drain ditch that is a component of the Grand Valley Project.

C. Discharging stormwater from the Subdivision into Drain D.

As the operator of the Grand Valley Project, the Association responds to development activities that may impact Grand Valley Project facilities. Our responses to the activities described above are as follows:

1. Relocation of Lateral 2C.

The Association understands that the Developer may desire to relocate Grand Valley Project Lateral 2C. Lateral 2C is a buried pipeline that runs in a north-south direction near the east boundary of the Subdivision. If Lateral 2C is left in its current

GRAND JUNCTION OFFICE
Courthouse Place Building
200 N. 6th Street
PO Box 338
Grand Junction, Colorado
81502-0338
Phone: 970/242-6262
Fax: 970/241-3026
wth-law.com

MOAB OFFICE
94 East Grand Avenue
Moab, Utah 84532-2830
Phone: 435/259-4381

location, the easement for it will run through the back yards of several of the lots in the Subdivision. You have discussed relocating Lateral 2C to run through the front yards of these lots, near one of the streets in the Subdivision.

The Association's permission is needed before any changes are made to Lateral 2C. Prior to discussing any changes to its facilities with a developer, the Association requires that the developer enter into an agreement with the Association, detailing the review process and requiring that the developer reimburse the Association for all costs incurred by the Association. We are enclosing herewith an agreement that the Association has developed for this situation. If this Agreement is acceptable to the Developer, please sign it and return it to the Association. The Association will then sign the Agreement and contact you to start the process to review the changes you request to Lateral 2C.

The Association had previously forwarded a similar agreement to you for review. You modified that agreement to provide that "untreated" storm water will not be discharged into the Grand Valley Project facilities, thus implying that storm water that is treated in some fashion could be discharged into the facilities. As discussed below, the Association can not authorize private developers to discharge urban storm water, whether treated or untreated, into the Grand Valley Project facilities. Thus, the agreement as you modified it is not acceptable to the Association.

If the Developer decides to leave Lateral 2C in its current location, without any changes to it, an appropriate easement for Lateral 2C will need to be shown on the plat of the Subdivision. If you choose this course, you should coordinate with Dick Proctor, the Manager of the Association, regarding how the easement is shown and described on the plat.

2. Piping and Covering Drain D.

Drain D is a drain ditch located near the southern boundary of the Subdivision. It is a component of the Grand Valley Project, and is operated and maintained by the Association. The Developer has indicated that it may desire to pipe and cover Drain D.

As with Lateral 2C, the Association's permission is needed before any changes are made to Drain D, and the Developer must enter into an agreement with the Association before changes to Drain D will be discussed. The enclosed agreement will apply to Drain D changes in addition to changes to Lateral 2C. Also, portions of Drain D appear to be located on property south of the Subdivision, so the owners of those neighboring properties may need to be involved in the process if changes are to be made to Drain D.

If the Developer decides to leave Drain D in its current location, without any changes to it, an appropriate easement for Drain D will need to be shown on the plat of the Subdivision. If you choose this course, you should coordinate with Dick Proctor, the Manager of the Association, regarding how the easement is shown and described on the plat.

3. Discharge of Stormwater into Drain D.

The Association understands that the Developer may desire to discharge storm water from the Subdivision into Drain D. The Association cannot authorize or allow such discharges. The Association must abide by Reclamation's directives when considering whether to allow discharges of storm water into Grand Valley Project facilities. The guidance from Reclamation to the Association on this issue states in part as follows:

> Authorization for urban storm water discharge shall only be granted to established city or county governmental entities because individual developers will be literally "here today and gone tomorrow." . . . Individual or corporate developers who apply should be advised to seek inclusion of their development within the appropriate local municipal storm drainage system. Reclamation can then do business with the local governmental entity responsible for that system.

Accordingly, the Association cannot authorize the Developer to discharge storm water from the Subdivision into Drain D. The Developer will need to make other arrangements to handle storm water from the Subdivision.

If you have any questions concerning the Association's position, please feel free to contact me.

Very truly yours,

WILLIAMS, TURNER & HOLMES, P.C.

Mark A. Hermundstad

xc: Dick Proctor

AGREEMENT

This AGREEMENT is entered into effective _____,2002, by and between **GRAND VALLEY WATER USERS ASSOCIATION**, 1147 - 24 Road, Grand Junction, Colorado 81505, Fax No. 970-243-4871 ("Association") and **O.P. DEVELOPMENT COMPANY, LLC**, 3695 Ridge Dr., Grand Junction, CO 81506, Fax No. 970-263-4045 ("Developer").

RECITALS

A. Developer is developing a subdivision known as The Knolls, Filings Six and Seven (the "Subdivision"). The real property on which the Subdivision will be located shall be referred to herein as the "Subdivision Property."

B. Certain irrigation and/or drainage facilities and easements of the Grand Valley Project are located on the Subdivision Property (collectively referred to herein as the "Project Easements").

C. The Grand Valley Project and the Project Easements are owned by the United States of America, Department of Interior, Bureau of Reclamation ("Reclamation") and are operated and maintained by the Association pursuant to a contract between the Association and Reclamation.

D. The Developer desires to relocate, pipe, cover, or otherwise alter or disturb the Project Easements (collectively referred to herein as "Development Activities"). The Association is willing to work with Developer concerning the Development Activities on the terms and conditions set forth herein.

NOW, THEREFORE, the parties agree as follows:

1. Review of Development Activities.

A. Prior to conducting any Development Activities with respect to any of the Project Easements, Developer shall submit to the Association such plans, plats and other documents as may be requested by the Association, detailing the locations or proposed relocations of the Project Easements across the Subdivision Property, the proposed Development Activities, the facilities to be constructed in the Project Easements, and any other matters required by the Association. The Association will work with Developer in good faith to determine whether the Development Activities regarding the Project Easements can be undertaken in a manner satisfactory to the Association and if so, the terms and conditions under which the Development Activities will be undertaken.

B. Nothing herein shall obligate the Association to approve the Development Activities unless those Activities meet with the satisfaction of the Association, in its sole discretion.

The Project Easements shall not be piped, covered, relocated, altered or disturbed unless and until the Association approves the proposed Development Activities.

2. Performance of Development Activities. If the Association agrees to allow the Development Activities to be undertaken, the Developer shall construct all facilities in the Project Easements in accordance with the plans approved by the Association and take such other actions regarding the Project Easements as may be directed by the Association (all of which construction and other actions shall be referred to as the "Approved Work"). All Approved Work shall be constructed and performed in a good and workmanlike manner at the cost of the Developer. Developer shall allow the Association to inspect the Approved Work while the work is being performed, but such inspections shall not relieve the Developer of its obligations under this Paragraph. Developer shall notify the Association when construction and performance of the Approved Work is completed, and the Association shall inspect the Approved Work within a reasonable time thereafter. The Developer shall promptly perform any additional or corrective work noted by the Association which is needed to bring the Approved Work into compliance with the plans approved by the Association and the provisions of this Paragraph. The Developer shall notify the Association in writing of the date on which construction and performance of the Approved Work is finally completed.

3. Location of Project Easements. All Project Easements shall be shown and described on any plats for the Subdivision in a manner acceptable to the Association, and the dedication of the Subdivision Property shall be made subject to the Project Easements. In addition, if any of the Project Easements are to be relocated and such relocations are approved by the Association, Developer and the Association shall enter into an agreement acceptable to the Association regarding the terms of such relocations, such agreement shall be recorded in the records of Mesa County prior to the approval and recording of the plat for the Subdivision, and the dedication of the Subdivision Property shall be made subject to such agreement.

4. Warranty. The Developer hereby warrants the construction and performance of the Approved Work against defects in material or workmanship for a period of two years following the completion of construction and performance of the Approved Work. If any work or material regarding the Approved Work is found to be defective during such period, Developer will, promptly upon written notice from the Association, correct the defective work at no cost to the Association. If the Developer does not promptly correct the defective work, the Association may correct it or cause it to be corrected, and the Developer shall pay to the Association on demand all costs, direct or indirect, incurred by the Association to correct the defective work.

5. Reimbursement of Association's Costs. The Developer shall reimburse the Association for all costs incurred by the Association in connection with the review of, approval of, inspection of, and other actions relating to the Development Activities, including without limitation attorneys' fees, engineering fees, out of pocket expenses, and personnel costs. The Association shall provide the Developer with a statement for such costs prior to the commencement of any of the Development Activities, and such statement shall be paid before any Development Activities are commenced. If the Association incurs additional costs after commencement of the Development Activities, Developer shall pay such costs within ten days after receiving a statement for such costs from the Association.

6. Stormwater. In 1996, Reclamation, as owner of the Grand Valley Project, adopted a policy regarding the discharge of stormwater into Reclamation facilities such as the Project Easements. The Policy states that discharges of urban stormwater into Reclamation facilities from developments such as the Subdivision shall not be authorized. The Developer hereby agrees and warrants that stormwater from the Subdivision will not be discharged on or into the Project Easements.

7. Attorneys' Fees. If Developer defaults in its performance under this Agreement, or if it is necessary for the Association to take any action to enforce the terms of this Agreement, the Association shall be entitled to recover from Developer, and Developer shall pay to the Association, all reasonable costs incurred by the Association, including without limitation court costs and attorneys' fees, regardless of whether actual litigation or court proceedings are involved.

8. Binding Effect. This Agreement is binding upon and inures to the benefit of the parties hereto, their agents, heirs, successors and assigns.

9. Controlling Law. This Agreement shall be governed under, and construed pursuant to, the laws of the State of Colorado.

10. Waiver. Failure of either party to enforce any provision of this Agreement shall not act as a waiver to prevent enforcement of the same provisions at some later time.

11. Notices. All notices or other communications required or permitted hereunder shall be in writing, and shall be personally delivered or sent by facsimile telecommunication, by overnight air express service or by certified mail, postage prepaid, return receipt requested, addressed to the parties at their respective addresses set forth in the introductory paragraph of this Agreement. Such notice or other communication shall be deemed given (i) upon receipt if delivered personally or by facsimile telecommunication, (ii) one business day after tendering to a reputable overnight air express service, and (iii) three business days after mailing if by certified mail. Notice of change of address shall be given by written notice in the manner detailed above.

WHEREFORE, the parties have executed this Agreement as of the date set forth above.

"ASSOCIATION" GRAND VALLEY WATER USERS ASSOCIATION

By: _____
Title: _____
Date: _____

"DEVELOPER" O.P. DEVELOPMENT COMPANY, LLC

By: _____
Title: _____
Date: _____

WARRANTY DEED

Book2604 Page970

Grantor(s),

DARLA M. BANKERT

1909343 06/30/99 0240PM
Monika Todd Clk&Rec Mesa County Co
RecFee $5.00 SurChg $1.00
Documentary Fee $49.00

whose address is 8023 HYGINE ROAD, LONGMONT, CO 80503

*County of MESA , State of

COLORADO , for the consideration of

Four Hundred Ninety Thousand And No/100 dollars, in hand paid, hereby sell(s)

and convey(s) to O.P. DEVELOPMENT, LLC, A COLORADO LIMITED LIABILITY COMPANY

whose legal address is 3695 RIDGE DRIVE, GRAND JUNCTION, CO 81506

County of MESA , and State of COLORADO

the following real property in the County of MESA , and State of

Colorado, to wit:

Lot 1 in Block 9 of
THE KNOLLS SUBDIVISION, FILING 2,
EXCEPT that portion conveyed to the City of Grand Junction in
instrument recorded April 23, 1999 in Book 2578 at Page 997,
Mesa County, Colorado.

TAX SCHEDULE # 2945-014-01-001

Together with any and all water, water rights, ditch and ditch rights-of-way thereunto appertaining and used in connection therewith.

also known by street and number as 640 27 1/2 ROAD, GRAND JUNCTION, CO 81506

with all its appurtenances, and warrant(s) the title to the same, subject to easements, restrictions, reservations, rights-of-way of record; 1999 taxes due and payable in 2000 and all subsequent taxes and assessments.

Signed this 28th day of June , 1999

Darla M Bankert
DARLA M. BANKERT

STATE OF COLORADO
SS.
County of MESA

The foregoing instrument was acknowledged before me this 28th day of June , 1999 ,
by DARLA M. BANKERT

My Commission expires 8/30/01

Witness my hand and official seal.

NOTARY PUBLIC
DONALD R. PARIS

Notary - DONALD R. PARIS

*If in Denver, insert "City and."

Name and Address of Person Creating Newly Created Legal Description (38-35-106.5, C.R.S.)

No. 897. Rev. 6-92. WARRANTY DEED (Short Form)

WESTERN COLORADO TITLE COMPANY
P.O. Box 178 / 521 Rood Avenue / Grand Junction, CO 81502 / (970) 243-3070

99-06-042

00137765

WARRANTY DEED

Grantor(s), William L. Davis Jr. and Catharine S. Davis Trustee, or their successors in trust, under The Bill and Kit Davis Living Trust, dated July 25, 1997, and any amendments thereto whose address is 652 27 1/2 Road, Grand Junction, CO 81506 County of Mesa, State of Colorado, for the consideration of ONE HUNDRED SIXTY THOUSAND AND 00/100 Dollars in hand paid, hereby sell(s) and convey(s) to O.P. Development Company LLC, a Colorado limited liability company whose legal address is 3695 Ridge Drive, Grand Junction, CO 81506 County of Mesa, and State of Colorado, the following real property in the County of Mesa, and State of Colorado, to wit:

Lot 1,
St. Matthews Episcopal Church Subdivision;
EXCEPT a tract of land for Roadway and Utility right-of-way purposes as conveyed to The City of Grand Junction in instrument recorded April 28, 1999, in Book 2580 at Page 347

137765

also known by street and number as 652 27 1/2 Road, Grand Junction, CO 81506
Tax Parcel Number: 2945-011-45-001

with all its appurtenances, and warrant(s) the title to the same, subject to general taxes for 2000, due and payable in 2001, and all subsequent taxes and special assessments; easements, covenants, conditions, restrictions, agreements and reservations of record; building and zoning regulations.

Signed this 15th day of August, 2000.

William L. Davis Jr. and Catharine S. Davis Trustee or their successors in trust under The Bill and Kit Davis Living Trust dated July 25, 1997 and any amendments thereto

by William L. Davis Jr. individually and as Trustee

Catharine S. Davis individually and as Trustee

State of Colorado)
)ss.
County of Mesa)

The foregoing instrument was acknowledged before me this 15th day of August, 2000 by William L. Davis Jr., individually and as Trustee and Catharine S. Davis individually and as Trustee of The Bill and Kit Davis Living Trust dated July 25, 1997 and any amendments thereto.

Witness my hand and official seal.

Notary Public
My Commission expires:

NOTARY PUBLIC JONI GREEN STATE OF COLORADO
My Commission Expires 02/12/2002

*If in Denver, insert "City and"

No. 897 Rev. 12-85

Prepared by: *First American Title Company* 00137765

[illegible] form 3000ICO Rev. 06/03/97

UTE WATER CONSERVANCY DISTRICT
560 25 Road, P.O. Box 460
Grand Junction, CO 81502

Office
Telephone: 970-242-7491
FAX: 970-242-9189

Treatment Plant
Telephone: 970-464-5563
FAX: 970-464-5443

This letter is to certify that The Knolls Subdivision, Filing 6 has satisfactorily passed a bacteria test and pressure test as required by the Ute Water Conservancy District. This letter does not imply final acceptance of the water system by the Ute Water Conservancy District.

By: [signature] Date: 5 May 04

Title: District Engineer

Pat O
get me letter
on San pressure
test 5-6-04

290

LETTER OF TRANSMITTAL

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS & LAND SURVEYORS
2777 CROSSROADS BOULEVARD
GRAND JUNCTION, COLORADO 81506
(970) 243-2242
FAX: (970) 243-3810

TO: CITY OF GRAND JUNCTION
COMMUNITY DEVELOPMENT

ATTENTION: RICK DORRIS

SUBJECT: KNOLLS FILING 6
CONST. DRAWINGS

DATE: 12/10/03
JOB NO. 4003.06

RECEIVED
DEC 10 2003
COMMUNITY DEVELOPMENT DEPT.

TRANSMITTED ARE:

- [x] For Approval
- [ ] For Your Use
- [ ] As Requested
- [ ] For Review and Comment
- [ ] Submittal Accepted
- [ ] Submittal Accepted as Noted (Resubmit)
- [ ] Submittal Returned for Revisions (Resubmit)
- [ ] Submittal Not Accepted (Submit Anew)
- [ ] Preliminary Submittal
- [ ] For Reference Only
- [ ] Distribution Copy (Previously Accepted)
- [ ] _____
- [ ] _____
- [ ] _____

COPIES	DATE	NO.	DESCRIPTION
1	12/5/03	20	CONST. DRAWINGS - ORIGINALS (FOR SIGNATURE) (SHEET 20 OF 20 SEALED 12/9/03) - REVISED PER COMMENTS
1	12/10/03	1	RESPONSES TO REVIEW COMMENTS
1	11/6/03	2	COPY OF COLORADO STORMWATER DISCHARGE CONST. ACTIVITY PERMIT
2	AUG. 8, 03		FINAL DRAIN. REPORT (ORIG. 8/8/03, REVISED & SEALED 12/10/03)

REMARKS RICK - THIS SHOULD BE EVERYTHING YOU NEED FOR FILING 6. LET ME KNOW, IF NOT. PLEASE SIGN ORIGINAL DRAWINGS AND CALL US TO COME GET THEM. I WILL MAKE 3 SETS OF PRINTS TO GIVE BACK TO YOU. THANKS.

PAT

COPY TO FILE

SIGNED Patrick M. O'Connor

REVIEW COMMENT RESPONSES - 3rd Round
December 10, 2003

THE KNOLLS SUBDIVISION, FILING 6 - FINAL PLAN
File # FPP-2003-078

These responses correspond with 3rd round review comments provided by the City of Grand Junction for the above-referenced project dated October 14, 2003.

Rick Dorris - City Development Engineer

MISCELLANEOUS

1. As discussed, all available testing data has been submitted to the City.

2. A copy of the approved Colorado Stormwater Discharge construction activity permit for this site is included with these responses.

DRAINAGE REPORT AND PLAN

3. The reports originally submitted have been revised to reflect the requested changes, stamped and signed, and are resubmitted with these responses.

4. & 5. The sump-pump in the retention pond has been upgraded to discharge 90 gpm to 27 ½ Road (through a standard sidewalk drain-trough with erosion protection) to be capable of evacuating the 100 year volume (34,028 cubic-feet, see sheet 18) in less than 48 hours. The new drawings reflect a change in location for the temporary retention pond (to the southeast corner, as discussed), they indicate overlot grading will occur on both Filings 6 and Filings 7 (as a practical matter to provide staging for the project), and they indicate an increased depth of sanitary sewers throughout the project to accommodate basements.

ADDITIONAL INFORMATION:

As discussed, this is to call your attention to the revisions recently incorporated in the new drawings you will be reviewing along with these responses:

1. Overlot grading includes entire remaining site (including future Filing 7)
2. Temporary retention pond has been moved to the southeast corner where the detention pond will ultimately be located as part of the Filing 7 design.
3. Retention-evacuation pump has been corrected to 90 gpm capacity.
4. A drain-trough has been added at the 27 ½ Road discharge location, as suggested.
5. Sanitary sewers have been lowered to accommodate basements in the project.

WESTERN
COLORADO
TESTING,
INC.

529 25 ½ Road, Suite B-101
Grand Junction, Colorado 81505
(970) 241-7700 • Fax: (970) 241-7783
E-mail: westcolotesting@qwest.net

May 3, 2004
WCT# 300404

Monument Homes
603 28 ¼ Road
Grand Junction, CO 81506

Attention: Mike Bonds

Subject: Compaction Testing Summary Letter
Pavement Base Course
The Knolls Filing 6
Grand Junction, Colorado

A representative of Western Colorado Testing, Inc (WCT) tested pavement base course for the Knolls Filing 6 on a part time basis on April 30, 2004. This is a summary letter. Please find enclosed compaction test results for pavement base course (test numbers 588 through 604) for Filing 6.

Please do not hesitate to call when we can be of further service to your project.

Respectfully Submitted:

WESTERN COLORADO TESTING, INC

Jim Huddleston
Senior Geologist

cc: Rick Doris, P.E.
City of Grand Junction
Public Works and Utilities
250 North 5th Street
Grand Junction, CO 81501

JH/ak
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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: United | Date: 4/30/04

Location: Grand Junction | Tested/Calc'd By: FJB | Date: 4/30/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 5/3/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
588	4/30/04	Briar Ridge, approximate 40' North of Autumn Ash (west)	0.5
589	4/30/04	Briar Ridge, approximate 25' North of Autumn Ash (east)	0.5
590	4/30/04	Briar Ridge, approximate 45' South of Autumn Ash (east)	0.5
591	4/30/04	Briar Ridge, approximate 35' South of Autumn Ash (west)	0.5
592	4/30/04	Autumn Ash, approximate 70' West of Briar Ridge (north)	0.5
593	4/30/04	Autumn Ash, approximate 70' West of Briar Ridge (south)	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
588	5	6.5	138.0	6.6	136.1	99	Y	3,10,13,15,18
589	5	6.5	138.0	6.7	135.4	98	Y	3,10,13,15,18
590	5	6.5	138.0	7.0	137.1	99	Y	3,10,13,15,18
591	5	6.5	138.0	7.1	139.2	100+	Y	3,10,13,15,18
592	5	6.5	138.0	8.0	134.0	97	Y	3,10,13,15,18
593	5	6.5	138.0	6.2	134.9	98	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Pavement Base course
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: United | Date: 4/30/04

Location: Grand Junction | Tested/Calc'd By: FJB | Date: 4/30/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 5/3/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
594	4/30/04	Autumn Ash, approximate 230' East of Briar Ridge (north)	0.5
595	4/30/04	Autumn Ash, approximate 230' East of Briar Ridge (south)	0.5
596	4/30/04	Autumn Ash, approximate 80' West of Woodgate (north)	0.5
597	4/30/04	Autumn Ash, approximate 70' West of Woodgate (south)	0.5
598	4/30/04	Woodgate Drive, approximate 80' East of Autumn Ash (west)	0.5
599	4/30/04	Woodgate Drive, approximate 90' East of Autumn Ash (east)	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
594	5	6.5	138.0	7.7	132.6	96	Y	3,10,13,15,18
595	5	6.5	138.0	6.5	133.5	97	Y	3,10,13,15,18
596	5	6.5	138.0	7.2	136.4	99	Y	3,10,13,15,18
597	5	6.5	138.0	7.5	135.4	98	Y	3,10,13,15,18
598	5	6.5	138.0	8.0	136.0	99	Y	3,10,13,15,18
599	5	6.5	138.0	7.6	135.0	98	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Pavement Base course

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: United | Date: 4/30/04

Location: Grand Junction | Tested/Calc'd By: FJB | Date: 4/30/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 5/3/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
600	4/30/04	Woodgate Drive, approximate 100' East of Autumn Ash (west)	0.5
601	4/30/04	Woodgate Drive, approximate 90' East of Autumn Ash (east)	0.5
602	4/30/04	Woodgate Drive, approximate 18' from center of cul-de-sac (east)	0.5
603	4/30/04	Fairwood Drive, approximate 15' West of Woodgate Dr (south)	0.5
604	4/30/04	Fairwood Drive, approximate 15' West of Woodgate Dr (north)	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
600	5	6.5	138.0	6.0	132.8	96	Y	3,10,13,15,18
601	5	6.5	138.0	6.6	134.4	97	Y	3,10,13,15,18
602	5	6.5	138.0	7.0	134.6	98	Y	3,10,13,15,18
603	5	6.5	138.0	6.7	133.8	97	Y	3,10,13,15,18
604	5	6.5	138.0	6.4	133.9	97	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
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18. Other: Pavement Base course
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

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= VISTA Copy –
CITY OF G.J. Copy

STATE OF COLORADO

Bill Owens, Governor
Douglas H. Benevento, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado

http://www.cdphe.state.co.us

Laboratory and Radiation Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

Colorado Department
of Public Health
and Environment

November 6, 2003

Michael Bonds, Vice President
Monument Homes Development, Inc.
603 28 1/4 Road Suite A
Grand Junction, CO 81506
970/263-4022

RE: Final Permit, Colorado Discharge Permit System – Stormwater
Certification No: COR-035856, Mesa County
Knolls, Filing 6 & Filing 7

Local Contact: Michael Bonds, Vice President, 970/ 234-7700

Anticipated Activity: 11/01/2003 through 12/31/2005
On 7.2 acres (7.2 acres disturbed)

Dear Sir or Madam:

Enclosed please find a copy of the permit certification that was issued to you under the Colorado Water Quality Control Act.

Your certification under the permit requires that specific actions be performed at designated times. You are legally obligated to comply with all terms and conditions of your certification.

Note that the stormwater permit for construction activities now covers construction sites disturbing down to one acre (the previous threshold was 5 acres). Effective July 1, 2002, any construction activity that disturbs at least 1 acre of land (or is part of a larger common plan of development or sale that will disturb at least 1 acre) must apply for permit coverage.

Please read the permit and certification. If you have any questions please visit our website at http://www.cdphe.state.co.us/wq/permitsunit/wqcdpmt.html, or contact Matt Czahor at (303) 692-3575.

Sincerely,

Kathryn Dolan
Stormwater Program Coordinator
Permits Unit
WATER QUALITY CONTROL DIVISION

Enclosure

xc: Regional Council of Governments
Local County Health Department
District Engineer, Technical Services, WQCD
Permit File
Fee File

CERTIFICATION

CDPS GENERAL PERMIT

STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION

Construction Activity: The construction activity includes clearing, site grading, roadway construction, utility installation, and installation of stormwater controls.

This permit specifically authorizes: **Monument Homes Development, Inc.**

to discharge stormwater from the facility identified as Knolls, Filing 6 & Filing 7

which is located at: 640 27 1/2 Road
Grand Junction, Co 81506

latitude 39/05/50, longitude 108/32/22 in Mesa County

to: Colorado River

effective: 11/05/2003

Annual Fee: $449.00 **(DO NOT PAY NOW.** You will receive a prorated bill.)

PRE-CONSTRUCTION MEETING
PRIVATE DEVELOPMENT STREET AND UTILITY CONSTRUCTION

Project: KNOLL #6
Date: 11-26-03
Developer: MIKE BONDS
Engineer: VISTA / DORRIS

Need DIA signed plans prior to work.

Schedule:
Utilities: clear 2nd wk Dec.
Concrete: may/ spring.
Other:
Streets: Prep, base, & Pave
Testing: WCT.
Other: DIRTMEISTER – DIRT.

Attendance: Brian Harris
Don Poundstone
Dave Verhyle
Mike Bonds
Mark Bauslund
Rick Dorris

Post-it® Fax Note 7671 | Date 11-26-03 | # of pages ▶ 7
To REBECCA FIFE | From RICK DORRIS
Co./Dept. | Co. CITY OF GJ
Phone # | Phone # 256-4034
Fax # 24-7783 | Fax #

Testing
- Pit Run Material in Utility Trenches (Proctor curv
- Pavement Mix Design (Prior to placing asphalt)
- Submitting Test Results (Compaction test results are to be submitted periodically)
- Compile all testing information along with a test location map and submit with as-builts at the end of the project.

Safety
- City Observation of Safety Practices / OSHA Requirements for Trenching
- Mud Tracking Streets / Dust

Plans
- Changes – Notify Engineer and City - Submit revised plans for approval and signature by City Engineer.
- Verify grades of utilities prior to street construction (red line as-builts must be submitted to the City Utility Engineer prior to paving)
- As-built surveying of stub-outs required prior to backfill (dimension from P_L, record elevation).
- Pressure testing of sewer and water lines required prior to paving and after PSCO installs their utilities.

Other
- No inverted rings/covers
- As-built detention/retention pond certification required by engineer prior to accepting improvements.
- Acceptance of the improvements as soon after construction as possible will ensure that the contractors warranty period coincides with the City's warranty period.
- Improvements will not be accepted until all items on the "punch list" are addressed.
- Final walk-through can not be scheduled until PSCO and U.S. West are finished.
- BZ concrete and blankets required from November to April.
- TRUNCATED DOMES REQUIRED ON HANDICAP RAMPS.
- SET MANHOLE RINGS SO FLUSH WITH ASPHALT AT ROADED EDGE SIDE

VI CONSTRUCTION PHASE SUBMITTALS

A. **KEY TO QUALITY** Many a well-conceived idea fell short of its potential due to lack of proper implementation. Well prepared plans followed by poor or unsupervised construction may result in an undesirable project. Having adequate and competent inspection and testing during the construction process is essential and is the key to achieving a quality product. Consequently, the City requires Quality Control and Quality Assurance inspection and testing during the construction of:

1) Facilities that will become public, such as streets, sidewalks, water, sewer, and storm drains; and
2) Facilities that may ultimately impact the public at large, such as Best Management Practices, overlot grading, private detention/retention basins, and stormwater collection and conveyance.

B. **QUALITY CONTROL** The contractor is usually responsible to the developer for Quality Control (QC) of the construction project. City-approved plans will be of specification format, and the developer or contractor as agent shall implement whatever procedures, methods, testing, surveying, and inspection that is required in order that the work conforms to specifications.

C. **QUALITY ASSURANCE** Developers are responsible for providing Quality Assurance (QA) during construction of facilities which are shown on City-approved development plans. Quality Assurance typically involves a systematic inspection of work and testing of materials and compaction, all of which serve to assure the developer (and ultimately the City) that his or her contractor is providing work that is in conformance to City-approved plans and specifications.

The following is quoted from a Colorado State Board of Registration publication:

Rule XVII - Construction Supervision

Section 12-25-102(10) of the Colorado Revised Statutes defines the ".... supervision of construction for the purpose of assuring compliance with specifications and design..." as the practice of engineering. Supervision of construction for the purpose of assuring compliance with specifications and design includes, but is not limited to the following activities:

1. *Observing construction operations and interpreting the project plans and specifications to monitor compliance with the plans, specifications and the purpose of the design;*

2. *Providing or reviewing documentation concerning compliance with plans and specifications (For purposes of this rule, documentation shall include but not be limited to, shop drawings, samples, test data, and performance data for components);*

3. *Identifying design problems due to actual field conditions encountered; or*

4. *Evaluation or analysis of the testing of materials, equipment or systems for acceptance, when appropriate to the project.*

A person who is performing, or is obligated to perform, any of the above listed activities is engaging in the practice of engineering and must either be licensed as a Professional Engineer in Colorado or must be supervised by a Colorado Professional Engineer.

D. CITY INSPECTION In addition to Quality Control and Quality Assurance provided by the contractor and developer, the City reserves the right to observe the construction of facilities identified in sub-section "A" above. The developer shall notify the City Public Works Department at 244-1555 of construction activity that is ready to commence. As time permits, a City inspector will make periodic observations as the work progresses. Such inspection of work by the City does not relieve the developer nor contractor of their duties regarding inspection, monitoring, and testing.

E. CONSTRUCTION SEGMENTATION As construction proceeds, the quality or acceptability of work often depends upon the quality of work which precedes it. Hence the common practice will be required of having QC/QA inspections and approvals at various stages in the construction effort in order to avoid unnecessary removal of previous work.

F. CONSTRUCTION PHASE SUBMITTAL CHART A chart has been prepared which identifies various steps of construction activity and corresponding submittal items. Depending on the type and size of project involved, some of the items may not be necessary. The chart will be completed by City Staff, and submitted to the developer along with City-approved plans prior to the commencement of construction. Only those items with shaded-in circles will be required.

CONSTRUCTION PHASE SUBMITTAL CHART

Location:_____ Project Name:_____

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: KNOLLS #6
Location: _____
Developer: _____
Engineer: _____
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: NEEDED

Pre-Construction Meeting: 1-26-03
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: NO

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.

✓ As-Built Drawings (Reference SSID IX-5,6,~~X~~,8,9) irrigation - not required

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

✓ 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)

250-6393

CONSTRUCTION PHASE SUBMITTAL CHECKLIST

Location: _____ Project Name: _____

STEP	ACTIVITY	SUBMITTAL ITEMS	SSID REF.
1	Pre-construction	● City Approval of Construction Drawings ● Pre-construction Notice ○ Work within Public ROW Permit ● NPDES Permit (greater than 1 acre site) ○ Improvements Agreement/Guarantee ○ _____ ○ _____	VII-5 VII-5 VII-5 VII-5 VII-2,3
2 _____ Sign and date Rich Bowers Sign and date	Grading Street Rough Cut Sanitary Sewer Water Irrigation Other Utilities Sub-grade Base Course Concrete Placement OKAY FOR CONCRETE PTC = Prior to concrete 5-6-04 OKAY FOR PAVEMENT PTP = Prior to Pavement	● Construction Report: Grading and Pipeline Phase PTC ● Construction Report: Concrete and Pavement Prep ● Revised Asphalt Design (if necessary) PTP ● Request City Lamping of Sewerline PTC ● Complete Compaction Tests for all utilities, subgrade, and base course under concrete. All at once just prior to concrete construction. PTC ● Letter from water purveyor stating passage of pressure and disinfection tests PTP ● Sanitary sewer pressure test after wet utility installation. PTP ● Redlined Sanitation Sewer As-Builts PTC ● Redlined Storm Sewer As-Builts PTC ● Complete CompactionTests for base course under asphalt. All at once just prior to pavement. PTP ○ _____ ○ _____	X-4 X-3 VII-6 VII-5 VII-6 VII-6 VII-6
3	Asphalt Pavement Dry Utilities Traffic Control Facilities Monumentation Permanent On-Site Benchmark (Subdivisions Only)	● Complete QA Reports for asphalt and concrete. ● Construction Report: Concrete and Pavement Placement ● Complete Set of As-Built Drawings ● Request for City Initial Inspection ● Letter from PE stating passage of sanitary sewer pressure test after dry utility installation. ○ _____	X-2 IX-3 to IX-7 VII-6 VII-6
4	Warranty Period	● Request for City Final Inspection	VII-6

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 reproducible drawings. A copy of this form, which has been completed for the specific project and one completed copy of Form VI-4 and VI-5 will be transmitted to the developer at the preconstruction meeting.
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 two working days.
3. The "OKAY FOR CONCRETE" and "OKAY FOR PAVEMENT" lines must be signed by the Construction Inspector or the Development Engineer prior to placing concrete or asphalt. No concrete or asphalt shall be placed without these signatures. IT IS **THE DEVELOPER'S RESPONSIBILITY TO OBTAIN THESE SIGNATURES.**

Distribution for Signatures: Construction Inspector and Development Engineer

KNOLLS SUBDIVISION
TOP OF CONCRETE ELEVATION TABULATION
9/26/03

LOT	BLOCK	ADDRESS	(MINIMUM) T.C. ELEV.	(MAXIMUM) T.C. ELEV.
1	1	____ BRIAR RIDGE WAY	4728.0	4731.0
2	1	____ BRIAR RIDGE WAY	4722.0	4727.0
1	2	____ AUTUMN ASH AVENUE	4721.0	4732.5
1	2	____ BRIAR RIDGE WAY	4721.0	4732.5
2	2	____ AUTUMN ASH AVENUE	4731.5	4735.5
3	2	____ AUTUMN ASH AVENUE	4733.0	4736.0
4	2	____ AUTUMN ASH AVENUE	4726.5	4734.0
5	2	____ AUTUMN ASH AVENUE	4715.0	4727.5
5	2	____ WOODGATE DRIVE	4715.0	4727.5
1	3	____ AUTUMN ASH AVENUE	4728.0	4732.0
1	3	____ BRIAR RIDGE WAY	4728.0	4732.0
2	3	____ AUTUMN ASH AVENUE	4732.0	4735.0
3	3	____ AUTUMN ASH AVENUE	4733.5	4736.0
4	3	____ AUTUMN ASH AVENUE	4727.0	4734.0
5	3	____ AUTUMN ASH AVENUE	4722.0	4729.0
5	3	____ WOODGATE DRIVE	4722.0	4729.0
6	3	____ WOODGATE DRIVE	4729.0	4736.0
6	3	____ FAIRWOOD PLACE	4729.0	4736.0
1	4	____ FAIRWOOD PLACE	4734.0	4736.0
2	4	____ FAIRWOOD PLACE	4733.5	4735.5
3	4	____ WOODGATE DRIVE	4731.5	4734.5
4	4	____ WOODGATE DRIVE	4726.5	4732.5
5	4	____ WOODGATE DRIVE	4720.5	4727.5
6	4	____ WOODGATE DRIVE	4716.0	4720.5

NOTE:

MINIMUM T.C. ELEVATIONS MUST BE 12" (MINIMUM) ABOVE THE BACK-OF-WALK ELEVATION PERPENDICULAR TO THE FOUNDATION (TO CREATE POSITIVE DRAINAGE TO THE STREET AND AWAY FROM FOUNDATION). MAXIMUM T.C. ELEVATIONS MUST NOT CREATE DRIVEWAY SLOPES IN EXCESS OF ALLOWABLE MAXIMUMS OR SIDE-SLOPES AWAY FROM FOUNDATIONS IN EXCESS OF 3:1 (HORIZ:VERT). THE WIDE RANGE OF ELEVATIONS IS NECESSARY, AT THIS TIME, DUE TO UNCERTAINTY IN FINAL BUILDING LOCATIONS.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS & LAND SURVEYORS

September 26, 2003

RE: **The Knolls Subdivision**, Filing 6

Mr. Rick Dorris
City of Grand Junction - Development Engineer
Grand Junction, CO 81501

Dear Mr. Dorris:

A Grading Plan for the above-referenced subdivision, as prepared by **Vista Engineering Corporation**, with latest revisions dated **September 26, 2003**, along with a copy of the project geotechnical report, has been submitted to the **Mesa County Building Department** for their records and files. Information contained on this Grading Plan is also enclosed on the attached page which provides minimum and maximum "top-of-concrete" elevations (labeled "T.C." - table dated 9/26/03) for foundations of homes constructed within the development. It is understood that this information will be utilized by the Building Department at the time of Building Permit execution.

Sincerely,

VISTA ENGINEERING CORP.

COLORADO REGISTERED PATRICK M. O'CONNOR 20759 9/26/03 PROFESSIONAL ENGINEER

Patrick M. O'Connor, P.E.
Project Manager

Acknowledged By:

Bob Lee, **Mesa County Building Dept.** — 9-25-03 Date

2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242 • FAX: (970) 243-3810

DEVELOPMENT IMPROVEMENTS AGREEMENT

1. **Parties:** The parties to this Development Improvements Agreement ("the Agreement" or "Agreement") are O.P. Development Co., LLC ("the Developer") and **THE CITY OF GRAND JUNCTION**, Colorado ("the City" or "City").

FOR valuable consideration, the receipt and adequacy of which is acknowledged, the Parties agree as follows:

2. **Effective Date:** The Effective Date of the Agreement will be the date that this agreement is signed which shall be no sooner than recordation of the final plat or final plan approval whichever first occurs.

RECITALS

The Developer seeks permission to develop property within the City to be known as The Knolls Subdivision, Filing 6, which property is more particularly described on Exhibit A attached and incorporated by this reference ("the Property" or "Property"). The City seeks to protect the health, safety and general welfare of the community by requiring the completion of various improvements in the Property and limiting the harmful effects of substandard developments. The purpose of this Agreement is to protect the City from the cost of completing necessary improvements itself and is not executed for the benefit of materialmen, laborers, or others providing work, services or material to the Developer and/or the Property or for the benefit of the owners, purchasers or users of the Property. The mutual promises, covenants, and obligations contained in this Agreement are authorized by state law, the Colorado Constitution and the City's land development ordinances.

DEVELOPER'S OBLIGATION

3. **Improvements:** The Developer will design, construct and install, at its own expense, those on-site and off-site improvements listed on Exhibit B attached and incorporated by this reference ("the Improvements" or "Improvements"). The Developer agrees to pay the City for inspection services performed by the City, in addition to amounts shown on Exhibit B. The hourly rate of "in-house" City inspection services is $45.00 per hour. The scope of this project is such that the City may have to engage independent consultant(s) to adequately provide inspection services; Developer agrees to pay such costs, in addition to all others for which Developer is responsible hereunder. The Developer's obligation to complete the improvements is and will be independent of any obligations of the City contained herein.

4. **Security:** To secure the performance of its obligations under this Agreement the Developer shall supply a guarantee in a form and with terms acceptable to the City. A copy of which or a memorandum thereof is attached as Exhibit C.

5. **Standards:** The Developer shall construct the Improvements according to the standards and specifications required by the City Engineer or as adopted by the City.

6. **Warranty:** The Developer warrants that the Improvements, each and every one of them, will be free from defects for a period of twelve (12) months from the date that the City Engineer accepts or approves the last Improvement completed by the Developer.

7. **Commencement, Completion and Abandonment Periods:** The Developer will commence work on the Improvements within 14 days from the Effective Date of this Agreement _____ *(set date)* ("the Commencement Period") and the Improvements, each and every one of them, shall be completed by the end of the 12TH month from the Effective Date of this Agreement _____*(set date)* (the "Completion Period"). The Developer shall not cease construction activities for any period of more than 60 consecutive days ("the Abandonment Period").

8. **Compliance with Law:** The Developer shall comply with all applicable federal, state and local laws, ordinances and regulations in effect at the time of final approval when fulfilling its obligations under this Agreement. When necessary to protect the public health, safety or welfare, the Developer shall be subject to laws, ordinances and regulations that become effective after final development approval.

9. **Notice of Defect:** The Developer's Engineer shall provide timely notice to the Developer, contractor, issuer of security and the City Engineer whenever inspection reveals, or the Developer's Engineer otherwise has knowledge, that an improvement does not conform to City standards and any specifications approved in the development application or is otherwise defective. The Developer will have thirty (30) days from the issuance of such notice to correct the defect. The City may grant reasonable extensions.

10. **Acceptance of Improvements:** The City's final acceptance and/or approval of Improvements will not be given or obtained until the Developer presents a document or documents, for the benefit of the City, showing that the Developer owns the Improvements in fee simple or as accepted by the City Attorney and that there are no liens, encumbrances or other restrictions other than those that have been accepted by the City Attorney on the Improvements. Approval and/or acceptance of any Improvements does not constitute a waiver by the City of any rights it may have on account of any defect in or failure of the Improvement that is detected or which occurs after approval and/or acceptance.

11. **Reduction of Security:** After the acceptance of any Improvement, the amount which the City is entitled to draw on the guarantee will be reduced by an amount equal to 90 percent of the estimated cost of such Improvement as shown in Exhibit B. At the written request of the Developer, the City will execute a certificate verifying the acceptance of the Improvement and waiving its right to draw on the guarantee to the extent of such amount. A Developer in default under this Agreement will have no right to such certification. Upon the acceptance of all of the Improvements the remaining balance that may be drawn under the guarantee shall be available to the City for 90 days after the expiration of the warranty period.

12. **Use of Proceeds:** The City will use funds deposited with it, drawn or guaranteed pursuant to any written agreement entered into between the parties only for the purpose of completing the Improvements or correcting defects in or failure of the Improvements.

13. **Events of Default:** The following conditions, occurrences or actions will constitute a default by the Developer during the Completion Period:

a. Developer's failure to complete each portion of the Improvements in conformance with the time schedule provided in paragraph number seven (7.), above;

b. Developer's failure to demonstrate reasonable intent to correct defective construction of any Improvement within the applicable correction period;

c. Developer's insolvency, the appointment of a receiver for the Developer or the filing of a voluntary or involuntary petition in bankruptcy respecting the Developer; in such event the City may immediately declare a default without prior notification to the Developer;

d. Notification to the City, by any lender with a lien on the property, of a default on an obligation; the City may immediately declare a default without prior notification to the Developer;

e. Initiation of any foreclosure action of any lien or initiation of mechanics lien(s) procedure(s) against the Property or a portion of the Property or assignment or conveyance of the Property in lieu of foreclosure; the City may immediately declare a default without prior notification to the Developer.

Unless specifically provided herein the City may not declare a default until written notice has been sent to the Developer at the address on file with the development application. Notice is and shall be deemed effective two calendar days after mailing thereof by first class United States mail, postage prepaid.

14. **Measure of Damages:** The measure of damages for breach of this Agreement by the Developer will be the reasonable cost of satisfactorily completing the Improvements plus reasonable City administrative expenses. Administrative expenses may include but are not limited to contracting costs, collection costs and the value of planning, engineering, legal and administrative staff time devoted to the collection/completion of the Improvements. For Improvements upon which construction has not begun, the estimated costs of the Improvements as shown on Exhibit B will be *prima facie* evidence of the minimum cost of completion, however, neither that amount or the amount of a letter of credit, the subdivision improvements disbursement agreement or cash escrow or other guarantee establish the maximum amount of the Developer's liability.

15. **City's Rights Upon Default:** When any event of default occurs, the City may draw on the letter of credit, escrowed collateral, or proceed to collect any other security to the extent of the face amount of the credit or full amount of escrowed collateral, cash, or security less ninety percent (90%) of the estimated cost (as shown on Exhibit B) of all Improvements previously accepted by the City or may exercise its rights to disbursement of loan proceeds or other funds under the improvements disbursement agreement. The City will have the right to complete Improvements itself or it may contract with a third party for completion, and the Developer grants to the City, its successors, assigns, agents, contractors, and employees, a nonexclusive right and easement to enter the Property for the purposes of constructing, reconstructing, maintaining and repairing such Improvements. Alternatively, the City may assign the proceeds of the letter of credit, the improvements disbursement agreement, the escrowed collateral, cash, or other funds or assets to a subsequent developer (or lender) who has acquired the Property by purchase, foreclosure or otherwise who will then have the same rights of completion as the City if and only if the subsequent developer (or lender) agrees in writing to complete the unfinished Improvements and provides to the City reasonable security for the obligation. In addition, the City may also enjoin the sale, transfer, or conveyance of lots within the development, until the Improvements are completed or accepted. These remedies are cumulative in nature and are in addition to any other remedies the City has at law or in equity.

16. **Indemnification:** The Developer expressly agrees to indemnify and hold the City, its officers, employees, agents and assigns harmless from and against all claims, costs and liabilities of every kind and nature, for injury or damage received or sustained by any person or entity in connection with, or on account of the performance or non-performance of work at the Property or the Property being developed pursuant to this Agreement. The Developer further agrees to aid and defend the City in the event that the City is named as a defendant in an action concerning the performance or non-performance of work pursuant to this Agreement. The Developer further agrees to aid and defend the City in the event that the City is named as a defendant in an action concerning the performance of work pursuant to this Agreement except where such suit is brought by the Developer against the City. The Developer is not an agent or employee of the City.

17. **No Waiver:** No waiver of any provision of this Agreement by the City will be deemed or constitute a waiver of any other provision, nor will it be deemed or constitute a continuing waiver unless expressly provided for by a written amendment to this Agreement signed by both the City and the Developer; nor will the waiver of any default under this Agreement be deemed a waiver of any subsequent default or defaults of the same type. The City's failure to exercise any right under this Agreement will not constitute the approval of any wrongful act by the Developer or the acceptance of any Improvement.

18. **Amendment or Modification:** The parties to this Agreement may amend or modify the Agreement only by written instrument executed on behalf of the City by the City Manager or his designee and by the Developer or his authorized officer. Such amendment or modification shall be properly notarized before it may be deemed effective.

19. **Attorney's Fees:** Should either party be required to resort to litigation to enforce the terms of this Agreement, the prevailing party, plaintiff or defendant, will be entitled to costs, including reasonable attorney's fees and expert witness fees, from the opposing party. If relief is awarded to both parties, the attorney's fees may be equitably divided between the parties by the decision maker.

20. **Vested Rights:** The City does not warrant by this Agreement that the Developer is entitled to any other approval(s) required by the City, if any, before the Developer is entitled to commence development or to transfer ownership of the Property being developed.

21. **Integration:** This Agreement, together with the exhibits and attachments thereto constitutes the entire agreement between the parties and no statement(s), promise(s) or inducement(s) that is/are not contained in this Agreement will be binding on the parties.

22. **Third Party Rights:** No person or entity who or which is not a party to this Agreement will have any right of action under this Agreement.

23. **Time:** For the purpose of computing the Abandonment and Completion Periods, and time periods for City action, such times in which war, civil disasters, or acts of God occur or exist will not be included if such times prevent the Developer or City from performing its obligations under the Agreement.

24. **Severability:** If any part, term, or provision of this Agreement is held by a court or courts of competent jurisdiction to be illegal or otherwise unenforceable, such illegality or unenforceability will not affect the validity of any other part, term, or provision and the rights of the parties will be construed as if the part, term, or provision was never part of the Agreement.

25. **Benefits:** The benefits of this Agreement to the Developer are personal and may not be assigned without the express written approval of the City. Such approval may not be unreasonably withheld, but any unapproved assignment is void. Notwithstanding the foregoing, the burdens of this Agreement are personal obligations of the Developer and also will be binding on the heirs, successors and assigns of the Developer and shall be a covenant(s) running with the Property. There is no prohibition on the right of the City to assign its rights under this Agreement. The City will expressly release the original Developer's guarantee or obligations if it accepts new security from any developer or lender who obtains the Property, however, no other act of the City will constitute a release of the original Developer from his liability under this Agreement. When the Improvements are completed and approved by the City, the City agrees to state same in writing, with appropriate acknowledgments. The City will sign a release only after all warranty periods, as extended by litigation, repair or alteration work, have expired.

26. **Notice:** Any notice required or permitted by this Agreement will be deemed effective two calendar days after deposit with the United States Postal Service, first class, postage prepaid and addressed as follows:

If to Developer: O.P. Development Co, LLC
3695 Ridge Drive
Grand Jct., CO 81506

If to City: City of Grand Junction
Community Development Director
250 N. 5th Street
Grand Junction, Colorado 81501

27. **Recordation:** Developer will pay for all costs to record this Agreement or a Memorandum thereof in the Clerk and Recorder's Office of Mesa County, Colorado.

28. **Immunity:** Nothing contained in this Agreement constitutes a waiver of the City's sovereign or other immunity under any applicable law.

29. **Personal Jurisdiction and Venue:** Personal jurisdiction and venue for any action commenced by either party to this Agreement whether arising out of or relating to the Agreement, letter of credit, improvements disbursements agreement, or cash escrow agreement or any action to collect security will be deemed to be proper only if such action is commenced in Mesa County, Colorado. The Developer expressly waives his right to bring such action in or to remove such action to any other court whether state or federal.

30. a. **Conditions of Acceptance**: The City shall have no responsibility or liability with respect to any street, or other improvement(s), notwithstanding the use of the same by the public, unless the street or other improvements shall have been finally accepted by the City.

b. **Phased Development**: If the City allows a street to be constructed in stages, the Developer of the first one-half street opened for traffic shall construct the adjacent curb, gutter and sidewalk in the standard location and shall construct the required width of pavement from the edge of gutter on his side of the street to enable an initial two-way traffic operation without on-street parking. That Developer is also responsible for end-transitions, intersection paving, drainage facilities, and adjustments to existing utilities necessary to open the street to traffic.

c. Prior to requesting final acceptance of any street, storm drainage facility, or other required improvement(s), the Developer shall: (i) furnish to the City engineer as-built drawings in reproducible form, blueline stamped and sealed by a professional engineer and in computer disk form and copies of results of all construction control tests required by City specification; (ii) provide written evidence to the City Engineer under signature of a qualified expert that the earth, soils, lands and surfaces upon, in and under which the improvements have been constructed, or which are necessary for the improvements, are free from toxic, hazardous or other

regulated substances or materials: (iii) provide written evidence to the City Attorney that the title to lands underlying the improvements are free and clear from all liens and encumbrances, except those items and encumbrances which may be approved in writing by the City Attorney.

City of Grand Junction
250 North Fifth Street
Grand Junction CO 81501

_____

Director of Community Development date

Attest:

_____

City Clerk date

By:_____

Developer date

Name (printed): _____

Its (position): _____

Attest:

_____

Secretary date

TYPE LEGAL DESCRIPTION BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE INCH MARGIN ON EACH SIDE.

EXHIBIT A

Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 18, Pages 95-96, in the records of the Mesa County Clerk and Recorder. Located in the NW 1/4 of the SE 1/4 of Section 1, Township 1 South, Range 1 West, of the Ute Meridian, City of Grand Junction, State of Colorado.

	TOTAL UNITS	UNIT QTY.	TOTAL PRICE	AMOUNT
10. Bonds				
11. Newsletters				
12. General Construction Supervision				
13. Other _____				
14. Other _____				

TOTAL ESTIMATED COST OF IMPROVEMENTS: $ _____

SCHEDULE OF IMPROVEMENTS:

I. SANITARY SEWER_____

II. DOMESTIC WATER_____

III. STREETS_____

IV. LANDSCAPING_____

V. MISCELLANEOUS_____

I have reviewed the estimated costs and time schedule shown above and based on the plans and the current costs of construction agree to construct and install the Improvements as required above.

_____

SIGNATURE OF DEVELOPER date
(If corporation, to be signed by president and attested to by secretary together with the corporate seals.)

Reviewed and approved.

_____

CITY ENGINEER date

_____

COMMUNITY DEVELOPMENT date

EXHIBIT B

IN RE: The Knolls Subdivision - Filing 6
LOCATION: 27 1/2 Road, South of Piazza Way
DATE: April 14, 2003

Intending to be legally bound, the undersigned subdivider hereby agrees to provide throughout this subdivision as shown on the above named subdivision plat dated this _____Day of _____, 2003, the following improvements to the City of Fruita or special district standards.

ITEM #	DESCRIPTION	QUANITY	UNITS	E.A.P UNITS	TOTAL COST
203	Clearing and Grubbing	1	L.S.	$ 2,000.00	$2,000.00
203	Embankment Material	26,800	Cu Yd	$ 2.50	$67,000.00
203	Uclassified Excavation	32,500	Cu Yd	$ 2.00	$65,000.00
304	8" Aggregate Base Course	1,990	Ton	$ 11.25	$22,387.50
304	Subgrade stabilization	40	Ton	$ 15.00	$600.00
401	3" Bituminous Pavement	750	Ton	$ 36.00	$27,000.00
603	4" SDR-35 PVC Pipe (Service)	1,589	Lin. Ft.	$ 10.00	$15,890.00
603	8" SDR - 35 PVC Pipe (Main)	2,372	Lin. Ft.	$ 14.00	$33,208.00
603	15" HDPE storm drain	20	Lin. Ft.	$ 25.00	$500.00
603	15" RCP storm drain	246	Lin. Ft.	$ 25.00	$6,150.00
603	18" RCP strom drain	176	Lin. Ft.	$ 30.00	$5,280.00
603	Strom drain manhole	2	Ea.	$ 1,200.00	$2,400.00
603	Strom drain outlet structure	1	Ea.	$ 2,500.00	$2,500.00
604	Sanitary Sewer Manhole	11	Ea.	$ 1,500.00	$16,500.00
608	6.5' driveover curbwalk w/base	2,540	Lin. Ft.	$ 17.50	$44,450.00
608	8" V-Pans	336	Sq. Ft.	$ 3.00	$1,008.00
608	8" Corner Fillets and Curb Ramp	1,323	Sq. Ft.	$ 3.00	$3,969.00
614	Mailbox, gang mailbox	1	Ea.	$ 500.00	$500.00
614	Street Light Standard	4	Ea.	$ 1,200.00	$4,800.00
614	Traffic signs and sogn panels	3	Ea.	$ 200.00	$600.00
614	Barricade, end of road panels	2	Ea.	$ 500.00	$1,000.00
615	4" PVC irrigation pipe, Class 160	1,570	Lin. Ft.	$ 8.00	$12,560.00
615	4" Ball valve	1	Ea.	$ 75.00	$75.00
615	8" C-900 Sleeves	90	Lin. Ft.	$ 15.00	$1,350.00
615	Risers, irrigation - 1" w/ ball valve	14	Ea.	$ 80.00	$1,120.00
619	8" C-900 Class 150, PVC Pipe	1,397	Lin. Ft.	$ 18.00	$25,146.00
619	Sewer line encasement	3	Ea.	$ 400.00	$1,200.00
619	8" Gate Valve	6	Ea.	$ 550.00	$3,300.00
619	Fire Hydrant	2	Ea.	$ 2,350.00	$4,700.00
619	3/4" type K copper SERVICES	737	Lin. Ft.	$ 9.00	$6,633.00
619	Tie connection to exist. 8" waterline	2	Ea.	$ 500.00	$1,000.00
619	8" Plug or cap/2" tapped plug	2	Ea.	$ 500.00	$1,000.00
	SUB-TOTAL				$380,826.50
	SUPERVISION	1	L.S.	4%	$15,233.06
	ESTIMATED PROJECT COST				$396,059.56
	PERFORMANCE BOND			110%	$435,665.52

EXHIBIT C

_____ (Bank Name)

Grand Junction, Colorado

Date:_____

IRREVOCABLE LETTER OF CREDIT

Dear Sirs:

We hereby open our irrevocable credit in your favor available by your draft(s) at sight on us for a sum not exceeding $_____ for the account of _____ ("Developer"), to be accepted by your signed statement that drawing is due to default or failure to perform by Developer with respect to Improvements required on or before _____) a development occurring within the City of Grand Junction, Colorado. Acting through the City Attorney you will notify us when either:

1. The Improvements have been timely completed and the warranty period has terminated and the credit may be released; or

2. The Developer has failed to perform or is in default. Notice shall be signed by the City Attorney or the Attorney's designee. Proof of default or a statement from any other party shall not be required.

All drafts drawn hereunder must be by sight draft marked: "Drawn under _____(bank name), Credit No._____, dated _____."

The original of the credit must be presented along with any such draft.

The amount of any draft drawn under this credit must, concurrently with negotiation, be endorsed on the reverse side hereof and the presentment of any such draft will be a warranty by the negotiating bank that such endorsement has been made and that document(s) have been forwarded as herein required.

Except so far as otherwise expressly stated herein, this credit is subject to the Uniform Customs and Practices for Commercial Documentary Credits fixed by the 13th Congress of the International Chamber of Commerce.

We hereby agree with the drawers, endorsers and bona fide holders of drafts under and in compliance with the terms of this credit that the same will be duly honored and payment made no later than 3 (three) days after due presentation of the credit and delivery of document(s) as specified on or before the date written in the first paragraph above or as the same may be extended.

_____ (Bank Name)

by:_____
Authorized Officer Signature

Attest:

by:_____
Authorized Officer Signature (Corporate Seal)

copy for file

DEVELOPMENT IMPROVEMENTS AGREEMENT

1. **Parties:** The parties to this Development Improvements Agreement ("Agreement") are O.P. Development, LLC ("Developer") and the **City of Grand Junction**, Colorado ("City").

For valuable consideration, the receipt and adequacy of which is acknowledged, the Parties agree as follows:

2. **Effective Date:** The Effective Date of the Agreement shall be the date that it is signed by the Community Development Director, which shall be no sooner than recordation of the final plat or final plan approval whichever first occurs.

RECITALS

The Developer seeks permission to develop property, described on Exhibit A attached and incorporated by this reference ("the Property" or "Property"). The Property, known as **The Knolls Subdivision, Filing 6** has been reviewed and approved under Community Development file # FPP-2003-078 ("Development" or "the Development").

The City seeks to protect the health, safety and general welfare of the community by requiring the completion of various improvements to the Property and limiting the harmful effects of substandard development.

A further purpose of this Agreement is to protect the City from the cost of completing necessary improvements itself; this Agreement is not executed for the benefit of materialmen, laborers or others providing work, services or material to the Developer and/or the Property or for the benefit of the owner(s), purchaser(s) or user(s) of the Property.

The mutual promises, covenants and obligations contained in this Agreement are authorized by state law, the Colorado Constitution and City's land development ordinances and regulations.

DEVELOPER'S OBLIGATION

3. **Improvements:** The Developer shall design, construct and install, at its own expense, those on-site and off-site improvements listed on Exhibit B attached and incorporated by this reference ("Improvements" or "the Improvements").

3a. On and after the Effective Date of this Agreement the Developer agrees to pay the City for its Administration and Inspection of the Development. The hourly rate for those services is $45.00/hour. Administration and Inspection includes but is not limited to the time expended by the City's planner, engineer, construction inspector and attorney in directing, advising, correcting and enforcing by means other than

litigation, this agreement and/or the approved development plan. Making disbursements and calling/collecting Guarantees are Administration and Inspection services and shall be charged at $45.00/hour. See, paragraph 19 concerning attorneys'/ litigation fees.

3b. The scope of this project is such that the City may have to engage independent consultants(s) to adequately provide inspection services; Developer agrees to pay such costs, in addition to all others for which Developer is responsible hereunder.

3c. The Developer's obligation to complete the Improvements is and shall be independent of any obligations of the City contained herein.

434,650.00 RHD MSR

4. **Security:** To secure the performance of its obligations under this Agreement the Developer shall supply a guarantee. The Developer is required to post security in an amount of $~~521,580.02~~ _____ (120% of the amount for the Improvements) in a form and with terms acceptable to the City ("Guarantee"). The Guarantee shall be in the form of a cash deposit made to the City, a letter of credit or a disbursement agreement in a form and with content approved by the City Attorney. The Guarantee specific to this Agreement is attached as Exhibit C and is incorporated by this reference as if fully set forth.

Select one: Cash ____ Letter of Credit (LOC) ____ Disbursement Agreement X

5. **Standards:** The Developer shall construct the Improvements according to the City's standards and specifications.

6. **Warranty:** The Developer shall warrant the Improvements for one year following Acceptance by the City. "Warrant" or "Warranty" as used herein means the Developer shall take such steps and incur such costs as may be needed so that the Improvements or any portion or phase thereof as repaired and/or replaced, shall comply with the Development's construction plans and/or site plan, City standards and specifications at the end of the warranty period. The Developer shall warrant each repaired and/or replaced Improvement or any portion or phase thereof for one year following Acceptance of such repair and/or replacement.

6a. Upon Acceptance the Developer shall provide a Maintenance Guarantee in an amount of $**72,441.67** _____ (Line G2, Exhibit B, City Security).

6b. The Maintenance Guarantee shall be secured by a letter of credit, cash escrow or other form acceptable to the City.

7. **Commencement, Completion and Abandonment Periods:** The Developer shall commence work on the Improvements within 30 days from the Effective Date of this Agreement; that date is known as the "Commencement Date."

7a. The Developer shall complete the Improvements by the end of the twelfth month from the Effective Date of this Agreement; that date is known as the "Completion Date."

7b. The Developer shall not cease construction for any period of more than 60 consecutive days. If construction is ceased for 60 or more consecutive days the Director may deem the Development abandoned ("the Abandonment Period").

7c. The Commencement date and the Completion Date are as follows:

Commencement Date: December 10, 2003
Completion Date: December 10, 2004

8. **Compliance with Law:** The Developer shall comply with all applicable federal, state and local laws, ordinances and regulations when fulfilling its obligations under their Agreement. When necessary to protect the public health, safety or welfare, the Developer shall be subject to laws, ordinances and regulations that become effective after the Effective Date.

9. **Notice of Defect:** The Developer by and through his/her/its engineer shall provide timely written notice to the issuer of the Guarantee and the Director when the Developer and/or his/her/its engineer has knowledge, that an Improvement or any part or portion of any Improvement either does not conform to City standards or is otherwise defective.

9a. The Developer shall correct all non-conforming construction and/or defects within thirty (30) days from the issuance of the notice by his/her/its engineer of a/the defect.

10. **Acceptance of Improvements:** The City shall not accept and/or approve any or all of the Improvements until the Developer presents a document or documents for the benefit of the City showing that the Developer owns the Improvements in fee simple, or as accepted by the City Attorney, and that there are no liens, encumbrances or other restrictions on the Improvements other than those that have been accepted by the City Attorney.

10a. Approval and/or acceptance of any Improvement(s) does not constitute a waiver by the City of any right(s) that it may have on account of any defect in or failure of the Improvement that is detected or which occurs after approval and/or acceptance.

10b. Acceptance by the City shall only occur when the City Engineer, sends a writing to such effect ("Acceptance").

11. **Reduction of Security:** Upon Acceptance of any Improvement(s) the amount which the City is entitled to draw on the Guarantee shall be reduced by an amount of $362,208.35 (Line G1, Exhibit B, Total Improvement Costs).

11a. At the written request of the Developer, the City shall execute a certificate verifying Acceptance of the Improvement and thereafter waiving its right to draw on the Guarantee to the extent of such amount. A Developer in default under this Agreement has no right to such certification.

12. **Use of Proceeds:** The City shall use funds deposited with it, drawn or guaranteed pursuant to this Agreement only for the purpose of completing the Improvements or correcting defects in or failure of the Improvements or paying Administration and Inspection fees.

13. **Events of Default:** The following conditions, occurrences or actions shall constitute a default by the Developer:

13a. Developer's failure to complete each portion of the Improvements on or before the Completion Date;

13b. Developer's failure to demonstrate reasonable intent to correct defective construction of any Improvements within the applicable warranty period;

13c. Developer's insolvency, the appointment of a receiver for the Developer or the filing of a voluntary or involuntary petition in bankruptcy respecting the Developer. In such event the City may immediately declare a default without prior notification to the Developer;

13d. Notification to the City, by any lender with a lien on the Property, of a default by Developer on any obligation to such lender. In such event, the City may immediately declare a default without prior notification to the Developer.

13e. With regard to the Property or any portion thereof: initiation of any foreclosure action regarding any lien or encumbrance; or initiation of mechanics lien(s) procedure(s); or assignment or conveyance of the Property in lieu of foreclosure. In such event the City may immediately declare a default without prior notification to the Developer.

13f. Notification to the City from the bank issuing the Guarantee that it will not renew the Guarantee at a time when security is still required hereunder and no substitute collateral acceptable to the City has been provided by the Developer.

13g. Except as provided, the City may not declare a default until written notice has been sent to the Developer at the address shown in the development file. Notice is and shall be deemed effective two calendar days after mailing thereof by first class United Sates mail, postage prepaid.

14. **Measure of Damages:** The measure of damages for breach of this Agreement by the Developer shall be the reasonable cost of satisfactorily completing the Improvements, plus reasonable expenses. Expenses may include but are not limited to

contracting costs, collection costs and the value of planning, engineering, legal and administrative staff time devoted to the collection/completion of the Improvements. For Improvements upon which construction has not begun, the estimated costs of the Improvements as shown on Exhibit B shall be *prima facie* evidence of the minimum cost of completion; however, the maximum amount of the Developer's liability shall not be established by that amount or the amount of the Guarantee.

15. **City's Rights Upon Default:** When any event of default occurs, the City may draw on the Guarantee or proceed to collect any other security to the extent of the face amount of the Guarantee less eighty percent (80%) of the estimated cost (as shown on Exhibit B) of all Improvements for which the City has given its Acceptance and no warranty work is reasonably required. The City may also exercise its rights to disbursement of loan proceeds or other funds under the City improvements disbursement agreement.

15a. The City shall have the right to complete Improvements itself or it may contract with a third party for completion.

15b. The Developer grants to the City, its successors, assigns, agents, contractors and employees, a nonexclusive right and easement to enter the Property for the purposes of constructing, reconstructing, maintaining, inspecting and repairing the Improvements.

15c. The City may assign the proceeds of the Guarantee or other funds or assets that it may receive in accordance with this Agreement to a subsequent developer or lender that has acquired the Property by purchase, foreclosure or otherwise.

15d. That developer or lender shall then have the same rights of completion as the City if and only if the subsequent developer or lender agrees in writing to complete or correct the Improvements and provides to the City reasonable security for that obligation.

15e. These remedies are cumulative in nature and are in addition to any other remedies the City has at law or in equity.

16. **Indemnification:** The Developer expressly agrees to indemnify and hold the City, its officers, employees, agents and assigns ("City") harmless from and against all claims, costs and liabilities of every kind and nature, for injury or damage received or sustained by any person or entity in connection with or on account of the performance or non-performance of work at the Property and/or the Improvements and/or the Development that is being done pursuant to this Agreement.

16a. The Developer further agrees to aid and defend the City in the event that the City and/or the Improvements is named as a defendant in an action concerning the performance of work pursuant to this Agreement except for a suit wherein the Developer states claim(s) against the City.

16b. The Developer is not an agent, partner, joint venturer or employee of the City.

17. **No Waiver:** No waiver of any provision of this Agreement by the City shall be deemed or constitute a waiver of any other provision nor shall it be deemed or constitute a continuing waiver unless expressly provided for by a written amendment to this Agreement signed by both the City and the Developer; nor shall the waiver of any default under this Agreement be deemed a waiver of any subsequent default or defaults of the same type. The City's failure to exercise any right under this Agreement shall not constitute the approval of any wrongful or other act by the Developer or the acceptance of any Improvement.

18. **Amendment or Modification:** The parties to this Agreement may amend or modify this Agreement only by written instrument executed on behalf of the City by the City Manager or his designee and by the Developer or his/her/its authorized officer. Such amendment or modification shall be properly notarized before it may be deemed effective.

19. **Attorney's Fees:** Should either party be required to resort to litigation to enforce the terms of this Agreement, the prevailing party, plaintiff or defendant, shall be entitled to costs, including reasonable attorney's fees and expert witness fees, from the opposing party. The City shall be entitled to claim the value of its in-house attorneys at the rate of $125.00 per hour. If relief is awarded to both parties the attorney's fees may be equitably divided between the parties by the decision maker.

20. **Vested Rights:** This Agreement does not guarantee, represent or certify that the Developer is entitled to any other approval(s) required by the City, before the Developer is entitled to commence development beyond the scope of this Agreement or to transfer ownership of the Property being developed.

21. **Integration:** This Agreement, together with the exhibits and attachments thereto constitutes the entire Agreement between the parties. No statement(s), promise(s) or inducements(s) that is/are not contained in this Agreement shall be binding on the parties.

22. **Third Party Rights:** No person or entity who or which is not a party to this Agreement shall have any right of action under or be a beneficiary of this Agreement.

23. **Time:** For the purpose of computing the Abandonment Period and Commencement and Dates, such times in which war, civil disasters or acts of God occurs or exist shall not be included if such prevents the Developer or City from performing its obligations under the Agreement. The Developer must notify the City in writing if/when it asserts impossibility of performance under this paragraph. The City may reject the Developer's assertion, if it finds, in writing that the condition(s) that the Developer asserts do not exist.

24. **Severability:** If any part, term or provision of this Agreement is held by a court of competent jurisdiction to be illegal or otherwise unenforceable, such illegality or

unenforceability shall not affect the validity of any other part, term or provision. The rights of the parties shall be construed as if the part, term or provision was never part of the Agreement.

25. **Benefits:** The benefits of this Agreement to the Developer are personal and may not be assigned without the express written approval of the City. Such approval may not be unreasonably withheld but any unapproved assignment is void.

25a. Notwithstanding the foregoing, the burdens of this Agreement are personal obligations of the Developer and also shall be binding on the heirs, successors and assigns of the Developer and shall be a covenant(s) running with the Property.

25b. There is no prohibition on the right of the City to assign its rights under this Agreement.

25c. Upon written request from the Developer the City shall expressly release the original Developer's Guarantee and/or contract obligations if it accepts new security from any developer or lender who obtains the Property, however, no other act of the City shall constitute a release of the original Developer from his liability under this Agreement.

25d. When the City has issued its Acceptance regarding the Improvements, the City agrees to state the same in writing, with appropriate acknowledgments.

25e. The City shall sign a release only after all warranty periods, as extended by litigation, repair or alteration work, have expired.

26. **Notice:** Any notice required or permitted by this Agreement shall be deemed effective two calendar days after deposit with the United States Postal Service, first class, postage prepaid and addressed as follows:

If to Developer:

O.P. Development, LLC — Name -Developer/Company
603 28¼ Road — Address (Street and Mailing)

Grand Junction, CO — City, State & Zip Code
(970) 234-7700 — Telephone and Fax Numbers
(970) 263-4045

E-mail

Cc:

If to City:

Office of the City Attorney
250 North 5th Street
Grand Junction, CO 81501

Cc: Community Development Department
250 North 5th Street
Grand Junction, CO 81501

27. **Recordation:** Developer shall pay the costs to record a memorandum of this Agreement (Exhibit D) in the records of the Mesa County Clerk and Recorder's Office. The Developer may, at his/her/its option record the entire agreement.

28. **Immunity:** Nothing contained in this Agreement constitutes a waiver of the City's sovereign or other immunity under any applicable law.

29. **Personal Jurisdiction and Venue:** Personal jurisdiction and venue for any action commenced by either party to this Agreement whether arising out of or relating to the Agreement, the Guarantee, the Maintenance Guarantee or any action based arising out of or under this Agreement shall be deemed to be proper only if such action is commenced in Mesa County, Colorado.

29a. The Developer expressly waives his/her/its right to bring such action in or to remove such action to any other court whether state or federal.

30. **Liability before Acceptance:** The City shall have no responsibility or liability with respect to any street or other Improvement(s), notwithstanding the use of the same by the public, unless the street or other Improvement shall have received Acceptance by the City.

30a. If the City allows a street to be constructed in stages, the Developer of the first one-half street opened for traffic shall construct the adjacent curb, gutter and sidewalk in the standard location and shall construct the required width of pavement from the edge of gutter on the side of the street nearest the property to enable an initial two-way traffic operation without on-street parking.

30b. Developer shall also construct and pay for end-transitions, intersection paving, drainage facilities and adjustments to existing utilities necessary to open the street to traffic.

30c. The City shall not issue its written Acceptance with regard to any Improvement(s) including any street, storm drainage facility, sewer, water facility or other required Improvement(s), until the Developer:
(i) furnishes to the City Engineer as-built drawings in reproducible form, blue line stamped and sealed by a professional engineer and in computer disk form and copies of results of all construction control tests required by City specification;
(ii) provides written evidence to the City Engineer under signature of a qualified expert that the earth, soils, lands and surfaces upon in and under which the Improvement(s) have been constructed or which are necessary for the Improvements are free from toxic, hazardous and other regulated substances or materials;

(iii) provides written evidence to the City Attorney that the title to lands underlying the Improvements are free and clear from all liens and encumbrances, except those items and encumbrances which may be approved in writing by the City Attorney; and
(iv) provides written evidence, certified by the Developer's engineer, that the work was systematically inspected and tested and that the materials and the compaction of the materials that are required to be compacted, were in conformance with City-approved plans and specifications.

By: _____ 12/8/03

Developer Date

MICHAEL BONDS

Name (printed)

Corporate Attest:

_____

Name Date

City of Grand Junction
250 North Fifth Street
Grand Junction, CO 81501

_____ Dec. 12, 2003

Community Development Dept. Date

6/13/2003

TYPE LEGAL DESCRIPTION BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE INCH MARGIN ON EACH SIDE.

EXHIBIT A

Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 18, Pages 95-96, in the records of the Mesa County Clerk and Recorder. Located in the NW 1/4 of the SE 1/4 of Section 1, Township 1 South, Range 1 West, of the Ute Meridian, City of Grand Junction, State of Colorado.

EXHIBIT B

IMPROVEMENTS COST ESTIMATE

DATE: 8-Aug-03
DEVELOPMENT NAME: KNOLLS FILING 6
LOCATION: 27 1/2 ROAD, SOUTH OF PIAZZA WAY
PRINTED NAME OF PERSON PREPARING: PATRICK M. O'CONNOR

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
A.	**SANITARY SEWER**				
1	8 " PVC Sanitary Sewer Main	LF	2372	$ 16.00	$ 37,952.00
2	____ " PVC Sanitary Sewer Main	LF			$ -
3	____ " PVC Sanitary Sewer Main	LF			$ -
4	Sewer services	LF	1589	$ 10.00	$ 15,890.00
5	Sanitary Sewer Manhole	EA	11	$ 1,500.00	$ 16,500.00
6	Sanitary Sewer Drop Manhole	EA			$ -
7	Connection to Existing Manhole	EA	1	$ 500.00	$ 500.00
8	Concrete Encasement	LF	30	$ 30.00	$ 900.00
	Subtotal Part A Sanitary Sewer				**$ 71,742.00**
B.	**DOMESTIC WATER**				
1	8" PVC Water Main	LF	1397	$ 18.00	$ 25,146.00
2	____ " PVC Water Main	LF			$ -
3	____ " PVC Water Main	LF			$ -
4	8" Gatevalve	EA	6	$ 550.00	$ 3,300.00
5	____ " Gatevalve	EA			$ -
6	____ " Gatevalve	EA			$ -
7	Water Services	LF	737	$ 9.00	$ 6,633.00
8	Connect to Existing Water Line	EA	2	$ 500.00	$ 1,000.00
9	Fire Hydrant with Valve	EA	2	$ 2,350.00	$ 4,700.00
10	Utility Adjustments	EA			$ -
11	Blowoff	EA	2	$ 300.00	$ 600.00
					$ -
					$ -
					$ -
	Subtotal Part B - Domestic Water				**$ 41,379.00**

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
C1	STREETS				
1	8" PVC Utility/Irrigation sleeves	LF	90	$ 15.00	$ 1,350.00
2	4" PVC Utility/Irrigation sleeves	LF	160	$ 10.00	$ 1,600.00
3	Reconditioning	SY	6475	$ 1.50	$ 9,712.50
4	Aggregate Base Course (Class 3)	TN			$ -
5	Aggregate Base Course (Class 6) (8" Compacted Thickness)	TN	1990	$ 11.25	$ 22,387.50
6	Aggregate Base Course (Class 6) (__" Compacted Thickness)	SY			$ -
7	Hot Bituminous Paving, Grading C (3" thick)	TN	750	$ 40.00	$ 30,000.00
8	Hot Bituminous Paving, Grading__ (__" thick)	SY			$ -
9	Hot Bituminous Paving, Patching (___" Thick)	SY			$ -
10	Geotextile	SY			$ -
11	Concrete Curb (__" Wide by __"	LF			$ -
12	Concrete Curb and Gutter (2' wide)	LF			$ -
13	Concrete Curb and Gutter (1.5' wide)	LF			$ -
14	Monolithc, Vertical Curb, Gutter and Sidewalk (__' Wide)	LF			$ -
15	Drive Over Curb, Gutter, and Sidewalk (6.5' Wide)	LF	2540	$ 17.50	$ 44,450.00
16	Concrete Sidewalk (__' Wide)	LF			$ -
17	Concrete Gutter and Driveway Section (__" Thick)	SY			$ -
18	Concrete Drainage Pan (6' Wide, 8"	SF	336	$ 3.00	$ 1,008.00
19	Concrete Corner Fillet	SY			$ -
20	Concrete Curb Ramp	SY			$ -
21	Complete Concrete Corner	SF	1323	$ 3.00	$ 3,969.00
22	Concrete Driveway (__" Thick)	SY			$ -
23	Driveway/Concrete Repair	SY			$ -
24	Retaining Walls	LF	500	$ 18.50	$ 9,250.00
25	Street Signs	EA	5	$ 200.00	$ 1,000.00
26	Striping (New, Remove/Replace)	LF			$ -
27	Street Lights	EA	4	$ 1,200.00	$ 4,800.00
28	Signal Construction or Reconstructio	LS			$ -
29	Flowable Fill	CY			$ -
30	Sleeves, ____", ____ PVC	LF			$ -
					$ -
					$ -

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
C2	BRIDGES				
					$ -
1	Box Culvert Pre-Cast	LS			$ -
2	Box Culvert Cast-in-Place	LS			$ -
3	Wingwalls	LS			$ -
4	Parapet Wall	LS			$ -
5	Railing (handrail, guardrail)	LS			$ -
					$ -
					$ -
	Subtotal Part C - Streets and Bridges				**$ 129,527.00**
D1	EARTHWORK				
1	Mobilization	LS	1	$ 1,500.00	$ 1,500.00
2	Clearing and Grubbing	LS	1	$ 2,000.00	$ 2,000.00
3	Unclassified Excavation	CY	5200	$ 2.00	$ 10,400.00
4	Unclassified Embankment	CY	4800	$ 2.50	$ 12,000.00
5	Silt Fence	LF	40	$ 4.00	$ 160.00
6	Watering (Dust Control)	LS	1	$ 1,500.00	$ 1,500.00
D2	REMOVALS AND RESETTING				
1	Removal of Asphalt	SY			$ -
2	Removal of Miscellaneous Concrete	SY			$ -
3	Remove Curb and Gutter	LF			$ -
4	Removal of Culverts	LF			$ -
5	Remove Structures	EA			$ -
6	Remove Signs	EA			$ -
7	Remove Fence	LF			$ -
8	Adjust Manhole	EA	11	$ 100.00	$ 1,100.00
9	Adjust Valvebox	EA	6	$ 100.00	$ 600.00
10	Relocate or Adjust Utilities	LS			$ -
D3	SEEDING AND SOIL RETENTION				
1	Sod	SY			$ -
2	Seeding (Native)	SY or AC			$ -
3	Seeding (Bluegrass/Lawn)	SY or AC			$ -
4	Hydraulic Seed and Mulching	SY or AC			$ -
5	Soil Retention Blanket	SY			$ -

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
D4	TORM DRAINAGE FACILITIES				
1	Finish Grading (incl. Channels, Swales, and Ponds)	CY	2000	$ 2.00	$ 4,000.00
2	15" RCP Storm Drain Pipe	LF	246	$ 25.00	$ 6,150.00
3	18" RCP Storm Drain Pipe	LF	1150	$ 30.00	$ 34,500.00
4	___" _____Storm Drain Pipe	LF			$ -
5	___" _____Storm Drain Pipe	LF			$ -
6	___" _____Storm Drain Pipe	LF			$ -
7	___" Flared End Section	EA			$ -
8	___" Flared End Section	EA			$ -
9	48" Storm Drain Manhole	EA	4	$ 1,200.00	$ 4,800.00
10	60" Storm Drain Manhole	EA			$ -
11	72" Storm Drain Manhole	EA			$ -
12	Manhole with Box Base	EA			$ -
13	Connection to Existing MH	EA			$ -
14	Single Curb Opening Storm Drain Inl	EA			$ -
15	Double Curb Opening Storm Drain In	EA			$ -
16	Area Storm Drain Inlet	EA			$ -
17	Detention Area Outlet structure	EA			$ -
18	Rip-Rap D_{50} = 8"	CY	4	$ 50.00	$ 200.00
19	Sidewalk Trough Drain	EA			$ -
20	Pump Systems including Electrical	LS	1	$ 1,000.00	$ 1,000.00
	Subtotal Part D - Grading and Drainage				$ 79,910.00

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
E1	IRRIGATION				
1	Connect to Existing Pipe	LS	1	$ 500.00	$ 500.00
2	4" PVC Irrigation Pipe	LF	1570	$ 8.00	$ 12,560.00
3	___" ____ Irrigation Pipe	LF			$ -
4	Fittings and Valves	LS	1	$ 200.00	$ 200.00
5	Services	EA	14	$ 80.00	$ 1,120.00
6	Pump System and Concrete Vault	LS			$ -
7	Irrigation Structure	EA			$ -
8	Vacuum Relief and/or Air Release Va	EA			$ -
E2	LANDSCAPING				
1	Design/Architecture	LS			$ -
2	Earthwork	CY			$ -
3	Hardscape Features	LS			$ -
4	Plant Material & Planting	LS			$ -
5	Irrigation System	LS			$ -
6	Curbing	LF			$ -
7	Retaining Walls & Structures	LS			$ -
8	1 Year Maintenance Agrmnt.	LS			$ -
9	Topsoil				$ -
					$ -
					$ -
E	Subtotal Part E - Landscaping and Irrigation				$ 14,380.00

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
F.	**Miscellaneous Items**				
1	Construction staking/surveying	%	2.00%	$ 336,938.00	$ 6,738.76
2	Developer's inspection cost	%	0.50%	$ 336,938.00	$ 1,684.69
3	General construction supervsn	%	0.50%	$ 336,938.00	$ 1,684.69
4	Quality control testing	%	2.00%	$ 336,938.00	$ 6,738.76
5	Construction traffic control	%		$ 336,938.00	$ -
6	City inspection fees	%	0.50%	$ 336,938.00	$ 1,684.69
7	As-builts	%	2.00%	$ 336,938.00	$ 6,738.76
E	**Subtotal Part F - Miscellaneous Items**				**$ 25,270.35**

% = Percentage of total site construction costs

G.	COST SUMMARY				
1	**Total Improvement Costs**				**$ 362,208.35**
2	**City Security (20%)**				**$ 72,441.67**
3	**Total Guarantee Amount**				**$ 434,650.02**

NOTES
1. All prices shall be for items complete in place and accepted.
2. All pipe prices shall include excavation, pipe, bedding, backfill, and compaction.
3. Water main shall include pipe, excavation, bedding, backfill, bends, and appurtenances not itemized elsewhere.
4. All concrete items shall include Aggregate Base Course where required by the drawings.
5. Fill in the pipe type for irrigation pipe and sleeves.
6. Reconditioning shall be calculated to at least 6" outside of back of walk on both sides.
7. Units can be changed if desired, simply annotate what is used.
8. Additional lines or items may be added as needed.

12/30/03
Signature of Developer Date
(If corporation, to be signed by President and attested to by Secretary together with the corporate seals.)

I have reviewed the estimated costs and time schedule shown above and, based on the construction drawings submitted to date and the current cost of construction, I take no exception to the above.

12/17/03
City Development Engineer Date

12-12-03
Community Development Date

January 15, 2004

AP 1/15/04

Re: **FPP-2003-078**
KNOLLS SUBDIVISION, FILING 6

REVIEW COMMENTS

1. The mylar copy of the Plat, as received, contains signatures in blue ink. All signatures appearing on the Plat shall be in black, waterproof ink.

2. The Title Company is required to sign the Plat prior to signing and acceptance by the City.

3. A current updated Title Commitment is required if it is dated older than 90 days from receipt of the previous copy.

4. Several of the boundary monuments are missing due to construction. The exterior boundary monuments shall be flagged and the surveyor shall notify Community Development when the corners have been flagged and or reset.

5. An electronic version, either by e-mail or by cd/diskette, of the final version of the Plat shall be submitted to Mr. Steve Smith of the City of Grand Junction Community Development Department. The Plat shall not be recorded until this is received.

By: Peter T. Krick
City Surveyor
City of Grand Junction

By: Peter T. Krick
Professional Land Surveyor for
The City of Grand Junction

Parks and Recreation Department
City of Grand Junction
1340 Gunnison Avenue
Grand Junction CO 81501
(970) 244-FUNN - FAX (970) 242-1637

FILE NO. FPP-2003-078

PROPOSAL: The Knolls, Filing #6
LOCATION: SE of 27 1/4 Rd. and Piazza Way
ENGINEER/REPRESENTATIVE: Vista Engineering Corp - David Chase
PETITIONER: O.P. Development Company
ADDRESS: 3695 Ridge Drive G.J. 81506
PHONE NO.: 241-2373
FEE CALCULATION: ACCOUNT NUMBER - 105-792-47510-40-00000

16 UNITS AT $ 225.00/UNIT = $ 4,275.00 V# 40388
_____ APPRAISED VALUE AT ____% = $_____

AMOUNT PAID $ 4,275.00 DATE Jan. 16, 2004 INITIALS LVB

WHITE-PETITIONER; GREEN-FINANCE; YELLOW-PARKS; PINK-COMM DEVELOP; GOLDENROD-FILE

Parks and Recreation Department
City of Grand Junction
1340 Gunnison Avenue
Grand Junction CO 81501
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AMOUNT PAID $ 4,275.00 DATE Jan. 16, 2004 INITIALS LVB

RECEIVED JAN 16 2004 PARKS

WHITE-PETITIONER; GREEN-FINANCE; YELLOW-PARKS; PINK-COMM DEVELOP; GOLDENROD-FILE

Ute H_2O hold -

UCC APPROVAL FORM

November 12, 2003

CITY OF GRAND JUNCTION FILE # **FP-2003-078 FINAL PLAT/PLAN - THE KNOLLS FILING #6, LOCATED AT SE OF 27 ½ ROAD & PIAZZA WAY** HAS BEEN REVIEWED AND APPROVED BY THE UTILITY COORDINATING COMMITTEE.

CHAIRMAN _____ DATE 2-11-04

Janice Ward
CLK&REC Mesa County, CO
55 CITY OF GRAND JCT
ENV
2177345\
Book 3589 Pages 247-248
02/18/2004 10:53 AM 21.00
DocFee SurChg $1.00

Janice Ward, Mesa Co. CLK & RECD
55 CITY OF GRAND JCT
Date: 02/18/2004 Time: 10:54
By: TAH Source: WI
Rec#: 20002320

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001 RECORDING Fee
1 @ 21.00 21.00

TOTAL: $ 21.00

CHK (40391 MONUMENT HMS) 21.00
CHANGE: 0.00

Thank You

CITY OF GRAND JUNCTION
DEPARTMENT OF PUBLIC WORKS & UTILITIES
250 NORTH 5TH STREET
GRAND JUNCTION, CO 81501
(970) 244-4003

2177345 BK 3589 PG 247-248
02/18/2004 10:53 AM
Janice Ward CLK&REC Mesa County, CO
RecFee $20.00 SurChg $1.00

TO THE MESA COUNTY CLERK & RECORDER:

THIS IS TO CERTIFY that the herein named Subdivision Plat,

KNOLLS SUBDIVISION, FILING 6

Situated in the **NW 1/4 SE 1/4** of Section **1**

Township **1S**, Range **1W**,

of the **UTE** Meridian in the City of Grand Junction, County of Mesa, State of Colorado, has been reviewed under my direction and, to the best of my knowledge, satisfies the requirements pursuant to C.R.S. 38-51-106 and the Zoning and Development Code of the City of Grand Junction for the recording of subdivision plats in the office of the Mesa County Clerk and Recorder.

This certification makes no warranties to any person for any purpose. It is prepared to establish for the County Clerk and Recorder that City review has been obtained. This certification does not warrant: 1) title or legal ownership to the land hereby platted nor the title or legal ownership of adjoiners; 2) errors and/or omissions, including, but not limited to, the omission(s) of rights-of-ways and/or easements, whether or not of record; 3) liens and encumbrances, whether or not of record; 4) the qualifications, licensing status and/or any statement(s) or representation(s) made by the surveyor who prepared the above-named subdivision plat.

Dated this **16th** day of **JANUARY**, 2004.

City of Grand Junction,
Department of Public Works & Utilities

By: Michael G. McDill
Michael G. McDill
City Engineer
City of Grand Junction

Recorded in Mesa County

Date: 2-18-03

Book: 3589 Page: 247-248

Drawer: 00-131

SUBDIVISION Knolls Subdivision, Filing 6

PLANNER Lori Bowers

ENGINEER Rick Dorris

DATE 2-18-04

FILE FPP-2003-078

RECEPTION # 2177345

BK/PG 3589, 247-248

ZONE PD

NEW RES LOTS 19

NEW COM LOTS —

REPLAT/OTHER —

ACERAGE 15.464

OWNER O.P. Development Co., LLC

LOCATION SE of 27½ & Piazza

SEC/TWP/RNG 1, T1S, R1W

TCP 500.00

TCP TOTAL

NO TCP REASON

SIF 292.00

COUNCIL DISTRICT "D"

DISBURSEMENT AGREEMENT
(Improvements Guarantee)

DEVELOPER: O.P. DEVELOPMENT, LLC

BANK: WELLS FARGO BANK WEST, N.A.

PROPERTY: THE KNOLLS SUBDIVISION, FILING #6

DISBURSEMENT AMOUNT: For the construction of improvements to the Property in an amount not to exceed $434,650.02.

This Agreement is entered into by and between O.P. Develop. ("Developer"), Wells Fargo ("Bank") and the City of Grand Junction, Colorado ("City").

RECITALS

Developer has been required by the City to construct certain improvements to The Knolls Sub., Filing #6 ("Improvements") in accordance with the Zoning and Development Code, Improvements Agreement and subdivision approval.

The Bank has agreed to loan funds to the Developer for construction of the Improvements.

The City Engineer has approved an estimate of the costs of the Improvements and that amount or an amount not to exceed $434,650.02, whichever is greater, shall be referred to as the "Funds."

The parties desire to secure the full and complete performance of the Developer's obligations and to secure that the Funds are disbursed only to pay for the Improvements.

NOW, THEREFORE, THE PARTIES AGREE:

1. **BANK PROMISES.** Bank shall dedicate or set aside the Funds on behalf of Developer and for the City's benefit within twenty-four hours of execution of this Disbursement Agreement.

Bank warrants: that the Funds are to be held in trust solely to secure Developer's obligations under the Improvements Agreement; that the Bank shall act as agent of the City in holding the Funds; that the Funds will not be paid out or disbursed to, or on behalf of, the Developer except as set forth in this document and/or as set forth in the Improvements Agreement; and that the Bank may not modify or revoke its obligation to disburse funds to or on behalf of the Developer or the City. The Bank warrants that the Funds are and will be available exclusively for payment of the costs of satisfactory completion of the Improvements.

2. **DISBURSEMENT PROCEDURES.** The Funds shall be advanced for payment of costs incurred for the construction of Improvements on the Property in accordance with the Improvements List/Detail attached to the Improvements Agreement, the terms of which are incorporated by this reference. All disbursements must comply with the following procedures:

(a) **Request for Advance.** Developer shall deliver to the Bank a written request for the disbursement of funds on forms acceptable to the Bank. Such requests shall be signed by Developer, Developer's General Contractor, Project Engineer and Architect, if applicable, and the City Engineer. By signing the request for disbursement the Developer is certifying: that all costs for which the advance is being requested have been incurred in connection with the construction of the Improvements on the Property; that all work performed and materials supplied are in accordance with the plans and specifications submitted to and approved by the City: that the work has been performed in a workmanlike manner; that no funds are being requested for work not completed, nor for material not installed; the Project Engineer has inspected the Improvements for which payment is requested; and that such improvements have been completed in accordance with all terms, specifications and conditions of the approved plans. Attached hereto is the list of those individuals, and their respective signatures, required to sign the above described request(s) for disbursement of funds.

(b) **Documentation, Waivers and Checks.** Each request for disbursement of funds shall be accompanied by: (*i*) one original and one copy of each invoice to be paid; (*ii*) checks drawn on Developer's construction loan account with the Bank, made payable to the payee(s) and for the amount of each invoice presented for payment; (*iii*) lien waivers in a form approved by the Bank prepared for signature by each payee; and (*iv*) postage paid envelopes addressed to each payee for the mailing of checks presented to the Bank.

The Bank shall verify its receipt of all lien waivers relating to any prior disbursements, which lien waivers shall be properly executed and contain no alterations or modifications from those lien waivers that have been previously presented to the Bank.

Upon approval by Developer, the Project Engineer and the Bank of the invoices being presented to the Bank, the Bank shall advance funds into the checking account designated for the payment of the invoices and mail the checks to the payee(s) in the envelopes presented to the Bank, together with lien waivers and copies of supporting invoices.

Under no circumstances shall the Bank make a disbursement for the payment of an invoice if it in good faith believes that: (*i*) the work has not been completed; (*ii*) the work has not been completed in a workmanlike manner; (*iii*) written approval has not been received from the Project Engineer; or (*iv*) any lien waiver has been altered or modified or has not been returned to the Bank.

(c) **Default.** Upon default of the Developer on any obligation to the Bank or under the Improvements Agreement, the Bank shall disburse no funds to, or at the direction of, the Developer except to the City under the terms of the Improvements Agreement. The Bank shall immediately notify the City, in writing, of any event of default or event of default as provided for in the Improvements Agreement and/or as provided herein.

(d) **Disbursement to City.** In the event the Improvements are not satisfactorily and timely constructed, or upon any default or event of default, the City Engineer shall notify the Bank to immediately cease disbursement of funds to the Developer and disburse the full amount of the remaining undisbursed funds to the City. Upon such notice, the Bank shall promptly honor the demand of the City Engineer to disburse the Funds to the City or a third party or parties designated in writing by the City. Upon final completion and acceptance of the performance required under the Improvements Agreement, the City shall refund to the Bank any funds disbursed, if any, which are not actually expended to pay all costs, expenses and liabilities, including attorney fees, incurred in completing the Improvements.

3. **DEVELOPER CONSENT:** The Developer, by the signature of Robert C. Knapple Managing Director (name & title), consents to disbursements and other actions authorized and provided for by the terms of this Agreement and/or the Improvements Agreement.

4. **LIABILITY FOR LOSS:** If the Bank fails to disburse funds in accordance with the procedures set forth, and the City suffers loss or damage, the Bank shall be liable to the City for the City's direct and consequential damages and all fees, costs and expenses, including attorneys fees.

5. **BINDING EFFECT:** This Agreement shall be binding on the heirs, successors, receivers and assigns of all parties and shall terminate when the City has accepted the Improvements and has recorded a release of the Improvements Agreement.

6. **IMMUNITY:** Nothing contained in this Agreement constitutes a waiver of the City's sovereign immunity under applicable state law.

Dated this ____ day of _____. 20__.

(BANK)

By: William F Rockwood /UP Wells Fargo BANK, N.A.
Title William F. Rockwood
Vice President
2808 North Avenue
Address Grand Junction, CO 81501

(DEVELOPER)

By: Robert C. Knapple
Title Robert C. Knapple
Managing Director
3695 Ridge Drive
Address Grand Junction, CO 81506

CITY OF GRAND JUNCTION

By: Pat Cecil
~~Director of~~ Community Development

Pursuant to the terms of the foregoing Disbursement Agreement (Improvements Guarantee) by and between O.P. Development, LLC Developer, Wells Fargo Bank as Bank, and the City of Grand Junction, the following are the individuals authorized to sign written requests for the disbursement of the Funds:

DEVELOPER:

Robert C. Knapple — Robert C. Knapple
(name) (signature)

_____ _____
(name) (signature)

_____ _____
(name) (signature)

DEVELOPER'S GENERAL CONTRACTOR:

Michael Bonds
(name)

(signature)

DEVELOPER'S PROJECT ENGINEER:

Patrick M. O'Connor
(name)

(signature)

DEVELOPER'S ARCHITECT:

N.A.
(name)

(signature)

CITY ENGINEER:

Rick Dorris
(name)

(signature)

File Name: disburak
revised: September 18, 2003

DEVELOPMENT IMPROVEMENTS AGREEMENT

1. **Parties:** The parties to this Development Improvements Agreement ("Agreement") are O.P. Development, LLC ("Developer") and the **City of Grand Junction**, Colorado ("City").

For valuable consideration, the receipt and adequacy of which is acknowledged, the Parties agree as follows:

2. **Effective Date:** The Effective Date of the Agreement shall be the date that it is signed by the Community Development Director, which shall be no sooner than recordation of the final plat or final plan approval whichever first occurs.

RECITALS

The Developer seeks permission to develop property, described on Exhibit A attached and incorporated by this reference ("the Property" or "Property"). The Property, known as **The Knolls Subdivision, Filing 6** has been reviewed and approved under Community Development file # _____ ("Development" or "the Development").

The City seeks to protect the health, safety and general welfare of the community by requiring the completion of various improvements to the Property and limiting the harmful effects of substandard development.

A further purpose of this Agreement is to protect the City from the cost of completing necessary improvements itself; this Agreement is not executed for the benefit of materialmen, laborers or others providing work, services or material to the Developer and/or the Property or for the benefit of the owner(s), purchaser(s) or user(s) of the Property.

The mutual promises, covenants and obligations contained in this Agreement are authorized by state law, the Colorado Constitution and City's land development ordinances and regulations.

DEVELOPER'S OBLIGATION

3. **Improvements:** The Developer shall design, construct and install, at its own expense, those on-site and off-site improvements listed on Exhibit B attached and incorporated by this reference ("Improvements" or "the Improvements").

3a. On and after the Effective Date of this Agreement the Developer agrees to pay the City for its Administration and Inspection of the Development. The hourly rate for those services is $45.00/hour. Administration and Inspection includes but is not limited to the time expended by the City's planner, engineer, construction inspector and attorney in directing, advising, correcting and enforcing by means other than

litigation, this agreement and/or the approved development plan. Making disbursements and calling/collecting Guarantees are Administration and Inspection services and shall be charged at $45.00/hour. See, paragraph 19 concerning attorneys'/ litigation fees.

3b. The scope of this project is such that the City may have to engage independent consultants(s) to adequately provide inspection services; Developer agrees to pay such costs, in addition to all others for which Developer is responsible hereunder.

3c. The Developer's obligation to complete the Improvements is and shall be independent of any obligations of the City contained herein.

434,650.00 RHD MSR

4. **Security:** To secure the performance of its obligations under this Agreement the Developer shall supply a guarantee. The Developer is required to post security in an amount of $~~521,500.02~~ (120% of the amount for the Improvements) in a form and with terms acceptable to the City ("Guarantee"). The Guarantee shall be in the form of a cash deposit made to the City, a letter of credit or a disbursement agreement in a form and with content approved by the City Attorney. The Guarantee specific to this Agreement is attached as Exhibit C and is incorporated by this reference as if fully set forth.

Select one: Cash _____ Letter of Credit (LOC) _____ Disbursement Agreement X

5. **Standards:** The Developer shall construct the Improvements according to the City's standards and specifications.

6. **Warranty:** The Developer shall warrant the Improvements for one year following Acceptance by the City. "Warrant" or "Warranty" as used herein means the Developer shall take such steps and incur such costs as may be needed so that the Improvements or any portion or phase thereof as repaired and/or replaced, shall comply with the Development's construction plans and/or site plan, City standards and specifications at the end of the warranty period. The Developer shall warrant each repaired and/or replaced Improvement or any portion or phase thereof for one year following Acceptance of such repair and/or replacement.

6a. Upon Acceptance the Developer shall provide a Maintenance Guarantee in an amount of $ 72,441.67 (Line G2, Exhibit B, City Security).

6b. The Maintenance Guarantee shall be secured by a letter of credit, cash escrow or other form acceptable to the City.

7. **Commencement, Completion and Abandonment Periods:** The Developer shall commence work on the Improvements within 30 days from the Effective Date of this Agreement; that date is known as the "Commencement Date."

7a. The Developer shall complete the Improvements by the end of the twelfth month from the Effective Date of this Agreement; that date is known as the "Completion Date."

7b. The Developer shall not cease construction for any period of more than 60 consecutive days. If construction is ceased for 60 or more consecutive days the Director may deem the Development abandoned ("the Abandonment Period").

7c. The Commencement date and the Completion Date are as follows:

Commencement Date: December 10, 2003
Completion Date: December 10, 2004

8. **Compliance with Law:** The Developer shall comply with all applicable federal, state and local laws, ordinances and regulations when fulfilling its obligations under their Agreement. When necessary to protect the public health, safety or welfare, the Developer shall be subject to laws, ordinances and regulations that become effective after the Effective Date.

9. **Notice of Defect:** The Developer by and through his/her/its engineer shall provide timely written notice to the issuer of the Guarantee and the Director when the Developer and/or his/her/its engineer has knowledge, that an Improvement or any part or portion of any Improvement either does not conform to City standards or is otherwise defective.

9a. The Developer shall correct all non-conforming construction and/or defects within thirty (30) days from the issuance of the notice by his/her/its engineer of a/the defect.

10. **Acceptance of Improvements:** The City shall not accept and/or approve any or all of the Improvements until the Developer presents a document or documents for the benefit of the City showing that the Developer owns the Improvements in fee simple, or as accepted by the City Attorney, and that there are no liens, encumbrances or other restrictions on the Improvements other than those that have been accepted by the City Attorney.

10a. Approval and/or acceptance of any Improvement(s) does not constitute a waiver by the City of any right(s) that it may have on account of any defect in or failure of the Improvement that is detected or which occurs after approval and/or acceptance.

10b. Acceptance by the City shall only occur when the City Engineer, sends a writing to such effect ("Acceptance").

11. **Reduction of Security:** Upon Acceptance of any Improvement(s) the amount which the City is entitled to draw on the Guarantee shall be reduced by an amount of $362,208.35 (Line G1, Exhibit B, Total Improvement Costs).

11a. At the written request of the Developer, the City shall execute a certificate verifying Acceptance of the Improvement and thereafter waiving its right to draw on the Guarantee to the extent of such amount. A Developer in default under this Agreement has no right to such certification.

12. **Use of Proceeds:** The City shall use funds deposited with it, drawn or guaranteed pursuant to this Agreement only for the purpose of completing the Improvements or correcting defects in or failure of the Improvements or paying Administration and Inspection fees.

13. **Events of Default:** The following conditions, occurrences or actions shall constitute a default by the Developer:

13a. Developer's failure to complete each portion of the Improvements on or before the Completion Date;

13b. Developer's failure to demonstrate reasonable intent to correct defective construction of any Improvements within the applicable warranty period;

13c. Developer's insolvency, the appointment of a receiver for the Developer or the filing of a voluntary or involuntary petition in bankruptcy respecting the Developer. In such event the City may immediately declare a default without prior notification to the Developer;

13d. Notification to the City, by any lender with a lien on the Property, of a default by Developer on any obligation to such lender. In such event, the City may immediately declare a default without prior notification to the Developer.

13e. With regard to the Property or any portion thereof: initiation of any foreclosure action regarding any lien or encumbrance; or initiation of mechanics lien(s) procedure(s); or assignment or conveyance of the Property in lieu of foreclosure. In such event the City may immediately declare a default without prior notification to the Developer.

13f. Notification to the City from the bank issuing the Guarantee that it will not renew the Guarantee at a time when security is still required hereunder and no substitute collateral acceptable to the City has been provided by the Developer.

13g. Except as provided, the City may not declare a default until written notice has been sent to the Developer at the address shown in the development file. Notice is and shall be deemed effective two calendar days after mailing thereof by first class United Sates mail, postage prepaid.

14. **Measure of Damages:** The measure of damages for breach of this Agreement by the Developer shall be the reasonable cost of satisfactorily completing the Improvements, plus reasonable expenses. Expenses may include but are not limited to

contracting costs, collection costs and the value of planning, engineering, legal and administrative staff time devoted to the collection/completion of the Improvements. For Improvements upon which construction has not begun, the estimated costs of the Improvements as shown on Exhibit B shall be *prima facie* evidence of the minimum cost of completion; however, the maximum amount of the Developer's liability shall not be established by that amount or the amount of the Guarantee.

15. **City's Rights Upon Default:** When any event of default occurs, the City may draw on the Guarantee or proceed to collect any other security to the extent of the face amount of the Guarantee less eighty percent (80%) of the estimated cost (as shown on Exhibit B) of all Improvements for which the City has given its Acceptance and no warranty work is reasonably required. The City may also exercise its rights to disbursement of loan proceeds or other funds under the City improvements disbursement agreement.

15a. The City shall have the right to complete Improvements itself or it may contract with a third party for completion.

15b. The Developer grants to the City, its successors, assigns, agents, contractors and employees, a nonexclusive right and easement to enter the Property for the purposes of constructing, reconstructing, maintaining, inspecting and repairing the Improvements.

15c. The City may assign the proceeds of the Guarantee or other funds or assets that it may receive in accordance with this Agreement to a subsequent developer or lender that has acquired the Property by purchase, foreclosure or otherwise.

15d. That developer or lender shall then have the same rights of completion as the City if and only if the subsequent developer or lender agrees in writing to complete or correct the Improvements and provides to the City reasonable security for that obligation.

15e. These remedies are cumulative in nature and are in addition to any other remedies the City has at law or in equity.

16. **Indemnification:** The Developer expressly agrees to indemnify and hold the City, its officers, employees, agents and assigns ("City") harmless from and against all claims, costs and liabilities of every kind and nature, for injury or damage received or sustained by any person or entity in connection with or on account of the performance or non-performance of work at the Property and/or the Improvements and/or the Development that is being done pursuant to this Agreement.

16a. The Developer further agrees to aid and defend the City in the event that the City and/or the Improvements is named as a defendant in an action concerning the performance of work pursuant to this Agreement except for a suit wherein the Developer states claim(s) against the City.

16b. The Developer is not an agent, partner, joint venturer or employee of the City.

17. **No Waiver:** No waiver of any provision of this Agreement by the City shall be deemed or constitute a waiver of any other provision nor shall it be deemed or constitute a continuing waiver unless expressly provided for by a written amendment to this Agreement signed by both the City and the Developer; nor shall the waiver of any default under this Agreement be deemed a waiver of any subsequent default or defaults of the same type. The City's failure to exercise any right under this Agreement shall not constitute the approval of any wrongful or other act by the Developer or the acceptance of any Improvement.

18. **Amendment or Modification:** The parties to this Agreement may amend or modify this Agreement only by written instrument executed on behalf of the City by the City Manager or his designee and by the Developer or his/her/its authorized officer. Such amendment or modification shall be properly notarized before it may be deemed effective.

19. **Attorney's Fees:** Should either party be required to resort to litigation to enforce the terms of this Agreement, the prevailing party, plaintiff or defendant, shall be entitled to costs, including reasonable attorney's fees and expert witness fees, from the opposing party. The City shall be entitled to claim the value of its in-house attorneys at the rate of $125.00 per hour. If relief is awarded to both parties the attorney's fees may be equitably divided between the parties by the decision maker.

20. **Vested Rights:** This Agreement does not guarantee, represent or certify that the Developer is entitled to any other approval(s) required by the City, before the Developer is entitled to commence development beyond the scope of this Agreement or to transfer ownership of the Property being developed.

21. **Integration:** This Agreement, together with the exhibits and attachments thereto constitutes the entire Agreement between the parties. No statement(s), promise(s) or inducements(s) that is/are not contained in this Agreement shall be binding on the parties.

22. **Third Party Rights:** No person or entity who or which is not a party to this Agreement shall have any right of action under or be a beneficiary of this Agreement.

23. **Time:** For the purpose of computing the Abandonment Period and Commencement and Dates, such times in which war, civil disasters or acts of God occurs or exist shall not be included if such prevents the Developer or City from performing its obligations under the Agreement. The Developer must notify the City in writing if/when it asserts impossibility of performance under this paragraph. The City may reject the Developer's assertion, if it finds, in writing that the condition(s) that the Developer asserts do not exist.

24. **Severability:** If any part, term or provision of this Agreement is held by a court of competent jurisdiction to be illegal or otherwise unenforceable, such illegality or

unenforceability shall not affect the validity of any other part, term or provision. The rights of the parties shall be construed as if the part, term or provision was never part of the Agreement.

25. **Benefits:** The benefits of this Agreement to the Developer are personal and may not be assigned without the express written approval of the City. Such approval may not be unreasonably withheld but any unapproved assignment is void.

25a. Notwithstanding the foregoing, the burdens of this Agreement are personal obligations of the Developer and also shall be binding on the heirs, successors and assigns of the Developer and shall be a covenant(s) running with the Property.

25b. There is no prohibition on the right of the City to assign its rights under this Agreement.

25c. Upon written request from the Developer the City shall expressly release the original Developer's Guarantee and/or contract obligations if it accepts new security from any developer or lender who obtains the Property, however, no other act of the City shall constitute a release of the original Developer from his liability under this Agreement.

25d. When the City has issued its Acceptance regarding the Improvements, the City agrees to state the same in writing, with appropriate acknowledgments.

25e. The City shall sign a release only after all warranty periods, as extended by litigation, repair or alteration work, have expired.

26. **Notice:** Any notice required or permitted by this Agreement shall be deemed effective two calendar days after deposit with the United States Postal Service, first class, postage prepaid and addressed as follows:

If to Developer:

O.P. Development, LLC — Name -Developer/Company
603 28¼ Road — Address (Street and Mailing)
Grand Junction, CO — City, State & Zip Code
(970) 234-7700 — Telephone and Fax Numbers
(970) 263-4045
E-mail

Cc:

If to City:

Office of the City Attorney
250 North 5th Street
Grand Junction, CO 81501

Cc: Community Development Department
250 North 5th Street
Grand Junction, CO 81501

27. **Recordation:** Developer shall pay the costs to record a memorandum of this Agreement (Exhibit D) in the records of the Mesa County Clerk and Recorder's Office. The Developer may, at his/her/its option record the entire agreement.

28. **Immunity:** Nothing contained in this Agreement constitutes a waiver of the City's sovereign or other immunity under any applicable law.

29. **Personal Jurisdiction and Venue:** Personal jurisdiction and venue for any action commenced by either party to this Agreement whether arising out of or relating to the Agreement, the Guarantee, the Maintenance Guarantee or any action based arising out of or under this Agreement shall be deemed to be proper only if such action is commenced in Mesa County, Colorado.

29a. The Developer expressly waives his/her/its right to bring such action in or to remove such action to any other court whether state or federal.

30. **Liability before Acceptance:** The City shall have no responsibility or liability with respect to any street or other Improvement(s), notwithstanding the use of the same by the public, unless the street or other Improvement shall have received Acceptance by the City.

30a. If the City allows a street to be constructed in stages, the Developer of the first one-half street opened for traffic shall construct the adjacent curb, gutter and sidewalk in the standard location and shall construct the required width of pavement from the edge of gutter on the side of the street nearest the property to enable an initial two-way traffic operation without on-street parking.

30b. Developer shall also construct and pay for end-transitions, intersection paving, drainage facilities and adjustments to existing utilities necessary to open the street to traffic.

30c. The City shall not issue its written Acceptance with regard to any Improvement(s) including any street, storm drainage facility, sewer, water facility or other required Improvement(s), until the Developer:
(i) furnishes to the City Engineer as-built drawings in reproducible form, blue line stamped and sealed by a professional engineer and in computer disk form and copies of results of all construction control tests required by City specification;
(ii) provides written evidence to the City Engineer under signature of a qualified expert that the earth, soils, lands and surfaces upon in and under which the Improvement(s) have been constructed or which are necessary for the Improvements are free from toxic, hazardous and other regulated substances or materials;

(iii) provides written evidence to the City Attorney that the title to lands underlying the Improvements are free and clear from all liens and encumbrances, except those items and encumbrances which may be approved in writing by the City Attorney; and
(iv) provides written evidence, certified by the Developer's engineer, that the work was systematically inspected and tested and that the materials and the compaction of the materials that are required to be compacted, were in conformance with City-approved plans and specifications.

By: _____ 12/8/03

Developer Date

MICHAEL BONDS

Name (printed)

Corporate Attest:

_____

Name Date

City of Grand Junction
250 North Fifth Street
Grand Junction, CO 81501

_____ Dec. 12, 2003

Community Development Dept. Date

6/13/2003

DEED OF EASEMENT

THIS DEED OF EASEMENT, Made this _____ day of _____ , 2003, between O.P. DEVELOPMENT COMPANY, LLC, a Colorado limited liability company, 3695 Ridge Drive, Grand Junction, CO 81506 (Grantor herein) and THE KNOLLS HOMEOWNERS ASSOCIATION, INC, a Colorado nonprofit corporation, 759 Horizon Drive, Suite A, Grand Junction, CO 81506 (Grantee herein):

In exchange for good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledge, Grantor hereby grants and conveys to Grantee, its successors and assigns forever, perpetual, non-exclusive easements in, over, upon, through and under Grantor's parcel located in the NW 1/4 of the SE 1/4 of Section 1, Township 1 South, Range 1 West, Ute Meridian, County of Mesa, State of Colorado.

These non-exclusive easements are particularly described in the plat of Knolls Subdivision, Filling 6, filed in the records of the Mesa County Clerk and Recorder's Office, in Plat Book _____ at Pages _____ through _____ , and identified thereon as the Irrigation and Drainage Easements.

The easements are granted for the installation, operation, maintenance, and repair of irrigation and drainage facilities and appurtenances thereto. All easements include the right of ingress and egress on, along, over, under, through and across by the beneficiaries, their successors, or assigns, together with the right to trim or remove interfering trees and brush; provided however, that the beneficiaries shall utilize the same in a reasonable and prudent manner. The easements shall not be burdened nor overburdened by erecting or placing any improvements thereon which may prevent reasonable ingress and egress to and from the easement.

IN WITNESS WHEREOF, the Grantor has caused its name to be hereto subscribed the day and year first above written.

O.P. DEVELOPMENT COMPANY, LLC.

By:_____
Robert C. Knapple, Managing Director

State of Colorado)
) ss.
County of Mesa)

The foregoing instrument was acknowledge before me this ____ day of _____, 2003, by Robert C. Knapple as Managing Member of O.P. Development Company, LLC.

Witness my hand and official seal.

My commission expires _____

_____
Notary Public

QUIT CLAIM DEED

THIS DEED, Made this _____ day of _____ , 2003, between the O.P. DEVELOPMENT COMPANY, LLC, a Colorado limited liability company, 3695 Ridge Drive, Grand Junction, CO 81506

THE KNOLLS HOMEOWNERS ASSOCIATION, INC, a Colorado nonprofit corporation, 759 Horizon Drive, Suite A, Grand Junction, CO 81506 (Grantor herein)

of the County of Mesa, State of Colorado.

WITNESSETH, That the Grantor, for ONE DOLLAR and other good and adequate consideration, the receipt and sufficiency which is hereby acknowledged, has remised, released, sold, and **QUIT CLAIMED,** and by these presents does remise, release, sell, and **QUIT CLAIM** unto the Grantee, its successors and assigns forever, all the right, title, interest, claim and demand which the Grantor has in and to the real property together with improvements, if any, situate, lying and being in the County of Mesa and State of Colorado, as described as:

Tract A,
Knolls Subdivision, Filing 6,
City of Grand Junction,
County of Mesa,
State of Colorado;

TO HAVE AND TO HOLD the same, together with all and singular the appurtenances and privileges thereunto belonging or in anywise thereunto appertaining, and all the estate, right, title, interest and claim whatsoever, of the Grantor, either in law or equity, to the only proper use, benefit and behoof of the Grantee, its successor and assigns forever. The singular number shall include the plural, the plural the singular, and the use of any gender shall be applicable to all genders.

IN WITNESS WHEREOF, the Grantor has caused its name to be hereto subscribed the day and year first above written.

O.P. DEVELOPMENT COMPANY, LLC.

By:_____
Robert C. Knapple, Managing Director

State of Colorado)
) ss.
County of Mesa)

The foregoing instrument was acknowledge before me this ____ day of _____, 2003, by Robert C. Knapple as Managing Member of O.P. Development Company, LLC.

Witness my hand and official seal.

My commission expires _____

_____
Notary Public

27 PAGE DOCUMENT

BOOK2300 PAGE217

1787724 0332PM 02/07/97
MONIKA TODD CLK&REC MESA COUNTY CO

DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS OF THE KNOLLS SUBDIVISION, FILING I

THIS DECLARATION is made and entered into this 31st Day of January, 1997, by O.P. Development Company, LLC.

WITNESSETH:

WHEREAS, the Undersigned is the owner of certain real property situated in Mesa County, Colorado, known as The Knolls Subdivision Filing; according to the plat thereof recorded the 17th day of January, 1997, in the real property records of Mesa County, Colorado.

WHEREAS, the Undersigned desires to create a planned community upon the real property described on Exhibit "A" attached hereto, including the above-described property, and to subject and place upon the property certain covenants, conditions, restrictions, easements, reservations, rights-of-way, obligations, liabilities and other charges set forth herein pursuant to the provisions of the Colorado Common Interest Ownership Act ("Common Interest Act") for the purpose of protecting the value and desirability of said property and for the purpose of protecting the value and desirability of said property and for the purpose of furthering a plan for the improvements, sale and ownership of said property.

NOW, THEREFORE, the Undersigned hereby declares that all of the properties described above shall be held, sold, and conveyed subject to the following covenants, conditions, restrictions, easements, rights-of-way, obligations, liabilities, charges and other provisions set forth herein, which are for the purpose of protecting the value and desirability of , and which shall run with the above-described property and be binding on all parties having any right, title, or interest in the above-described property or any part thereof, their heirs, personal representatives, successors, and assigns, and shall inure to the benefit of each owner thereof.

ARTICLE I
DEFINITIONS

Section 1. "Agencies" shall mean and collectively refer to the Federal National Mortgage Association (FNMA), the Government National Mortgage Association (GNMA), the Federal Home Loan Mortgage Corporation (FHLMC), the Veterans Administration (VA), and the Federal Housing Administration (FHA), or any other public, quasi public or private entity which performs (or may perform in the future) functions similar to those currently performed by such entities.

96-9-168

Section 2. "Architectural Control Committee" shall mean and refer to the committee appointed by Declarant or by the Board of Directors of the Association, as more fully provided in Article V hereof.

Section 3. "Association" shall mean and refer to The Knolls Homeowners Association, Inc., a Colorado nonprofit corporation, its successors and assigns. The Association shall act by and through its Board of Directors and officers. The fiscal year of the Association shall be the calendar year.

Section 4. "Declarant" shall mean and refer to O.P. Development Company LLC, its successors and assigns, if such successors or assigns should acquire more than one unimproved Lot from the Declarant for the purpose of development and resale, and said person or entity shall first be designated by O.P. Development Company LLC, as a Declarant for said purposes by written instrument duly recorded in the real property records of Mesa County, Colorado.

Section 5. "Declaration" shall mean and refer to this Declaration of Covenants, Conditions and Restrictions, as the same may be amended from time to time.

Section 6. "First Mortgage" shall mean and refer to any unpaid and outstanding mortgage, deed of trust or other security instrument encumbering a Lot recorded in the records of the office of the Clerk and Recorder of the County of Mesa, Colorado, having priority of record over all other recorded liens except those governmental liens made superior by statute (such as general ad valorem tax liens and special assessments).

Section 7. "First Mortgage" shall mean and refer to any person named as a mortgagee or beneficiary under any First Mortgage, or deed of trust, or any successor to the interest or any such person under such First Mortgage or Deed of Trust.

Section 8. "Lot" shall mean and refer to any separate numbered lot or plot of land shown upon any recorded subdivision or condominium map of the property or any portion thereof, as the same may be amended from time to time, together with all appurtenances and improvements now or hereafter thereon, with the exception of the Common Area, as defined herein.

Section 9. "Dwelling Unit" shall mean and refer to any residential improvement constructed upon the property described in Exhibit A hereto, including single family residences and patio homes. The maximum number of dwelling units to be constructed is 80.

Section 10. "Common Area" shall mean the entryways to the Property, and all property owned by the Association for the Common use and enjoyment of the Members, including a pressurized pipeline irrigation system and all property designated as Open Space.

Section 11. "Member" shall mean and refer to each Owner of a Lot that is subject to assessment hereunder and Declarant. Membership in the Association shall be appurtenant to, and may not be separated from, ownership of a Lot.

Section 12. "Owner" shall mean and refer to the record owner, whether one or more persons or entities, of fee simple title to any Lot which is a part of the Property, including contract sellers, but excluding those having such interest merely as security for the performance of an obligation.

Section 13. "Property" shall mean and refer to that certain real property described in the first "Whereas" clause of this Declaration, together with such additions thereto, if any, as may hereafter be brought within the jurisdiction of the Association.

Section 14. "Special Declarant Rights" shall mean and refer to the development and other rights expressly reserved for the benefit of Declarant in accordance with the terms and conditions of this Declaration.

ARTICLE II
PROPERTY RIGHTS IN THE COMMON AREA

Section 1. **Owners' Right of Enjoyment.** Subject to the provisions of Section 2 of this Article, every Owner shall have a nonexclusive right to enjoy and use the facilities, if any, within the Common Area and such right shall be appurtenant to and shall pass with the title to every Lot.

Section 2. **Extent of Owners' Right**. The right of enjoyment created hereby shall be subject to the following:

(a) The right of the Association to promulgate and publish rules and regulations with which each Member shall strictly comply; and

(b) The right of the Association, as provided in its Articles and Bylaws, to suspend the voting rights of a Member for any period during which any assessment against his Lot remains unpaid and, for a period not to exceed sixty (60) days, for any infraction of its published rules and regulations; and

(c) The right of the Association to close or limit the use of the Common Area while maintaining, repairing and making replacements in the Common Area.

Section 3. **Delegation of Use**. Any Owner may delegate, in accordance with the Bylaws, his right of enjoyment to the Common Area to the members of his family, his tenants, or contract purchasers who reside on his Lot.

ARTICLE III
MEMBERSHIP AND VOTING RIGHTS; THE ASSOCIATION

Section 1. **Membership**. Every Owner of a Lot which is subject to assessment hereunder shall be a Member of the Association. Membership shall be appurtenant to and may not be separated from Ownership of any lot. Each Lot shall be entitled to one vote and the vote for such Lot shall be exercised by the Owner or Owners as they determine.

Section 2. **Directors of the Association**. The affairs of this Association shall be managed by a board of three (3) directors (the "Board") initially. When Declarant relinquishes control of the Board to the Owners pursuant to Section 3 below, the Board shall be managed by five (5) directors. Directors shall meet the qualifications described in the Articles of Incorporation and Bylaws of the Association.

Section 3. **Management of the Association**. From date of formation of the Association until the termination of Declarant's control as provided below, declarant shall have the right to appoint and remove all members of the Board and all officers of the Association. The period of Declarant's control of the Association shall terminate upon the first to occur of sixty (60) days after conveyance of 75% of the Lots to Owners other than Declarant, two (2) years after the last conveyance of a Lot by Declarant in the ordinary course of business, or two (2) years after any right to add new Lots was last exercised. Declarant may voluntarily surrender the right to appoint and remove officers of the Association and members of the Board before termination of the period of Declarant's control, but in that event Declarant may require, for the duration of the period of Declarant's control, that specified actions of the Association or Board, as described in a recorded instrument executed by Declarant, be approved by Declarant before they become effective. Not later than sixty (60) days after the conveyance of 50% of the Lots to Owners other than Declarant, not less than 33-1/3% of the members of the Board will be elected by Owners other than Declarant. Not later than the termination of the period of Declarant's control as provided above, the Owners (including Declarant) shall elect a Board of at least three (3) members, at least a majority of whom must be Owners other than Declarant or designated representatives of Owners other than Declarant and the Board shall elect the officers, with such Board members and officers to take office upon election. Within sixty (60) days after Owners other than Declarant elect a majority of the Board, Declarant shall deliver to the

Association all property of the Owners and the Association held or controlled by Declarant, including without limitation those items specified in Section 303 (9) of the Common Interest Act.

Section 4. **Officers of the Association**. The officers of this Association shall be as set forth in the Bylaws of the Association.

ARTICLE IV
COVENANT FOR MAINTENANCE ASSESSMENTS

Section 1. **Creation of the Lien and Personal Obligation of Assessments**. Each owner of any Lot, including Declarant, by acceptance of a deed therefor, whether or not it shall be so expressed in such deed, is deemed to covenant and agree to pay to the Association: (1) annual assessments or charges, (2) special assessments, and (3) reconstruction assessments, such assessments to be established and collected as hereinafter provided. The annual, special and reconstruction assessments, together with interest, late charges, costs, and reasonable attorney's fees, shall be a charge on the land and shall be a continuing lien upon the Lot against which such assessment is made. The obligation for such payments by each Owner to the Association is an independent covenant, with all amounts due from time to time payable in full without notice (except as otherwise expressly provided in this Declaration on demand, and without setoff or deduction. The lien may be enforced by foreclosure of the defaulting Owner's Lot by the Association in like manner as a mortgage on real property. In any such foreclosure, the Owner shall be required to pay the costs and expenses of such proceedings, including reasonable attorney's fees. The Board of Directors or managing agent of the Association may prepare a written notice setting forth the amount of such unpaid indebtedness, the name of the Owner of the Lot and a description of the Lot. Such a notice shall be signed by one of the Board of Directors or by the managing agent of the Association and may be recorded in the office of the Clerk and Recorder of the county of Mesa, Colorado. The lien for each unpaid assessment attaches to each Lot at the beginning of each assessment period and shall continue to be a lien against such Lot until paid. The costs and expenses for filing any notice of lien shall be added to the assessment for the Lot against which it is filed and collected as part and parcel thereof. Each assessment, together with interest, late charges, costs, and reasonable attorney's fees, shall also be the personal obligation of the person who was the Owner of such Lot at the time when the assessment became due. The personal obligation for delinquent assessments shall not pass from them. The Association's lien on a Lot for assessment shall be superior to any homestead exemption now or hereafter provided by the laws of the State of Colorado or any exemption now or hereafter provided by the laws of the United States. The acceptance of a deed to land subject to this Declaration shall constitute a waiver of the homestead and any other exemption as against said assessment lien.

Section 2. **Purpose of Assessments**. The assessments levied by the Association shall be used exclusively to promote the health, safety and welfare of the residents of the Property and , to the extent not performed by any applicable governmental entity, for the maintenance and insurance of the Common Area, including but not limited to , the entryways (signage, walls and landscaping) and the irrigation water system.

Section 3. **Maximum Annual Assessment**.

(a) Until commencement of the second annual assessment period, the maximum annual assessment shall be One Hundred Twenty Dollars ($120.00) per Lot.

(b) Effective with commencement of the second and each subsequent Association fiscal year, the maximum annual assessment against each Lot shall be increased effective each Association fiscal year by the greater of: (1) ten percent (10%), or (ii) in conformance with the rise, if any, of the Consumer Price Index published by the U.S. Department of Labor, Washington, D.C., for All Items and Major Group Figures for All Urban Consumers (1967 - 100), for the one (1) year period ending on the last day of October of the prior year. The aforesaid annual increase in the maximum annual assessment shall occur automatically upon the commencement of each Association fiscal year without the necessity of any action being taken with respect thereto by the Association. In the event the aforesaid Consumer Price Index is not published, for whatever reason, then if the increase in the maximum annual assessment is to be computed by reference to the Consumer Price Index, as provided herein, such calculation shall be made by using a substantially comparable index designated by the Board of Directors of the Association.

(c) Effective with commencement of the second and each subsequent Association fiscal year, the maximum annual assessment may be increased by a vote of the Members over the amount established by the applications of the provisions of Section 3 (b) above for the next succeeding association fiscal year and at the end of that year, for each succeeding Association fiscal year, provided that any such increase shall have the assent of two-thirds (2/3) of the Members who are voting in person or by proxy, at a meeting duly called for this purpose, written notice of which shall be sent to all Members not less than 30 days nor more than 60 days in advance of such meeting setting forth the purpose therefor.

(d) The Board of Directors of the Association may, at any time and from time to time, after consideration of the projected maintenance costs and the other financial needs of the Association, fix the actual assessment against each Lot at an amount less than the maximum assessment for any Association fiscal year.

(e) Within thirty (30) days after adoption of any proposed budget for the Association, the Board of Directors shall mail, by ordinary first-class mail, or otherwise deliver a summary of the budget to all the Owners and shall set a date for a meeting of the Owners to consider ratification of the budget not less than fourteen (14) nor more than sixty (60) days after mailing or other delivery of the summary. Unless at that meeting a majority of all Owners reject the budget, the budget shall be ratified, whether or not a quorum of members is present. In the event that the proposed budget is rejected, the periodic budget last ratified by the Owners shall be continued until such time as the Owners ratify a subsequent budget proposed by the Board.

(f) The limitations contained in this Section 3 shall not apply to any change in the maximum, actual and basis of the assessments undertaken as an incident to a merger or consolidation in which the Association is authorized to participate under its Article of Incorporation.

(g) The Association shall maintain an adequate reserve fund out of the annual assessments for the repair and replacement of those elements of the Common Area that must be repaired or replaced on a periodic basis.

Section 4. **Special Assessments**. In addition to the annual and reconstruction assessments authorized in this Article IV, the association may levy, in the Association fiscal year, a special assessment applicable to that year only, for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair, or replacement of a capital improvement upon the Common Area, or for the funding of any operating deficit incurred by the Association. Any such assessment shall have the assent of two-thirds (2/3) of the votes of the Members who are voting in person or by proxy at a meeting duly called for this purpose and shall be set equally against each Lot.

Section 5. **Notice and Quorum for Any Action Authorized Under Sections 3 and 4.** Written notice of any meeting called for the purpose of taking any action requiring a vote of the Members authorized under Sections 3 or 4 of this Article shall be sent to all Members not less than 30 days or more than 60 days in advance of the meeting. At the first such meeting called, the presence of Members or of proxies representing sixty percent (60%) of the Members shall constitute a quorum. If the required quorum is not present, another meeting held no later than 60 days thereafter, may be called subject to the same notice requirement, and the required quorum at the subsequent meeting shall be one-half (½) of the required quorum at the preceding meeting.

Section 6. **Reconstruction Assessments.** In addition to the annual and special assessments authorized in this Article IV, the Association may levy a reconstruction assessment for the purpose of repair or reconstruction of damaged or destroyed improvements. All such reconstruction assessments shall be equal to the net amount of the cost of repair or reconstruction of such improvements and shall be calculated by subtracting from the total cost of repair or reconstruction the sum of the insurance proceeds awarded for the damage or destruction thereof, if any, and shall be set equally against each Lot. Such reconstruction assessments shall be due and payable as

provided by resolution of the Board of Directors, but not sooner than thirty (30) days after written notice hereof; provided, however, that, in appropriate circumstances, the Association may proceed directly against any Owner pursuant to Article VIII, Section 3 hereof for any such amount.

Section 7. **Rate of Assessment**. Annual and special assessments shall be fixed at a uniform rate for all Lots and shall be allocated to each Lot on the basis of a fractional share per lot, the numerator of which fraction shall be one and the denominator of which shall be the number of Lots contained within the Property, and shall be in an amount sufficient to meet the expected needs of the Association.

Section 8. **Date of Commencement of Annual Assessments**. The initial annual assessment shall commence on the first day of the month following conveyance of the first Lot to an Owner other than Declarant, and the second and each subsequent annual assessment period shall correspond with the fiscal year of the Association. The annual assessments shall be made due and payable with such frequency and on such dates as determined by the Board, but no more frequently than monthly, provided that the first annual assessment shall be adjusted according to the number of months in the first Association fiscal year. Any Owner purchasing a Lot between installment due dates shall pay a pro rata share of the last installment due.

Section 9. **Effect of Nonpayment of Assessments; Remedies of the Association**. Any assessment not paid within ten (10) days after the due date thereof shall bear interest from the due date at rate of eighteen percent (18%) per annum, or at such lesser rate as may be set from time to time by the Association, and the Association may also assess a monthly late charge thereon. The association may bring an action at law against the Owner personally obligated to pay the same, or foreclose the lien against such Owner's Lot, and in the event a judgment is obtained, such judgment shall include interest on the assessment and a reasonable attorney's fee to be fixed by the court, together with the costs of the action. No Owner may waive or otherwise escape liability for the assessments provided for herein by nonuse of the Common Area or abandonment of his Lot.

Section 10. **Lien for Assessments**.

(a) Under the Common Interest Act, the Association has a statutory lien on a Lot for any assessments levied against that Lot and for fines imposed against its Owner from the time each assessment or fine becomes due. In addition, fees, charges, late charges, attorneys' fees, fines and interest charged pursuant to this Declaration or the Common Interest Act are enforceable as assessments. If an assessment is payable in installments, the full amount of the assessment is a lien from the time the first installment thereof becomes due.

(b) The statutory lien for assessments is prior to all other liens and encumbrances on a Lot except: (1) liens and encumbrances recorded before the recordation of this Declaration; (ii) a lien of a First Mortgage which was recorded before the date on which the assessment sought to be enforced

became delinquent; and (iii) liens for real estate taxes and other governmental assessments or charges against the lot. Notwithstanding the foregoing, the statutory lien for assessments is also prior to the lien of a first mortgage to the extent of an amount equal to the assessments based on a periodic budget adopted by the Association which would have become due, in the absence of any acceleration, during the six months immediately preceding institution by either the Association or any party holding a lien senior to any part of the Association lien created under this section of an action or a nonjudicial foreclosure either to enforce or to extinguish the lien.

(c) The recording of this Declaration constitutes record notice and perfection of the statutory lien. No further recordation of any claim of lien or assessment is required, however, a claim may be recorded at the Association's option, in which event costs and attorneys' fees incurred in connection with the preparation and filing of such claim shall be assessed against the Owner's Lot as a default assessment.

ARTICLE V
ARCHITECTURAL CONTROL COMMITTEE

Section 1. **Composition of Committee**. The Architectural Control Committee shall consist of three (3) or more persons appointed by the Board of Directors of the Association: provided, however, that until Declarant has conveyed all Lots to Owners other than the Declarant, or until five years after the date of recording of this Declaration in the office of the Clerk and Recorder of Mesa County, Colorado, whichever occurs earliest, Declarant shall appoint the Architectural Control Committee. A majority of the Committee may, from time to time, designate a representative to act for it. The power of the Declarant to "appoint", as provided herein, shall include without limitation the power to: initially constitute the membership of the Architectural Control Committee, appoint member(s) to the Architectural Control Committee upon the occurrence of any vacancy therein, for whatever reason remove any member of the Architectural Control Committee, with or without cause, at any time, and appoint the successor thereof; and each such appointment may be made for such term(s) of office, subject to the aforesaid power of removal, as may be set from time to time in the discretion of the Declarant. All improvements within the Property constructed by Declarant during the period in which it appoints the Architectural Control Committee shall be deemed approved by the Committee without the issuance of any writing evidencing such approval.

Section 2. **Review by Committee**. No structure or any attachment to an existing structure, any building, fences, walls, canopies, awnings, roofs, exterior lighting facilities, athletic facility, satellite dish, or other similar improvements or attachments, shall be constructed, erected, placed or installed upon the Property and no alteration of the material or appearance (including color) of the exterior of a residence or other structure shall be made, and no change in the final grade of any Lot shall be performed, unless copies of plans and specifications therefor (said plans and specification to show exterior design, height, colors, materials, location of the structure or addition to the structure, as well as such other materials and information as may be required by the Committee) shall

have been first submitted to and approved in writing by the Architectural Control committee. The plans and specifications so submitted shall comply in all respects with the applicable building and zoning regulations of the City of Grand Junction. The Architectural Control Committee shall exercise its reasonable judgment to the end that all attachments, improvements, construction, landscaping and alterations to residences, other structures, and property, within the Property, conform to and harmonize with the existing surroundings, residences, landscaping and structures. In its review of such plans, specifications and other materials and information, the Architectural Control Committee may require that the applicant(s) pay the Committee a processing fee for the actual expenses incurred by the Committee in the review and approval process. Such amounts, if any, may be levied as part of the common expense assessment against the Lot for which the request for Architectural Control Committee approval was made and, as such, shall be subject to the Association's lien for assessments and subject to all other rights of the Association for the collection thereof, as more fully provided in this declaration. Notwithstanding the foregoing, no Owner shall have the right to materially alter or modify the original fencing, landscaping or grading installed by Declarant within the Common Area, provided, however, that the foregoing prohibition shall not prevent the repair and maintenance of the same.

In making its decisions, the committee shall consider the following items:

(a) Each house shall have its total exterior wall area (excluding windows, doors, soffits and facias) comprised of brick, stone, stucco or a combination thereof ;

(b) compatibility of the proposed earth tone colors with neighboring houses;

(c) roofing materials compatible with the "look and feel" of the neighborhood;

(d) location and screening of any accessory structure or satellite dish;

(e) all fences shall be six foot cedar and colored with the same pigments as selected by the Committee;

The control of the Committee with regard to color, exterior materials, placement of accessory structures, patio covers, screening requirements and approval of landscaping plans and exterior lighting shall be absolute.

Section 3. **Procedures**. The Architectural Control Committee shall approve or disapprove all requests for architectural control approval within fourteen (14) days after the complete submission of copies of all plans, specifications, and other materials which the Committee may require in conjunction therewith. In the event that the Architectural Control Committee fails to approve or disapprove any request within fourteen (14) days after the complete submission of all plans,

specifications, materials and other information with respect thereto, approval shall not be required and this Article shall be deemed to have been fully complied with.

Section 4. **Vote and Appeal**. A majority vote of the Architectural Control Committee is required to approve a request for architectural approval pursuant to this Article. An Owner may appeal the decision of the Architectural Control Committee to the Board of Directors if the board is composed of different members than the Architectural Control Committee, and, in such event, the decision of the Board shall be final.

Section 5 . **Records.** The Architectural Control Committee shall maintain written records of all applications submitted to it and all actions taken by it thereon, and such records shall be available to Members for inspection at reasonable hours of the business day.

Section 6. **Liability**. The Architectural Control Committee and the members thereof shall not be liable in damages to any person submitting requests for approval or to any Owner, by reason of any action, failure to act, approval, disapproval, or failure to approve or disapprove in regard to any matter within its jurisdiction hereunder.

Section 7. **Variance**. The Architectural Control Committee may grant reasonable variances or adjustments from any conditions and restrictions imposed by this Article or Article IX hereof, in order to overcome practical difficulties and prevent unnecessary hardships arising by reason of the application of the conditions and restrictions contained in this Article or Article IX hereof. Such variances or adjustments shall be granted only in case the granting thereof shall not be materially detrimental or injurious to the other property or improvements in the neighborhood and shall not militate against the general intent and purpose hereof.

Section 8. **Waivers**. The approval or consent of the Architectural Control Committee to any application for architectural approval shall not be deemed to constitute a waiver of any right to withhold or deny approval of consent by the Committee as to any application or other matters whatsoever subsequently or additionally submitted for approval or consent hereunder.

ARTICLE VI
INSURANCE

Section 1. **Insurance on Common Area.** To the extent not maintained by the applicable governmental entity, the Association shall maintain insurance covering all insurable improvements located or constructed upon the Common Area. The Association shall maintain the following types of insurance, to the extent that such insurance is reasonably available. considering the availability, cost and risk coverage provided by such insurance, and the cost of said coverage shall be paid by the Association as a common expense. Notwithstanding any of the specific insurance requirements

specified in this Article VI, the Association may also consider in determining the types and amount of insurance it needs to obtain the then existing requirements of any of the Agencies.

(a) A policy of property insurance covering all insurable improvements, if any, located on the Common Area, except for land, foundations, excavations and other matters normally excluded from coverage, in an amount no less than the full insurable replacement cost of the Common Area less deductibles. Further, said policy shall contain a "Replacement Cost Endorsement" and an "Agreed Amount Endorsement." Such insurance as maintained by the Association pursuant to this subsection shall afford protection against at least the following:

(I) loss or damage by fire and other perils normally covered by the standard extended coverage endorsement; and

(ii) such other risks as shall customarily be covered with respect to projects similar in construction, location and use.

(b) A comprehensive policy of public liability insurance covering all of the Common Area, insuring the Association in an amount not less than $1,000,000.00 covering bodily injury, including death to persons, personal injury and property damage liability arising out of a single occurrence.

(c) A policy providing comprehensive fidelity coverage or fidelity bonds to protect against dishonest acts on the part of officers, directors, trustees, and employees of the Association and all others who handle or are responsible for handling funds of the Association, in an amount at least equal to the estimated maximum of funds, including maintenance reserves in the custody of the Association at any given time; provided, however, that such fidelity coverage or fidelity bonds shall not be in an amount less than three (3) months aggregate assessments on all Lots, plus such reserve funds. Such fidelity coverage or bonds shall meet the following requirements:

(1) all such fidelity coverage or bonds shall name the Association as an obligee; and

(2) such fidelity coverage or bonds shall contain waivers of any defense based upon the exclusion of persons who serve without compensation from any definition of "employee" or similar expression.

In the event the Association has delegated some or all of its responsibility for the handling of funds to a managing agent, the Association may require the managing agent to purchase, at its own expense, a policy of fidelity insurance or bonds which fully complies with the provisions of this subparagraph (c).

(d) If the Common Area, or any portion thereof, is located within an area identified by the Federal Emergency Management Agency as having special flood hazards, and flood insurance

coverage on the Common Area has been made available under the National Flood Insurance Program, then such a policy of flood insurance on the Common Area in an amount at least equal to the lesser of:

(I) the maximum coverage available under the National Flood Insurance Program for all buildings and other insurable property located within a designated flood hazard area; or

(ii) one hundred percent (100%) of current replacement cost of all buildings and other insurable property located within a designated flood hazard area.

(e) In addition, the Association may obtain insurance against such other risks of a similar or dissimilar nature as it shall deem appropriate, to the extent that such coverage is reasonably available, including but not limited to personal liability insurance to protect directors and officers of the Association from personal liability in relation to their duties and responsibilities in acting as directors and officers on behalf of the Association.

Section 2. **General Provisions of Insurance Policies**. All policies of insurance carried by the Association shall be carried in blanket policy form naming the Association as insured, or its designee as trustee and attorney-in-fact for all Owners, and each Owner shall be an insured person under such policies with respect to liability arising out of any Owner's membership in the Association. The Association's policies shall contain a standard noncontributory first Mortgagee's clause in favor of each First Mortgagee and a provision that it cannot be canceled or materially altered by either the insured or the insurance company until thirty (30) days prior written notice thereof is given to the insured and each First Mortgagee, insurer or guarantor of the First Mortgage. The Association or any Owner, as applicable, shall furnish a certified copy or duplicate original of the policy, or renewal thereof, which is in the name of such Owner or the Association, with proof of premium payment and a certificate identifying the interest of the Owner in question or the Association, to any party in interest, including First Mortgagees, upon request. Any such Owner's policy shall also contain waivers of subrogation. All policies shall contain waivers of any defense based on invalidity arising from any acts or neglect of any Owner where such Owner is not under the control of the Association.

Section 3. **Deductibles**. No policy of insurance of which the Association or its designee is the beneficiary shall include a deductible clause in an amount greater than the greater of $1,000 or 1% of the face amount of the policy. Any loss falling within the deductible portion of such policy shall be borne by the person or entity who is responsible for the repair and maintenance of the property which is damaged or destroyed. In the event of a joint duty of repair and maintenance of the damaged or destroyed property, then the deductible shall be borne by the Association. Notwithstanding the foregoing, after notice and hearing, the Association may determine that a loss, either in the form of a deductible to be paid by the Association or an uninsured loss, resulted from the act or negligence of an Owner. Upon said determination by the Association, any such loss or portion thereof may be assessed to the Owner in question and the Association may collect the amount

from said Owner in the same manner as any annual assessment; provided, however, that any such determination which assigns liability to any Owner pursuant to the terms of this Section may be appealed by said Owner to a court of law.

Section 4. **Insurance Trustee**. The Association may authorize a representative to act for it, including any trustee or successor thereto, who shall have exclusive authority to negotiate losses under any policy providing property or liability insurance. Such insurance trustee shall act a s attorney-in-fact for the purpose of purchasing and maintaining insurance, including the collection and appropriate disposition of the proceeds thereof, the negotiation of losses and execution of releases of liability, the execution of all documents, and the performance of all other acts necessary to accomplish such purpose. Said party may also receive, hold or otherwise properly dispose of any proceeds of insurance in trust for Owners and their First Mortgagees as their interest may appear.

Section 5. **Association Insurance as Primary Coverage**. If at the time of any loss under any policy which is in the name of the Association, there is other insurance in the name of any Owner and such Owner's policy covers the same property or loss, or any portion thereof, which is covered by such Association policy, such Association policy shall be primary insurance not contributing with any of such other insurance. An Owner shall be liable to the Association for the amount of any diminution of insurance proceeds to the Association as a result of policies of insurance of an Owner, and the Association may collect the amount from said Owner in the same manner as any annual assessment. Any such Owner's policy shall also contain waivers of subrogation.

Section 6. **Acceptable Insurance Companies**. Each hazard insurance policy purchased by the Association must be written by a hazard insurance carrier which has a current rating by Best's Insurance Reports of B/VI or better, or a financial rating of Class V provided it has a general policy holder's rating of at least A, and is authorized by law to transact business within the State of Colorado. The Association shall not obtain any policy where (a) under the terms of the insurance company's charter, bylaws, or policy, contributions or assessments may be made against the mortgagor or mortgagee's designee, or (b) under the terms of the carrier's charter, bylaws, or policy, loss payments are contingent upon action by the carrier's Board of Directors, policy holders or members, or (c) the policy includes any limiting clauses (other than insurance conditions) which could prevent mortgagees or any Owner from collecting insurance proceeds.

Section 7. **Insurance to be Maintained by Owners**. Insurance coverage on the structures located upon a Lot, as well as the furnishings and other items of personal property belonging to an Owner shall be the responsibility of such Owner. Owners shall also be responsible for obtaining such policies of public liability insurance, and title insurance related to any sale of a Lot other than the purchase by the Initial Owner from the Declarant.

Section 8. **Annual Review of Insurance Policies**. All insurance policies carried by the Association shall be reviewed at least annually by the Board of Directors of the Association to

ascertain that the coverage provided by such policies adequately covers those risks insured by the Association.

ARTICLE VII
DAMAGE OR DESTRUCTION OF COMMON AREA

In the event of damage or destruction to any improvement installed by the Association within the Common Area due to fire or other adversity or disaster, the insurance proceeds, if sufficient to reconstruct or repair the damage, shall be applied by the Association to such reconstruction and repair. If the insurance proceeds with respect to such Common Area damage or destruction are insufficient to repair and reconstruct the damaged or destroyed Common Area, the Association may levy a reconstruction assessment in the aggregate amount of such deficiency pursuant to Article IV, Section 6 hereof and shall proceed to make such repairs or reconstruction, unless:

(1) the planned community is terminated;

(2) repair or replacement would be illegal under any state or local statute or ordinance governing health or safety;

(3) eighty percent (80%) of the Owners, including every Owner of a Lot that will not be rebuilt, vote not to rebuild;
or

(4) prior to the conveyance of any Lot to a person other than Declarant, the holder of a deed of trust or mortgage on the damaged portion of the Common Area rightfully demands all or a substantial part of the insurance proceeds.

No distributions of insurance proceeds shall be made unless made jointly payable to the Owners and First Mortgagees of their respective Lots, if any. The reconstruction assessment provided for herein shall be a debt of each Owner and a lien on his Lot and the improvements thereon, and may be enforced and collected in the same manner as any assessment lien provided for in this Declaration.

ARTICLE VIII
EXTERIOR MAINTENANCE

Section 1. **General**. Except as otherwise provided herein, the maintenance and repair of each Lot, including but not limited to landscaping, the interior and exterior of the residence, improvements constructed thereon, and the interior of any fence on the boundary line of a Common Area and a Lot shall be the responsibility of the Owner(s) thereof. It shall be the duty and obligation of each Owner to landscape the front yard of his or her Lot within sixty (60) days from issuance of a Certificate of

Occupancy and the backyard of his or her Lot within one (1) year from issuance of a Certificate of Occupancy. The landscaping shall include an automatic sprinkler system, at least three (3) trees of which one shall be non-deciduous, and ten (10) shrubs. The minimum size for evergreen trees shall be seven (7) feet, deciduous trees two (2) inch caliper two (2) feet from base and shrubs in five (5) gallon containers. The time limits contained herein may be extended in writing by the Architectural Control Committee pursuant to the provisions of Article V hereof.

Section 2. **Maintenance of Common Area**. To the extent not performed by the applicable governmental entity or Owner, the Association shall be responsible for the landscaping and maintenance of the Common Area, including but not limited to repair and electrical fixtures and equipment, and plantings. No Owner shall, in whole or in part, change the landscaping, grade or fencing or in any way change the retaining wall on any portion of the Common Area.

Section 3. **Owner's Negligence**. Notwithstanding anything to the contrary contained in this Article VIII, in the event that the need for maintenance or repair of the Common Area is caused by the willful or negligent act or omission of any Owner, or by the willful or negligent act or omission of any member of such Owner's family or by a guest or invitee of such Owner, the cost of such repair or maintenance shall be the personal obligation of such Owner, and any costs, expenses and fees incurred by the Association for such maintenance, repair or reconstruction shall be added to and become part of the assessment to which such Owner's Lot is subject and shall become a lien against such Owner's Lot as provided in Article IV of this Declaration. A determination of the negligence or willful act or omission of any Owner or any member of an Owner's family or a guest or invitee of any Owner, and the amount of the Owner's liability therefor, shall be determined by the Association at a hearing after notice to the Owner, provided that any such determination which assigns liability to any Owner pursuant to the terms of this Section may be appealed by said Owner to a court of law.

ARTICLE IX
RESTRICTIONS

Section 1. **General Plan**. It is the intention of the Undersigned to establish and impose a general plan for the improvement, development, use and occupancy of the Property, in order to enhance the value, desirability, and attractiveness of the Property and to promote the sale thereof.

Section 2. **Restrictions Imposed.** The Undersigned hereby declares that all of the Property shall be held and shall henceforth be sold, conveyed, used, improved, occupied, owned, resided upon, and hypothecated, subject to the following provisions, conditions, limitations, restrictions, agreements, and covenants, as well a those contained elsewhere in this Declaration.

Section 3. **Use of Common Area**.

(a) No use shall be made of the Common Area which will in any manner violate the statutes, rules, or regulations of any governmental authority having jurisdiction over the Common Area.

(b) No owner shall engage in any activity which will temporarily or permanently deny free access to any part of the Common Area to all Members, nor shall any Owner place any structure or fence, except those installed by Declarant or the Undersigned, whatsoever upon the Common Area.

(c) The use of the Common Area shall be subject to such rules and regulations as may be adopted from time to time by the Board of Directors of the Association.

Section 4. **Residential Use**. Subject to Section 5 of this Article IX, Lots shall be used for residential purposes only, including all ancillary uses permitted by applicable zoning ordinances.

Section 5. **Use**. Notwithstanding anything to the contrary contained in this Declaration, it shall be expressly permissible and proper for Declarant, its employees, agents, contractors, and designees to perform such reasonable activities and to maintain upon portions of the Property such facilities as Declarant deems reasonably necessary or incidental to the construction and sale of Lots and development of the Property, specifically including without limiting the generality of the foregoing, maintaining business offices, storage areas, construction yards and equipment, signs, not more than three (3) model units which shall be located on a Lot owned by Declarant or Declarant's designee, not more than three sales offices which shall be located on a Lot owned by Declarant or Declarant's designee, parking areas and lighting facilities. Sales offices shall be removed from the Property and model units shall be sold to Owners within five (5) years from the date of this Declaration. Sales and offices and model units may be relocated from time to time to another Lot and shall be of a size compatible with the development of the Property. Notwithstanding the foregoing, Declarant shall not perform any activity or maintain any facility on any portion of the Property in such a way as to unreasonably interfere with or disturb any Owner, or to unreasonably interfere with the use, enjoyment or access of such Owner, his family members, guests or invitees of and to his Lot, the Common Area, and to public right-of-way.

Section 6. **Household Pets**. No animals, livestock, reptiles, poultry or insects, of any kind, shall be raised, bred, kept or boarded in or on the Property; provided, however, that the Owners of each Lot may keep a reasonable number of dogs, cats, fish or other domestic animals which are bona fide household pets, so long as such pet(s) are not kept for any commercial purpose and are not kept in such number or in such manner as to create a nuisance to any resident(s) of the Property. An Owner's right to keep household pets shall be coupled with the responsibility to pay for any costs to the Association for any damages caused by such Owner's pet(s).

Section 7. **Lots to be Maintained**. Except during any period of construction or reconstruction, each Lot at all times shall be kept in a clean, sightly, and wholesome condition. No trash, litter, junk, boxes, containers, bottles, cans, implements, machinery, lumber, or other building

materials shall be permitted to remain exposed upon any Lot so that the same are visible from any neighboring Lot, the Common Area, or any street.

Section 8. **Temporary Structures**. Except as hereinafter provided, no structure of a temporary character, including but not limited to a house trailer, tent, shack, or outbuilding shall be placed or erected upon any Lot, and no residence shall be occupied in any manner at any time prior to its being fully completed, nor shall any residence when completed be in any manner occupied until made to comply with all requirements, conditions, and restrictions, herein set forth, provided, however, that during the actual construction, alteration, repair or remodeling of a residence necessary temporary structures for storage of materials may be erected and maintained by the person doing such work. The work of constructing, altering or remodeling any residence shall be prosecuted diligently from the commencement thereof until the completion thereof.

Section 9. **Miscellaneous Structures**.

(a) No advertising or signs of any character shall be erected, placed, permitted, or maintained on any Lot other than a name place of the occupant and a street number, and except for a "For Sale" or "For Rent" sign not to exceed five (5) square feet; notwithstanding the foregoing, signs, advertising, or billboards used by the Declarant or its designees in connection with the sale or rental of Lots, or otherwise in connection with any development of the Property, shall be permissible, provided that such use by the Declarant or its designee shall not unreasonably interfere with any Owner's use and enjoyment of his Lot, the Common Area, or with such Owner's ingress or egress from a public way to the Common Area or his Lot.

(b) Except as may otherwise be permitted by the Architectural Control Committee, all antennae shall be installed inside any residence; provided, however, that 18" satellite receivers may be installed on the exterior provided the placement is approved by the Architectural Control Committee.

© No clotheslines, dog runs, drying yards, service yards, wood piles or storage areas shall be so located on any Lot as to be visible from a street.

(d) Any accessory building shall be a maximum of seven (7) feet in height and shall be of the same materials and color as the residence and shall be subject to the review of the Architectural Control Committee.

(e) Swamp coolers shall be located below the ridge line of the house and approved by the Architectural Control Committee.

Section 10. **Vehicular Parking, Storage and Repairs**.

(a) Any house trailer, camping trailer, boat trailer, hauling trailer, running gear, boat, or accessories thereto, motor-driven cycle, truck (larger than one ton), self-contained motorized recreational vehicle, or other type of recreational vehicle or equipment, may be parked or stored on or within the Property only if such parking or storage is done wholly within the enclosed garage located on a Lot or is otherwise screened from any street adjoining the property by a fence at least 6 feet high. Any such vehicle may be parked as a temporary expedience for loading, delivery, or emergency. This restriction, however, shall not restrict trucks or other commercial vehicles within the Property which are necessary for construction or for the maintenance of the Common Area, Lots or any improvements located thereon.

(b) Except as hereinabove provided, no abandoned or inoperable automobiles or vehicles of any kind shall be stored or parked on or within the Property. An "abandoned or inoperable vehicle" shall be defined as any automobile, truck, motorcycle, boat, trailer, camper, house trailer, self-contained motorized recreational vehicle, or other similar vehicle, which has not been driven under its own propulsion for a period of two (2) weeks or longer, or which does not have an operable propulsion system installed therein; provided, however, that otherwise permitted vehicles parked by Owners while on vacation or during a period of illness shall not constitute abandoned or inoperable vehicles. In the event the Association shall determine that a vehicle is an abandoned or inoperable vehicle, then a written notice describing said vehicle shall be personally delivered to the Owner thereof (if such owner can be reasonably ascertained) or shall be conspicuously placed upon the vehicle (if the owner thereof cannot be reasonably ascertained), and if the abandoned or inoperable vehicle is not removed within 72 hours thereafter the Association shall have the right to remove the vehicle at the sole expense of the Owner thereof.

© No activity such as, but not limited to, maintenance, repair, rebuilding, dismantling, repainting, or servicing of any kind of vehicles, trailers, or boats, may be performed or conducted on or within the Property, unless it is done within a 24-hour time period or within completely enclosed structure(s) which screen the sight and sound of the activity from the street and from adjoining property. The foregoing restrictions shall not be deemed to prevent washing and polishing of any motor vehicle, boat, trailer, or motor-driven cycle, together with those activities normally incident and necessary to such washing and polishing.

(d) All garages shall be a minimum of two (2) car and a maximum of four (4) car.

Section 11. **Nuisances**. No nuisance shall be permitted on or within the Property, nor any use, activity or practice which is the source of annoyance or embarrassment to, or which offends or disturbs, any residents of the Property, or which interferes with the peaceful enjoyment or possession and proper use of the Property, or any portion thereof, by its residents. As used herein, the term "nuisance" shall not include any activities of Declarant or its designees which are reasonably necessary to the development of an construction on the Property; provided, however, that such activities of the Declarant or its designees shall not unreasonably interfere with any Owner's use and

enjoyment of his Lot or the Common Area, or with any Owner's ingress and egress to or from his Lot and a public way.

Section 12. **Lots Not to be Subdivided**. No Lot shall be subdivided, except for the purpose of combining portions with an adjoining Lot, provided that no additional building site is created thereby. Not less than one entire Lot, as conveyed, shall be used as a building site.

Section 13. **Underground Utility Lines**. All electric, television, radio, and telephone line installations shall be placed underground, except that during the construction of any residence the contractor or builder may install a temporary overhead utility line which shall be promptly removed upon completion of construction.

Section 14. **No Hazardous Activities**. No activities shall be conducted on the Property or within improvements constructed on or within the Property which are or might be unsafe or hazardous to any person or property.

Section 15. **No Annoying Light, Sounds or Odors**. No light shall be emitted from any Lot which is unreasonably bright or causes unreasonable glare when viewed from the street, adjacent property or Common Area. No sound shall be emitted from any Lot which is unreasonably loud or annoying and no odor shall be permitted from any Lot which is noxious or offensive to others.

Section 16. **Garbage and Refuse Disposal.** No garbage, refuse, rubbish, or cuttings shall be deposited on any street, the Common Area, or any Lot, unless placed in a suitable container suitably located, solely for the purpose of garbage pickup. All containers shall be removed from the street the same day and returned to its screened area. All equipment for the storage or disposal of such materials shall be kept in a clean and sanitary condition. No garbage or trash cans or receptacles shall be maintained in an exposed or unsightly manner. All trash receptacles shall be screened as provided in the Architectural Control Committee guidelines.

Section 17. **Leases.** The term "lease," as used herein, shall include any agreement for the leasing or rental of a Lot or any portion thereof, and shall specifically include, without limitation, a month-to-month rental. Any Owner shall have the right to lease his Lot under the following conditions:

(a) All leases shall be in writing;

(b) All leases shall provide that the terms of the lease and lessee's occupancy of the Lot shall be subject in all respects to the provisions of this Declaration, and the Articles of Incorporation, Bylaws and rules and regulations of the Association, and that any failure by the lessee to comply with any of the aforesaid documents, in any respect, shall be a default under the lease; and

© No lease shall be for less than thirty days.

Section 18. **Rules and Regulations**. Rules and regulations concerning and governing the Property or any portion thereof may be adopted, amended or repealed from time to time by the Board of Directors of the Association, and the Board of Directors may establish and enforce penalties for the infraction thereof, including without limitation the levying and collecting of fines for the violation of any of such rules and regulations.

Section 19. Management Agreement and Other Contracts.

(a) The Association may utilize professional management in performing its duties hereunder. Any agreement for professional management of the Association's business or any contract providing for the services of Declarant shall have a maximum term of three (3) years and shall provide for termination by either party thereto, with or without cause and without payment of a termination fee, upon thirty (30) days prior written notice.

(b) Subject to Article IX, Section 19(a) hereof, any contracts, licenses or leases entered into by the Association which the Declarant controls the Association shall provide for termination by either party hereto, with or without cause and without payment of a termination fee, at any time after termination of the Declarant's control or the Association, upon thirty (30) days prior written notice.

© Notwithstanding anything to the contrary contained in this Section 19, the Association may enter into contracts, licenses and leases in violation of Section 19(b) hereof upon a waiver of any requirements contained herein by the Federal National Mortgage Association.

Section 20. **No Mining or Drilling.** No mining, drilling, quarrying, digging or excavating for the purpose of testing for the existence of, or extracting oil, gas, coal or minerals of any kind shall be performed upon or within the Property.

Section 21. **Irrigation**. Due to concerns regarding water conservation and the geologic integrity of the Subdivision, the Association shall have the exclusive right to control the irrigation system within the Subdivision.

ARTICLE X
FIRST MORTGAGES

Section 1. **Member and First Mortgagee Approval**. The Association shall not:

(a) unless it has obtained the prior written consent of at least sixty-seven percent (67%) of the Members and sixty-seven percent (67%) of the First Mortgagees (based upon one vote for each First Mortgage owned):

(I) by act or omission, change, waive, or abandon any scheme of architectural control, or enforcement thereof, as set forth in this Declaration, regarding the design or maintenance of the Lots, improvements thereon or the Common Area;

(ii) fail to maintain full current replacement cost fire and extended insurance coverage on the Common Area;

(iii) use hazard insurance proceeds for Common Area property losses for purposes other than to repair, replace, or reconstruct such property;

(iv) by act or omission, seek to abandon, partition, subdivide, encumber, sell or transfer any common property owned, directly or indirectly, by the Association for the benefit of the Owners (excluding the granting of permits, licenses and easements for public utilities, roads, or other purposes reasonably necessary or useful for the proper maintenance or operation of the Property or the Association);

(v) change the method of determining the obligations, assessments, dues, or other charges which may be levied against an Owner;

(vi) add or amend material provisions of this Declaration, the Articles of Incorporation or Bylaws of the Association which establish, provide for, govern or regulate any of the following, provided that any First Mortgagee who receives a written request to approve any additions or amendments to any of such documents and who does not deliver or post to the requesting party a negative response within thirty (30) days after receipt of such a request shall be deemed to have approved such request, and provided that such additions or amendments shall not be considered material if they are for the purpose of correcting technical errors or for clarification only, and further provided that this subsection (vi) shall not apply to amendments to this Declaration, the Articles of Incorporation or Bylaws of the Association made as a result of destruction, damage or condemnation of the Property or the improvements thereon;

1) voting;

2) assessments, assessment liens or subordination of such liens;

3) reserve for maintenance, repair and replacement of those elements of the Common Area which must be maintained, repaired or replaced on a periodic basis;

4) insurance, including but not limited to fidelity bonds;

5) rights to use of the Common Area;

6) responsibility for maintenance and repair of any portion of the Property;

7) expansion or contraction of the Property or the addition, annexation or withdrawal of property to or from the Property;

8) Interests in the Common Area;

9) convertibility of Lots into Common Area or of Common Area into Lots;

10) leasing of Lots or dwellings constructed thereon;

11) imposition of any right of first refusal or similar restriction on the right of any Owner to sell, transfer or otherwise convey his Lot;

12) any provisions which are for the express benefit of First Mortgagees, or insurers or guarantors of First Mortgages;

(vii) restore or repair the Common Area, or any portion thereof, including but not limited to improvements located thereon, after a partial condemnation or damage due to any insurable hazard, other than substantially in accordance with this Declaration and the most recent plans and specifications for the Common Area and the construction of improvements thereon;

Section 2. Notice of Action. Upon written request to the Association, identifying the name and address of the First Mortgagee or insurer or guarantor of the First Mortgage and the residence address of the property which is subject to such First Mortgage, each such First Mortgage or insurer or guarantor of such a First Mortgage, shall be entitled to timely written notice of:

(a) any condemnation loss or casualty loss which affects a material portion of the Property or any Lot subject to a First Mortgage held, insured or guaranteed by such First Mortgagee, insurer or guarantor of a First Mortgage;

(b) any delinquency in the payment of assessments or charges owed to the Association by the Owner of the Lot subject to a First Mortgage held, insured or guaranteed by such First Mortgagee, insurer or guarantor, or any default by such Owner in any obligation under the Declaration, Articles of Incorporation or Bylaws of the Association and the Board of Directors of the Association has

actual knowledge of such default, when such delinquency and/or default remains uncured for a period of sixty (60) days;

(c) any lapse, cancellation or material modification of any insurance policy or fidelity bond maintained by the Association;

(d) any proposed action which would require the consent of a specified percentage of First Mortgagees as provided in this Article X.

Section 3. Audit. The Association shall provide an audited financial statement for the immediately preceding fiscal year free of charge to any First Mortgagee, insurer or guarantor of a First Mortgage within a reasonable time after written request therefore.

ARTICLE XI

GENERAL PROVISIONS

Section 1. **Enforcement.** Enforcement of the covenants, conditions, restrictions, easements, reservations, rights-of-way, liens, charges and other provisions contained in this Declaration, the Articles of Incorporation, Bylaws or rules and regulations of the Association, as amended, shall be by any preceeding at law or in equity against any person or persons, including without limitation the Association, violating or attempting to violate any such provision. The Association and any aggrieved Owner shall have the right to institute, maintain and/or prosecute any such proceedings, and the Association shall further have the right to levy and collect fines for the violation of any provision of the aforesaid documents in any action instituted or amintained under this Section, the prevailing party shall be entitled to recover its costs and reasonable attorneys' fees incurred pursuant thereto, as well as any and all other sums awarded by the Court. Failure by the Association or any Owner to enforce any covenant or restriction herein contained shall in no event be deemed a waiver of the right to do so thereafter.

Section 2. **Severability**. Invalidation of any of the covenants, restrictions or other provisions contained in this Declaration by judgment or court order shall in no way affect or limit any other provisions which shall remain in full force and effect.

Section 3. **Easements**. Easements for the installation and maintenance of utilities, irrigation and drainage facilities are reserved as shown on the recorded plat of the Property, or any portion thereof, or other duly recorded instrument(s). Within these easements no structure, planting or other material shall be placed or permitted to remain which may damage or interfere with the installation and maintenance of utilities, or which may change the direction of flow of drainage channels in the

easements. Declarant hereby reserves the right to enter upon the Property to correct any flow of water and to establish and re-establish drainage channels

Section 4. **Conflict of Provisions**. In case of any conflict between this Declaration, the Articles of Incorporation or Bylaws of the Association, this Declaration shall control. In case of any conflict between the Articles of Incorporation and the Bylaws of the Association, the Articles of Incorporation shall control.

Section 5. **Street Lighting**. Unless street lighting and the cost thereof is provided by the community in which jurisdiction this subdivision is situated, all Lots shall be subject to and bound to Public Service Company tariffs which are now and may in the future be filed with the Public Utilities Commission of the State of Colorado relating to street lighting in this subdivision, together with rates, rules and regulations therein provided and subject to all future amendments and changes on file with the Public Utilities Commission of the State of Colorado.

Section 6. **Expansion**.

a. Reservation of Right to Expand. Declarant reserves the developmental right to expand the Property to include additional Lots at any time without approval by the Lot Owners. Declarant reserves the right to create a maximum of 160 dwelling units upon the Property. The right of expansion shall expire December 31, 2010. Expansion property is described on Exhibit "B" attached hereto.

b. Supplemental Declarations and Supplemental Plats. Such expansion may be accomplished by the filing for record by Declarant in the office of the Clerk and Recorder of Mesa County, Colorado, one or more Supplemental Declarations setting forth the Lots and other real property, if any, to be included in the expansion, together with any covenants, conditions, restrictions and easements particular to such property. The expansion may be accomplished in stages by successive supplements or in one supplemental expansion.

c. Expansion of Definitions. In the event of such expansion, the definitions used in the Declaration shall be expanded automatically to encompass and refer to the Property subject to this Declaration as so expanded. For example, "Lot" shall mean the Lots described in Article I, Section 8 above plus any additional Lots added by a Supplemental Declaration or Declarations, and reference to this Declaration shall mean this Declaration as supplemented. All conveyances of Lots shall be effective to transfer rights in the Property as expanded. The recordation in the records of Mesa County, Colorado, of a supplemental parcel map or maps incident to any expansion shall operate automatically to grant, transfer, and convey to the Association any new Common Area added to the Property as the result of such expansion. The allocation for assessments shall be amended pro rata to reflect the increase in the number of Lots added to the Declaration.

d. Declaration Operative to New Lots. The new Lots shall be subject to all of the terms and conditions of this Declaration and of any Supplemental Declaration, upon placing the supplemental parcel map(s) depicting the Expansion Property and Supplemental Declaration(s) of public record in the real estate records of Mesa County, Colorado.

e. No objection to Expansion. No member of the Association shall have any right of objection to the exercise of the developmental right set forth above including, but not limited to, the inclusion of a maximum of 175 dwelling units.

Section 7. **Duration, Revocation, and Amendment.**

(a) Each provision of this Declaration shall run with and bind the land for a term of twenty (20) years from the date of recording of this Declaration, after which time this Declaration shall be automatically extended for successive periods of ten (10) years each. Except as provided in Article X hereof and in subsections (b) and © of this Section 6, this Declaration may be amended during the first twenty (20) year period, and during subsequent extensions thereof, by any instrument approved in writing by not less than sixty-seven percent (67%) of the Members. Such amendment shall be effective when duly recorded in Mesa County, Colorado.

(b) If Declarant shall determine that any amendments to this Declaration or any amendments to the Articles of Incorporation or Bylaws of the Association shall be necessary in order for existing or future mortgages, deeds of trust or other security instruments to be acceptable to any of the Agencies, Declarant shall have and is hereby specifically granted the right and power to make and execute any such amendments without obtaining the approval of any Owners or First Mortgagees. Each such amendment of this Declaration or of the Articles of Incorporation or Bylaws shall be made, if at all, by Declarant prior to termination of the Declarant's control or the Association.

© Declarant hereby reserves and is granted the right and power to record technical amendments to this Declaration, Articles of Incorporation or By Laws of the Association at any time prior to the termination of Declarant's control or the Association, for the purposes of correcting spelling, grammar, dates, typographical errors, or as may otherwise be necessary to clarify the meaning of any provisions of any such document.

Section 8. **Rights of Declarant Incident to Construction**. An easement is hereby retained by and granted to Declarant, its successors and assigns, for access, ingress, and egress over, in, upon, under, and across the Common Area, including but not limited to the right to store materials thereon and to make such other use thereof as may be reasonably necessary or incidental to Declarant's or its designees' construction on the Property; provided, however, that no such rights or easements shall be exercised by Declarant in such a manner as to unreasonably interfere with the occupancy, use, enjoyment, or access by any Owner, his family members, guests, or invitees, to or of that Owner's Lot. Declarant, for itself and its successors and assigns, hereby retains a right to store construction

materials on Lots owned by Declarant and to make such other use thereof as may be reasonably necessary or incidental for the purpose of the completion or improvement of the Property, the performance of Declarant's obligations hereunder, and the sale of the Lots. Any special declarant rights created or reserved under this Article or elsewhere in this Declaration for the benefit of Declarant may be transferred to any person by an instrument describing the rights transferred and recorded in the office of the Clerk and Recorded for the County of Mesa. The rights of Declarant reserved in this Section 7 shall expire five (5) years after the recording of this Declaration. Such instrument shall be executed under this Declaration shall expire on the date which is ten (10) years from the recording date of this Declaration, unless otherwise provided herein.

Section 9. **Registration by Owner of Mailing Address**. Each Owner shall register his mailing address with the Association, and except for statements and other routine notices, all other notices or demands intended to be served upon an Owner shall be sent by either registered or certified mail, postage prepaid, addressed in the name of the Owner at such registered mailing address. However, if any Owner fails to so notify the Association of a registered address, then any notice or demand may be sent to such Owner at the address of such Owner's Lot. All notices, demands, or other notices intended to be served upon the Board of Directors of the Association or the Association shall be sent by certified mail, postage prepaid, c/o O.P. Development Company, LC, 2421 Applewood Circle, Grand Junction, Colorado 81506, until such address is changed by the Association.

IN WITNESS WHEREOF, the undersigned, being the Declarant herein, has hereunto set its hand and seal as of the day and year first above written.

O. P. Development Company, LLC

By: Robert C. Knapple
Robert C. Knapple, Managing Director

STATE OF COLORADO)
) ss.
COUNTY OF MESA)

The foregoing instrument was acknowledged before me this 31 day of Jan, 1997

WITNESS my hand and official seal.
My commission expires : Aug 24, 1997

Donald K Paris

NOTARY PUBLIC
DONALD K.
PARIS
STATE OF COLORADO

TYPE LEGAL DESCRIPTION BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE INCH MARGIN ON EACH SIDE.

EXHIBIT A

Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 18, Pages 95-96, in the records of the Mesa County Clerk and Recorder. Located in the NW 1/4 of the SE 1/4 of Section 1, Township 1 South, Range 1 West, of the Ute Meridian, City of Grand Junction, State of Colorado.

EXHIBIT B

IMPROVEMENTS COST ESTIMATE

DATE: 8-Aug-03
DEVELOPMENT NAME:_____ KNOLLS FILING 6
LOCATION:_____ 27 1/2 ROAD, SOUTH OF PIAZZA WAY
PRINTED NAME OF PERSON PREPARING: PATRICK M. O'CONNOR

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
A.	SANITARY SEWER				
1	8 " PVC Sanitary Sewer Main	LF	2372	$ 16.00	$ 37,952.00
2	____ " PVC Sanitary Sewer Main	LF			$ -
3	____ " PVC Sanitary Sewer Main	LF			$ -
4	Sewer services	LF	1589	$ 10.00	$ 15,890.00
5	Sanitary Sewer Manhole	EA	11	$ 1,500.00	$ 16,500.00
6	Sanitary Sewer Drop Manhole	EA			$ -
7	Connection to Existing Manhole	EA	1	$ 500.00	$ 500.00
8	Concrete Encasement	LF	30	$ 30.00	$ 900.00
	Subtotal Part A Sanitary Sewer				**$ 71,742.00**
B.	DOMESTIC WATER				
1	8" PVC Water Main	LF	1397	$ 18.00	$ 25,146.00
2	____ " PVC Water Main	LF			$ -
3	____ " PVC Water Main	LF			$ -
4	8" Gatevalve	EA	6	$ 550.00	$ 3,300.00
5	____ " Gatevalve	EA			$ -
6	____ " Gatevalve	EA			$ -
7	Water Services	LF	737	$ 9.00	$ 6,633.00
8	Connect to Existing Water Line	EA	2	$ 500.00	$ 1,000.00
9	Fire Hydrant with Valve	EA	2	$ 2,350.00	$ 4,700.00
10	Utility Adjustments	EA			$ -
11	Blowoff	EA	2	$ 300.00	$ 600.00
					$ -
					$ -
					$ -
	Subtotal Part B - Domestic Water				**$ 41,379.00**

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
C1	STREETS				
1	8" PVC Utility/Irrigation sleeves	LF	90	$ 15.00	$ 1,350.00
2	4" PVC Utility/Irrigation sleeves	LF	160	$ 10.00	$ 1,600.00
3	Reconditioning	SY	6475	$ 1.50	$ 9,712.50
4	Aggregate Base Course (Class 3)	TN			$ -
5	Aggregate Base Course (Class 6) (8" Compacted Thickness)	TN	1990	$ 11.25	$ 22,387.50
6	Aggregate Base Course (Class 6) (__" Compacted Thickness)	SY			$ -
7	Hot Bituminous Paving, Grading C (3" thick)	TN	750	$ 40.00	$ 30,000.00
8	Hot Bituminous Paving, Grading__ (__" thick)	SY			$ -
9	Hot Bituminous Paving, Patching (___" Thick)	SY			$ -
10	Geotextile	SY			$ -
11	Concrete Curb (__" Wide by __"	LF			$ -
12	Concrete Curb and Gutter (2' wide)	LF			$ -
13	Concrete Curb and Gutter (1.5' wide)	LF			$ -
14	Monolithc, Vertical Curb, Gutter and Sidewalk (__' Wide)	LF			$ -
15	Drive Over Curb, Gutter, and Sidewalk (6.5' Wide)	LF	2540	$ 17.50	$ 44,450.00
16	Concrete Sidewalk (__' Wide)	LF			$ -
17	Concrete Gutter and Driveway Section (__" Thick)	SY			$ -
18	Concrete Drainage Pan (6' Wide, 8"	SF	336	$ 3.00	$ 1,008.00
19	Concrete Corner Fillet	SY			$ -
20	Concrete Curb Ramp	SY			$ -
21	Complete Concrete Corner	SF	1323	$ 3.00	$ 3,969.00
22	Concrete Driveway (__" Thick)	SY			$ -
23	Driveway/Concrete Repair	SY			$ -
24	Retaining Walls	LF	500	$ 18.50	$ 9,250.00
25	Street Signs	EA	5	$ 200.00	$ 1,000.00
26	Striping (New, Remove/Replace)	LF			$ -
27	Street Lights	EA	4	$ 1,200.00	$ 4,800.00
28	Signal Construction or Reconstructio	LS			$ -
29	Flowable Fill	CY			$ -
30	Sleeves, ____", ____ PVC	LF			$ -
					$ -
					$ -

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
D4	TORM DRAINAGE FACILITIES				
1	Finish Grading (incl. Channels, Swales, and Ponds)	CY	2000	$ 2.00	$ 4,000.00
2	15" RCP Storm Drain Pipe	LF	246	$ 25.00	$ 6,150.00
3	18" RCP Storm Drain Pipe	LF	1150	$ 30.00	$ 34,500.00
4	____" _____Storm Drain Pipe	LF			$ -
5	____" _____Storm Drain Pipe	LF			$ -
6	____" _____Storm Drain Pipe	LF			$ -
7	___" Flared End Section	EA			$ -
8	___" Flared End Section	EA			$ -
9	48" Storm Drain Manhole	EA	4	$ 1,200.00	$ 4,800.00
10	60" Storm Drain Manhole	EA			$ -
11	72" Storm Drain Manhole	EA			$ -
12	Manhole with Box Base	EA			$ -
13	Connection to Existing MH	EA			$ -
14	Single Curb Opening Storm Drain Inl	EA			$ -
15	Double Curb Opening Storm Drain In	EA			$ -
16	Area Storm Drain Inlet	EA			$ -
17	Detention Area Outlet structure	EA			$ -
18	Rip-Rap D_{50} = 8"	CY	4	$ 50.00	$ 200.00
19	Sidewalk Trough Drain	EA			$ -
20	Pump Systems including Electrical	LS	1	$ 1,000.00	$ 1,000.00
	Subtotal Part D - Grading and Drainage				**$ 79,910.00**

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
E1	**IRRIGATION**				
1	Connect to Existing Pipe	LS	1	$ 500.00	$ 500.00
2	4" PVC Irrigation Pipe	LF	1570	$ 8.00	$ 12,560.00
3	___" ____ Irrigation Pipe	LF			$ -
4	Fittings and Valves	LS	1	$ 200.00	$ 200.00
5	Services	EA	14	$ 80.00	$ 1,120.00
6	Pump System and Concrete Vault	LS			$ -
7	Irrigation Structure	EA			$ -
8	Vacuum Relief and/or Air Release Va	EA			$ -
E2	**LANDSCAPING**				
1	Design/Architecture	LS			$ -
2	Earthwork	CY			$ -
3	Hardscape Features	LS			$ -
4	Plant Material & Planting	LS			$ -
5	Irrigation System	LS			$ -
6	Curbing	LF			$ -
7	Retaining Walls & Structures	LS			$ -
8	1 Year Maintenance Agrmnt.	LS			$ -
9	Topsoil				$ -
					$ -
					$ -
E	**Subtotal Part E - Landscaping and Irrigation**				**$ 14,380.00**

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
C2	BRIDGES				
					$ -
1	Box Culvert Pre-Cast	LS			$ -
2	Box Culvert Cast-in-Place	LS			$ -
3	Wingwalls	LS			$ -
4	Parapet Wall	LS			$ -
5	Railing (handrail, guardrail)	LS			$ -
					$ -
					$ -
	Subtotal Part C - Streets and Bridges				**$ 129,527.00**
D1	EARTHWORK				
1	Mobilization	LS	1	$ 1,500.00	$ 1,500.00
2	Clearing and Grubbing	LS	1	$ 2,000.00	$ 2,000.00
3	Unclassified Excavation	CY	5200	$ 2.00	$ 10,400.00
4	Unclassified Embankment	CY	4800	$ 2.50	$ 12,000.00
5	Silt Fence	LF	40	$ 4.00	$ 160.00
6	Watering (Dust Control)	LS	1	$ 1,500.00	$ 1,500.00
D2	REMOVALS AND RESETTING				
1	Removal of Asphalt	SY			$ -
2	Removal of Miscellaneous Concrete	SY			$ -
3	Remove Curb and Gutter	LF			$ -
4	Removal of Culverts	LF			$ -
5	Remove Structures	EA			$ -
6	Remove Signs	EA			$ -
7	Remove Fence	LF			$ -
8	Adjust Manhole	EA	11	$ 100.00	$ 1,100.00
9	Adjust Valvebox	EA	6	$ 100.00	$ 600.00
10	Relocate or Adjust Utilities	LS			$ -
D3	SEEDING AND SOIL RETENTION				
1	Sod	SY			$ -
2	Seeding (Native)	SY or AC			$ -
3	Seeding (Bluegrass/Lawn)	SY or AC			$ -
4	Hydraulic Seed and Mulching	SY or AC			$ -
5	Soil Retention Blanket	SY			$ -

Item #	Item Description	Unit	Quantity	Unit Price	Extended Price
F.	**Miscellaneous Items**				
1	Construction staking/surveying	%	2.00%	$ 336,938.00	$ 6,738.76
2	Developer's inspection cost	%	0.50%	$ 336,938.00	$ 1,684.69
3	General construction supervsn	%	0.50%	$ 336,938.00	$ 1,684.69
4	Quality control testing	%	2.00%	$ 336,938.00	$ 6,738.76
5	Construction traffic control	%		$ 336,938.00	$ -
6	City inspection fees	%	0.50%	$ 336,938.00	$ 1,684.69
7	As-builts	%	2.00%	$ 336,938.00	$ 6,738.76
E	**Subtotal Part F - Miscellaneous Items**				**$ 25,270.35**

% = Percentage of total site construction costs

G.	**COST SUMMARY**	
1	**Total Improvement Costs**	**$ 362,208.35**
2	**City Security (20%)**	**$ 72,441.67**
3	**Total Guarantee Amount**	**$ 434,650.02**

NOTES
1. All prices shall be for items complete in place and accepted.
2. All pipe prices shall include excavation, pipe, bedding, backfill, and compaction.
3. Water main shall include pipe, excavation, bedding, backfill, bends, and appurtenances not itemized elsewhere.
4. All concrete items shall include Aggregate Base Course where required by the drawings.
5. Fill in the pipe type for irrigation pipe and sleeves.
6. Reconditioning shall be calculated to at least 6" outside of back of walk on both sides.
7. Units can be changed if desired, simply annotate what is used.
8. Additional lines or items may be added as needed.

12/10/03

Signature of Developer Date

(If corporation, to be signed by President and attested to by Secretary together with the corporate seals.)

I have reviewed the estimated costs and time schedule shown above and, based on the construction drawings submitted to date and the current cost of construction, I take no exception to the above.

12/17/03

City Development Engineer Date

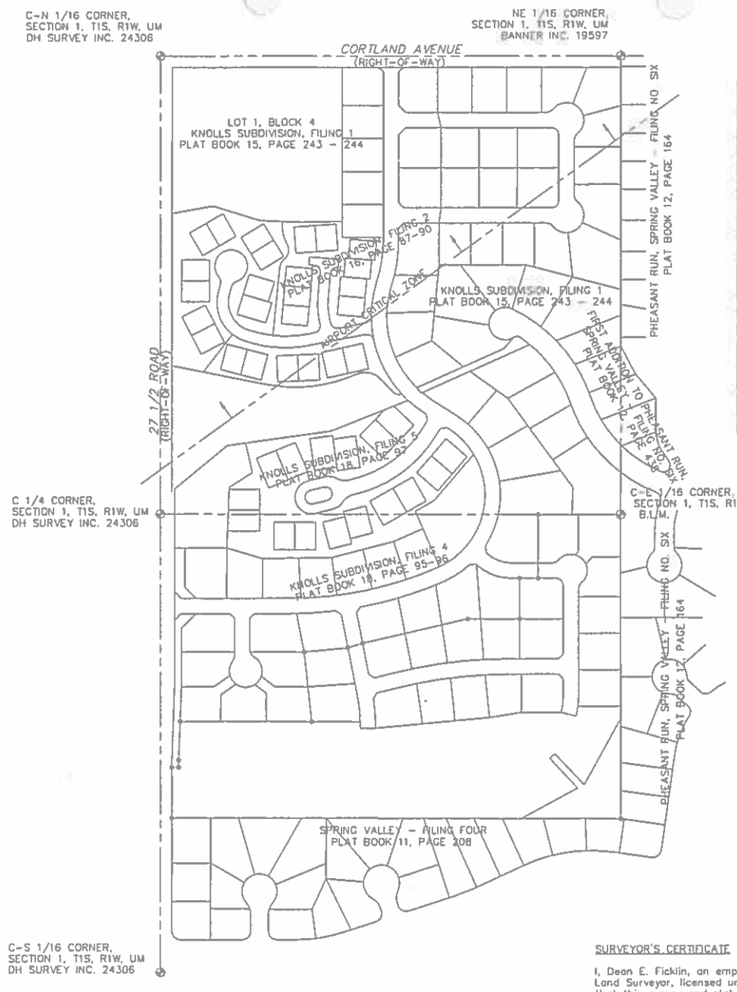
12-12-03

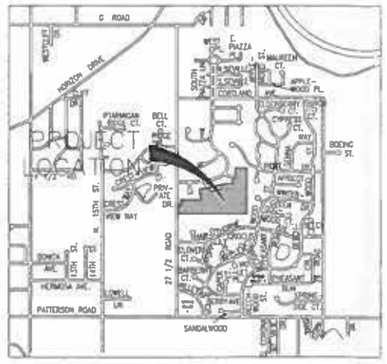
Community Development Date

Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 18, Pages 95-96, in the records of the Mesa County Clerk and Recorder. Located in the NW 1/4 of the SE 1/4 of Section 1, Township 1 South, Range 1 West, of the Ute Meridian, City of Grand Junction, State of Colorado.

KNOLLS SUBDIVISION, FILING 6

A REPLAT OF BLOCK 6 OF KNOLLS SUBDIVISION, FILING 4.
LOCATED IN THE NW 1/4 OF THE SE 1/4 OF SECTION 1,
T.1 S., R.1 W., U.M., MESA COUNTY, COLORADO





VICINITY MAP

N

FEET 200 0 200 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 200 FEET

LEGEND

- ▲ SET THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP IN CONCRETE MARKED VISTA ENGR., 19597
- ● FOUND THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP IN CONCRETE MARKED BANNER, INC., 19597
- ○ FOUND THIS SURVEY, 5/8" REBAR WITH CAP MARKED L.S. 9960, IN CONCRETE
- ◈ FOUND IN PLACE, MONUMENT AS DESCRIBED

AREA SUMMARY

LOTS	5.707 AC.±	36.9%
ROADS	1.395 AC.±	9.0%
TRACT A	0.719 AC.±	4.7%
TRACT B	7.643 AC.±	49.4%
TOTAL	15.464 AC.±	100%

FOR CITY OF GRAND JUNCTION USE

Book and Page recording information refers to the records of the Mesa County Clerk and Recorders Office.

Declarations

Recorded in Book _____ Pages _____ through _____.

Dedication Note 4.

Deed of conveyance recorded in Book _____ Page _____.

Dedication Note 5.

Deed of conveyance recorded in Book _____ Page _____.

Dedication Note 6.

Deed of conveyance recorded in Book _____ Page _____.

SURVEYOR'S CERTIFICATE

I, Dean E. Ficklin, an employee of Vista Engineering Corporation and a Professional Land Surveyor, licensed under the laws of the State of Colorado, do hereby state that this survey and plat of Knolls Subdivision, Filing 6 shown hereon was prepared under my direct supervision and is in compliance with applicable City of Grand Junction Zoning and Development Codes and State of Colorado regulations and is true and accurate to the best of my knowledge and belief.

IN WITNESS WHEREOF, I hereunto affix my hand and seal this _____ day of _____, A.D., 2004.

_____
Dean E. Ficklin
P.L.S., 19597

NOTES:

1. 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 a defect in this survey be commenced more than ten years from the date of certification shown hereon.
2. BASIS OF BEARINGS: The line between the C-S 1/16 corner and C 1/4 corner, both of Section 1, Township 1 South, Range 1 West, Ute Meridian having a bearing of N 00° 00' 59" E, as recorded on The Knolls Subdivision, Filing 2 Plat Book 16, at Pages 87 through 90, in the records of the Mesa County Clerk and Recorder.
3. Existing property corners which were recovered during this survey which were within 0.25 feet± of the position of record were accepted as being in the proper location as shown by record.
4. Easement and Title Information provided by Abstract and Title Company of Mesa County, Inc., Commitment No. 00909936 C, dated March 17, 2003.
5. The boundary of the Airport Critical Zone for Walker Field is shown hereon in accordance with Figure 11 of the Land Use Plan, dated July, 1984 prepared by Isbill Associates, Inc., for Walker Field, Grand Junction, Colorado.

CERTIFICATE OF OWNERSHIP AND DEDICATION

KNOW ALL MEN BY THESE PRESENTS that O.P. Development Company, LLC being the sole owner in fee simple of Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 18, Pages 95 through 96 in the records of the office of the Mesa County Clerk and Recorder, does hereby plat said real property under the name and style of The Knolls Subdivision, Filing 6, a subdivision of apart of the City of Grand Junction, County of Mesa, State of Colorado, in accordance with the Plat shown hereon.

DESCRIPTION OF THE KNOLLS, FILING 6

Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 18, Pages 95 through 96, in the records of the Mesa County Clerk and Recorder. Located in the NW 1/4 of the SE 1/4 of Section 1, Township 1 South, Range 1 West of the Ute Meridian, City of Grand Junction, County of Mesa, State of Colorado.

Knolls Subdivision, Filing 6 as described above contains 15.464 acres more or less.

SUBJECT to easement rights of the GRAND VALLEY WATER USERS ASSOCATION AND THE UNITED STATES OF AMERICA as set forth in that agreement dated _____, 2003, and recorded in Book _____ Pages _____ through _____, Mesa County Records.

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

1. All streets, roads and Right-of-Ways are dedicated to the city of Grand Junction for the use of the public forever. Before acceptance of a dedication of any Street or Right-of-Way, the City may require proof of acceptable environmental condition by e.g. a "phase 1" environmental audit.
2. All Multi-purpose Easements to the City of Grand Junction for the use of City approved: utilities and public providers as perpetual easements for the installation, operation, maintenance and repair of utilities and appurtenances including, but not limited to, electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, storm sewers, water lines, telephone lines, and also for the installation and maintenance of traffic control facilities, street lighting, landscaping, trees and grade structures.
3. All Utility Easements to the City of Grand Junction for the use of City approved: public utilities as perpetual easements for the installation, operation, maintenance and repair of utilities and appurtenances including, but not limited to, electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, storm sewers, water lines, telephone lines, equivalent other public providers and appurtenant facilities.
4. All Irrigation to the Owners Association, if formed now or in the future, or if not, to the owner as undivided co-tenants, not subject to partition, of the lots and tracts hereby platted as perpetual easements for the installation, operation, maintenance and repair of irrigation systems and to supply and drain irrigation water. Deed of conveyance recorded as shown in the City of Grand Junction Information Box, subject to further conditions and restrictions as may be set forth in that instrument.
5. All Drainage Easements to the Owners Association, if formed now or in the future, or if not, to the owner as undivided co-tenants, not subject to partition, of the lots and tracts hereby platted as perpetual easements for the installation, operation, maintenance and repair of drainage facilities for the conveyance of runoff water which originated within the area hereby platted or from upstream areas, through natural or man-made facilities above or below ground. Deed of conveyance recorded as shown in the City of Grand Junction Information Box, subject to further conditions and restrictions as may be set forth in that instrument.
6. Tract A (Open Space) to the Owners Association, if formed now or in the future, or if not, to the owner as undivided co-tenants, not subject to partition, of the lots and tracts hereby platted as perpetual easements for: (a) conveying and detaining/retaining runoff water which originates from the area hereby platted, and also for the conveyance of runoff from upstream areas, through natural or man-made facilities above or below ground; (b) use by the public utilities for installation, operation, maintenance and repair of utilities and appurtenances, (c) the use of the Grand Valley Water Users Association, for the purpose of ingress and egress and the operation, maintenance and repair of Grand Valley Water Users Association facilities, (d) usage and aesthetic purposes as determined appropriate by said owners. Deed of conveyance recorded as shown in the City of Grand Junction Information Box, subject to further conditions and restrictions as may be set forth in that instrument.

All easements include the right of ingress and egress on, along, over, under, 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 easement shall utilize the same in a reasonable and prudent manner. Furthermore, the owners of lots or tracts hereby platted shall not burden or overburden said easements by erecting or placing any improvements thereon which may prevent reasonable ingress and egress to and from the easement.

Said owner hereby acknowledge that all lien holders or encumbrances, if any, associated with the interests of this plat have been represented hereon.

IN WITNESS WHEREOF, said owners, O.P. DEVELOPMENT COMPANY, LLC, has caused their names to be hereunto subscribe this ____ day of _____, A.D., 2004.

_____
Robert C. Knapple, Managing Director

ACKNOWLEDGMENT OF OWNERSHIP

State of Colorado)
) ss
County of Mesa)

On this ____ day of _____, A.D., 2004, before me the undersigned officer, personally appeared Robert C. Knapple as Managing Director of O.P. Development Company, LLC., and acknowledged that he executed the foregoing Certificate of Ownership, for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto affix my hand and official seal.

My commission expires _____

_____
Notary Public

LIEN HOLDER'S CERTIFICATE

The Wells Fargo Bank West, N.A. having property interests in or encumbrances upon the property involved approve this plat of Knolls Subdivision, Filing 6 this _____ day day of _____, A.D., 2004.

By: _____
William F. Rockwood, Vice President

ACKNOWLEDGMENT OF LIEN HOLDER

State of Colorado)
) ss
County of Mesa)

On this _____ day of _____, A.D., 2004, before me the undersigned officer, personally appeared William F. Rockwood, as Vice President of the Wells Fargo Bank, N.A. and acknowledged that he executed the foregoing Certificate of Lien Holder, for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto affix my hand and official seal.

My commission expires _____

_____
Notary Public

CITY APPROVAL

The Knolls Subdivision, Filing 6 is approved and accepted this _____ day of _____, A.D., 2004.

_____
City Manager

_____
Mayor

COUNTY CLERK AND RECORDER'S CERTIFICATE

State of Colorado)
) ss
County of Mesa)

I hereby certify that this instrument was filed for record in the office of the County Clerk and Recorder of Mesa County at _____ .M., on the _____ day of _____, A.D. 2004 in Plat Book No._____, Page No._____, Reception No._____, Drawer No. _____, Fees _____.

_____
Mesa County Clerk and Recorder

_____
Deputy

DECLARATIONS

The Declaration of Covenants and Restrictions are recorded as shown in the City of Grand Junction Information Box

TITLE CERTIFICATION

We, First American Title Company, a title insurance company, as duly licensed in the state of Colorado, hereby certify that we have examined the title to the hereon described property, that we find the title to the property is vested to O.P. Development Company, LLC., that the current taxes have been paid, that all mortgages not satisfied or released of record nor otherwise terminated by law are shown hereon and that there are no other encumbrances of record; that all easements, reservations and rights of way of record are shown hereon.

Executed this _____ day of _____, A.D., 2004.

_____
Title examiner

KNOLLS SUBDIVISION, FILING 6

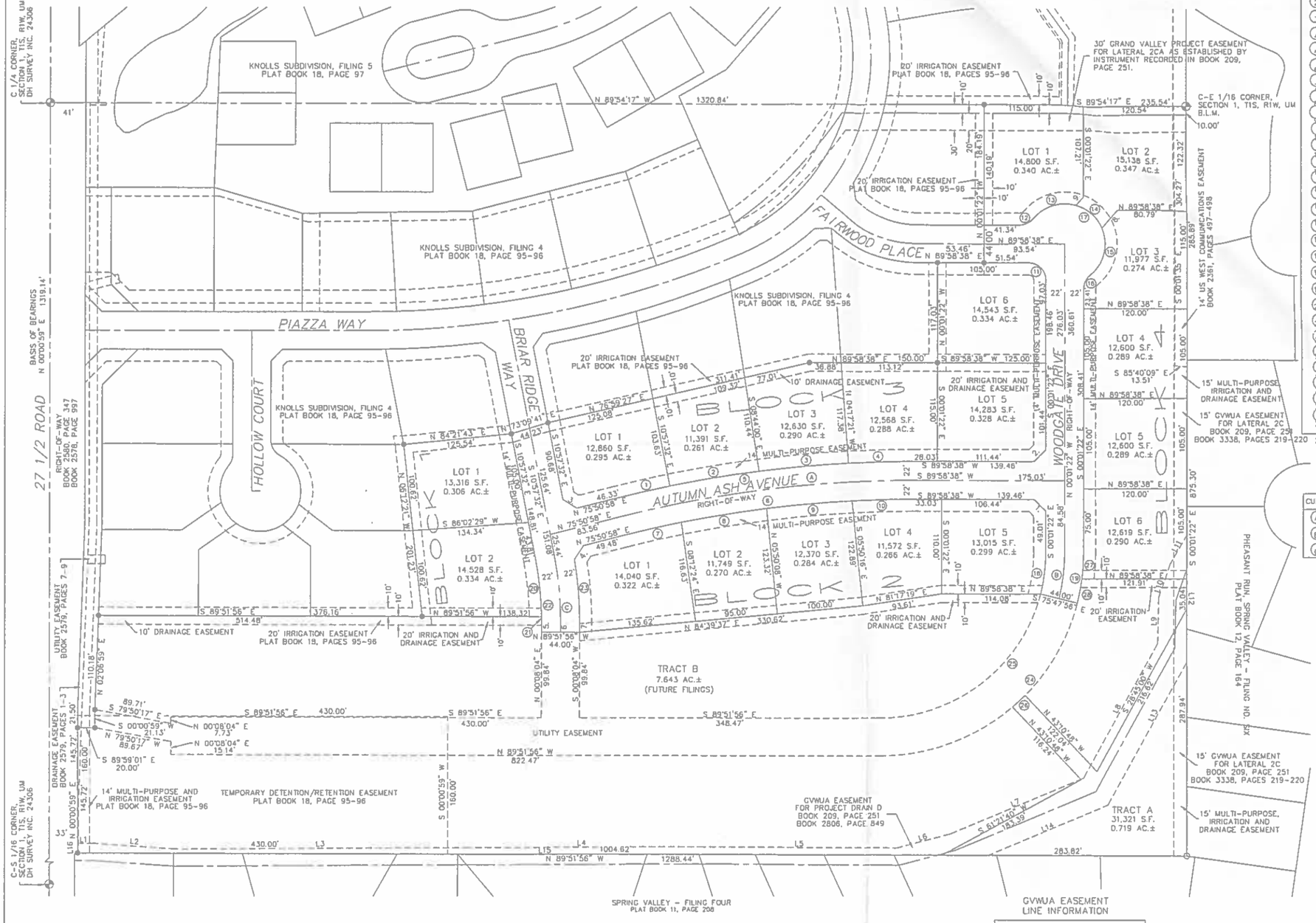
LOCATED IN THE NW 1/4 OF THE SE 1/4 OF SECTION 1, T.1 S., R.1 W., UTE MERIDIAN, MESA COUNTY, COLORADO

VISTA ENGINEERING CORP.
GRAND JUNCTION, COLORADO

SCALE:	JOB NO:	DATE:	SHEET NO:
1" = 200'	4003.06-02	1-9-04	1 of 2

KNOLLS SUBDIVISION, FILING 6

A REPLAT OF BLOCK 6 OF KNOLLS SUBDIVISION, FILING 4.
LOCATED IN THE NW 1/4 OF THE SE 1/4 OF SECTION 1,
T.1 S., R.1 W., U.M., MESA COUNTY, COLORADO



CURVE INFORMATION

CURVE	DELTA ANGLE	RADIUS	LENGHT	TANGENT	CHORD	CHORD BEARING
1	02°36'44"	1422.00'	64.83'	32.42'	64.83'	S 77°09'20" W
2	04°13'54"	1422.00'	105.02'	52.54'	105.00'	S 80°34'39" W
3	04°12'20"	1 422.00'	104.38'	52.21'	104.36'	S 84°47'47" W
4	03°04'41"	1422.00'	76.39'	38.21'	76.39'	S 88°26'18" W
5	14°07'40"	1422.00'	350.63'	176.21'	349.74'	S 82°54'48" W
6	14°07'40"	1378.00'	3 39.78'	170.76'	338.92'	S 82°54'48" W
7	02°49'01"	1378.00'	67.75'	33.88'	67.75'	S 77°15'29" W
8	04°09'32"	1378.00'	100.02'	50.03'	100.00'	S 80°44'45" W
9	04°09'32"	1378.00'	100.02'	50.03'	100.00'	S 84°54'17" W
10	02°59'35"	1378.00'	71.99'	36.00'	71.98'	S 88°28'51" W
11	90°00'00"	20.00'	31.42'	20.00'	28.28'	N 45°01'22" W
12	51°10'51"	20.00'	17.87'	9.58'	17.28'	N 64°23'13" E
13	67°17'09"	47.00'	55.19'	31.28'	52.08'	S 72°26'22" W
14	50°22'07"	47.00'	41.32'	22.10'	40.00'	N 48°44'00" W
15	74°42'25"	47.00'	61.28'	35.87'	57.03'	N 13°48'16" E
16	51°10'51"	20.00'	17.87'	9.58'	17.28'	S 25°34'04" W
17	192°21'41"	47.00'	157.80'	434.00'	93.45'	N 45°01'22" W
18	14°13'26"	193.00'	47.91'	24.08'	47.79'	N 07°05'21" E
19	14°13'26"	237.00'	58.84'	29.57'	58.68'	N 07°05'21" E
20	10°09'47"	378.00'	67.05'	33.61'	66.96'	N 05°52'38" W
21	00°55'48"	378.00'	6.14'	3.07'	6.14'	N 00°19'50" W
22	11°05'36"	378.00'	73.19'	36.71'	73.07'	N 05°24'44" W
23	09°56'34"	422.00'	73.23'	36.71'	73.14'	N 04°50'13" W
24	75°56'00"	237.00'	314.09'	184.94'	291.60'	S 52°10'04" W
25	75°56'00"	193.00'	255.78'	150.61'	237.47'	N 52°10'04" E
26	04°50'12"	237.00'	20.01'	10.01'	20.00'	N 46°49'11" E
27	07°16'20"	237.00'	30.08'	15.06'	30.06'	N 03°36'48" E
28	06°57'06"	237.00'	28.75'	14.40'	28.74'	N 10°43'31" E

CENTERLINE CURVE INFORMATION

CURVE	DELTA ANGLE	RADIUS	LENGHT	TANGENT	CHORD	CHORD BEARING
A	14°07'40"	1400.00'	345.21'	173.48'	344.33'	S 82°54'48" W
B	14°13'26"	215.00'	53.37'	26.82'	53.24'	N 07°05'21" E
C	11°05'36"	400.00'	77.45'	38.84'	77.32'	N 05°24'44" W

LINE INFORMATION

NO.	BEARING	DISTANCE
1.	S 45°01'22" E	19.18'
2.	N 44°58'38" E	19.18'
3.	S 57°33'17" E	19.19'
4.	N 32°58'52" E	19.22'
5.	N 00°08'04" E	12.02'
6.	N 00°08'04" E	12.02'
7.	N 00°08'04" E	12.02'
8.	N 41°16'00" E	27.46'
9.	N 41°16'00" E	12.26'

GVWUA EASEMENT LINE INFORMATION

NO.	BEARING	DISTANCE
L1	S89°57'06"E	17.66'
L2	S86°03'53"E	94.60'
L3	N89°40'47"E	339.81'
L4	N89°52'51"E	273.32'
L5	S89°40'57"E	226.94'
L6	N75°10'52"E	63.59'
L7	N67°10'24"E	168.13'
L8	N28°45'02"E	179.26'
L9	N01°04'57"E	53.73'
L10	N18°48'25"E	40.97'
L11	N29°32'45"E	39.13'
L12	S00°01'22"E	148.50'
L13	S28°45'02"W	190.10'
L14	S67°10'25"W	150.55'
L15	N89°51'56"W	1058.15'
L16	N00°00'59"E	11.19'

KNOLLS SUBDIVISION, FILING 6

LOCATED IN THE NW 1/4 OF THE SE 1/4
OF SECTION 1, T.1 S., R.1 W.,
UTE MERIDIAN, MESA COUNTY, COLORADO

VISTA ENGINEERING CORP.
GRAND JUNCTION, COLORADO

SCALE:	JOB NO:	DATE:	SHEET NO:
1" = 60'	4003.06-02	1-9-04	2 of 2

LEGEND

- PROPOSED SANITARY SEWER/MANHOLE/SERVICE (8"ø PVC SDR-35 MAINS, 4"ø PVC SDR-35 SERVICES)
- PROPOSED WATERLINE/VALVE/FIRE HYDRANT/SERVICE WATER METER PIT/THRUST BLOCK (8"ø PVC C-900, 3/4"ø TYPE K, SOFT COPPER SERVICES) (SHADED INDICATES FUTURE, OR EXISTING, INSTALLATION)
- PROPOSED STREET LIGHT
- PROPOSED IRRIGATION SLEEVE
- PROPOSED GANG MAILBOX
- PROPOSED PRESSURIZED IRRIGATION LINE/RISER (6" PIP CL 160 MAINS, 2" PIP CL 160 RISER W/GATE VALVE)
- EXISTING WATER MAIN
- EXISTING SANITARY SEWER/MANHOLE
- EXISTING IRRIGATION LINE

UTILITY VENDORS

SANITARY SEWER	City of Grand Junction
DOMESTIC WATER	Ute Water Conservancy District
NATURAL GAS	Public Service Co. of Colorado
ELECTRIC	Public Service Co. of Colorado
TELEPHONE	US West Communications
TELEVISION	TCI Cablevision
IRRIGATION	Grand Valley Water Users Assoc.
DRAINAGE	Grand Valley Water Users Assoc.

N

FEET 40 0 40 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 40 FEET

FILING FOUR

BLOCK THREE

LOT 1 LOT 2 LOT 3 LOT 4 LOT 5 LOT 6

FILING SEVEN

BLOCK TWO

LOT 1 LOT 2 LOT 3 LOT 4 LOT 5

BLOCK ONE

LOT 1 LOT 2

139.00'

PROPOSED 12" 100 psi PIP

MH 1-9
STA 14+14.23

EXISTING FIRE HYDRANT

REMOVE PLUG AND THRUST RESTRAINT IN ORDER TO EXTEND WATERLINE TO THE EAST

118.8 L.F. 8"ø C-900 PVC WATER LINE

FAIRWOOD PLACE LINE A

WATERLINE ELBOW:
NORTHING 3027.76
EASTING 8868.68
CL WOODGATE DRIVE
INSTALL 8"ø 90° ELBOW AND THRUST RESTRAINT

STREET SIGNS

MH A-7
STA. 18+27.86
RIM = 4732.25

FIRE HYDRANT:
STA. 4+81.47, 23.85' LT.
CL WOODGATE DRIVE
INSTALL FIRE HYDRANT ASSEMBLY 8x6x8 TEE, 6" GATE VALVE, 6"ø PVC C-900, AND THRUST RESTRAINT

WATERLINE INTERSECTION:
STA. 5+63.86, 11.00' LT.
CL WOODGATE DRIVE
INSTALL 8x8x8 TEE
(3) 8" GATE VALVES
THRUST RESTRAINT

MH A-5
STA. 13+51.83, LINE A
STA. 0+00.00, LINE D=
RIM = 4719.98

WATERLINE ELBOW:
STA. 9+81.47, 11.00' LT.
CL WOODGATE DRIVE
INSTALL 8"ø 22 1/2° ELBOW AND THRUST RESTRAINT

MH A-6
STA. 12+16.10
RIM = 4714.00

INSTALL END OF ROAD PANELS

EXISTING FIRE HYDRANT

REMOVE END OF ROAD PANELS

REMOVE PLUG AND THRUST RESTRAINT IN ORDER TO EXTEND WATER LINE TO THE SOUTH

WATERLINE INTERSECTION:
STA. 2+42.87, 11.00' LT.
CL BRIAR RIDGE WAY
INSTALL 8x8x8 TEE
8" GATE VALVE
THRUST RESTRAINT

STOP AND STREET SIGNS

MH B-2
STA. 2+80.61
RIM = 4727.74

MH C-1
STA. 1+77.16
RIM = 4731.46

MH D-1
STA. 2+78.91
RIM = 4732.98

AUTUMN ASH AVENUE

LINE C

277.3 L.F. 8"ø SDR-35 PVC SEWER LINE

LINE D

403.88 L.F. 8"ø C-900 PVC WATER LINE

277.3 L.F. 8"ø SDR-35 PVC SEWER LINE

PROPOSED GANG MAILBOX

STOP AND STREET SIGNS

MH B-1
STA. 0+00.00, LINE C=
STA 2+38.11, LINE B
RIM = 4723.34

FIRE HYDRANT:
STA. 2+68.98, 23.85' LT.
CL BRIAR RIDGE WAY
INSTALL FIRE HYDRANT ASSEMBLY 8x8x8 TEE, 6" GATE VALVE, 6"ø PVC C-900, AND THRUST RESTRAINT

IRRIGATION SLEEVE 6"ø C-900 44 LF.

INSTALL PLUG AND THRUST RESTRAINT AT END OF FILING 6 CONSTRUCTION

INSTALL END OF ROAD PANELS

IRRIGATION SLEEVE 6"ø C-900 44 LF.

INSTALL PLUG AND THRUST RESTRAINT AT END OF FILING 8 CONSTRUCTION

MH A-2
STA. 8+91.32, LINE A=
STA. 0+00.00, LINE B
RIM = 4715.30

MH J1 (EXISTING)
STA. 0+00.00
RIM = 4702.07

S 80°37'31" E
121.3 L.F. 8"ø SDR-35 PVC SEWER LINE

MH A-1
STA. 1+21.32
RIM = 4717.85

WOODGATE DRIVE

430.0 L.F. 8"ø SDR-35 PVC SEWER LINE

LINE A

S 89°21'34" E

WOODGATE DRIVE

LINE A

MH A-4
STA. 10+94.32
RIM = 4712.47

MH A-3
STA. 9+72.94
RIM = 4712.98

PROJECT BENCHMARK/CONTROL
MCSM C-N 1/16 COR SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 3001.662
EASTING 8878.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 39+36.90
NORTHING 3680.502
EASTING 8878.783

CALL
1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

APPROVED FOR CONSTRUCTION:
Ute Water Conservancy Dist. Date

ACCEPTED AS CONSTRUCTED:
Ute Water Conservancy Dist. Date

APPROVED FOR CONSTRUCTION:
City of Grand Junction Date

ACCEPTED AS CONSTRUCTED:
City of Grand Junction Date

DRAWN BY: S.G.S.
DESIGNED BY: P.M.O
CHECKED BY: P.M.O.

REVIEWED _____
DATE: _____ FOR _____
REVIEWED _____
DATE: _____ FOR VISTA ENGINEERING CORP

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHD

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

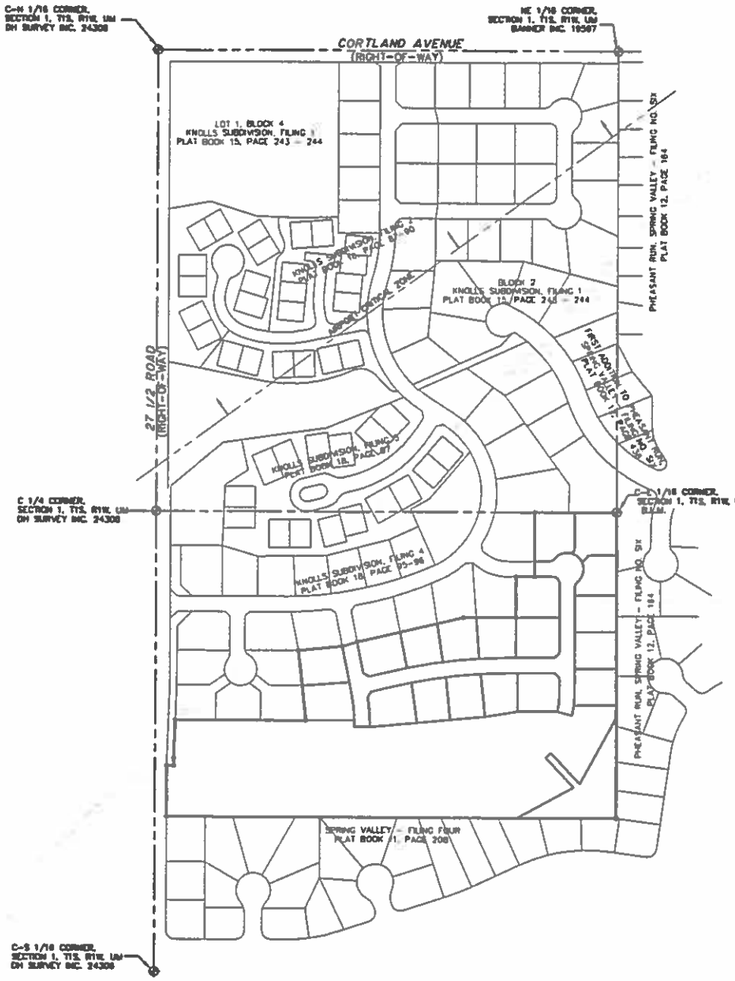
UTILITY COMPOSITE
THE KNOLLS, FILING SIX

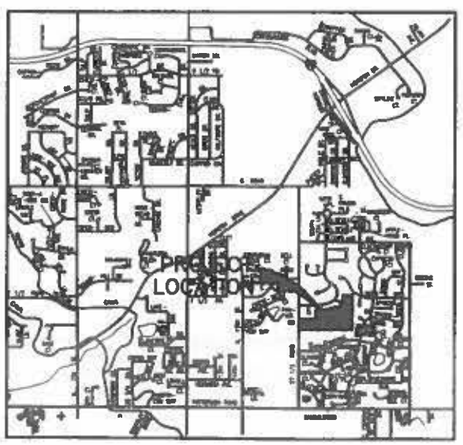
SCALE: 1" = 40' | JOB NO: 4003.06-02 | DATE: 4-09-03

SHEET NO: 5 of 20

KNOLLS SUBDIVISION, FILING 6

A REPLAT OF BLOCK 6 OF KNOLLS SUBDIVISION, FILING 4.
LOCATED IN THE NW 1/4 OF THE SE 1/4 OF SECTION 1,
T.1 S., R.1 W., U.M., MESA COUNTY, COLORADO





VICINITY MAP

NOTES:

1. 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 a defect in this survey be commenced more than ten years from the date of certification shown hereon.
2. BASIS OF BEARINGS: The line between the C-S 1/16 corner and C 1/4 corner, both of Section 1, Township 1 South, Range 1 West, Ute Meridian having a bearing of N 00° 00' 09" E, as reported on The Knolls Subdivision, Filing 2 Plat Book 16, at Pages 87 through 90, in the records of the Mesa County Clerk and Recorder.
3. Existing property corners which were recovered during this survey which were within 0.25 feets of the position of record were accepted as being in the proper location as shown by record.
4. Easement and Title information provided by Abstract and Title Company of Mesa County, Inc., Commitment No. 00809836 C , dated March 17, 2003.
5. The boundary of the Airport Critical Zone for Walker Field is shown hereon in accordance with Figure 11 of the Land Use Plan, dated July, 1984 prepared by Kohl Association, Inc., for Walker Field, Grand Junction, Colorado.
6. The following setbacks shall apply:

   Principal Building – 20' front
   20' rear
   10' side

   Accessory Building – Limited to rear 1/2 of Lot
   5' rear (or easement width, whichever is greater)
   3' side (or easement width, whichever is greater)

GRAPHIC SCALE
SCALE: 1 INCH = 200 FEET

LEGEND

- ▲ SET THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP IN CONCRETE MARKED BANNER, INC., 19587
- ● FOUND THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP IN CONCRETE MARKED BANNER, INC., 19587
- ○ FOUND THIS SURVEY, 5/8" REBAR WITH CAP MARKED L.S. 9980, IN CONCRETE.
- ⊕ FOUND IN PLACE, MONUMENT AS DESCRIBED.

AREA SUMMARY

LOTS	8.707 AC.±	56.5%
ROADS	1.386 AC.±	9.0%
TRACT A	0.719 AC.±	4.7%
BLOCK 6	7.543 AC.±	49.4%
TOTAL	15.464 AC.±	100%

CERTIFICATE OF OWNERSHIP AND DEDICATION

KNOW ALL MEN BY THESE PRESENTS that O.P. Development Company, LLC being the sole owner in fee simple of Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 19, Pages 95 through 96 in the records of the office of the Mesa County Clerk and Recorder, does hereby and said real property under the name and style of The Knolls Subdivision, Filing 6, a subdivision of part of the City of Grand Junction, County of Mesa, State of Colorado, in accordance with the Plat shown hereon.

DESCRIPTION OF THE KNOLLS, FILING 6

Block 6 of Knolls Subdivision, Filing 4, according to the Plat thereof recorded in Plat Book 19, Pages 95 through 96, in the records of the Mesa County Clerk and Recorder Located in the NW 1/4 of the SE 1/4 of Section 1, Township 1 South, Range 1 West of the Ute Meridian, City of Grand Junction, County of Mesa, State of Colorado.

Knolls Subdivision, Filing 6 as described above contains 15.464 acres more or less.

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

1. All streets, roads and Right-of-Ways are dedicated to the city of Grand Junction for the use of the public forever. Before acceptance of a dedication of any Street or Right-of-Way, the City may require proof of acceptable environmental condition by e.g. a phase 1 environmental audit.
2. All Multi-purpose Easements to the City of Grand Junction for the use of City approved utilities and public providers as perpetual easements for the installation, operation, maintenance and repair of utilities and appurtenances including, but not limited to, electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, storm sewers, water lines, telephone lines, and also for the installation and maintenance of traffic control facilities, street lighting, landscaping, trees and grade structures.
3. All Utility Easements to the City of Grand Junction for the use of City approved public utilities as perpetual easements for the installation, operation, maintenance and repair of utilities and appurtenances including, but not limited to, electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, storm sewers, water lines, telephone lines, cablevision and other public providers and appurtenant facilities.
4. All Irrigation to the Owners Association, if formed now or in the future, or if not, to the owner as undivided co-tenants, not subject to partition, of the lots and tracts hereby platted as perpetual easements for the installation, operation, maintenance and repair of irrigation systems and to supply and divide irrigation water. Deed of conveyance recorded as shown in the City of Grand Junction Information Box, subject to further conditions and restrictions as may be set forth in that instrument.
5. All Drainage Easements to the Owners Association, if formed now or in the future, or if not, to the owner as undivided co-tenants, not subject to partition, of the lots and tracts hereby platted as perpetual easements for the installation, operation, maintenance and repair of drainage facilities for the conveyance of runoff water which originated within the area hereby platted or from upstream areas, through natural or man-made facilities above or below ground. Deed of conveyance recorded as shown in the City of Grand Junction Information Box, subject to further conditions and restrictions as may be set forth in that instrument.
6. Tract A (Open Space) to the Owners Association, if formed now or in the future, or if not, to the owner as undivided co-tenants, not subject to partition, of the lots and tracts hereby platted as perpetual easements for: (a) conveying and detaining/retaining runoff water which originates from the area hereby platted, and also for the conveyance of runoff from upstream areas, through natural or man-made facilities above or below ground; (b) use by the public utilities for installation, operation, maintenance and repair of utilities and appurtenances; (c) the use of the Grand Junction Drainage District, for the installation, operation, maintenance and repair of Grand Junction Drainage District facilities; (d) usage and aesthetic purposes as determined appropriate by said owners. Deed of conveyance recorded as shown in the City of Grand Junction Information Box, subject to further conditions and restrictions as may be set forth in that instrument.

All easements include the right of ingress and egress on, along, over, under, through, and across by the beneficiaries, their successors, or assigns, together with the right to trim or remove interfering trees and brush, and to Drainage and Detention/Retention easements, the right to Drainage, provided however, that the beneficiaries of said easement shall utilize the same in a reasonable and prudent manner. Furthermore, the owners of lots or tracts hereby platted shall not burden or overburden said easements by erecting or placing any improvements thereon which may prevent reasonable ingress and egress to and from the easement.

Said owner hereby acknowledge that all lien holders or encumbrances, if any, associated with the interests of this plat have been represented hereon.

IN WITNESS WHEREOF, said owners, O.P. DEVELOPMENT COMPANY, LLC, has caused their names to be hereunto subscribe this _____ day of _____, A.D., 2003.

_____
Robert C. Knapple, Managing Director

ACKNOWLEDGEMENT OF OWNERSHIP

State of Colorado }
County of Mesa } ss

On this _____ day of _____, A.D., 2003, before me the undersigned officer, personally appeared Robert C. Knapple as Managing Director of O.P. Development Company, LLC., and acknowledged that he executed the foregoing Certificate of Ownership, for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto affix my hand and official seal.

My commission expires _____

_____
Notary Public

LIEN HOLDER'S CERTIFICATE

The Wells Fargo Bank West, N.A. having property interests in or encumbrances upon the property involved approve this plat of Knolls Subdivision, Filing 6 this _____ day day of _____, A.D., 2003.

By: _____
William F. Rastrewood, Vice President

ACKNOWLEDGEMENT OF LIEN HOLDER

State of Colorado }
County of Mesa } ss

On this _____ day of _____, A.D., 2003, before me the undersigned officer, personally appeared William F. Rastrewood, as Vice President of the Wells Fargo Bank, N.A., and acknowledged that he executed the foregoing Certificate of Lien Holder, for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto affix my hand and official seal.

My commission expires _____

_____
Notary Public

CITY APPROVAL

The Knolls Subdivision, Filing 6 is approved and accepted this _____ day of _____, A.D., 2003.

_____
City Manager

_____
Mayor

COUNTY CLERK AND RECORDER'S CERTIFICATE

State of Colorado }
County of Mesa } ss

I hereby certify that this instrument was filed for record in the office of the County Clerk and Recorder of Mesa County at _____ M., on the _____ day of _____, A.D. 2003 in Plat Book No._____, Page No._____, Reception No._____

Drawer No. _____ Fees _____

_____
Mesa County Clerk and Recorder

_____
Deputy

DECLARATIONS

The Declaration of Covenants and Restrictions are recorded as shown in the City of Grand Junction Information Box

TITLE CERTIFICATION

We, First American Title Company, a title insurance company, as duly licensed in the state of Colorado, hereby certify that we have examined the title to the herein described property, that we find the title to the property is vested in O.P. Development Company, LLC., that the current taxes have been paid, that all mortgages not satisfied or released of record nor otherwise terminated by law are shown hereon and that there are no other encumbrances of record; that all easements, reservations and rights of way of record are shown hereon.

Executed this _____ day of _____, A.D., 2003.

_____
Title examiner

SURVEYOR'S CERTIFICATE

I, Dean E. Fiskin, an employee of Vista Engineering Corporation, and a Professional Land Surveyor, licensed under the laws of the State of Colorado, do hereby state that this survey and plat of Knolls Subdivision, Filing 6 shown hereon was prepared under my direct supervision and is in compliance with applicable City of Grand Junction Zoning and Development Codes and State of Colorado regulations and is true and accurate to the best of my knowledge and belief.

IN WITNESS WHEREOF, I hereunto affix my hand and seal this _____ day of _____, A.D., 2003.

_____
Dean E. Fiskin
P.L.S., 19587

FOR CITY OF GRAND JUNCTION USE

Book and Page recording information refers to the records of the Mesa County Clerk and Recorders Office.

Declarations
Recorded in Book _____ Pages _____ through _____.
Dedication Note 4.
Deed of conveyance recorded in Book _____ Page _____.
Dedication Note 5.
Deed of conveyance recorded in Book _____ Page _____.
Dedication Note 6.
Deed of conveyance recorded in Book _____ Page _____.

KNOLLS SUBDIVISION, FILING 6

LOCATED IN THE NW 1/4 OF THE SE 1/4
OF SECTION 1, T.1 S., R.1 W.,
UTE MERIDIAN, MESA COUNTY, COLORADO

VISTA ENGINEERING CORP.
GRAND JUNCTION, COLORADO

SCALE:	JOB NO:	DATE:	SHEET NO:
1" = 200'	4003.08-02	4-10-03	1 of 2

KNOLLS SUBDIVISION, FILING 6

A REPLAT OF BLOCK 6 OF KNOLLS SUBDIVISION, FILING 4.
LOCATED IN THE NW 1/4 OF THE SE 1/4 OF SECTION 1,
T.1 S., R.1 W., U.M., MESA COUNTY, COLORADO

N

FEET 60 0 60 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 60 FEET

LEGEND

- ▲ SET THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP IN CONCRETE MARKED VISTA ENGR., 18367
- ● FOUND THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP IN CONCRETE MARKED BANNER, INC., 19087
- ○ FOUND THIS SURVEY, 5/8" REBAR WITH CAP MARKED L.S. 9880, IN CONCRETE.
- ⊕ FOUND IN PLACE, MONUMENT AS DESCRIBED.

LINE INFORMATION

NO.	BEARING	DISTANCE
1.	S 45°01'22" E	19.18'
2.	S 44°58'38" W	19.19'
3.	S 87°33'17" E	19.19'
4.	N 32°56'52" E	19.22'
5.	N 00°08'04" E	12.00'
6.	N 00°08'04" E	12.00'
7.	N 00°08'04" E	12.00'
8.	N 41°16'00" E	27.46'
9.	N 41°16'00" E	12.76'

CURVE INFORMATION

①	Δ = 02°36'44"	R = 1422.00'	L = 64.83'	T = 32.42'	C = 64.83'	CB = S 77°00'20" W
②	Δ = 04°13'54"	R = 1422.00'	L = 105.02'	T = 52.54'	C = 105.00'	CB = S 80°54'38" W
③	Δ = 04°12'29"	R = 1422.00'	L = 104.36'	T = 52.21'	C = 104.36'	CB = S 84°47'47" W
④	Δ = 03°06'41"	R = 1422.00'	L = 76.39'	T = 38.21'	C = 76.39'	CB = S 88°26'16" W
⑤	Δ = 14°07'40"	R = 1422.00'	L = 350.63'	T = 176.21'	C = 349.74'	CB = S 82°54'46" W
⑥	Δ = 14°07'40"	R = 1373.00'	L = 338.78'	T = 170.75'	C = 338.02'	CB = S 82°54'46" W
⑦	Δ = 02°48'01"	R = 1373.00'	L = 67.15'	T = 33.58'	C = 67.15'	CB = S 77°18'29" W
⑧	Δ = 04°09'32"	R = 1373.00'	L = 100.06'	T = 50.03'	C = 100.00'	CB = S 80°44'46" W
⑨	Δ = 04°09'32"	R = 1373.00'	L = 100.02'	T = 50.03'	C = 100.00'	CB = S 84°54'17" W
⑩	Δ = 02°59'35"	R = 1379.00'	L = 71.99'	T = 36.00'	C = 71.98'	CB = S 88°29'51" W
⑪	Δ = 90°00'00"	R = 20.00'	L = 31.42'	T = 20.00'	C = 28.28'	CB = N 46°01'22" W
⑫	Δ = 51°10'51"	R = 20.00'	L = 17.87'	T = 9.58'	C = 17.28'	CB = N 64°23'13" E
⑬	Δ = 67°17'09"	R = 47.00'	L = 55.19'	T = 31.28'	C = 52.06'	CB = S 72°26'22" W
⑭	Δ = 90°23'07"	R = 47.00'	L = 41.32'	T = 22.10'	C = 40.00'	CB = N 46°44'00" W
⑮	Δ = 74°43'25"	R = 47.00'	L = 61.28'	T = 35.87'	C = 57.03'	CB = N 13°48'16" E
⑯	Δ = 51°10'51"	R = 20.00'	L = 17.87'	T = 9.58'	C = 17.28'	CB = S 25°34'04" W
⑰	Δ = 192°21'41"	R = 47.00'	L = 157.80'	T = 434.00'	C = 93.46'	CB = N 46°01'22" W
⑱	Δ = 14°13'26"	R = 193.00'	L = 47.91'	T = 24.08'	C = 47.79'	CB = N 07°08'21" E
⑲	Δ = 14°13'26"	R = 237.00'	L = 58.84'	T = 29.57'	C = 58.68'	CB = N 07°08'21" E
⑳	Δ = 10°09'47"	R = 378.00'	L = 67.00'	T = 33.61'	C = 66.96'	CB = N 08°52'38" W
㉑	Δ = 00°35'48"	R = 378.00'	L = 6.14'	T = 3.07'	C = 6.14'	CB = N 00°10'50" W
㉒	Δ = 11°05'36"	R = 378.00'	L = 73.19'	T = 36.71'	C = 73.07'	CB = N 05°24'44" W
㉓	Δ = 09°06'24"	R = 422.00'	L = 73.23'	T = 36.71'	C = 73.14'	CB = N 04°50'13" W
㉔	Δ = 75°56'00"	R = 237.00'	L = 314.09'	T = 184.94'	C = 291.80'	CB = S 52°10'04" W
㉕	Δ = 75°56'00"	R = 193.00'	L = 255.75'	T = 150.61'	C = 237.47'	CB = N 52°10'04" E
㉖	Δ = 04°50'12"	R = 237.00'	L = 20.01'	T = 10.01'	C = 20.00'	CB = N 46°49'11" E
㉗	Δ = 07°16'20"	R = 237.00'	L = 30.09'	T = 15.06'	C = 30.08'	CB = N 03°36'48" E
㉘	Δ = 06°57'06"	R = 237.00'	L = 28.78'	T = 14.40'	C = 28.76'	CB = N 10°43'51" E

CENTERLINE CURVE INFORMATION

Ⓐ	Δ = 14°07'40"	R = 1400.00'	L = 345.21'	T = 173.48'	C = 344.33'	CB = S 82°54'46" W
Ⓑ	Δ = 14°13'26"	R = 215.00'	L = 53.37'	T = 26.82'	C = 53.24'	CB = N 07°08'21" E
Ⓒ	Δ = 11°05'36"	R = 400.00'	L = 77.46'	T = 38.84'	C = 77.32'	CB = N 05°24'44" W

KNOLLS SUBDIVISION, FILING 6

LOCATED IN THE NW 1/4 OF THE SE 1/4
OF SECTION 1, T.1 S., R.1 W.,
UTE MERIDIAN, MESA COUNTY, COLORADO

VISTA ENGINEERING CORP.
GRAND JUNCTION, COLORADO

SCALE:	JOB NO:	DATE:	SHEET NO:
1" = 60'	4003.06-02	4-10-03	2 of 2

COUNTRY CLUB TOWNHOMES

KAIN/KEENAN MINOR SUB.

PARK EAST

Adjoining T.1N. R.1W. 2701-36

REPLAT LOT 9 PTARMIGAN ESTATES

PTARMIGAN ESTATES

REPLAT LOT 1 BLK. ONE PTARMIGAN ESTATES CROWN HEIGHTS 1st FILING

VISTA DEL NORTE

I-70

PTARMIGAN POINTE FILING THREE

A REPLAT OF BLKS. FOUR & FIVE PTARMIGAN RIDGE FIL. SIX

PTARMIGAN POINTE

PTARMIGAN POINTE FIL. TWO

PTARMIGAN RIDGE FIL. SIX FIL. FOUR SUB.

PARK 4

HORIZON SUBD.

BLKS. 4,8,7,8 PART OF BLK 3 O'NAN SUB.

1st. ADD. O'NAN SUB.

HORIZON DRIVE

JAYNES SUB.

PTARMIGAN POINTE FIL. THREE FIL. FOUR

CORTLAND AVE

CORTLAND SUB.

A REPLAT OF LOT 15 APPLE CREST SUB

APPLE CREST SUB

REA MINOR SUB.

JOYNER MINOR SUB.

LESLEE MINOR SUB.

PHEASANT RUN SPRING VALLEY FILING NO. SIX

2nd ADD. O'NAN SUB.

Adjoining T.1S. R.1W. 2945-021 & 2945-024

HORIZON VIEW

O'NAN SUB.

PTARMIGAN RIDGE FILING TWO FILING THREE

REPLAT OF LOT 2 SPOMER SUB.

BELL RIDGE SUB. FILING No. ONE

27 ½ ROAD

28 ROAD

SEE SPECIAL

F 1/4 ROAD

PLAT 2945-013

SPRING VALLEY FILING NO. THREE

SPRING VALLEY FILING No. TWO

PHEASANT RUN SPRING VALLEY FILING NO. FIVE

PHEASANT RUN CONDOS.

SPRING VALLEY TOWNHOME CONDOS

F ROAD

Adjoining T.1S. R.1W. 2945-121 & 2945-122

T.1S. R.1W. SEC. 1
2945-01

WESTERN
COLORADO
TESTING,
INC.

529 25½ Road, Suite B-101
Grand Junction, Colorado 81505
(970) 241-7700 • Fax: (970) 241-7783
E-mail: westcolotesting@qwest.net

March 26, 2004
WCT# 300404

Monument Homes
603 28 ¼ Road
Grand Junction, CO 81506

Attention: Mike Bonds

Subject: Compaction Testing Summary Letter
Sidewalk and Pavement Subgrade and Sidewalk Base Course
The Knolls Filing 6
Grand Junction, Colorado

A representative of Western Colorado Testing, Inc (WCT) sidewalk and pavement subgrade, and sidewalk base course for the Knolls Filing 6 on a part time basis from March 19 through 25, 2004. This is a summary letter. Please find enclosed compaction test results for sidewalk subgrade (test numbers 515 through 533), pavement subgrade (test numbers 534 through 551), sidewalk base course (test numbers 552 through 570), and V-pans/crosswalk base course (test numbers 571 through 573) for Filing 6. Pavement base course tests will be reported when available.

Please do not hesitate to call when we can be of further service to your project.

Respectfully Submitted:

WESTERN COLORADO TESTING, INC

Jim Huddleston
Senior Geologist

cc: Rick Doris, P.E.
City of Grand Junction
Public Works and Utilities
250 North 5th Street
Grand Junction, CO 81501

JH/ak
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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F7 | Authorized By: Jim, D&J Grading | Date: 03/19/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/19/04

Type of Material: Various | Reviewed By: JCH | Date: 03/23/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
515	3/19/04	Fairwood Pl Approximate 50' West of Cul-de-sac, South Side	0
516	3/19/04	Woodgate Dr Approximate East Side of Cul-de-sac, North Side	0
517	3/19/04	Woodgate Dr Approximate Station 15+30, East	0
518	3/19/04	Fairwood Dr Approximate 50' West of Cul-de-sac, North Side	0
519	3/19/04	Woodgate Dr Approximate Station 15+30, West	0
520	3/19/04	Woodgate Dr Approximate Station 13+95, West	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
515	1	13.5	117.0	13.1	117.1	100	Y	1,10,13,15,18
516	1	13.5	117.0	11.4	111.5	95	Y	1,10,13,15,18
517	1	13.5	117.0	11.5	114.8	98	Y	1,10,13,15,18
518	1	13.5	117.0	11.8	117.7	100+	Y	1,10,13,15,18
519	1	13.5	117.0	11.5	117.0	100	Y	1,10,13,15,18
520	1	13.5	117.0	12.8	115.6	99	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F7 | Authorized By: Jim, D&J Grading | Date: 03/19/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/19/04

Type of Material: Various | Reviewed By: JCH | Date: 03/23/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
521	3/19/04	Woodgate Dr Approximate Station 14+00, East	0
522	3/19/04	Woodgate Dr Approximate Station 12+60, West	0
523	3/19/04	Woodgate Dr Approximate Station 12+65, East	0
524	3/19/04	Autumn Ash Approximate 60' West of East end, South	0
525	3/19/04	Autumn Ash Approximate 60' West of East end, North	0
526	3/19/04	Autumn Ash Approximate 270' West of East end, North	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
521	1	13.5	117.0	12.8	116.0	99	Y	1,10,13,15,18
522	1	13.5	117.0	11.9	111.0	95	Y	1,10,13,15,18
523	1	13.5	117.0	11.5	110.9	95	Y	1,10,13,15,18
524	2	16.0	110.0	15.1	109.4	100	Y	1,10,13,15,18
525	2	16.0	110.0	15.8	108.3	99	Y	1,10,13,15,18
526	1	13.5	117.0	12.7	114.6	98	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F7 | Authorized By: Jim, D&J Grading | Date: 03/19/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/19/04

Type of Material: Various | Reviewed By: JCH | Date: 03/23/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
527	3/19/04	Autumn Ash Approximate 265' West of East end, South	0
528	3/19/04	Autumn Ash Approximate 80' East of West end, North	0
529	3/19/04	Autumn Ash Approximate 60' East of West end, South	0
530	3/19/04	Briar Ridge Approximate 45' South of Autumn Ash, East	0
531	3/19/04	Briar Ridge Approximate 50' South of Autumn Ash, West	0
532	3/19/04	Briar Ridge Approximate 30' North of Autumn Ash, East	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
527	1	13.5	117.0	13.1	116.4	100	Y	1,10,13,15,18
528	1	13.5	117.0	12.9	117.5	100+	Y	1,10,13,15,18
529	1	13.5	117.0	12.5	116.0	99	Y	1,10,13,15,18
530	1	13.5	117.0	13.0	115.1	99	Y	1,10,13,15,18
531	1	13.5	117.0	13.2	114.5	97	Y	1,10,13,15,18
532	1	13.5	117.0	13.2	115.9	99	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F7 | Authorized By: Jim, D&J Grading | Date: 03/19/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/19/04

Type of Material: Various | Reviewed By: JCH | Date: 03/23/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
533	3/19/04	Briar Ridge Approximate 35' North of Autumn Ash, West	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
533	1	13.5	117.0	13.0	117.1	100	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F7 | Authorized By: Jim, D&J Grading | Date: 03/23/04

Location: Grand Junction | Tested/Calc'd By: JCH/FJB | Date: 03/23/04

Type of Material: Various | Reviewed By: JCH | Date: 03/24/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
534	3/23/04	Autumn Ash St Approximate 60' West of Woodgate Dr, South	0
535	3/23/04	Autumn Ash St Approximate 60' West of Woodgate Dr, North	0
536	3/23/04	Autumn Ash St Approximate 285' West of Woodgate Dr, North	0
537	3/23/04	Autumn Ash St Approximate 285' West of Woodgate Dr, South	0
538	3/23/04	Autumn Ash St Approximate 60' East of Briar Ridge Wy, South	0
539	3/23/04	Autumn Ash St Approximate 55' East of Briar Ridge Wy, North	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
534	1	13.5	117.0	12.4	117.0	100	Y	1,10,13,15,18
535	1	13.5	117.0	11.6	119.9	100+	Y	1,10,13,15,18
536	2	10.5	123.0	12.6	121.3	99	Y	1,10,13,15,18
537	1	13.5	117.0	11.8	118.3	100+	Y	1,10,13,15,18
538	2	10.5	123.0	10.6	120.5	98	Y	1,10,13,15,18
539	1	13.5	117.0	13.6	117.3	100+	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Pavement subgrade
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F7 | Authorized By: Jim, D & J Grading | Date: 03/23/04

Location: Grand Junction | Tested/Calc'd By: JCH / FJB | Date: 03/23/04

Type of Material: Various | Reviewed By: JCH | Date: 03/24/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
540	3/23/04	Briar Ridge Way Approximate 90' South of Autumn Ash, West	0
541	3/23/04	Briar Ridge Way Approximate 90' South of Autumn Ash, East	0
542	3/23/04	Briar Ridge Way Approximate 85' North of Autumn Ash, East	0
543	3/23/04	Briar Ridge Way Approximate 90' North of Autumn Ash, West	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
540	1	13.5	117.0	13.1	116.9	100	Y	1,10,13,15,18
541	1	13.5	117.0	12.7	115.0	98	Y	1,10,13,15,18
542	1	13.5	117.0	12.1	118.8	100+	Y	1,10,13,15,18
543	1	13.5	117.0	12.6	117.6	100+	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Pavement subgrade
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: Jim, D & J Grading | Date: 03/22/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 03/22/04

Type of Material: Various | Reviewed By: JCH | Date: 03/25/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A & C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
544	3/22/04	Woodgate Dr, Approximate 30' South of Fairwood Pl (East)	0
545	3/22/04	Woodgate Dr, Approximate 80' South of Fairwood Pl (West)	0
546	3/22/04	Woodgate Dr, Approximate 150' South of Fairwood Pl (East)	0
547	3/22/04	Woodgate Dr, Approximate 170' South of Fairwood Pl (West)	0
548	3/22/04	Woodgate Dr, Approximate 280' South of Fairwood Pl (East)	0
549	3/22/04	Woodgate Dr, Approximate 300' South of Fairwood Pl (West)	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
544	1	13.5	117.0	11.8	115.5	98	Y	1,10,13,15,18
545	2	10.5	123.0	11.3	118.0	96	Y	1,10,13,15,18
546	2	10.5	123.0	10.1	123.0	100	Y	1,10,13,15,18
547	2	10.5	123.0	10.3	119.5	97	Y	1,10,13,15,18
548	2	10.5	123.0	9.8	116.9	95	Y	1,10,13,15,18
549	2	10.5	123.0	10.2	119.3	97	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Pavement
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: Jim, D & J Grading | Date: 03/22/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 03/22/04

Type of Material: Various | Reviewed By: JCH | Date: 03/25/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
550	3/22/04	Center of Cul-de-sac @ Fairwood & Woodgate	0
551	3/22/04	Fairwood Pl, Approximate 30' West of Cul-de-sac (North)	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
550	1	13.5	117.0	12.5	118.5	100+	Y	1,10,13,15,18
551	1	13.5	117.0	11.8	114.2	98	Y	1,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Pavement

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: Jim, D & J Grading | Date: 03/24/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/24/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 03/25/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
552	3/24/04	Briar Ridge, Approximate 30' North of Autumn Ash (West)	0.5
553	3/24/04	Briar Ridge, Approximate 25' North of Autumn Ash (East)	0.5
554	3/24/04	Briar Ridge, Approximate 45' South of Autumn Ash (East)	0.5
555	3/24/04	Briar Ridge, Approximate 50' South of Autumn Ash (West)	0.5
556	3/24/04	Autumn Ash, Approximate 70' East of West End (South)	0.5
557	3/24/04	Autumn Ash, Approximate 60' East of West End (North)	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
552	5	6.5	138.0	5.2	132.3	96	Y	3,10,13,15,18
553	5	6.5	138.0	7.4	134.1	97	Y	3,10,13,15,18
554	5	6.5	138.0	6.4	135.1	98	Y	3,10,13,15,18
555	5	6.5	138.0	7.1	135.6	98	Y	3,10,13,15,18
556	5	6.5	138.0	6.5	134.6	98	Y	3,10,13,15,18
557	5	6.5	138.0	5.9	132.0	96	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: Jim, D & J Grading | Date: 03/24/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/24/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 03/25/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
558	3/24/04	Autumn Ash, Approximate 250' East of West End (North)	0.5
559	3/24/04	Autumn Ash, Approximate 270' East of West End (South)	0.5
560	3/24/04	Autumn Ash, Approximate 75' West of East End (North)	0.5
561	3/24/04	Autumn Ash, Approximate 60' West of East End (South)	0.5
562	3/24/04	Woodgate Dr, Approximate 30' South of Autumn Ash (West)	0.5
563	3/24/04	Woodgate Dr, Approximate 45' South of Autumn Ash (East)	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
558	5	6.5	138.0	5.5	132.6	96	Y	3,10,13,15,18
559	5	6.5	138.0	7.4	135.1	98	Y	3,10,13,15,18
560	5	6.5	138.0	5.4	132.7	96	Y	3,10,13,15,18
561	5	6.5	138.0	6.5	134.4	97	Y	3,10,13,15,18
562	5	6.5	138.0	5.8	137.3	99	Y	3,10,13,15,18
563	5	6.5	138.0	5.0	131.8	96	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

F:\2004 Jobs\3004\3004SDEN032404A.doc

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: Jim, D & J Grading | Date: 03/24/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/24/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 03/25/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
564	3/24/04	Fairwood Pl, Approximate 40' West of East Cul-de-sac (North)	0.5
565	3/24/04	Fairwood Pl, Approximate 40' West of East Cul-de-sac (South)	0.5
566	3/24/04	East Side of Cul-de-sac @ Fairwood Pl & Woodgate Dr	0.5
567	3/24/04	Woodgate Dr, Approximate 50' North of Autumn Ash (East)	0.5
568	3/24/04	Woodgate Dr, Approximate 45' North of Autumn Ash (West)	0.5
569	3/24/04	Woodgate Dr, Approximate 30' South of Fairwood Pl (West)	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
564	5	6.5	138.0	6.3	134.8	98	Y	3,10,13,15,18
565	5	6.5	138.0	5.8	133.9	97	Y	3,10,13,15,18
566	5	6.5	138.0	6.6	134.9	98	Y	3,10,13,15,18
567	5	6.5	138.0	6.3	134.3	97	Y	3,10,13,15,18
568	5	6.5	138.0	5.4	130.5	95	Y	3,10,13,15,18
569	5	6.5	138.0	6.0	135.4	98	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: Jim, D & J Grading | Date: 03/24/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/24/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 03/25/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
570	3/24/04	Woodgate Dr, Approximate 50' South of Fairwood Pl (East)	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
570	5	6.5	138.0	5.2	133.6	97	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sidewalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Sidewalk subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls F6 | Authorized By: Jim, D & J Grading | Date: 03/25/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 03/25/04

Type of Material: ¾" base course | Reviewed By: JCH | Date: 03/25/04

Source of Material: United, 32 Rd Pit | Moisture/Density Relationship: ASTM D1557 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
571	3/25/04	V-pan West End of Autumn Ash	0.5
572	3/25/04	V-pan East End of Autumn Ash	0.5
573	3/25/04	Crosswalk Middle of Autumn Ash	0.5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
571	5	6.5	138.0	5.4	134.4	96	Y	3,10,13,15,18
572	5	6.5	138.	6.6	138.1	100	Y	3,10,13,15,18
573	5	6.5	138.	6.0	136.0	97	Y	3,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: V-pans/Crosswalk
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

From: Rick Dorris
To: Mike Bonds
Date: 3/29/04 1:13PM
Subject: Knolls #6 concrete

The knolls #6 is okay for concrete.

Thanks,

Rick Dorris
Development Engineer
City of Grand Junction
250 N. 5th Street
Grand Junction, CO 81501
voice 970-256-4034
fax 970-256-4031
email: rickdo@ci.grandjct.co.us

CC: Mark Barslund; Randy Pahlke; Walt Hoyt

WESTERN
COLORADO
TESTING,
INC.

529 25½ Road, Suite B-101
Grand Junction, Colorado 81505
(970) 241-7700 • Fax: (970) 241-7783
E-mail: westcolotesting@qwest.net

March 10, 2004
WCT# 300404

Monument Homes
603 28 ¼ Road
Grand Junction, CO 81506

Attention: Mike Bonds

Subject: Compaction Testing Summary Letter
Dry Utility Installation
The Knolls Filing 6
Grand Junction, Colorado

A representative of Western Colorado Testing, Inc (WCT) tested dry utility crossing backfill for the Knolls Filing 6 on a part time basis on March 8, 2004. This is a summary letter. Please find enclosed compaction test results for dry utility crossing backfill (test numbers 331 through 338) for Filing 6. This letter and our summary report dated March 3, 2004 complete the compaction testing submittals for the Knolls Subdivision Filing 6 Pipeline Phase of development.

Please do not hesitate to call when we can be of further service to your project.

Respectfully Submitted:

WESTERN COLORADO TESTING, INC

Jim Huddleston
Senior Geologist

cc: Rick Doris, P.E.
City of Grand Junction
Public Works and Utilities
250 North 5th Street
Grand Junction, CO 81501

JH/ak
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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 3/08/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 3/08/04

Type of Material: Various | Reviewed By: JCH | Date: 3/10/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
331	3/8/04	Woodgate Dr, Line A @ Approximate Station 14+50	0
332	3/8/04	Woodgate Dr, Line A @ Approximate Station 14+00	0
333	3/8/04	Woodgate Dr, Line A @ Approximate Station 13+40	0
334	3/8/04	Woodgate Dr, Line A @ Approximate Station 13+35	0
335	3/8/04	Autumn Ash, Line C @ Approximate Station 1+20	0
336	3/8/04	Autumn Ash, Line C @ Approximate Station 0+10	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
331	3	16.0	110.0	14.0	110.0	100	Y	4,10,13,15,18
332	3	16.0	110.0	14.3	107.6	98	Y	4,10,13,15,18
333	3	16.0	110.0	14.9	109.7	100	Y	4,10,13,15,18
334	3	16.0	110.0	14.2	107.0	97	Y	4,10,13,15,18
335	3	16.0	110.0	14.0	106.2	97	Y	4,10,13,15,18
336	1	13.5	117.0	11.5	118.6	97	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Utility Crossings

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 3/08/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 3/09/04

Type of Material: Various | Reviewed By: JCH | Date: 3/10/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
337	3/8/04	Briar Ridge Way, Line B @ Approximate Station 2+50	0
338	3/8/04	Briar Ridge Way, Line B @ Approximate Station 3+00	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
337	1	13.5	117.0	11.7	110.8	95	Y	4,10,13,15,18
338	1	13.5	117.0	11.6	118.3	100+	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Utility Crossings
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN
COLORADO
TESTING,
INC.

529 25 ½ Road, Suite B-101
Grand Junction, Colorado 81505
(970) 241-7700 • Fax: (970) 241-7783
E-mail: westcolotesting@qwest.net

March 3, 2004
WCT# 300404

Monument Homes
603 28 ¼ Road
Grand Junction, CO 81506

Attention: Mike Bonds

Subject: Compaction Testing Summary Report
Utility Installation and Site Grading
The Knolls Filing 6 and 7
Grand Junction, Colorado

A representative of Western Colorado Testing, Inc (WCT) tested site grading fill for the Knolls Filing 6 and 7, and sanitary sewer line backfill and waterline backfill for the Knolls Filing 6 on a part time basis from November 7, 2003 to March 1, 2004. This is a summary report. Please find enclosed compaction test results for site grading fill in Filing 6 and 7 (test numbers 1 through 87), sanitary sewer line backfill (test numbers 88 through 261), and waterline backfill (test numbers 262 through 309) for Filing 6. Compaction test locations are plotted on the enclosed plan sheets. Dry utilities are yet to be installed on this project.

Please do not hesitate to call when we can be of further service to your project.

Respectfully Submitted:

WESTERN COLORADO TESTING, INC

Jim Huddleston
Senior Geologist

cc: Rick Doris, P.E.
City of Grand Junction
Public Works and Utilities
250 North 5th Street
Grand Junction, CO 81501

JH/ak
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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-7-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-7-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
1	11-7-03	30' S and 20' W of centerline, Woodgate Drive, Sta. 15+50	-10'
2	11-7-03	50' S and 40' W of centerline, Woodgate Drive, Sta. 15+50	-10'
3	11-7-03	65' S and 50' W of centerline, Woodgate Drive, Sta. 15+50	-10'
4	11-7-03	60'S and 150' W of centerline, Woodgate Drive, Sta. 15+50	-10'
5	11-7-03	50' S and 120' W of centerline, Woodgate Drive, Sta. 15+50	-10'
6	11-7-03	40' S and 160' W of centerline, Woodgate Drive, Sta. 15+50	-10'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
1	1	13.4	117.1	9.7*	114.5	93*	N	1,10,13,15
2	2	10.6	123.2	12.2	120.8	98	Y	1,10,13,15
3	1	13.4	117.1	12.9	116.5	99	Y	1,10,13,15
4	1	13.4	117.1	10.2*	113.2	97	N	1,10,13,15
5	1	13.4	117.1	18.0*	113.9	97	N	1,10,13,15
6	1	13.4	117.1	15.9*	114.8	98	N	1,10,13,15

* Indicates non-conformance to specifications.

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to: Per Jim H on 3-29-04

FLG 7. Rework it. Did not retest. Tests @ -9' down are good.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-7-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-7-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: GV | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
7	11-7-03	20' S and 20' W of centerline, Woodgate Drive, Sta. 15+50	-9'
8	11-7-03	15' S and 200' W of centerline, Woodgate Drive, Sta. 15+50	-9'
9	11-7-03	50' S and 180' W of centerline, Woodgate Drive, Sta. 15+50	-9'
10	11-7-03	40'S and 130' W of centerline, Woodgate Drive, Sta. 15+50	-9'
11	11-7-03	65' S and 10' W of centerline, Woodgate Drive, Sta. 15+50	-9'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
7	2	10.6	123.2	6.1*	114.3	93*	N	1,10,13,15
8	2	10.6	123.2	10.9	116.9	95	Y	1,10,13,15
9	2	10.6	123.2	8.0*	110.6	90*	N	1,10,13,15
10	2	10.6	123.2	7.1*	114.3	93*	N	1,10,13,15
11	2	10.6	123.2	5.2*	104.8	85*	N	1,10,13,15

*Indicates nonconformance to specifications

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

retests OK

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-10-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-10-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: R. Fife | Date: 12-4-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
7A	11-10-03	20' S and 20' W of centerline, Woodgate Drive, Sta. 15+50	-9'
8A	11-10-03	15' S and 200' W of centerline, Woodgate Drive, Sta. 15+50	-9'
9A	11-10-03	50' S and 180' W of centerline, Woodgate Drive, Sta. 15+50	-9'
10A	11-10-03	40'S and 130' W of centerline, Woodgate Drive, Sta. 15+50	-9'
11A	11-10-03	65' S and 10' W of centerline, Woodgate Drive, Sta. 15+50	-9'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
7A	1	13.4	117.1	12.6	114.5	98	Y	1,10,13,15
8A	1	13.4	117.1	12.7	114.7	98	Y	1,10,13,15
9A	1	13.4	117.1	13.5	114.9	98	Y	1,10,13,15
10A	1	13.4	117.1	12.3	113.4	97	Y	1,10,13,15
11A	1	13.4	117.1	15.4	112.8	96	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-11-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-11-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: R Fife | Date: 12-4-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
12	11-11-03	25' S and 20' W of centerline, Woodgate Drive, Sta. 15+50	-8'
13	11-11-03	20' S and 150' W of centerline, Woodgate Drive, Sta. 15+50	-8'
14	11-11-03	60' S and 200' W of centerline, Woodgate Drive, Sta. 15+50	-8'
15	11-11-03	55'S and 160' W of centerline, Woodgate Drive, Sta. 15+50	-8
16	11-11-03	50' S and 50' W of centerline, Woodgate Drive, Sta. 15+50	-8'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
12	1	13.4	117.1	13.3	113.9	97	Y	1,10,13,15
13	1	13.4	117.1	12.7	118.3	100+	Y	1,10,13,15
14	1	13.4	117.1	14.6	111.4	95	Y	1,10,13,15
15	1	13.4	117.1	13.8	112.5	96	Y	1,10,13,15
16	2	10.6	123.2	10.1	121.1	98	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-98% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-11-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-11-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: R Fife | Date: 12.4.03

Source of Material Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
17	11-11-03	10' S and 30' W of centerline, Woodgate Drive, Sta. 15+50	-7'
18	11-11-03	10' S and 170' W of centerline, Woodgate Drive, Sta. 15+50	-7'
19	11-11-03	60' S and 120' W of centerline, Woodgate Drive, Sta. 15+50	-7'
20	11-11-03	55'S and 160' W of centerline, Woodgate Drive, Sta. 15+50	-7

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
17	2	10.6	123.2	11.2	119.1	97	Y	1,10,13,15
18	2	10.6	123.2	9.9	120.4	98	Y	1,10,13,15
19	2	10.6	123.2	11.8	118.4	96	Y	1,10,13,15
20	2	10.6	123.2	11.7	117.5	95	Y	

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-12-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-12-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: | Date:

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
21	11-12-03	Sta. 16+50, Woodgate Drive, 10' S of center	-6'
22	11-12-03	Sta. 16+75, Woodgate Drive, 25' S of center	-6'
23	11-12-03	Sta. 17+00, Woodgate Drive, 60' S. of center	-6'
24	11-12-03	Sta. 16+25, Woodgate Drive, 50' S of center	-6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
21	1	13.4	117.1	12.2	117.3	100	Y	1,10,13,15
22	1	13.4	117.1	13.2	115.3	98	Y	1,10,13,15
23	2	10.6	123.2	10.7	117.0	95	Y	1,10,13,15
24	1	13.4	117.1	11.4	114.5	98	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-13-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-13-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
25	11-13-03 am	Sta. 16+00, Woodgate Drive, 20' S of centerline	-5.5'
26	11-13-03 am	Sta. 17+50, Woodgate Drive, 40' S of centerline	-5.5'
27	11-13-03 am	Sta. 18+00, Woodgate Drive, 15' S of centerline	-5.5'
28	11-13-03 am	Sta. 17+75, Woodgate Drive, 70' S of centerline	-5.5'
29	11-13-03 am	20' W of centerline of cul-de-sac at 1800 Woodgate Drive	-5.5'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
25	2	10.6	123.2	10.2	121.1	98	Y	1,10,13,15
26	2	10.6	123.2	11.9	120.2	97	Y	1,10,13,15
27	2	10.6	123.2	10.9	117.9	96	Y	1,10,13,15
28	2	10.6	123.2	11.6	118.0	96	Y	1,10,13,15
29	1	13.4	117.1	13.9	111.1	95	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-13-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-13-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
30	11-13-03 pm	Sta. 16+00, Woodgate Drive, 20' S of centerline	-5'
31	11-13-03 pm	Sta. 18+00, Woodgate Drive, 20' S and 20' W of centerline	-5'
32	11-13-03 pm	Sta. 18+00, Woodgate Drive, 0' S and 15' W of centerline	-5'
33	11-13-03 pm	Sta. 18+00, Woodgate Drive, 10' S and 25' W of centerline	-5

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
30	1	13.4	117.1	13.5	115.2	98	Y	1,10,13,15
31	2	10.6	123.2	10.3	117.4	95	Y	1,10,13,15
32	1	13.4	117.1	12.5	113.4	97	Y	1,10,13,15
33	2	10.6	123.2	9.4	117.2	95	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-14-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-14-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
34	11-14-03 am	Sta. 16+75, Woodgate Drive, 15' S of centerline	-4.5'
35	11-14-03 am	Sta. 18+50, Woodgate Drive, 30' S of centerline	-4.5'
36	11-14-03 am	20' W of center of cul-de-sac at Sta. 18+50, Woodgate Drive	-4.5'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
34	1	13.4	117.1	12.5	110.8	95	Y	1,10,13,15
35	1	13.4	117.1	15.1	115.9	99	Y	1,10,13,15
36	2	10.6	123.2	10.9	118.8	97	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-14-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-14-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
37	11-14-03 pm	Sta. 16+00, Woodgate Drive, 20' S of centerline	-4'
38	11-14-03 pm	Sta. 17+25, Woodgate Drive, 10' S of centerline	-4'
39	11-14-03 pm	Sta. 18+75, Woodgate Drive, 20' S of centerline	-4'
40	11-14-03 pm	30' SW of cul-de-sac at Sta. 18+50, Woodgate Drive	-4
41	11-14-03 pm	30' W of cul-de-sac at Sta. 18+50, Woodgate Drive	-4

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
37	2	10.6	123.2	10.8	124.6	100+	Y	1,10,13,15
38	2	10.6	123.2	8.8	119.8	97	Y	1,10,13,15
39	2	10.6	123.2	10.6	122.5	99	Y	1,10,13,15
40	1	13.4	117.1	13.7	118.3	100+	Y	1,10,13,15
41	1	13.4	117.1	13.0	115.8	99	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-17-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-17-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
42	11-17-03 am	Sta. 16+20, Woodgate Drive, 15' S of centerline	-4'
43	11-17-03 am	Sta. 17+50, Woodgate Drive, 20' S of centerline	-4'
44	11-17-03 am	Sta. 18+50, 25' W of center of cul-de-sac, Woodgate Drive	-4'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
42	1	13.4	117.1	15.4	114.6	98	Y	1,10,13,15
43	1	13.4	117.1	15.3	115.0	98	Y	1,10,13,15
44	1	13.4	117.1	11.4	112.7	96	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-17-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-17-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
45	11-17-03 pm	Sta. 16+00, Woodgate Drive, 15' S of centerline	-3.5'
46	11-17-03 pm	Sta. 17+50, Woodgate Drive, 10' S of centerline	-3.5'
47	11-17-03 pm	Sta. 18+00, Woodgate Drive, 20' S of centerline	-3.5'
48	11-17-03 pm	Sta. 18+50, 30' W of centerline of Woodgate Drive	-3.5'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
45	2	10.6	123.2	11.0	118.3	96	Y	1,10,13,15
46	2	10.6	123.2	12.4	119.2	97	Y	1,10,13,15
47	1	13.4	117.1	11.7	118.2	100	Y	1,10,13,15
48	1	13.4	117.1	12.6	117.3	100	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-18-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-18-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: | Date:

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
49	11-18-03 am	15' NW of cul-de-sac at Sta. 18+50, Woodgate Drive	-3'
50	11-18-03 am	Sta. 18+50, Woodgate Drive, 15' W of centerline	-3'
51	11-18-03 am	Sta. 18+00, Woodgate Drive, 20' S of centerline	-3'
52	11-18-03 am	Sta. 17+50, 10' S of centerline of Woodgate Drive	-3'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
49	1	13.4	117.1	14.1	111.7	95	Y	1,10,13,15
50	1	13.4	117.1	14.5	113.5	97	Y	1,10,13,15
51	2	10.4	123.2	10.1	117.0	95	Y	1,10,13,15
52	1	13.4	117.1	14.4	115.8	99	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-18-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-18-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
53	11-18-03 pm	Sta. 16+00, 5' S of centerline, Woodgate Drive	-2.5'
54	11-18-03 pm	Sta. 17+00, 10' S of centerline, Woodgate Drive	-2.5'
55	11-18-03 pm	Sta. 18+50, 10' S of centerline, Woodgate Drive	-2.5'
56	11-18-03 pm	Sta. 18+50, 25' W. of centerline, Woodgate Drive	-2.5'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
53	1	13.4	117.1	14.1	114.5	98	Y	1,10,13,15
54	1	13.4	117.1	12.8	113.8	97	Y	1,10,13,15
55	1	13.4	117.1	11.5	115.6	99	Y	1,10,13,15
56	1	13.4	117.1	15.2	112.4	96	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- __2__ % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-19-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-19-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
57	11-19-03 am	Sta. 16+50, 7' N of centerline, Woodgate Drive	-2'
58	11-19-03 am	Sta. 18+50, 35' NW of centerline, Woodgate Drive	-2'
59	11-19-03 am	Sta. 18+00, 20' S of centerline, Woodgate Drive	-2'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
57	1	13.4	117.1	14.5	113.5	97	Y	1,10,13,15
58	1	13.4	117.1	11.8	112.4	96	Y	1,10,13,15
59	1	13.4	117.1	14.8	111.5	95	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-20-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-20-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: | Date:

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
60	11-20-03 am	Sta. 17+25, 15' S of centerline, Woodgate Drive	-1.5'
61	11-20-03 am	Sta. 18+50, 10' S of centerline, Woodgate Drive	-1.5'
62	11-20-03 am	Sta. 14+50, 20' S of centerline, Woodgate Drive	2nd lift
63	11-20-03 am	Sta. 15+00, 20' S of centerline, Woodgate Drive	2nd. Lift

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
60	1	13.4	117.1	15.2	116.3	99	Y	1,10,13,15
61	1	13.4	117.1	13.9	116.5	99	Y	1,10,13,15
62	1	13.4	117.1	15.4	115.9	99	Y	1,10,13,15
63	2	10.7	123.2	12.3	120.8	98	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-20-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-20-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: | Date:

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
64	11-20-03 pm	Sta. 17+00, 10 ' S of centerline, Woodgate Drive	-1'
65	11-20-03 pm	Sta. 18+50, 30' S of centerline, Woodgate Drive	-1'
66	11-20-03 pm	Sta. 17+50, 30' S of centerline, Woodgate Drive	-1'
67	11-20-03 pm	Sta. 16+00, 5' S of centerline, Woodgate Drive	-1'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
64	1	13.4	117.1	12.5	116.4	99	Y	1,10,13,15
65	2	10.7	123.2	11.9	121.8	99	Y	1,10,13,15
66	1	13.4	117.1	11.8	116.3	99	Y	1,10,13,15
67	1	13.4	117.1	12.7	115.6	99	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-21-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-21-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: R Tife | Date: 12-4-03

Source of Material Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
68	11-21-03 am	Sta. 16+00, 15' S of centerline, Woodgate Drive	-0.5'
69	11-21-03 am	Sta. 17+00, 5' S of centerline, Woodgate Drive	-0.5'
70	11-21-03 am	Sta. 18+00, 10' S. of centerline, Woodgate Drive	-0.5'
71	11-21-03 am	Sta. 18+50, 25 ' NW of centerline, Woodgate Drive	-0.5'
72	11-21-03 am	Sta. 18+50, 20' SW of centerline, Woodgate Drive	-0.5'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
68	1	13.4	117.1	13.6	118.4	100+	Y	1,10,13,15
69	1	13.4	117.1	13.3	117.4	100	Y	1,10,13,15
70	2	10.7	123.2	8.8	114.4	93	N	1,10,13,15
71	2	10.7	123.2	11.7	123.5	100	Y	1,10,13,15
72	1	13.4	117.1	13.5	120.7	100+	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1558/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 11-21-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 11-21-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
70A	11-21-03 pm	Sta. 18+00, 10' S of centerline, Woodgate Drive	-0.5'
73	11-21-03 pm	Sta. 18+50, 10' NW of centerline, Woodgate Drive	0
74	11-21-03 pm	Sta. 18+50, 10' SW. of centerline, Woodgate Drive	0
75	11-21-03 pm	Sta. 14+00, 20 ' S of centerline, Woodgate Drive	3rd. lift
76	11-21-03 pm	Sta. 14+50, 5' S of centerline, Woodgate Drive	3rd. lift

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
70A	2	10.7	123.2	11.6	121.1	98	Y	1,10,13,15
73	2	10.7	123.2	10.2	122.9	100	Y	1,10,13,15
74	2	10.7	123.2	12.2	123.0	100	Y	1,10,13,15
75	1	13.4	117.1	13.5	121.0	100+	Y	1,10,13,15
76	2	10.7	123.2	11.0	123.0	100	Y	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 12-01-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 12-01-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: [signature] | Date: 12-5-03

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
77	12-01-03	Sta. 14+00 centerline of Woodgate Drive	-1'
78	12-01-03	Sta. 13+00 centerline of Woodgate Drive	-1'
79	12-01-03	Sta. 14+50 centerline of Woodgate Drive	-.5"

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
77	1	13.4	117.1	12.4	113.3	97	Y	1,10,13,15
78	1	13.4	117.1	14.0	114.5	98	Y	1,10,13,15
79	2	10.7	123.2	12.1	119.5	97	N	1,10,13,15

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade at centerline

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 12-2-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 12-2-03

Type of Material: Brown lean clay w/ fine shale | Reviewed By: RT | Date: 1/12/04

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
80	12-2-03	Sta. 9+99, 10' North of centerline of Woodgate Drive	-1'
81	12-2-03	Sta. 6+00, 30' East of centerline of Woodgate Drive	-1'
82	12-2-03	Sta. 5+00, 25' East of centerline of Woodgate Drive	-1'
80A	12-2-03	Retest of #80	-1'
81A	12-2-03	Retest of #81	-1'
82A	12-2-03	Retest of #82	-1'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
80	3	16.0	109.9	11.4	105.3	96	N	1,10,13,15
81	3	16.0	109.9	10.1	105.2	96	N	1,10,13,15
82	3	16.0	109.9	10.3	105.3	96	N	1,10,13,15
80A	3	16.0	109.9	19.2	100.6	92	N	1,10,13,15
81A	3	16.0	109.9	17.2	102.1	93	N	1,10,13,15
82A	3	16.0	109.9	18.9	100.2	97	N	1,10,13,15

* Indicates non-conformance to specifications.

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade at centerline of Woodgate Drive

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

fill mtl.

subgrade is lower & tested.

f/2003jobs/3147/3147s1202

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 12-2-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 12-2-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: | Date:

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
83	12-2-03	Sta. 9+00, 50' North of centerline of Woodgate Drive	-1'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
83	3	16.0	110.0	18.0	104.4	95	Y	1,10,13,15

*Indicates nonconformance to specifications

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade at centerline of Woodgate Drive

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 12-5-03

Location: Grand Junction, CO | Tested/Calc'd By: B. Rabe | Date: 12-5-03

Type of Material: Clayey silt with sand and gravel | Reviewed By: RT | Date: 1/12/04

Source of Material: Native | Moisture/Density Relationship: ASTM D 698 | Method: C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
84	12-5-03	Sta. 15+00, Woodgate Drive, 30' South of centerline	-6'
85	12-5-03	Sta. 15+50, Woodgate Drive, 45' South of centerline	-6'
86	12-5-03	Sta. 16+25, Woodgate Drive, 35' South of centerline	-6'

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
84	1	13.4	117.1	11.5	116.1	99	Y	1,10,13,15
85	1	13.4	117.1	15.4	110.6	95	Y	1,10,13,15
86	1	13.4	117.1	13.6	114.2	98	Y	1,10,13,15

* Indicates non-conformance to specifications.

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade at centerline

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Msf:\2003jobs\3147/3147s1205

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 314703

Project: The Knolls Subdivision | Authorized By: Client | Date: 12-29-03

Location: Grand Junction, CO | Tested/Calc'd By: R. Fife | Date: 12-29-03

Type of Material: Imported | Reviewed By: RF | Date: 1/12/04

Source of Material: 12th. and Bookcliff Ave. | Moisture/Density Relationship: ASTM D 698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
87	12-29-03	Sta. 16+50, Woodgate Drive	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
87	4	13.5	117.5	15.2	114.3	97	Y	1,4,10,13,15

* Indicates non-conformance to specifications.

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other:_____

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Top of subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Contractor | Date: 1-28-04

Location: GJ, CO | Tested/Calc'd By: BJR | Date: 1-28-04

Type of Material: Clay, sandy | Reviewed By: | Date: 1-29-04

Source of Material: Native | Moisture/Density Relationship: ASTM D-698 | Method: A & C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
88	1-28-04	Approximate STA 16+00	0
89	1-28-04	Approximate STA 15+95	2
90	1-28-04	Approximate STA 15+90	4
91	1-28-04	Approximate STA 15+85	6
92	1-28-04	Approximate STA 15+80	8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
88	2	10.5	123.0	12.3	120.5	98	Y	1,4,10,13,15,18
89	2	10.5	123.0	11.7	118.3	96	Y	1,4,10,13,15,18
90	2	10.5	123.0	11.8	120.8	98	Y	1,4,10,13,15,18
91	1	13.0	117.0	12.9	119.5	+100	Y	1,4,10,13,15,18
92	1	13.0	117.0	13.8	115.5	99	Y	1,4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- _ 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement Subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Contractor | Date: 1-29-04

Location: GJ, CO | Tested/Calc'd By: BJR | Date: 1-29-04

Type of Material: Various | Reviewed By: | Date: 2-9-04

Source of Material: Native | Moisture/Density Relationship: ASTM D-698 | Method: A & C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
93	1-29-04	L6B3 @Aprox Sta 15 + 40 Woodgate Dr	0
94	1-29-04	L6B3 @Aprox Sta 15 + 40 Woodgate Dr	-2
95	1-29-04	L6B3 @Aprox Sta 15 + 40 Woodgate Dr	-4
96	1-29-04	L6B3 @Aprox Sta 15 + 40 Woodgate Dr	-6
97	1-29-04	L6B3 @Aprox Sta 15 + 40 Woodgate Dr	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	Dry Density pcf	Relative Compaction %	Within Specs	Comments*
93	2	10.5	123.0	11.9	120.0	98	Y	1,4,10,13,15,18
94	1	13.5	117.0	15.1	110.7	95	Y	1,4,10,13,15,18
95	1	13.5	117.0	15.3	116.7	100	Y	1,4,10,13,15,18
96	1	13.5	117.0	15.0	116.1	99	Y	1,4,10,13,15,18
97	1	13.5	117.0	13.6	118.0	101	Y	1,4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- _ 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement Subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Contractor | Date: 1-29-04

Location: GJ, CO | Tested/Calc'd By: BJR | Date: 1-29-04

Type of Material: Various | Reviewed By: [signature] | Date: 2-9-04

Source of Material: Native | Moisture/Density Relationship: ASTM D-698 | Method: A & C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
98	1-29-04	L3B4 @Aprox Sta 15 + 82 Woodgate Dr	0
99	1-29-04	L3B4 @Aprox Sta 15 + 82 Woodgate Dr	-2
100	1-29-04	L3B4 @Aprox Sta 15 + 82 Woodgate Dr	-4
101	1-29-04	L3B4 @Aprox Sta 15 + 82 Woodgate Dr	-6
102	1-29-04	L3B4 @Aprox Sta 15 + 82 Woodgate Dr	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
98	2	10.5	123.0	11.8	117.2	95	Y	1,4,10,13,15,18
99	2	10.5	123.0	12.1	119.0	97	Y	1,4,10,13,15,18
100	2	10.5	123.0	11.4	119.8	97	Y	1,4,10,13,15,18
101	1	13.5	117.0	13.1	118.3	101	Y	1,4,10,13,15,18
102	1	13.5	117.0	13.6	117.6	101	Y	1,4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- _ 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement Subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Contractor | Date: 1-29-04

Location: GJ, CO | Tested/Calc'd By: BJR | Date: 1-29-04

Type of Material: Various | Reviewed By: | Date: 2-9-04

Source of Material: Native | Moisture/Density Relationship: ASTM D-698 | Method: A & C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
103	1-29-04	L4B4 @Aprox Sta 15 + 00 Woodgate Dr	0
104	1-29-04	L4B4 @Aprox Sta 15 + 00 Woodgate Dr	-2
105	1-29-04	L4B4 @Aprox Sta 15 + 00 Woodgate Dr	-4
106	1-29-04	L4B4 @Aprox Sta 15 + 00 Woodgate Dr	-6
107	1-29-04	L4B4 @Aprox Sta 15 + 00 Woodgate Dr	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	Dry Density pcf	Relative Compaction %	Within Specs	Comments*
103	1	13.5	117.0	13.6	117.7	101	Y	1,4,10,13,15,18
104	1	13.5	117.0	13.9	111.5	95	Y	1,4,10,13,15,18
105	1	13.5	117.0	11.5	114.9	98	Y	1,4,10,13,15,18
106	1	13.5	117.0	11.6	115.2	98	Y	1,4,10,13,15,18
107	1	13.5	117.0	14.7	112.4	96	Y	1,4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- _ 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement Subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Ed ex | Date: 1-30-04

Location: GJ, CO | Tested/Calc'd By: BJR | Date: 1-30-04

Type of Material: Shale | Reviewed By: [signature] | Date: 2-9-04

Source of Material: Native | Moisture/Density Relationship: ASTM D-698 | Method: A & C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
108	1-30-04	L5B3 @Aprox Sta 13 + 97 Woodgate Dr	0
109	1-30-04	L5B3 @Aprox Sta 13 + 97 Woodgate Dr	-2
110	1-30-04	L5B3 @Aprox Sta 13 + 97 Woodgate Dr	-4
111	1-30-04	L5B3 @Aprox Sta 13 + 97 Woodgate Dr	-6
112	1-30-04	L5B3 @Aprox Sta 13 + 97 Woodgate Dr	-8
113	1-30-04	L5B4 @Aprox Sta 13 + 95 Woodgate Dr	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
108	3	16.0	110.0	15.1	109.1	99	Y	1,4,10,13,15,18
109	3	16.0	110.0	14.5	112.1	102	Y	1,4,10,13,15,18
110	3	16.0	110.0	16.6	109.2	99	Y	1,4,10,13,15,18
111	3	16.0	110.0	16.5	107.6	98	Y	1,4,10,13,15,18
112	3	16.0	110.0	15.4	109.8	100	Y	1,4,10,13,15,18
113	1	13.5	117.0	13.5	112.9	96	Y	1,4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- _ 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement Subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/9/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/9/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
151	2/9/04	Service L2 B4 F6	0
152	2/9/04	Service L2 B4 F6	2
153	2/9/04	Service L2 B4 F6	4
154	2/9/04	Service L2 B4 F6	6
155	2/9/04	Service L2 B4 F6	8
156	2/9/04	Service L2 B4 F6	10

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
151	3	16.0	110.0	14.7	108.8	99	Y	4,10,13,15,18
152	1	13.5	117.0	14.5	115.4	99	Y	4,10,13,15,18
153	3	16.0	110.0	14.0	108.4	99	Y	4,10,13,15,18
154	1	13.5	117.0	13.6	117.0	100	Y	4,10,13,15,18
155	1	13.5	117.0	13.5	115.4	99	Y	4,10,13,15,18
156	1	13.5	117.0	12.9	115.1	98	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404
Project: The Knolls | Authorized By: Edex | Date: 2/9/04
Location: Grand Junction, CO | Tested/Calc'd By: BJR | Date: 2/9/04
Type of Material: Various | Reviewed By: JCH | Date: 2/19/04
Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
157	2/9/04	Manhole A7	-10
158	2/9/04	Manhole A7	-8
159	2/9/04	Service L1, Block 4, Filing 6	-10
160	2/9/04	Service L1, Block 4, Filing 6	-8
161	2/9/04	Service L1, Block 4, Filing 6	-6
162	2/9/04	Service L1, Block 4, Filing 6	-4

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
157	3	16.0	110.0	15.1	104.0	95	Y	4,10,13,15,18
158	1	13.5	117.0	15.5	112.7	96	Y	4,10,13,15,18
159	1	13.5	117.0	14.8	113.1	97	Y	4,10,13,15,18
160	1	13.5	117.0	13.9	115.2	98	Y	4,10,13,15,18
161	1	13.5	117.0	13.0	116.3	99	Y	4,10,13,15,18
162	1	13.5	117.0	14.2	115.3	99	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/9/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/9/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
163	2/9/04	Service L1, B4, F6	-2
164	2/9/04	Service L1, B4, F6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
163	1	13.5	117.0	14.0	112.7	96	Y	4,10,13,15,18
164	1	13.5	117.0	14.2	112.0	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-98% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/10/04

Location: Grand Junction | Tested/Calc'd By: JR | Date: 2/10/04

Type of Material: Silty Clay | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
165	2/10/04	M-A7	-6
166	2/10/04	M-A7	-4
167	2/10/04	M-A7	-2
168	2/10/04	Main Sewer line D East Approximate Station 1+20	-6
168A	2/10/04	Main Sewer line D East Approximate Station 1+20	-6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
165	1	13.5	117.0	13.5	116.5	99.6	Y	4,10,13,15,18
166	1	13.5	117.0	13.2	117.9	100.8	Y	4,10,13,15,18
167	1	13.5	117.0	12.2	119.9	102.5	Y	4,10,13,15,18
168	3	16.0	110.0	13.8	115.75	105.2	N	4,10,13,15,18
168A	3	16.0	110.0	16.2	108.9	99.0	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/11/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/11/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
169	2/11/04	San Sewer Line D N Service L4, B3, F6	-0
170	2/11/04	San Sewer Line D N Service L4, B3, F6	-2
171	2/11/04	San Sewer Line D N Service L4, B3, F6	-4
172	2/11/04	San Sewer Line D N Service L4, B3, F6	-6
173	2/11/04	San Sewer Line D N Service L4, B3, F6	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
169	1	13.5	117.0	13.4	116.8	100	Y	4,10,13,15,18
170	1	13.5	117.0	13.0	115.6	99	Y	4,10,13,15,18
171	1	13.5	117.0	12.8	117.0	100	Y	4,10,13,15,18
172	3	16.0	110.0	16.9	106.3	97	Y	4,10,13,15,18
173	3	16.0	110.0	17.6	109.4	99	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/11/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/11/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
174	2/11/04	San Sewer Line D N Service L4, B2, F6	0
175	2/11/04	San Sewer Line D N Service L4, B2, F6	-2
176	2/11/04	San Sewer Line D N Service L4, B2, F6	-4
177	2/11/04	San Sewer Line D N Service L4, B2, F6	-6
178	2/11/04	San Sewer Line D N Service L4, B2, F6	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
174	2	10.5	123.0	11.1	118.0	96	Y	4,10,13,15,18
175	2	10.5	123.0	11.2	117.0	95	Y	4,10,13,15,18
176	2	10.5	123.0	10.9	118.5	96	Y	4,10,13,15,18
177	2	10.5	123.0	11.3	118.6	96	Y	4,10,13,15,18
178	2	10.5	123.0	10.9	117.8	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1558/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/11/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/11/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
179	2/11/04	San Sewer Line D Approx Station 2+50	0
180	2/11/04	San Sewer Line D Approx Station 2+50	-2
181	2/11/04	San Sewer Line D Approx Station 2+50	-4
182	2/11/04	San Sewer Line D Approx Station 2+50	-6
183	2/11/04	San Sewer Line D Approx Station 2+50	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
179	1	13.5	117.0	11.6	111.5	95	Y	4,10,13,15,18
180	1	13.5	117.0	11.8	111.5	95	Y	4,10,13,15,18
181	2	10.5	123.0	9.7	121.9	99	Y	4,10,13,15,18
182	2	10.5	123.0	10.7	116.5	95	Y	4,10,13,15,18
183	2	10.5	123.0	10.0	117.6	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/12/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/12/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
184	2/12/04	MHD-1 San sewer	-4
185	2/12/04	MHD-1 San sewer	-6
186	2/12/04	D Line Service L3, B2, F6	0
187	2/12/04	D Line Service L3, B2, F6	-2
188	2/12/04	D Line Service L3, B2, F6	-4
189	2/12/04	D Line Service L3, B2, F6	-6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
184	2	10.5	123.0	11.1	119.0	97	Y	4,10,13,15,18
185	1	13.5	117.0	12.5	114.5	98	Y	4,10,13,15,18
186	2	10.5	123.0	11.6	121.7	99	Y	4,10,13,15,18
187	2	10.5	123.0	9.5	120.1	98	Y	4,10,13,15,18
188	1	13.5	117.0	12.9	114.6	98	Y	4,10,13,15,18
189	2	10.5	123.0	11.6	120.5	98	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Ed ex | Date: 1-30-04

Location: GJ, CO | Tested/Calc'd By: BJR | Date: 1-30-04

Type of Material: Shale | Reviewed By: | Date: 2-9-04

Source of Material: Native | Moisture/Density Relationship: ASTM D-698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
114	1-30-04	L5B4 @Aprox Sta 13 + 95 Woodgate Dr	-2
115	1-30-04	L5B4 @Aprox Sta 13 + 95 Woodgate Dr	-4
116	1-30-04	L5B4 @Aprox Sta 13 + 95 Woodgate Dr	-6
117	1-30-04	L5B4 @Aprox Sta 13 + 95 Woodgate Dr	-8
118	1-30-04	Manhole @ A-6	-8
119	1-30-04	Manhole @ A-6	-6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
114	1	13.5	117.0	13.2	112.4	96	Y	1,4,10,13,15,18
115	3	16.0	110.0	15.4	111.0	+100	Y	1,4,10,13,15,18
116	3	16.0	110.0	14.7	111.1	+100	Y	1,4,10,13,15,18
117	3	16.0	110.0	15.6	104.9	95	Y	1,4,10,13,15,18
118	3	16.0	110.0	17.0	109.5	100	Y	1,4,10,13,15,18
119	3	16.0	110.0	16.5	110.9	100	Y	1,4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- _ 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement Subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/2/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/2/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
120	2/2/04	Manhole A6	-4
121	2/2/04	Manhole A6	-2
122	2/2/04	Manhole A6	0
123	2/2/04	A-Line Approximate Station 12+20 Woodgate Drive	-8
124	2/2/04	A-Line Approximate Station 12+20 Woodgate Drive	-6
125	2/2/04	A-Line Approximate Station 12+20 Woodgate Drive	-4

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
120	3	16.0	110.0	14.0	110.1	+100	Y	1,4,10,13,15,18
121	3	16.0	110.0	14.2	112.0	+100	Y	1,4,10,13,15,18
122	3	16.0	110.0	14.3	108.7	99	Y	1,4,10,13,15,18
123	1	13.5	117.0	12.9	111.6	95	Y	1,4,10,13,15,18
124	1	13.5	117.0	12.9	113.9	97	Y	1,4,10,13,15,18
125	1	13.5	117.0	13.6	110.9	95	Y	1,4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/2/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/2/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
126	2/2/04	A-Line Approximate Station 12+20 Woodgate Drive	-2
127	2/2/04	A-Line Approximate Station 12+20 Woodgate Drive	0
128	2/2/04	West Service 12+56 Woodgate Drive	-6
129	2/2/04	West Service 12+56 Woodgate Drive	-4
130	2/2/04	West Service 12+56 Woodgate Drive	-2
131	2/2/04	West Service 12+56 Woodgate Drive	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
126	1	13.5	117.0	12.3	115.0	98	Y	4,10,13,15,18
127	1	13.5	117.0	11.6	112.2	96	Y	4,10,13,15,18
128	3	16.0	110.0	15.5	104.1	95	Y	4,10,13,15,18
129	1	13.5	117.0	12.1	114.5	98	Y	4,10,13,15,18
130	3	16.0	110.0	14.0	108.2	98	Y	4,10,13,15,18
131	1	13.5	117.0	11.6	112.2	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/2/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/2/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
132	2/2/04	East Service Approximate Station 12+36 Woodgate Drive	0
133	2/2/04	East Service Approximate Station 12+36 Woodgate Drive	2
134	2/2/04	East Service Approximate Station 12+36 Woodgate Drive	4
135	2/2/04	East Service Approximate Station 12+36 Woodgate Drive	6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
132	1	13.5	117.0	11.6	112.2	96	Y	4,10,13,15,18
133	3	16.0	110.0	14.3	109.3	99	Y	4,10,13,15,18
134	1	13.5	117.0	13.0	114.3	98	Y	4,10,13,15,18
135	3	16.0	110.0	15.2	104.5	95	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/3/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/3/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
136	2/3/04	Manhole A5	-0
137	2/3/04	Manhole A5	-2
138	2/3/04	Manhole A5	-4
139	2/3/04	Manhole A5	6
140	2/3/04	Manhole A5	8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
136	3	16.0	110.0	14.2	107.1	97	Y	4,10,13,15,18
137	1	13.5	117.0	12.8	114.2	98	Y	4,10,13,15,18
138	3	16.0	110.0	16.1	110.0	100	Y	4,10,13,15,18
139	3	16.0	110.0	15.6	109.4	99	Y	4,10,13,15,18
140	3	16.0	110.0	15.5	109.0	99	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/3/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/3/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
141	2/3/04	A Line Approximate Station 11+00 Woodgate Dr	-8
142	2/3/04	A Line Approximate Station 11+00 Woodgate Dr	-6
143	2/3/04	A Line Approximate Station 11+00 Woodgate Dr	-4
144	2/3/04	A Line Approximate Station 11+00 Woodgate Dr	-2
145	2/3/04	A Line Approximate Station 11+00 Woodgate Dr	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
141	3	16.0	110.0	14.1	107.0	97	Y	4,10,13,15,18
142	3	16.0	110.0	14.0	109.5	100	Y	4,10,13,15,18
143	1	13.5	117.0	14.0	114.6	97	Y	4,10,13,15,18
144	3	16.0	110.0	14.3	105.1	95	Y	4,10,13,15,18
145	3	16.0	110.0	14.5	109.4	99	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404
Project: The Knolls | Authorized By: Edex | Date: 2/3/04
Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/3/04
Type of Material: Various | Reviewed By: JCH | Date: 2/19/04
Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
146	2/3/04	A Line Approximate Station 11+69 Woodgate Dr	-8
147	2/3/04	A Line Approximate Station 11+69 Woodgate Dr	-6
148	2/3/04	A Line Approximate Station 11+69 Woodgate Dr	-4
149	2/3/04	A Line Approximate Station 11+69 Woodgate Dr	-2
150	2/3/04	A Line Approximate Station 11+69 Woodgate Dr	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
146	1	13.5	117.0	13.1	113.9	96	Y	4,10,13,15,18
147	1	13.5	117.0	12.0	111.1	95	Y	4,10,13,15,18
148	1	13.5	117.0	12.4	112.3	95	Y	4,10,13,15,18
149	1	13.5	117.0	11.5	113.8	96	Y	4,10,13,15,18
150	1	13.5	117.0	11.9	114.0	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/12/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/12/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
190	2/12/04	D Line Service L3, B2, F6	-8
191	2/12/04	D Line Service L3, B3, F6	-8
192	2/12/04	D Line Service L3, B3, F6	-6
193	2/12/04	D Line Service L3, B3, F6	-4
194	2/12/04	D Line Service L3, B3, F6	-2
195	2/12/04	D Line Service L3, B3, F6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
190	1	13.5	117.0	13.3	117.5	+100	Y	4,10,13,15,18
191	3	16.0	110.0	14.5	109.0	99	Y	4,10,13,15,18
192	1	13.5	117.0	12.8	112.6	96	Y	4,10,13,15,18
193	3	16.0	110.0	14.0	105.5	96	Y	4,10,13,15,18
194	3	16.0	110.0	14.7	108.4	99	Y	4,10,13,15,18
195	3	16.0	110.0	14.1	105.7	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/12/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/12/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
196	2/12/04	Sanitary Sewer Line A-7	0
197	2/11/04	Sanitary Sewer Line A-7	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
196	1	13.5	117.0	12.4	115.6	99	Y	4,10,13,15,18
197	2	10.5	123.0	10.6	117.6	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/13/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/13/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
198	2/13/04	Manhole D1	-2
199	2/13/04	Manhole D1	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
198	1	13.5	117.0	12.3	112.4	96	Y	4,10,13,15,18
199	3	13.5	117.0	11.7	110.9	95	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/16/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/16/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
200	2/16/04	Sanitary Sewer Line B into L1, B3, F6	0
201	2/16/04	Sanitary Sewer Line B into L1, B3, F6	-2
202	2/16/04	Sanitary Sewer Line B into L1, B3, F6	-4
203	2/16/04	Sanitary Sewer Line B into L1, B3, F6	-6
204	2/16/04	Sanitary Sewer Line B into L1, B3, F6	-8
205	2/16/04	Sanitary Sewer Line B into L1, B3, F6	-10

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
200	3	16.0	110.0	18.0	107.3	98	Y	4,10,13,15,18
201	3	16.0	110.0	14.1	108.3	98	Y	4,10,13,15,18
202	1	13.5	117.0	13.7	113.7	97	Y	4,10,13,15,18
203	3	16.0	110.0	14.8	109.2	99	Y	4,10,13,15,18
204	1	13.5	117.0	13.4	112.4	96	Y	4,10,13,15,18
205	3	16.0	110.0	16.8	106.2	97	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/16/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/16/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
206	2/16/04	Sanitary Sewer Line B into L1, B1, F6	-10
207	2/16/04	Sanitary Sewer Line B into L1, B1, F6	-8
208	2/16/04	Sanitary Sewer Line B into L1, B1, F6	-6
209	2/16/04	Sanitary Sewer Line B into L1, B1, F6	-4
210	2/16/04	Sanitary Sewer Line B into L1, B1, F6	-2
211	2/16/04	Sanitary Sewer Line B into L1, B1, F6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
206	3	16.0	110.0	14.8	106.2	97	Y	4,10,13,15,18
207	1	13.5	117.0	12.4	114.0	97	Y	4,10,13,15,18
208	1	13.5	117.0	12.2	112.8	96	Y	4,10,13,15,18
209	1	13.5	117.0	11.6	112.2	96	Y	4,10,13,15,18
210	1	13.5	117.0	11.7	110.6	95	Y	4,10,13,15,18
211	1	13.5	117.0	14.0	114.1	98	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/16/04

Location: Grand Junction | Tested/Calc'd By: BJR | Date: 2/16/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A&C

Test No.	Date	Location of Test Hole	Elevation of Test Datum
212	2/16/04	Manhole B2 Sanitary Sewer	-10
213	2/16/04	Manhole B2 Sanitary Sewer	-8
214	2/16/04	Manhole B2 Sanitary Sewer	-6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
212	3	16.0	110.0	16.8	106.7	97	Y	4,10,13,15,18
213	1	13.5	117.0	15.5	111.2	95	Y	4,10,13,15,18
214	1	13.5	117.0	15.3	111.6	95	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/17/04

Location: Grand Junction | Tested/Calc'd By: RF | Date: 2/17/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
215	2/17/04	2' North of Manhole B2	-4
216	2/17/04	2' North of Manhole B2	-2
217	2/17/04	2' North of Manhole B2	0
215A	2/17/04	2' North of Manhole B2	-4
217A	2/17/04	2' North of Manhole B2	0
217B	2/17/04	2' North of Manhole B2	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
215	3	16.0	110.0	18.0	101.0	91.8	N	4,10,13,15,18
216	3	16.0	110.0	14.5	110.5	100+	Y	4,10,13,15,18
217	3	16.0	110.0	10.5	109.5	100	N	4,10,13,15,18
215A	3	16.0	110.0	14.3	99.7	91	N	4,10,13,15,18
217A	3	16.0	110.0	16.3	98.8	90	N	4,10,13,15,18
217B	3	16.0	110.0	14.5	109.3	99	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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Re-test OK

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/17/04

Location: Grand Junction | Tested/Calc'd By: RF | Date: 2/17/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
215B	2/17/04	2' North of Manhole B2	0
218	2/17/04	2' West of Manhole B1	-8
219	2/17/04	4' North of Manhole B1	-6
220	2/17/04	8' North of Manhole B1	-4
221	2/17/04	10' North of Manhole B1	-2
222	2/17/04	12' North of Manhole B1	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
215B	3	16.0	110.0	15.3	112.2	100+	Y	4,10,13,15,18
218	3	16.0	110.0	14.5	103.0	94	N	4,10,13,15,18
219	3	16.0	110.0	14.0	107.5	98	Y	4,10,13,15,18
220	3	16.0	110.0	15.2	110.8	100+	Y	4,10,13,15,18
221	3	16.0	110.0	15.5	116.2	100+	Y	4,10,13,15,18
222	3	16.0	110.0	13.5	108.5	99	N	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/17/04

Location: Grand Junction | Tested/Calc'd By: RF | Date: 2/17/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
222A	2/17/04	2' North of Manhole B1	0
218A	2/17/04	2' Southwest of Manhole B1	-8
218B	2/17/04	2' West of Manhole B1	-8
223	2/17/04	2' East of Manhole C1	-6
224	2/17/04	2' South of Manhole C1	-8
225	2/17/04	Lot 2 Block 2 Sanitary Sewer	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
222A	3	16.0	110.0	14.6	114.4	100+	Y	4,10,13,15,18
218A	3	16.0	110.0	13.5	108.3	99	N	4,10,13,15,18
218B	3	16.0	110.0	15.0	105.0	96	Y	4,10,13,15,18
223	3	16.0	110.0	14.7	111.6	100+	Y	4,10,13,15,18
224	4	13.5	117.5	15.3	120.7	100+	Y	4,10,13,15,18
225	4	13.5	117.5	12.0	101.8	87	N	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1558/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

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WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/17/04

Location: Grand Junction | Tested/Calc'd By: RE | Date: 2/17/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
226	2/17/04	Lot 2 Block 2 Sanitary Sewer	-2
227	2/17/04	Lot 2 Block 2 Sanitary Sewer	-4
228	2/17/04	Lot 2 Block 2 Sanitary Sewer	-6
229	2/17/04	Lot 2 Block 2 Sanitary Sewer	-8
230	2/17/04	Lot 2 Block 3 Sanitary Sewer	-8
231	2/17/04	Lot 2 Block 3 Sanitary Sewer	-6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
226	4	13.5	117.5	12.0	116.0	99	Y	4,10,13,15,18
227	4	13.5	117.5	13.5	111.8	95	Y	4,10,13,15,18
228	4	13.5	117.5	12.3	114.5	98	Y	4,10,13,15,18
229	4	13.5	117.5	11.8	110.0	94	N	4,10,13,15,18
230	4	13.5	117.5	15.5	114.0	97	Y	4,10,13,15,18
231	4	13.5	117.5	15.5	113.2	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/17/04

Location: Grand Junction | Tested/Calc'd By: RF | Date: 2/17/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
232	2/17/04	Lot 2 Block 3 Sanitary Sewer	-4
233	2/17/04	Lot 2 Block 3 Sanitary Sewer	-2
234	2/17/04	Lot 2 Block 3 Sanitary Sewer	0
235	2/17/04	C-Line Approximate Station 1+57 Sanitary Sewer	-8

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
232	4	13.5	117.5	12.3	116.9	100	Y	4,10,13,15,18
233	4	13.5	117.5	12.4	114.6	98	Y	4,10,13,15,18
234	4	13.5	117.5	13.1	115.7	99	Y	4,10,13,15,18
235	4	13.5	117.5	12.4	109.6	93	N	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/18/04

Location: Grand Junction | Tested/Calc'd By: RF | Date: 2/18/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
235A	2/18/04	C-Line Approximate Station 1+57 Sanitary Sewer	-8
236	2/18/04	C-Line Approximate Station 1+50 Sanitary Sewer	-6
237	2/18/04	C-Line Approximate Station 1+45 Sanitary Sewer	-4
238	2/18/04	C-Line Approximate Station 1+40 Sanitary Sewer	-2
239A	2/18/04	Lot 2 Block 3 Sanitary Sewer, 12' South of Manhole C1	0
239	2/18/04	C-Line Approximate Station 1+35 Sanitary Sewer	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
235A	3	16.0	110.0	16.0	117.5	100+	Y	4,10,13,15,18
236	3	16.0	110.0	14.0	117.5	100+	Y	4,10,13,15,18
237	3	16.0	110.0	12.8	109.8	100	N	4,10,13,15,18
238	4	13.5	117.5	11.8	119.8	100+	Y	4,10,13,15,18
239A	4	13.5	117.5	14.5	116.5	99	Y	4,10,13,15,18
239	4	13.5	117.5	14.0	117.0	100	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/18/04

Location: Grand Junction | Tested/Calc'd By: RF | Date: 2/18/04

Type of Material: Various | Reviewed By: JCH | Date: 2/19/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
237A	2/18/04	Retest Approximate Station 1+70 Sanitary Sewer, 9' West of Manhole C1	-6
240	2/18/04	2' South of Manhole C1	-4
241	2/18/04	2' South of Manhole C1	-2
242	2/18/04	2' East of Manhole C1	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
237a	3	16.0	110.0	14.3	108.3	96	Y	4,10,13,15,18
240	4	13.5	117.5	14.3	118.3	100+	Y	4,10,13,15,18
241	4	13.5	117.5	14.5	113.5	97	Y	4,10,13,15,18
242	4	13.5	117.5	13.8	112.8	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client:	Monument Homes	Test Locations Designated By:	WCT	Job No.:	300404
Project:	The Knolls	Authorized By:	Edex	Date:	2/19/04
Location:	Grand Junction	Tested/Calc'd By:	JCH	Date:	2/19/04
Type of Material:	Clay	Reviewed By:	JCH	Date:	2/19/04
Source of Material:	Native	Moisture/Density Relationship:	ASTM D698	Method:	A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
225A	2/19/04	L2, B2, F6	0
243	2/19/04	Approximate Station 2+30 B-Line	-4
244	2/19/04	Approximate Station 2+35 B-Line	-2
245	2/19/04	Approximate Station 2+25 B-Line	-6

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
225A	1	13.5	117.0	14.7	117.2	100	Y	4,10,13,15,18
243	1	13.5	117.0	15.4	116.1	99	Y	4,10,13,15,18
244	1	13.5	117.0	15.5	114.0	97	Y	4,10,13,15,18
245	1	13.5	117.0	13.2	114.1	97	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/20/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 2/20/04

Type of Material: Clay, Sandy, Brown | Reviewed By: JCH | Date: 2/20/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
246	2/20/04	B-Line Station 2+20	0
247	2/20/04	Service, Lot 2, B1, F6	-7
248	2/20/04	Service, Lot 2, B1, F6	-5
249	2/20/04	Service, Lot 2, B1, F6	-3
250	2/20/04	Service, Lot 2, B1, F6	-1
251	2/20/04	Service, Lot 2, B1, F6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
246	4	13.5	117.5	11.6	115.7	98	Y	4,10,13,15,18
247	4	13.5	117.5	15.2	111.4	95	Y	4,10,13,15,18
248	4	13.5	117.5	14.5	111.4	95	Y	4,10,13,15,18
249	4	13.5	117.5	15.1	111.9	95	Y	4,10,13,15,18
250	4	13.5	117.5	13.5	111.5	95	Y	4,10,13,15,18
251	4	13.5	117.5	13.1	112.1	95	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/20/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 2/20/04

Type of Material: Clay, Sandy, Brown | Reviewed By: JCH | Date: 2/20/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
252	2/20/04	Service, Lot 1, B2, F6	-7
253	2/20/04	Service, Lot 1, B2, F6	-5
254	2/20/04	Service, Lot 1, B2, F6	-3
255	2/20/04	Service, Lot 1, B2, F6	-1
256	2/20/04	Service, Lot 1, B2, F6	0
257	2/20/04	B-Line Approximate Station 3+55	-7

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
252	4	13.5	117.5	15.4	113.7	97	Y	4,10,13,15,18
253	4	13.5	117.5	14.8	111.8	95	Y	4,10,13,15,18
254	4	13.5	117.5	15.5	111.7	95	Y	4,10,13,15,18
255	4	13.5	117.5	14.3	112.4	96	Y	4,10,13,15,18
256	4	13.5	117.5	12.1	112.1	96	Y	4,10,13,15,18
257	3	16.0	110.0	16.8	108.2	98	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/20/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 2/20/04

Type of Material: Clay, Sandy, Brown | Reviewed By: JCH | Date: 2/20/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
258	2/20/04	B-Line Approximate Station 3+50	-5
259	2/20/04	B-Line Approximate Station 3+45	-3
260	2/20/04	B-Line Approximate Station 3+40	-1
261	2/20/04	B-Line Approximate Station 3+30	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
258	3	16.0	110.0	15.8	106.0	96	Y	4,10,13,15,18
259	3	16.0	110.0	15.2	110.8	100+	Y	4,10,13,15,18
260	3	16.0	110.0	14.8	107.7	98	Y	4,10,13,15,18
261	3	16.0	110.0	16.0	105.9	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Sanitary Sewer
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/24/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 2/24/04

Type of Material: Clay, Sandy | Reviewed By: JCH | Date: 2/25/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
262	2/24/03	Woodgate Dr Approximate Station 14+50	-2
263	2/24/03	Woodgate Dr Approximate Station 14+55	0
264	2/24/03	Woodgate Dr Approximate Station 16+20	0
265	2/24/03	Woodgate Dr Approximate Station 16+25	-2

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
262	3	16.0	110.0	15.5	104.3	96	Y	4,10,13,15,18
263	3	16.0	110.0	16.8	105.3	96	Y	4,10,13,15,18
264	3	16.0	110.0	15.8	112.6	100+	Y	4,10,13,15,18
265	3	16.0	110.0	14.3	107.8	97	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls, F6 | Authorized By: Edex | Date: 2/25/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 2/25/04

Type of Material: Various | Reviewed By: JCH | Date: 2/25/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
266	2/25/04	Autumn Ash Ave, Approximate East Station 1+60	-2
267	2/25/04	Autumn Ash Ave, Approximate East Station 1+65	0
268	2/25/04	Woodgate Dr Approximate Station 13+10	-2
269	2/25/04	Woodgate Dr Approximate Station 13+00	0
270	2/25/04	Autumn Ash Ave, Approximate 60' East of MH D-1	-2
271	2/25/04	Autumn Ash Ave, Approximate 50' East of MH D-1	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
266	1	13.5	117.0	14.5	114.0	97	Y	4,10,13,15,18
267	1	13.5	117.0	14.0	110.6	95	Y	4,10,13,15,18
268	1	13.5	117.0	14.8	111.5	95	Y	4,10,13,15,18
269	3	16.0	110.0	14.8	104.6	95	Y	4,10,13,15,18
270	1	13.5	117.0	12.7	114.9	98	Y	4,10,13,15,18
271	1	13.5	117.0	13.6	113.2	97	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client:	Monument Homes	**Test Locations Designated By:**	WCT	**Job No.:**	300404
Project:	The Knolls	**Authorized By:**	Edex	**Date:**	2/26/04
Location:	Grand Junction	**Tested/Calc'd By:**	JCH	**Date:**	2/26/04
Type of Material:	Various	**Reviewed By:**	JCH	**Date:**	2/26/04
Source of Material:	Native	**Moisture/Density Relationship:**	ASTM D698	**Method:**	A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
272	2/26/04	Autumn Ash Ave, Approximate West Station 0+20	-2
273	2/26/04	Autumn Ash Ave, Approximate West Station 0+55	0
274	2/26/04	Briar Ridge Way Approximate Station 3+30	-2
275	2/26/04	Briar Ridge Way Approximate Station 3+10	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
272	1	13.5	117.0	15.2	112.6	96	Y	4,10,13,15,18
273	1	13.5	117.0	14.1	112.4	96	Y	4,10,13,15,18
274	3	16.0	110.0	16.6	112.5	100+	Y	4,10,13,15,18
275	3	16.0	110.0	14.8	108.2	98	Y	4,10,13,15,18

*** Comments:**

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 2/27/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 2/27/04

Type of Material: Sandy Clay | Reviewed By: JCH | Date: 2/27/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
276	2/27/04	Briar Ridge Way Hydrant at Approximate Station 2+75	-2
277	2/27/04	Briar Ridge Way Hydrant at Approximate Station 2+75	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
276	3	16.0	110.0	16.8	104.2	95	Y	4,10,13,15,18
277	3	16.0	110.0	15.8	104.7	95	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- 2 % of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 3/01/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 3/01/04

Type of Material: Various | Reviewed By: JCH | Date: 3/01/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
278	3/1/04	Lot in Filing 7 South of Lot 1, Block 2, Filing 6	-2
279	3/1/04	Lot in Filing 7 South of Lot 1, Block 2, Filing 6	0
280	3/1/04	Lot 1, Block 2, Filing 6	-2
281	3/1/04	Lot 1, Block 2, Filing 6	0
282	3/1/04	Lot 1 and 2, Block 1, Filing 6	-2
283	3/1/04	Lot 1 and 2, Block 1, Filing 6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
278	3	16.0	110.0	14.0	110.0	100	Y	4,10,13,15,18
279	3	16.0	110.0	14.5	114.7	100+	Y	4,10,13,15,18
280	3	16.0	110.0	16.8	113.3	100+	Y	4,10,13,15,18
281	1	13.5	117.0	13.1	112.8	96	Y	4,10,13,15,18
282	1	13.5	117.0	14.3	112.2	96	Y	4,10,13,15,18
283	1	13.5	117.0	15.1	113.2	97	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 3/01/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 3/01/04

Type of Material: Various | Reviewed By: JCH | Date: 3/01/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
284	3/1/04	Lot 1, Block 3, Filing 6	-2
285	3/1/04	Lot 1, Block 3, Filing 6	0
286	3/1/04	Lot 2, Block 3, Filing 6	-2
287	3/1/04	Lot 2, Block 3, Filing 6	0
288	3/1/04	Lot 2 and 3, Block 2, Filing 6	-2
289	3/1/04	Lot 2 and 3, Block 2, Filing 6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
284	1	13.5	117.0	13.1	110.7	95	Y	4,10,13,15,18
285	3	16.0	110.0	14.3	107.3	98	Y	4,10,13,15,18
286	3	16.0	110.0	15.3	112.1	100+	Y	4,10,13,15,18
287	3	16.0	110.0	14.1	110.4	100+	Y	4,10,13,15,18
288	1	13.5	117.0	13.5	114.3	98	Y	4,10,13,15,18
289	1	13.5	117.0	12.1	112.7	96	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404
Project: The Knolls | Authorized By: Edex | Date: 3/01/04
Location: Grand Junction | Tested/Calc'd By: JCH | Date: 3/01/04
Type of Material: Various | Reviewed By: JCH | Date: 3/01/04
Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
290	3/1/04	Lot 3, Block 3, Filing 6	-2
291	3/1/04	Lot 3, Block 3, Filing 6	0
292	3/1/04	Lot 4, Block 3, Filing 6	-2
293	3/1/04	Lot 4, Block 3, Filing 6	0
294	3/1/04	Lot 4 and 5, Block 2, Filing 6	-2
295	3/1/04	Lot 4 and 5, Block 2, Filing 6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	Dry Density pcf	Relative Compaction %	Within Specs	Comments*
290	1	13.5	117.0	13.0	113.5	97	Y	4,10,13,15,18
291	1	13.5	117.0	12.6	114.2	97	Y	4,10,13,15,18
292	1	13.5	117.0	11.5	117.9	100+	Y	4,10,13,15,18
293	1	13.5	117.0	11.5	117.1	100	Y	4,10,13,15,18
294	1	13.5	117.0	15.5	115.3	98	Y	4,10,13,15,18
295	1	13.5	117.0	14.7	121.2	100+	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom
8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404
Project: The Knolls | Authorized By: Edex | Date: 3/01/04
Location: Grand Junction | Tested/Calc'd By: JCH | Date: 3/01/04
Type of Material: Various | Reviewed By: JCH | Date: 3/01/04
Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
296	3/1/04	Autumn Ash Avenue Hydrant at Approximate Station 0+25 East	-2
297	3/1/04	Autumn Ash Avenue Hydrant at Approximate Station 0+25 East	0
298	3/1/04	Lot 5, Block 4, Filing 6	-2
299	3/1/04	Lot 5, Block 4, Filing 6	0
300	3/1/04	Lot 6, Block 4, Filing 6	-2
301	3/1/04	Lot 6, Block 4, Filing 6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
296	3	16.0	110.0	16.2	107.8	98	Y	4,10,13,15,18
297	3	16.0	110.0	15.8	107.8	98	Y	4,10,13,15,18
298	3	16.0	110.0	15.8	109.7	100	Y	4,10,13,15,18
299	3	16.0	110.0	15.1	111.0	100+	Y	4,10,13,15,18
300	1	13.5	117.0	14.4	111.6	95	Y	4,10,13,15,18
301	1	13.5	117.0	14.5	111.2	95	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 3/01/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 3/01/04

Type of Material: Various | Reviewed By: JCH | Date: 3/01/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
302	3/1/04	Lot 5 and 6, Block 3, Filing 6	-2
303	3/1/04	Lot 5 and 6, Block 3, Filing 6	0
304	3/1/04	Lot 4, Block 4, Filing 6	-2
305	3/1/04	Lot 4, Block 4, Filing 6	0
306	3/1/04	Lot 3, Block 4, Filing 6	-2
307	3/1/04	Lot 3, Block 4, Filing 6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
302	3	16.0	110.0	17.1	108.3	98	Y	4,10,13,15,18
303	1	13.5	117.0	12.6	116.6	100	Y	4,10,13,15,18
304	3	16.0	110.0	15.3	109.0	99	Y	4,10,13,15,18
305	1	13.5	117.0	12.6	117.1	100	Y	4,10,13,15,18
306	3	16.0	110.0	16.3	109.5	100	Y	4,10,13,15,18
307	1	13.5	117.0	12.7	106.7	91	N	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. __% min. req'd
13. Moisture req'd +/- [2 %] of optimum

14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline

19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

Copies to:

WESTERN COLORADO TESTING, INC.

SOIL/AGGREGATE FIELD DENSITY TESTS

Client: Monument Homes | Test Locations Designated By: WCT | Job No.: 300404

Project: The Knolls | Authorized By: Edex | Date: 3/01/04

Location: Grand Junction | Tested/Calc'd By: JCH | Date: 3/01/04

Type of Material: Various | Reviewed By: JCH | Date: 3/01/04

Source of Material: Native | Moisture/Density Relationship: ASTM D698 | Method: A

Test No.	Date	Location of Test Hole	Elevation of Test Datum
308	3/1/04	Lot 1 and 2, Block 4, Filing 6	-2
309	3/1/04	Lot 1 and 2, Block 4, Filing 6	0
307A	3/1/04	Lot 3, Block 4, Filing 6	0

Test No.	Moisture Density Lab No.	Optimum Moisture	Max. Dry Density pcf	In-Place Characteristics Moisture %	In-Place Characteristics Dry Density pcf	Relative Compaction %	Within Specs	Comments*
308	3	16.0	110.0	14.9	104.0	95	Y	4,10,13,15,18
309	3	16.0	110.0	14.7	110.8	100+	Y	4,10,13,15,18
307A	1	13.5	117.0	12.6	110.9	95	Y	4,10,13,15,18

* Comments:

1. Subgrade
2. Subbase Fill
3. Base Course
4. Backfill
5. Pavement Area
6. Below Footing
7. Above Footing Bottom

Copies to:

8. 100% min. req'd
9. 98% min. req'd
10. 95% min. req'd
11. 90% min. req'd
12. ___% min. req'd
13. Moisture req'd +/- [2 %] of optimum
14. Tested D-1556/AASHTO T-217
15. Tested ASTM D-2922/D-3017
16. Tested ASTM D-2922/AASHTO T-217
17. Rock correction applied to maximum dry density AASHTO T-224
18. Other: Waterline
19. Tested Locations on Accompanying Site Plan
20. Specifications Unknown
21. 92-96% Compaction required

Datum: Pavement subgrade

Note: Tests reported to herein are not part of a continuous monitoring program of compaction operations and accordingly apply only to the actual location tested.

FINAL
DRAINAGE REPORT

KNOLLS SUBDIVISION
FILINGS 6 & 7

GRAND JUNCTION, COLORADO

PREPARED FOR:

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April 16, 2003
VEC # 4003.06-02

CERTIFICATION

I hereby certify that this Final Drainage Report (dated 4/16/03) for Knolls Subdivision (Filings 6 & 7) was prepared by me, or under my direct supervision.

Patrick M. O'Connor, P.E.
Registered Professional Engineer
State of Colorado, #20759

TABLE OF CONTENTS

FINAL DRAINAGE REPORT
KNOLLS SUBDIVISION (Filings 6 & 7)

I. GENERAL LOCATION AND DESCRIPTION

Knolls Subdivision is located along the east side of 27½ Road between Cortland Avenue and Spring Valley Subdivision. Filings 6 and 7 can be found in the southern-third of the site at a location approximately ½ mile north of Patterson Road. The entire Knolls project consists of approximately 66.7 acres drained by two basins separating the northern and southern portions of the site. Filings 1 through 5 have been previously developed with individual drainage reports written for them. These filings generally flow to the upper basin draining the northern two-thirds of the project. This report is intended to address filings 6 and 7 (the remaining undeveloped portions of the project) which will drain to the lower southern basin. A small developed portion of Filing 4 (mainly rear-yards) flows south to this same basin which drains the lower-third of the project. A Vicinity Map included within the appendix of this report shows the project limits in relation to the surrounding area. This proposed site is bounded by Spring Valley Subdivision to the east and south with a large open drain ditch on the south boundary, 27 ½ Road to the west, and previous Filings 1 through 5 to the north. Across 27 ½ Road, to the west, is a vacant field with Crestview, Bell Ridge, and Ptarmigan Ridge Subdivisions to the north and west. Primary access to the site will be from 27 ½ Road through Piazza Way to extensions of Fairwood Place and Briar Ridge Way which were partially constructed in the previous filings to the north.

Ground cover for the site consists of native grasses and weeds with a few sparse clusters of sage brush and small trees. The site is currently fallow and previously contained two residential dwellings with associated outbuildings and large trees. Terrain is rolling, generally sloping to the southwest at 1 to 2 percent in most of the northern portion, but with bluffs in the southern portion having slopes of 10% to 30% on the face.

In researching the soils types at this location, information was obtained from the Natural Resources Conservation Service and it has been determined that the soils at the site can be classified as predominantly Fruita and Ravola loams, with small portions of the site containing Billings silty clay loam and Chipeta and Persayo materials. Given these soil types, the locations and quantities of the various types, and the site topography, the soils at this site would be generally categorized under a Hydrologic Soil Group B, which are soils having moderately high infiltration rates and relatively slow rates of runoff. The soils information for this site is included in the appendix.

II. EXISTING DRAINAGE CONDITIONS

The entire Knolls project lies within an unnamed major drainage basin beginning approximately 1/4 mile to the northeast, near Interstate 70 and the Government Highline Canal. It lies between the major basins of Indian Wash and the Horizon Drive Channel in a drainage system known as "Drain D" which is currently maintained by the Grand Valley Water Users Association. This watershed flows southwest in open-channels and piped sections through the northwest areas of the city, ultimately draining into the Colorado River near 25 Road. The project is split by two sub-basins of this watershed which independently drain the northern 2/3 and southern 1/3 of the entire Knolls project. These two sub-basins merge into one channel approximately 1000 feet west of the site. The major basin can be seen on the enclosed Major Basin Drainage Map. Hydraulically, the project is fairly isolated with regard to impacts from offsite areas. Runoff onto the site from the north and east is diverted by Cortland Avenue and independently controlled stormwater management facilities of the surrounding developments.

The northern portion of the Knolls project is currently in a developed condition and drains to a stormwater detention facility located in the west-central part of the project, near the 27 ½ Road discharge point of the northern basin. In this area, existing wetlands were defined and delineated through the previous development process of filing two. No other wetlands are known to exist within the site.

Most of the area containing filings 1 through 5 drains to existing stormwater facilities in the northern basin. The remaining site (filings 6 and 7) drains generally to the southwest and is collected by the large open drain ditch existing along the southern boundary. This ditch discharges to the west under 27 ½ Road through an existing 18" culvert. Some minor runoff from the existing Spring Valley Subdivision to the east and south of this ditch may be currently directed into the channel.

In researching the flood plain hazard for the area, reference was made to the Flood Insurance Rate Map for Mesa County as produced by the Federal Emergency Management Agency (FEMA), revised July, 1992. No part of the site exists within an identified 100-year flood boundary as defined by this map. Proposed development of this site is therefore not impacted by the flood plain. A portion of the FEMA map for this area (Panel # 080117-0004 E) is included in the appendix.

III. PROPOSED DRAINAGE CONDITIONS

No adverse change in offsite drainage impact is proposed to adjacent lands surrounding The Knolls Subdivision. Proposed drainage patterns within the site will be modified, as customary, to accommodate development and to better control surface flows to designated collection areas. In general, runoff will continue to be collected from the site and flow south and west to the existing culverts under 27 ½ Road where it will be carried by existing channels and drain lines to the Colorado River. All but approximately three acres of filings 1 through 5 drain into the northern basin and utilize the existing stormwater management facilities. Three acres of existing developed ground, consisting mainly of rear-yards developed by filing 4, drain to the southern basin along with approximately 15 acres of currently undeveloped ground (proposed filings 6 & 7). These 18 acres make up the proposed southern basin. Once developed, 15.56 acres of this basin (basin 3A) will be directed to the detention facility proposed near the natural low area in the southeast corner of the project. The remaining 2.93 acres (basin 3B), consisting mainly of rear-yards and lots along 27 ½ Road, will drain west into the existing curb and gutter of that street. This will minimize the impact by the proposed filings directly to the open drain ditch along the boundary north of Spring Valley. An analysis of the historic runoff for this southern basin and the amounts of developed runoff directed into it from filings 4, 6, and 7 is included in this report. Upon development, the detention basin in the southeast corner will collect developed runoff to attenuate and discharge flows into the open drain ditch at levels below historic peak flowrates. A Grading Plan is included in the appendix of this report and illustrates the proposed drainage patterns and concepts for the site. Offsite patterns are unchanged.

As with all proposed drainage improvements, access will be provided to the improvements proposed for The Knolls Subdivision. This will be done by platting easements, or tracts, where necessary on this site and acquiring easements, if necessary, on adjoining lands. A Homeowners Association formed for this development will be responsible for maintaining the drainage improvements not covered by City policies to insure proper performance and to avoid potential impacts to neighboring areas. Access to the detention basins and outlet structures will be provided, by design, directly from the streets that border the basins.

IV. DESIGN CRITERIA AND APPROACH

To our knowledge there has been no master plan completed for this area to determine if any large-scale drainage improvements are proposed for the immediate region. For each development in the vicinity that has been approved and constructed, an individual Drainage Report would have been required to identify the proposed improvements for each development. These reports discuss how stormwater will be conveyed to prevent adverse impacts to adjoining properties. Given that this project is proposing to detain developed runoff and release it at levels not to exceed historic peak flowrates, adjacent lands should be unaffected by improvements to this site.

It is currently anticipated that grading will be completed for all 15 acres of remaining undeveloped ground in this construction phase, including construction of the detention facility. Streets and most utilities will be installed only to the extent required for servicing Filing 6, at this time. Temporary swales will direct runoff to the detention facility from unfinished portions of Filing 7, until such time as streets are completed for that Filing.

As required, this Final Drainage Report has been prepared to provide calculated runoff for the Knolls Subdivision from various storm events. Hydrology calculations were performed for historic and developed conditions for the 2-year and 100-year storms. The calculations are in accordance with the Stormwater Management (SWM) Manual, May, 1996, as prepared by the City of Grand Junction. Runoff calculations were performed using the Rational Method. To complete these calculations, parameter selection and design procedures were based on composite runoff coefficients and storm intensity values from tables presented in the SWM manual. The intensities correspond with the appropriate times of concentration obtained for each basin. Detention facilities proposed for this development utilize the Modified Rational Method to determine the required volume. Volume requirements were determined to detain developed stormwater flows and attenuate peak releases to levels equivalent to, or less than, the 2-year and 100 year historic events.

Some hydrologic and hydraulic data was obtained from previous drainage reports for filings 1 through 5. Outlet structures are detailed in the construction drawings for this filing. Pond routing was performed for the site by calculating all runoff using the Rational Method and routing it through proposed ponds as required. Developed peak runoff was successfully routed and attenuated to be at combined levels less than historic.

Once the hydrology calculations were completed for The Knolls Subdivision, drainage improvements and structures were designed where required. Size requirements for surface and circular channels were accomplished by the use of Manning's Equation for gravity flow. Additional characteristics of the proposed materials were considered in these calculations. Detention pond and outlet structure design utilized computer software, such as Haestad Methods Pond-2 software.

IV. RESULTS AND CONCLUSIONS

AREAS

Knolls Project	63.71 acres (approximate total)
North Basin (historic)	39.75 acres
South Basin (historic)	23.96 acres
Basin 3 (developed)	18.49 acres
Basin 3a (developed)	15.56 acres
Basin 3b (developed)	2.93 acres

RUNOFF COEFFICIENTS - "C"

Bare / Fallow	- 0.14 (2 yr.)	0.20 (100 yr.)
Developed (¼ ac./unit)	- 0.29 (2 yr.)	0.38 (100 yr.)

TIMES OF CONCENTRATION

South Basin	-	28 minutes (Historic)
Basin 3a	-	18 minutes
Basin 3b	-	13 minutes

RUNOFF (All Flows are C.F.S.)

-HISTORIC FLOWS-

		2 yr	100 yr	
South Basin	-	**1.91**	**10.73**	- (FROM PREVIOUS REPORT)

-DEVELOPED FLOWS-

		(Prior to detention)		(Released flows)	
		2 yr	100 yr	2 yr	100 yr
Basin 3a	-	3.25	16.85	0.85	5.01
Basin 3b	-	0.71	3.67	0.71	3.67
Basin 3 Total	-	n/a	n/a	**1.56**	**8.68** (Total released less than historic)

DETENTION POND INFORMATION (Top bank elevation: 4710.0)

Storm	Volume (cu. - ft.)	High Water Elev.	Peak inflow	Released Q
2 Yr	3,547	4706.35	3.25 cfs	0.85 cfs
100 Yr.	16,594	4708.00	16.85 cfs	5.01 cfs

CONCLUSION

In conformance with the City of Grand Junction SWM Manual, the developed site will discharge runoff at peak levels less than the historic rates. Street capacities are found to be adequate given that Basin 3a is producing a maximum discharge of 16.85 cfs. Figures G-5 and G-7a from the SWM manual indicate half-street capacities of 9.0 cfs (each side) for a total street capacity of 18.0 cfs. These charts are included in the appendix. The released flow of 5.01 cfs is easily conveyed within the proposed 15" HDPE pond-outlet drain at 8.80% slope (capacity = 20.76 cfs).

This stormwater management concept, therefore, allows the Knolls Subdivision to conform with the drainage criteria established by the City of Grand Junction.

APPENDIX

1. SITE MAPS

Vicinity Map
Soil Type (Including soil description information)
FEMA (City of Grand Junction) - July, 1992 Floodplain Map
PRE-DEVELOPMENT DRAINAGE MAP
POST-DEVELOPMENT DRAINAGE MAP
MAJOR BASIN DRAINAGE MAP
GRADING PLAN
STORMWATER MANAGEMENT PLAN
POND GRADING DETAILS

2. COEFFICIENTS

"C" Values - From SWM Manual

4. TIMES OF CONCENTRATION

Summary
SOUTH BASIN (HISTORIC)
Developed Basin 3a
Developed Basin 3b

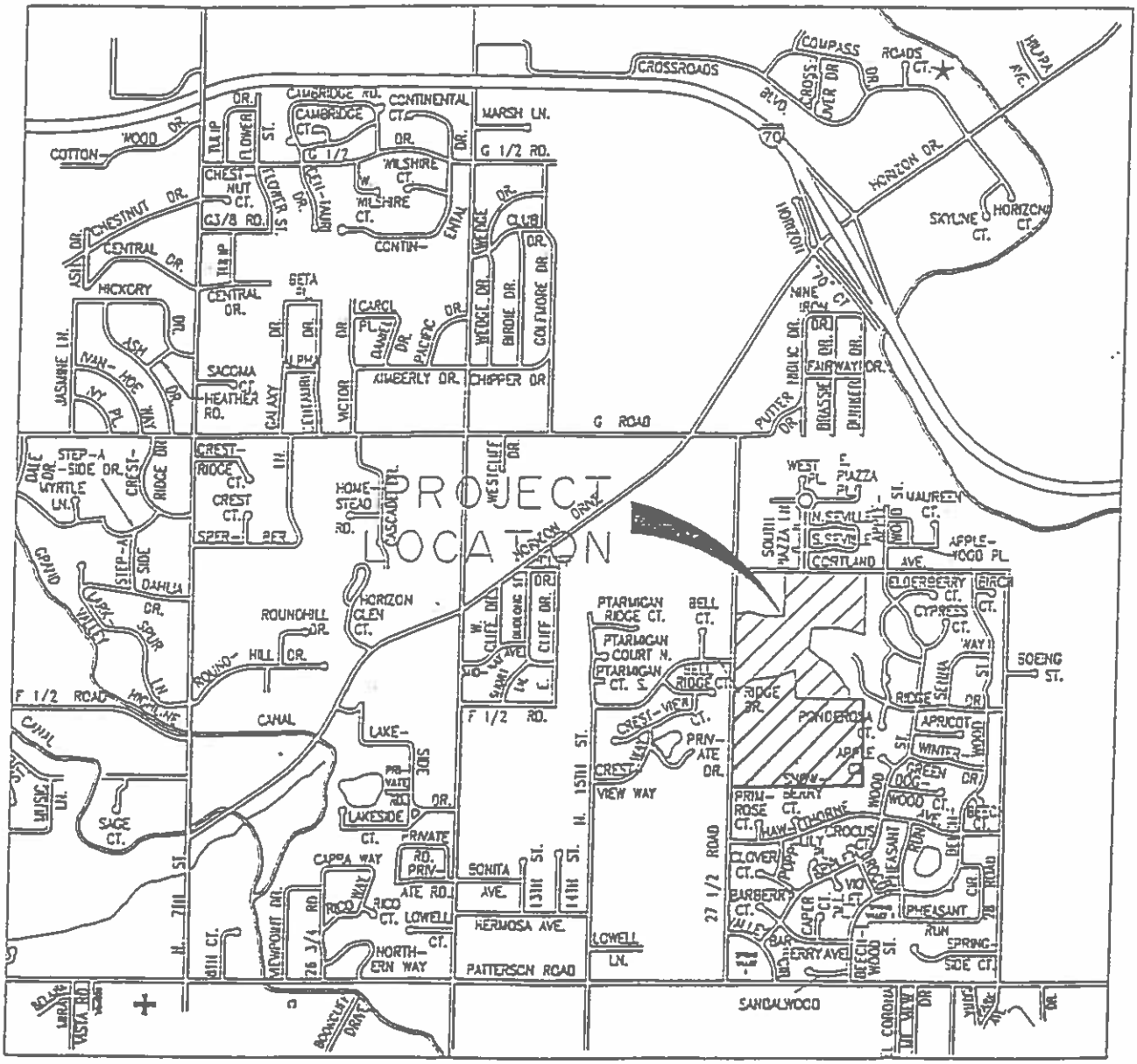
4. RUNOFF

South Basin Historic	-	2 Year
South Basin Historic	-	100 Year
Basin 3a Developed	-	2 Year
Basin 3a Developed	-	100 Year
Basin 3b Developed	-	2 Year
Basin 3b Developed	-	100 Year

5. HYDRAULICS

FIG. G-5 (SWM MANUAL) HALF-STREET CAPACITIES
DETENTION OUTLET DRAIN LINE CAPACITY
WEIR CALCULATOR
Stage / Storage Pond Information
Detention Pond Routing Information - 2 Year Storm
Detention Pond Routing Information - 100 Year Storm

SECTION 1
SITE MAPS



VICINITY MAP

I


SOILS
CLASSIFICATION
MAP
H RD.
27 RD
PRECO
PAIRMOUNT
35
36
31
30
PAGE I
GRD.
28 RD
Indian Wash
MERIDIAN
EXTENSION
SITE
F RD
LINE
GRAND
PREC.
34
12th
N. AVE
PIPAL
70
71

age yields, especially those of alfalfa, are somewhat lower than on the deeper Fruita gravelly clay loam soils. Good soil management is needed to conserve this soil and maintain its fertility. Growing of alfalfa, clovers, or other hay crops is recommended to promote gradual accumulation of organic matter and to check erosion.

Fruita gravelly clay loam, moderately deep, 5 to 10 percent slopes (Fo).—Except for its greater slope, this soil is similar to Fruita gravelly clay loam, moderately deep, 2 to 5 percent slopes. Raw Mancos shale is 1 to 3 feet from the surface and is getting nearer to the surface as erosion gradually removes the soil material.

Use and management.—About 60 percent of this soil is cultivated. The pieces of sandstone and gravel affect workability, but not to the extent they do on Mesa gravelly clay loam, moderately deep, 5 to 10 percent slopes.

The soil has relatively wide suitability range for crops. It is not good for deep-rooted crops such as alfalfa, corn, and tree fruits, because the underlying shale material makes it very slowly permeable to plant roots. Whenever the soil material overlying the shale becomes too thin for advantageous cropping, the soil probably would be best used as irrigated pasture.

Fruita very fine sandy loam, 0 to 2 percent slopes (Fp).—This inextensive soil occurs on alluvial fans north of the Colorado River. It is derived from alluvial deposits 4 to 8 feet thick that overlie shale. Generally the soil occurs on mesas or alluvial fans that are at lower levels than those occupied by the Fruita clay loam soils. It has a less conspicuous accumulation of lime, which suggests that it developed in alluvial deposits somewhat more recent than those under the Fruita clay loam soils found on the higher mesa positions north of Loma.

The 8- or 10-inch surface soil is a very pale-brown, light-brown, or light reddish-brown calcareous very fine sandy loam. This layer is slightly hard when dry but very friable when moist. The subsoil is slightly lighter brown but is otherwise nearly the same as the surface soil. At depths of 18 to 22 inches it grades into very pale-brown, heavy, very fine sandy loam. This highly calcareous material has a fine subangular structure and is friable when moist. Below a depth of 50 inches the texture is dominantly sandy, but the texture is variable and there is some admixture of sandstone gravel.

This soil has good tilth in spite of a low content of organic matter. It is friable throughout, which assures medium internal drainage and easy penetration of deep-rooted plants.

Included with this soil are a few areas of fine sandy loam that were too small to map separately. These areas, covering about 45 acres in all, are in the southeastern quarter of section 34, range 2 west, township 2 north, or about 2½ miles northeast of Fruita.

Use and management.—The physical properties of this soil make it especially suitable for field, orchard, truck, and garden crops. Nearly 97 percent of the acreage is cultivated. The chief crops, in order of importance, are potatoes, alfalfa, corn, pinto beans, small grains, and tomatoes, onions, and other truck crops. Most of the cultivated acreage is cropped to potatoes, alfalfa, and corn. Small patches are in grapes, berries, and orchard fruits. The soil is not well situated

This soil should remain productive indefinitely if irrigation water is carefully used so as to prevent erosion; manure is applied if available; and alfalfa, red clover, or sweetclover is grown in the crop rotation. Some farmers apply commercial fertilizer to special crops to obtain maximum yields.

Fruita very fine sandy loam, 2 to 5 percent slopes (Fn).—This inextensive soil is derived from alluvial deposits 3½ to 8 feet deep over shale. It is located in positions somewhat lower than those occupied by Fruita very fine sandy loam, 0 to 2 percent slopes, but higher than those occupied by the Billings soils.

The surface soil is relatively smooth. Where it is uneven, the undulations are slight. Although the organic-matter content is low, the tilth is good. Surface runoff and internal drainage are medium.

Use and management.—About 87 percent of this soil is cultivated. The smooth, gentle slopes are easily prepared for irrigation. The same crops are grown on this soil as on Fruita very fine sandy loam, 0 to 2 percent slopes, and they produce practically the same yields. If management practices that control erosion and increase the content of organic matter are followed, this soil should remain productive indefinitely.

Fruita very fine sandy loam, moderately deep, 0 to 2 percent slopes (Fs).—Aside from its thinner mantle, 2 to 4 feet of alluvium over the Mancos shale, this soil is little different from Fruita very fine sandy loam, 0 to 2 percent slopes. It has the same easy workability, and only a few small scattered areas are adversely affected by salts. Because it is only moderately deep to shale, it has slower subdrainage and does not permit so deep penetration of roots as similar soils that have more depth.

Use and management.—More than 99 percent of this soil is cultivated. The chief crops are alfalfa, pinto beans, corn, small grains, and truck crops. Yields from most crops compare favorably with those from Fruita very fine sandy loam, 0 to 2 percent slopes. Alfalfa and other deep-rooted crops yield slightly less; the reduction in yield is proportional to the shallowness of the soil mantle over the shale.

Fruita very fine sandy loam, moderately deep, 2 to 5 percent slopes (Ft).—This inextensive soil differs from Fruita very fine sandy loam, moderately deep, 0 to 2 percent slopes, chiefly in having greater slope. It is 1 to 4 feet deep to the underlying Mancos shale.

Use and management.—About 85 percent of this soil is cultivated. Most of the rest could be cultivated, but a few small scattered areas are a few feet higher than the present irrigation canals. Irrigation of these would require readjustment of the present canals or installation of pumping equipment.

The soil has a fairly wide crop adaptability but is not well suited to deep-rooted crops. It is used for the same crops as Fruita very fine sandy loam, moderately deep, 0 to 2 percent slopes. Shallow-rooted crops such as beans, onions, potatoes, and small grains yield about the same as on that soil.

The potentialities of this soil are limited by its moderate depth to shale and its susceptibility to erosion. Good soil management is

Fruita very fine sandy loam, moderately deep, 5 to 10 percent slopes (Fu).—Except for its greater slope, this soil is almost the same as Fruita very fine sandy loam, moderately deep, 0 to 2 percent slopes. It is 1 to 3½ feet deep to Mancos shale.

About half of the acreage is cultivated to the same crops as are grown on Fruita very fine sandy loam, moderately deep, 0 to 2 percent slopes. Yields are less, especially for deep-rooted crops such as corn and alfalfa. Careful management of this soil is necessary if erosion is to be controlled. Nevertheless, some erosion will take place if this soil is used for row crops.

Fruita and Ravola loams, 2 to 5 percent slopes (Fc).—This unit consists of areas of Fruita and Ravola soils so small and closely associated that it was not practical to map them separately. It occupies either gently undulating or ridged topography along the several alluvial fans. Most of it is north of Grand Junction.

The soils of this unit have formed in old alluvial deposits derived mainly from the Mesaverde sandstone and Mancos shale formations that lie to the north. The alluvial mantle is 3½ to 7 feet deep and is underlain by Mancos shale. Either this unit is associated with soils of the Fruita series or it occurs in positions between Fruita soils and Ravola soils.

On the gently sloping rounded crests and upper slopes of the narrow ridges, or on the brows of the mesas or the alluvial fans, the soil is similar to the Fruita very fine sandy loams. In contrast, on the lower slopes and in the bottoms of shallow troughs, the soil is similar to the Ravola loams in that it has no distinct profile layers. Instead, there is very pale-brown, calcareous, medium-textured surface soil and a subsoil that shows no definite stratification.

The soils of this unit are calcareous throughout. The soil on the ridge crests is noticeably splotched or spotted with lime, but the lime is not visible in the soil on the lower slopes. Angular and semirounded pieces of sandstone rock and gravel are common in some places but they do not seriously impair cultivation. This unit has a textural range from fine sandy loam to light clay loam.

Use and management.—About 85 percent of this undifferentiated unit is cultivated. Alfalfa, beans, corn, small grains, orchard fruits, grapes, berries, and truck crops can be grown successfully. Grand Junction, about 5 miles to the south, provides a nearby market that encourages farmers to diversify their crops. Practically all of this unit could be cultivated. Only a few small areas contain harmful quantities of salts. Crop yields are probably only slightly lower than on the Fruita very fine sandy loams. Great care to prevent erosion needs to be taken.

Fruita and Ravola loams, moderately deep, 2 to 5 percent slopes (Fd).—This mapping unit occupies the same type of gently undulating or ridged alluvial fans as Fruita and Ravola loams, 2 to 5 percent slopes. In some places it is associated with that mapping unit and in others it is associated with other soils of the Fruita series. Where it occurs at the upper margin of the alluvial fans it lies below the soils of the Persayo and Chipeta series. The friable and moderately permeable alluvial mantle varies from several inches to 3½ feet thick over the Mancos shale. This unit therefore favors better root distribution and has better internal drainage than the complexes of

In nature and complexity, the soil profiles of this unit are very similar to those of Fruita and Ravola loams, 2 to 5 percent slopes. In places the soil consists of pale-yellow, calcareous, fine sandy loam, underlain at depths of 20 or 30 inches by thin, platy, shale material. In these locations the soil probably developed in place on platy siltstone or fine sandy shale.

Use and management.—Approximately 45 percent of this unit is cultivated. Barley, oats, wheat, pinto beans, onions, sugar beets, corn, and alfalfa are grown. Alfalfa and other deep-rooted crops are not well suited. Crops yield more than they do on the shallow soils of the Chipeta or Persayo series but less than they do on Fruita and Ravola loams, 2 to 5 percent slopes. As is true for other soils moderately deep over shale, the productivity of this unit can be increased by growing legumes and pasture crops and by applying barnyard manure liberally if it is available. Measures for controlling erosion should be applied if economically possible. Irrigated pasture generally proves fairly successful.

Fruita and Ravola gravelly loams, 5 to 10 percent slopes (Fa).—The principal areas of these undifferentiated soils occur on benches or mesas north of Grand Junction. The areas begin at the first ridge north of the city and continue as far as the Government High Line Canal. Small areas occur north of Fruita.

In the virgin state, the soils of this undifferentiated unit are spotted and variable. Ordinarily, the soil at the upper levels—Fruita gravelly loam, 5 to 10 percent slopes—has a very pale-brown loam surface layer and a moderate accumulation of lime in the subsoil. In contrast, the soil at the lower levels—chiefly Ravola gravelly loam, 5 to 10 percent slopes—has a very pale-brown to pale-brown surface layer and only a weak accumulation of lime in the subsoil. In both positions, the lime can be seen in the subsoils. Shale ordinarily occurs at depths of 2½ to 4½ feet, but the alluvial mantle may be 10 to 12 feet thick in some places.

The soils of this unit are friable and permeable enough to permit easy penetration of plant roots down to the underlying shale. Ordinarily, they are very spotty and contain considerable amounts of sandstone gravel and semirounded stones. Gravel for road building has been taken out a mile north of Grand Junction and 2 miles north of Fruita. Most of the stones have been removed from the cultivated fields.

Use and management.—Nearly half of this unit is cultivated. Its suitability for crops is relatively wide. General field crops, truck crops, tree fruits, and irrigated pasture are grown. Because this unit has slopes not particularly favorable for tillage, much of it probably could be used to advantage for berries, grapes, tree fruits, and irrigated pasture. Growing of corn or other row crops on this land encourages erosion. If erosion is not prevented during irrigation, the soil mantle will become thinner, yields will gradually diminish, and eventually the raw shale will appear at the surface. The soils have a low content of organic matter, so farmers need to apply barnyard manure or grow legume crops to maintain or increase the supply.

Fruita and Ravola gravelly loams, 20 to 40 percent slopes (Fn).—

Rough broken land, Chipeta and Persayo soil materials (Rr).—This inextensive land type consists mainly of bare Mancos shale. The rather steep areas northeast of Grand Junction consist mainly of bare Chipeta soil-forming material, whereas those north of Mack have a thin to moderately thick mantle of gravelly clay loam, Fruita soil material, overlying the Mancos shale.

Some areas of this land type that have a mantle of soil material could be used for irrigated pasture. Most of the acreage, however, is steep and consists of raw shale. This land type is periodically grazed by sheep, normally late in the fall. The sparse cover consisting of saltsage, saltbush, some shadscale and ryegrass, and other plants provides browse of low value.

Rough gullied land (Rs).—This land type is the product of erosion, gullying, and gully-bank caving of Billings soil material. The largest areas occur along East and West Salt Creeks, Big Salt Wash, and Mack Wash. The texture of the soil material varies; clay, clay loam, silty clay loam, fine sandy loam, gravel, and stones are represented.

The progress of erosion, gully, and caving is unusual (pl. 3, *A*). Erosion, facilitated by occasional mountain freshets and surface flow of irrigation waste water, continues until a gully has been cut down to the sandy substratum. The small continuous flow of irrigation waste water down the gully keeps the sandy substratum wet during the irrigation season. Some irrigation water applied on the fields adjoining the gully follows animal burrows or seeps down through the soil material until it reaches the sandy substratum. It then trickles out into the gully in small springlike veins and carries the saturated sandy material with it. Eventually, the high bank is undermined and topples down into the gully. The underground erosion and caving continually widen the gully. Some of the gully banks are already 50 to 400 yards apart. Unless waste water from irrigated land is disposed of through corrugated iron outlets, the cropland bordering the gullies gradually caves away. Sometimes it is necessary to abandon good cropland in order to stop this type of erosion.

Use and management.—A few small areas of Rough broken land might be made suitable for cropping if they were properly leveled, but the land is so rough that leveling normally would not be economically practical. The areas between wide gullies are rough, seepy, almost always high in salt content, unfit for irrigation, and consequently unsuitable for general field crops. Reclamation of these areas would require enormous expenditure.

Even if shallow, comparatively wide, straight ditches had been dug when the valley was first opened for irrigation, gully erosion could not have been prevented unless stone or concrete baffles were placed in the ditches approximately ¼ to ½ mile apart.

Areas of this land that livestock can reach are used primarily for grazing. The vegetation mainly consists of greasewood, scattered cottonwoods, tamarisk, inkweed, snakeweed, Mexican fireweed, smartweed, cattail, and saltgrass. Saltgrass is the most prevalent plant. The value of this land for browsing is low.

Thoroughfare fine sandy loam, 2 to 5 percent slopes (TH).—This soil occurs in the Redlands westward from Grand Junction. It [illegible]

igneous rocks but that also includes an admixture of material weathered from limestone and shale formations exposed by the Uncompahgre uplift. Ordinarily, the alluvial mantle ranges from 4 to 10 feet or more in thickness over the underlying sandstone or shale. Scattered sandstone and granite boulders are common in uncultivated areas that lie above the highest irrigation canal. The soil differs from those of the Mesa series in having a more reddish color and less distinct profile layers, and, except for a few areas bordering the Colorado River, in lacking gravel, cobbles, and stones in the lower subsoil.

The 10-inch surface soil, a light-brown to light reddish-brown fine sandy loam, contains considerable amounts of coarse irregularly shaped aggregates of granite not commonly found in other soil series of the area. This layer is soft when dry and very friable when moist. It has a low organic-matter content. The upper subsoil consists of light-brown to light reddish-brown fine sandy loam that contains a scattering of gravel-size granite and sandstone fragments. Below 20 to 24 inches, the material is slightly coarser and uniformly light brown. At depths below 50 inches the content of lime is noticeably greater; the lime appears as pink or pinkish-white threads and small spots.

The abundance of sandstone, granite, and quartz fragments varies from place to place, not only in the surface layer but also at different depths in the profile. The soil is calcareous throughout, but the lime can be seen only in the lower subsoil layers.

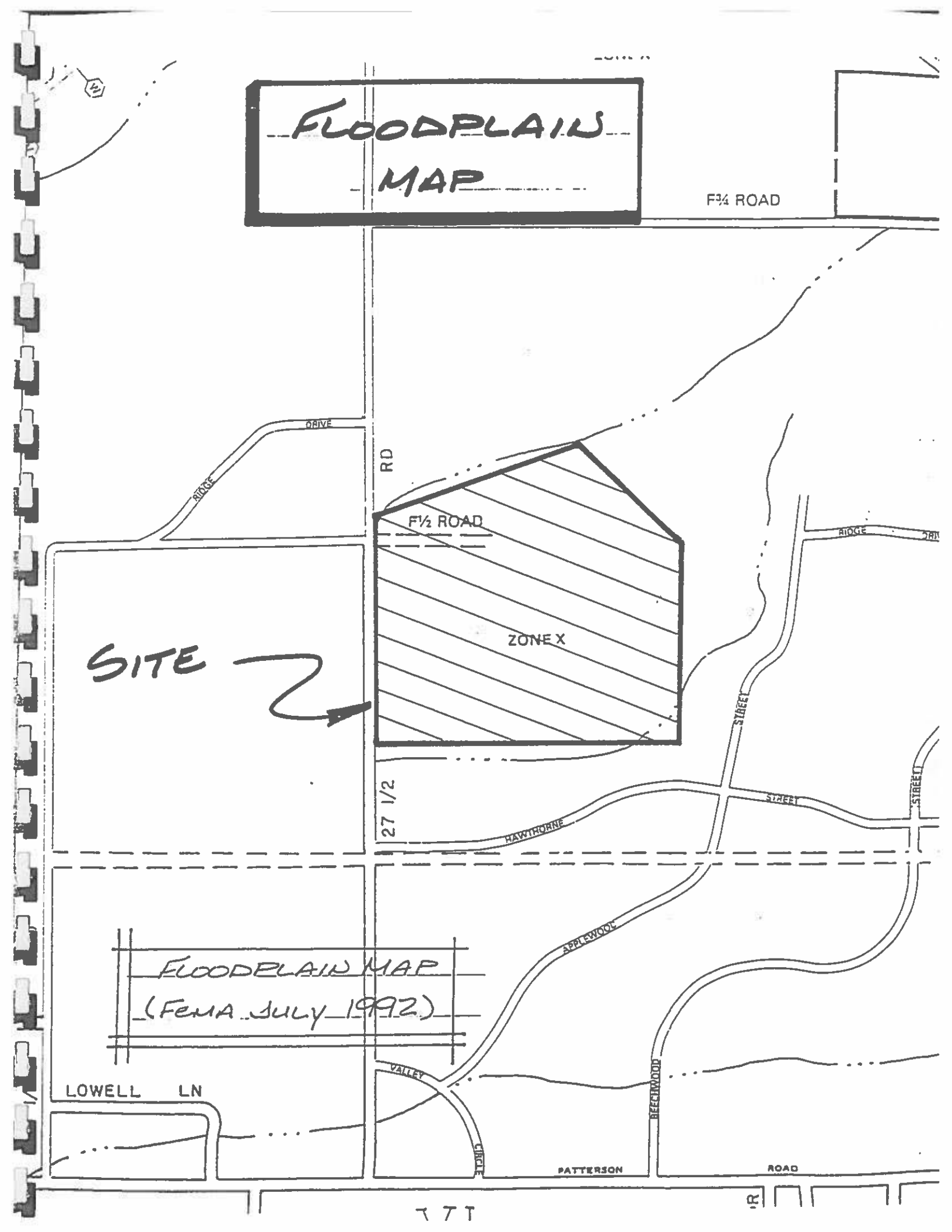
Use and management.—About 80 percent of this soil lying below the present irrigation canals is cultivated. This amounts to about 60 percent of the total acreage. An estimated 15 percent of the cultivated land is in orchard fruits, mainly peaches. The acreage in orchard crops is gradually increasing. Alfalfa, corn, beans, and small grains are the chief field crops. Potatoes, tomatoes, melons, and other truck crops are grown to some extent. Deep-rooted crops are well suited because drainage is generally good and the subsoil is very friable and permeable to plant roots. Yields compare favorably with those produced on Mesa and Fruita soils.

The water-holding capacity is moderate because of the high percentage of sandy material, especially in the lower subsoil. As for others of the Thoroughfare series, this soil requires more water for successful crop production than other soils in the Redlands.

It would cost too much, at least in most places, to bring water to the areas in the northwestern part of the Redlands and in other places lying above the higher irrigation canals. They afford scant grazing for sheep late in fall but are of little value for any other agricultural use.

Thoroughfare fine sandy loam, 0 to 2 percent slopes (TA).—This soil is easily tilled and irrigated and generally favorable for agriculture. Except for its more gentle slope, it is very similar to Thoroughfare fine sandy loam, 2 to 5 percent slopes. It holds less water available for plants than Mesa clay loams.

Use and management.—Approximately 85 percent of this soil is under cultivation, and, of this, about 30 percent is in orchard fruits, mainly peaches. The rapidly permeable subsoil and favorable climate allow successful production of tree fruits. The chief field crops,


FLOODPLAIN MAP
F¾ ROAD
RIDGE DRIVE
RD
F½ ROAD
ZONE X
SITE
RIDGE
STREET
27 1/2
HAWTHORNE
STREET
STREET
APPLEWOOD
FLOODPLAIN MAP
(FEMA JULY 1992)
LOWELL LN
VALLEY
CIRCLE
BEECHWOOD
PATTERSON
ROAD

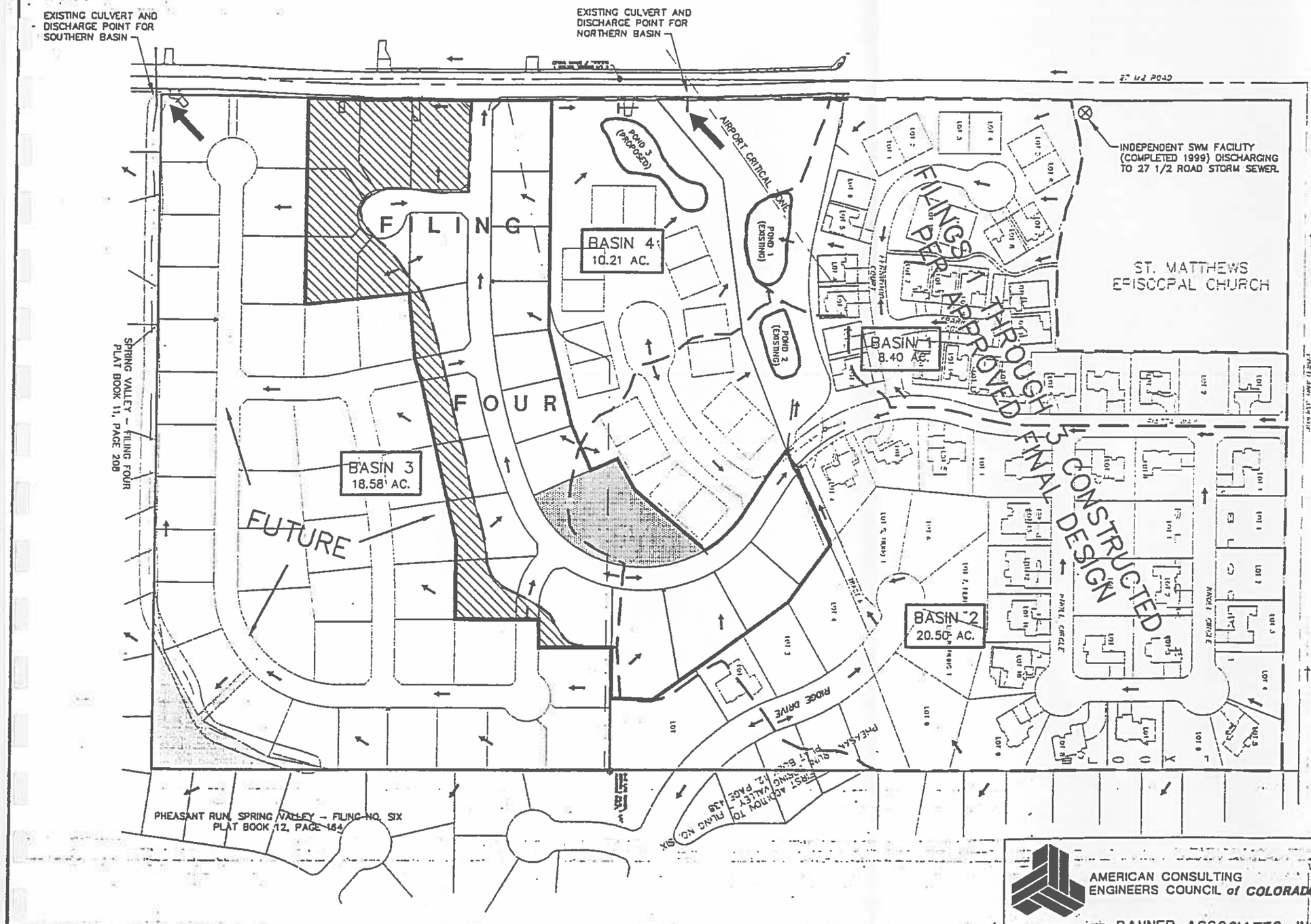
PRE-DEVELOPMENT DRAINAGE PLAN

AMERICAN CONSULTING ENGINEERS COUNCIL *of COLORADO*

BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

POST-DEVELOPMENT DRAINAGE MAP



N

FEET 200 0 200 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 200 FEET

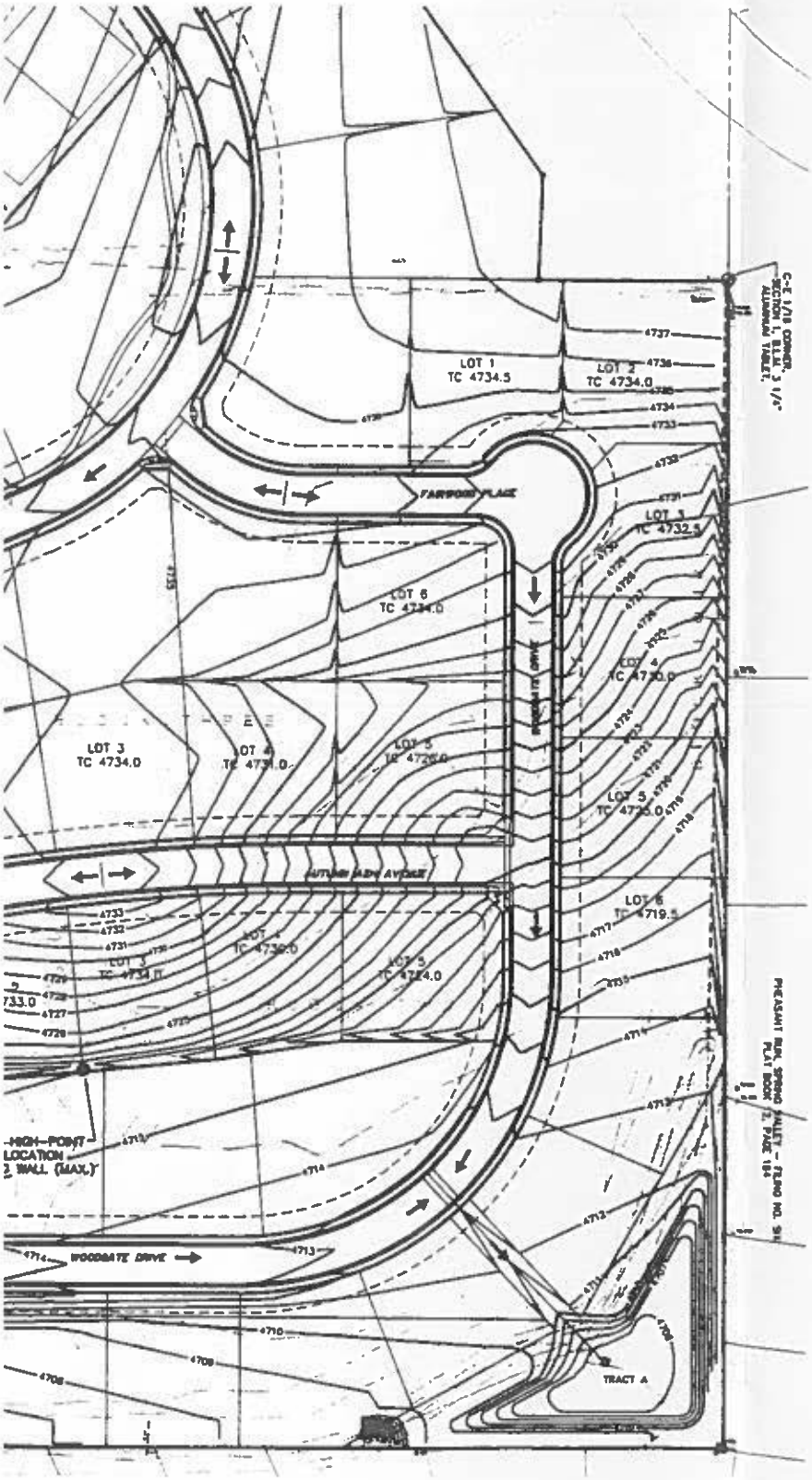
LEGEND

- 3.08 AC. OF FILING 4 DRAINING TO SOUTHERN BASIN
- BASIN BOUNDARY
- FILING 4 BOUNDARY

AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

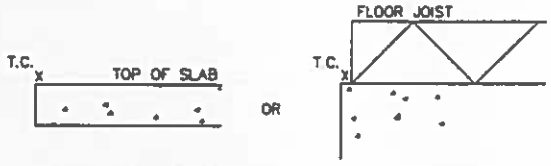


GENERAL NOTES:

1. CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
2. ELEVATE EXISTING OVERFLOW SWALE (INVERT) TO ELEV. 4722.12 (FROM 4722.06 EXISTING).
3. SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

KNOLLS SUBDIVISION
TOP OF CONCRETE ELEVATION TABULATION
4/09/03

LOT	BLOCK	ADDRESS	T.C. ELEV.
1	1	____ BRIAR RIDGE WAY	4729.0
2	1	____ BRIAR RIDGE WAY	4725.0
1	2	____ AUTUMN ASH AVENUE	4728.5
1	2	____ BRIAR RIDGE WAY	4728.5
2	2	____ AUTUMN ASH AVENUE	4733.0
3	2	____ AUTUMN ASH AVENUE	4734.0
4	2	____ AUTUMN ASH AVENUE	4730.0
5	2	____ AUTUMN ASH AVENUE	4724.0
3	2	____ WOODGATE DRIVE	4724.0
1	3	____ AUTUMN ASH AVENUE	4730.0
1	3	____ BRIAR RIDGE WAY	4730.0
2	3	____ AUTUMN ASH AVENUE	4733.0
3	3	____ AUTUMN ASH AVENUE	4734.0
4	3	____ AUTUMN ASH AVENUE	4731.0
5	3	____ AUTUMN ASH AVENUE	4726.0
5	3	____ WOODGATE DRIVE	4728.0
6	3	____ WOODGATE DRIVE	4734.0
6	3	____ FAIRWOOD PLACE	4734.0
1	4	____ FAIRWOOD PLACE	4734.5
2	4	____ FAIRWOOD PLACE	4734.0
3	4	____ WOODGATE DRIVE	4732.5
4	4	____ WOODGATE DRIVE	4730.0
5	4	____ WOODGATE DRIVE	4725.0
6	4	____ WOODGATE DRIVE	4718.5



T.C. = TOP OF CONCRETE (MINIMUM ELEVATION)
NOT TO SCALE

LEGEND

- CONTOUR (EXISTING)
- 4710 — CONTOUR (PROPOSED)
- FILING BOUNDARY
- DRAINAGE DIRECTION

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.083
EASTING 8678.160
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 36+38.80
NORTHING 3680.533
EASTING 8678.783

N

FEET 60 0 60 FEET
GRAPHIC SCALE
SCALE: 1 INCH = 60 FEET

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

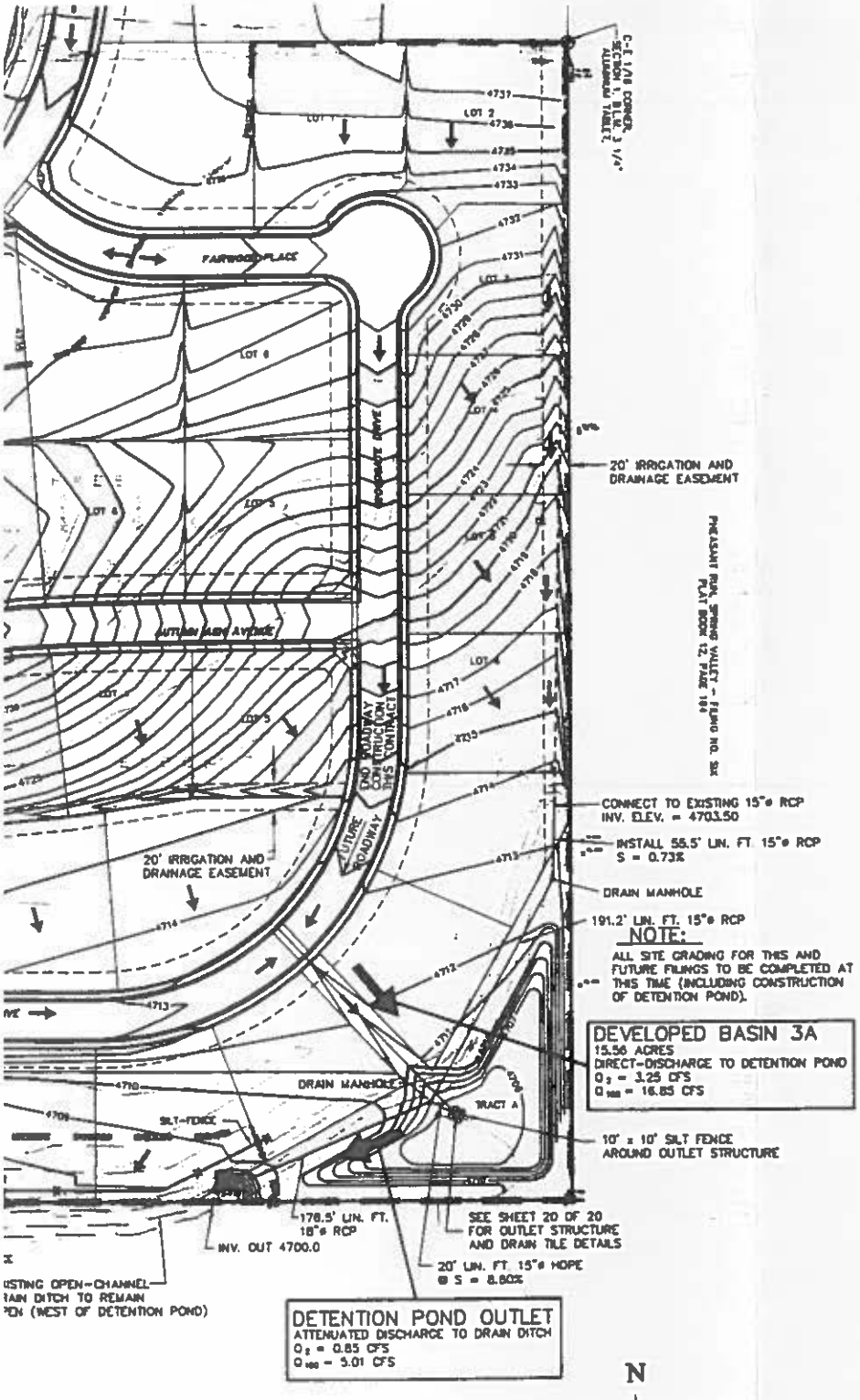
DESCRIPTION	BY	CHD

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

SCALE: 1" = 60' | JOB NO: 4003.06-02 | DATE: 4-09-03

GRADING PLAN
THE KNOLLS SUBDIVISION, FILING 6

SHEET NO: 17 of 20



GENERAL NOTES:

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STORMWATER MANAGEMENT NOTES:

1. AT ALL TIMES DURING CONSTRUCTION, EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED BY THE DEVELOPER OR HIS DESIGNATED REPRESENTATIVE.
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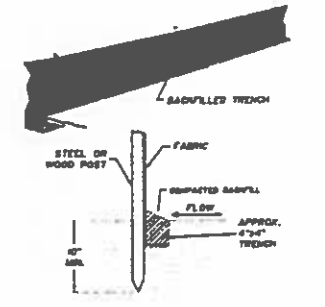
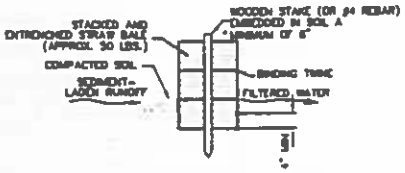
9. MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS. RECORDS OF SUCH MAINTENANCE SHALL BE RETAINED BY THE H.O.A.

LEGEND

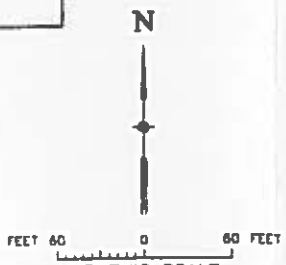
CONTOUR (EXISTING)
4710 CONTOUR (PROPOSED)
BASIN BOUNDARY
DRAINAGE DIRECTION
SILT-FENCE



DETAIL B – SILT FENCE
N.T.S.



BALE INSTALLATION



GRAPHIC SCALE
SCALE 1 INCH = 60 FEET

PROJECT BENCHMARK / CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8878.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 39+38.80
NORTHING 3980.582
EASTING 8878.783

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

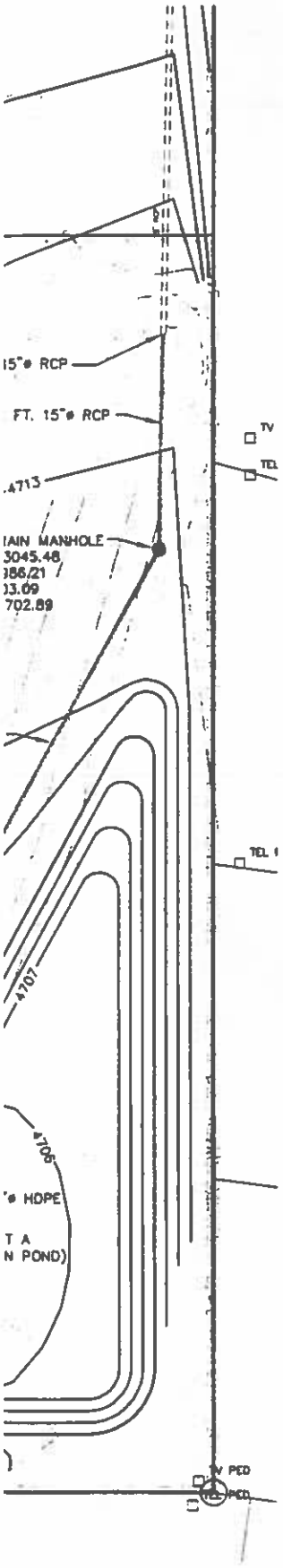
DESCRIPTION	BY	CKD

O P DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

STORMWATER MANAGEMENT PLAN
THE KNOLLS SUBDIVISION, FILING 6

SCALE: 1" = 60' | JOB NO. 4003.06.02 | DATE: 4-09-03

SHEET NO: 18 of 20

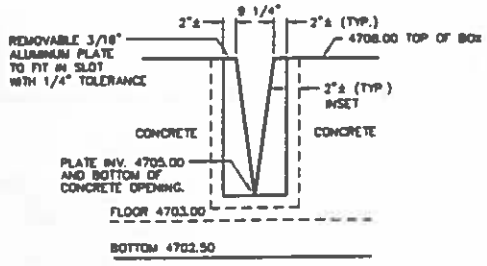


SECTION A–A

N.T.S.

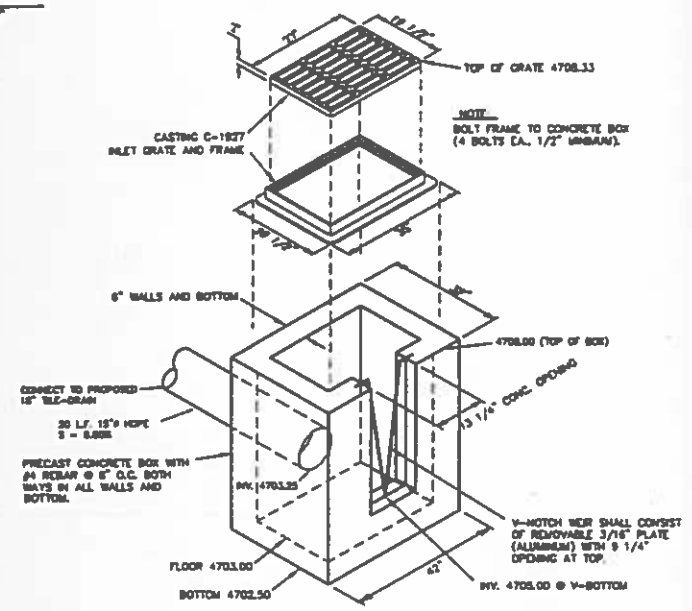
NOTE:

ALL SITE GRADING FOR THIS AND FUTURE FILINGS TO BE COMPLETED AT THIS TIME (INCLUDING CONSTRUCTION OF DETENTION POND).



WEIR PLATE DETAIL

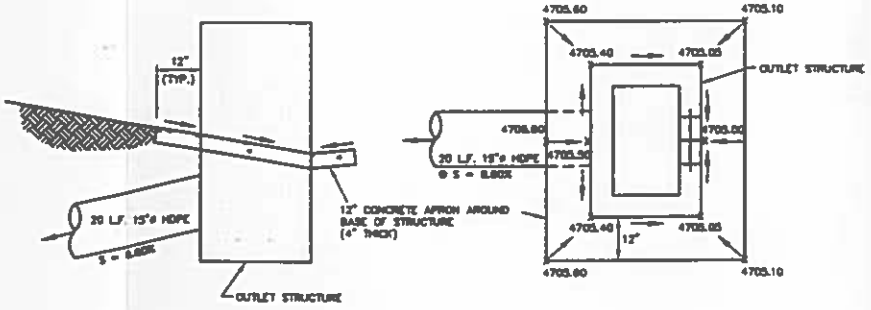
N.T.S.



CONCRETE OUTLET STRUCTURE

N.T.S.

2 YEAR STORM – W.S. ELEV = 4706.35 Q_{act} = 0.85 CFS
100 YEAR STORM – WS. ELEV = 4708.00 Q_{act} = 5.01 CFS



OUTLET STRUCTURE DETAIL

N.T.S.

N

(ALL PLANS)

CALL 1-800-922-1987 UTILITY NOTIFICATION CENTER OF COLORADO

PROJECT BENCHMARK/CONTROL

MCRM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8678.160
ELEVATION 4733.98

MCRM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 38+38.90
NORTHING 3880.582
EASTING 8678.783

APPROVED FOR CONSTRUCTION:

CITY COMMUNITY DEVELOPMENT DATE

ACCEPTED AS CONSTRUCTED:

CITY COMMUNITY DEVELOPMENT DATE

DESCRIPTION	BY	DATE

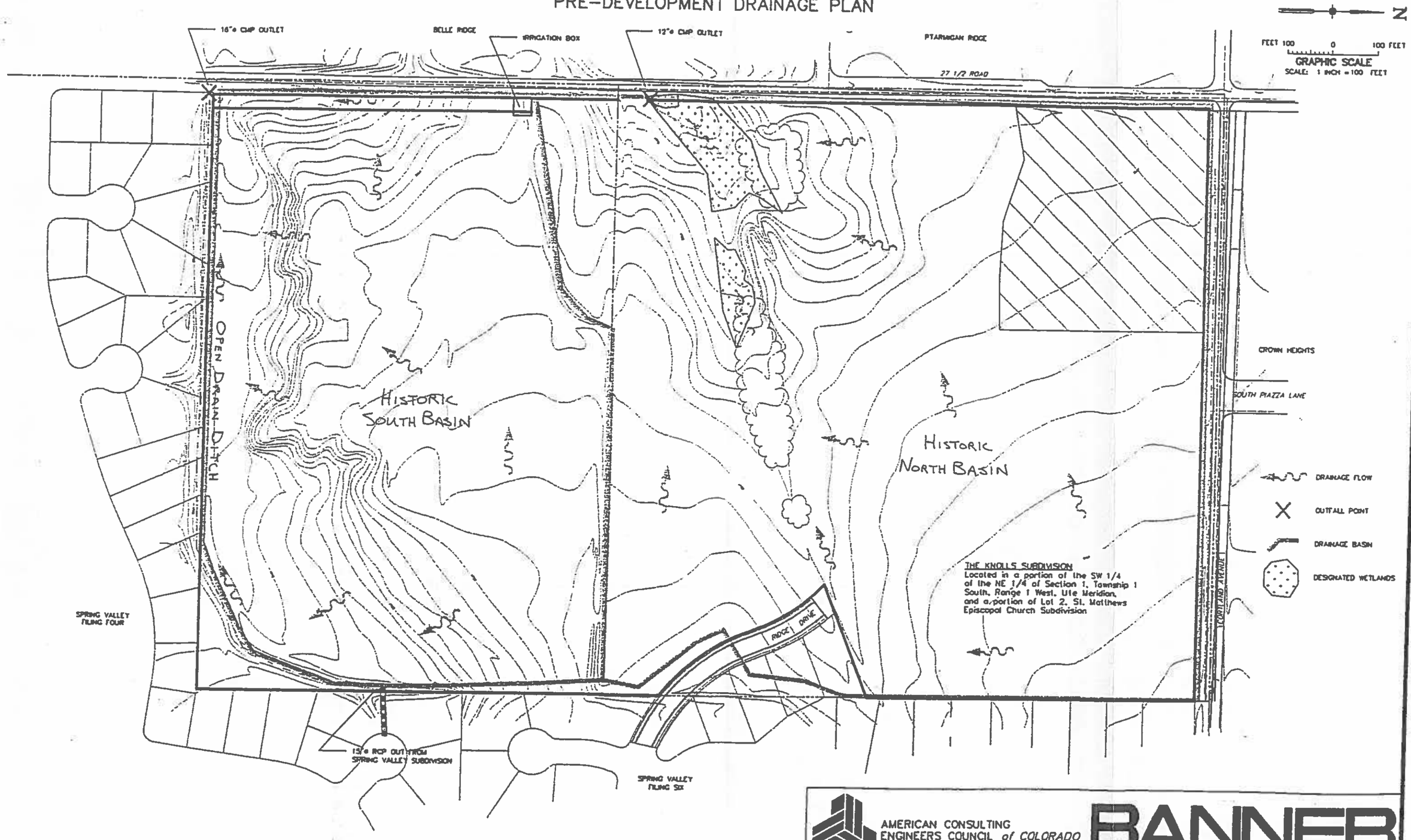
O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

SCALE: AS SHOWN | JOB NO: 4003.06-02 | DATE: 4-09-03

POND GRADING DETAILS
THE KNOLLS SUBDIVISION, FILING 6

SHEET NO: 20 of 20

PRE-DEVELOPMENT DRAINAGE PLAN

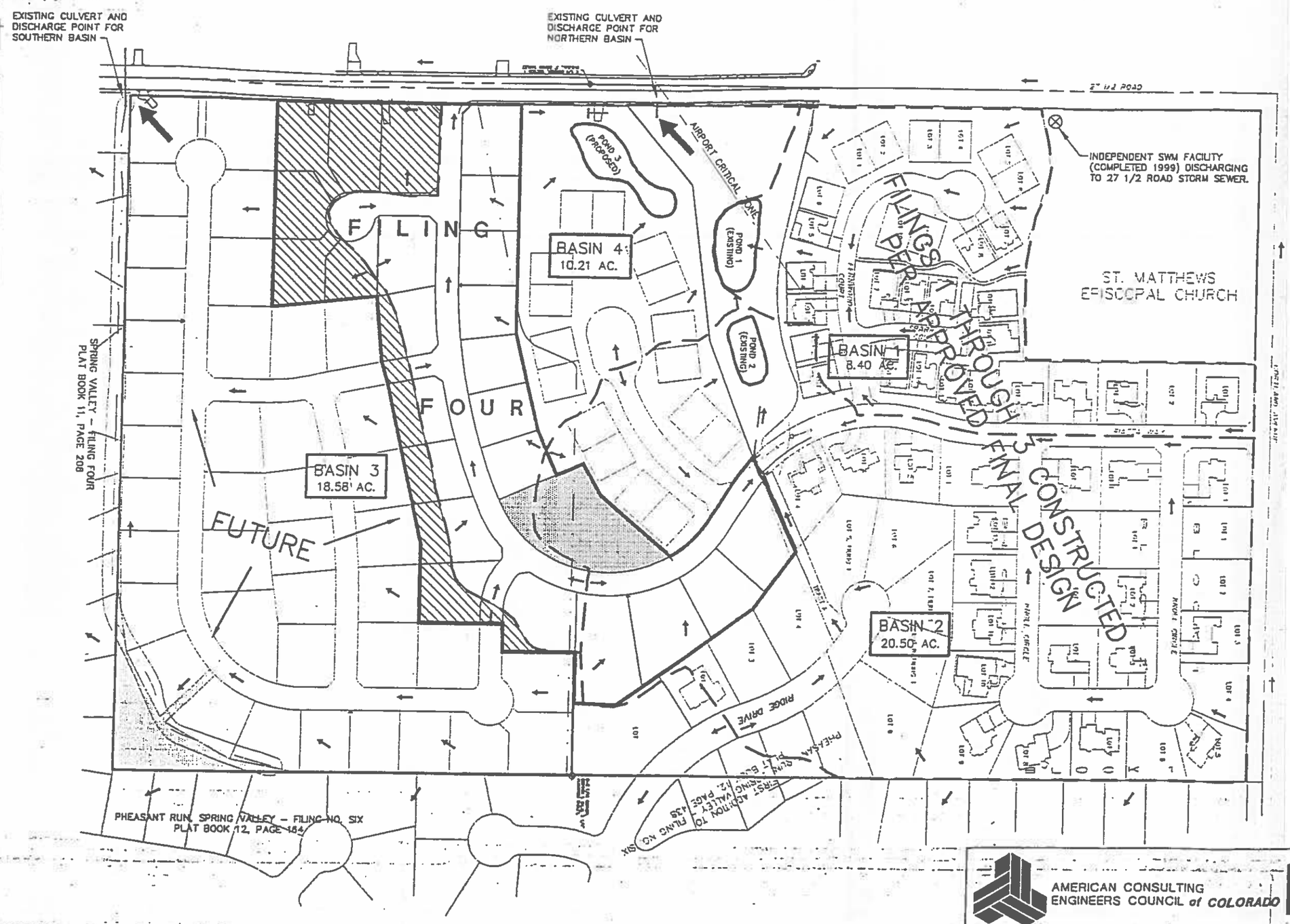


AMERICAN CONSULTING ENGINEERS COUNCIL *of COLORADO*

BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

POST-DEVELOPMENT DRAINAGE MAP



N

FEET 200 0 200 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 200 FEET

LEGEND

- 3.08 AC. OF FILING 4 DRAINING TO SOUTHERN BASIN
- BASIN BOUNDARY
- FILING 4 BOUNDARY

AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

BANNER

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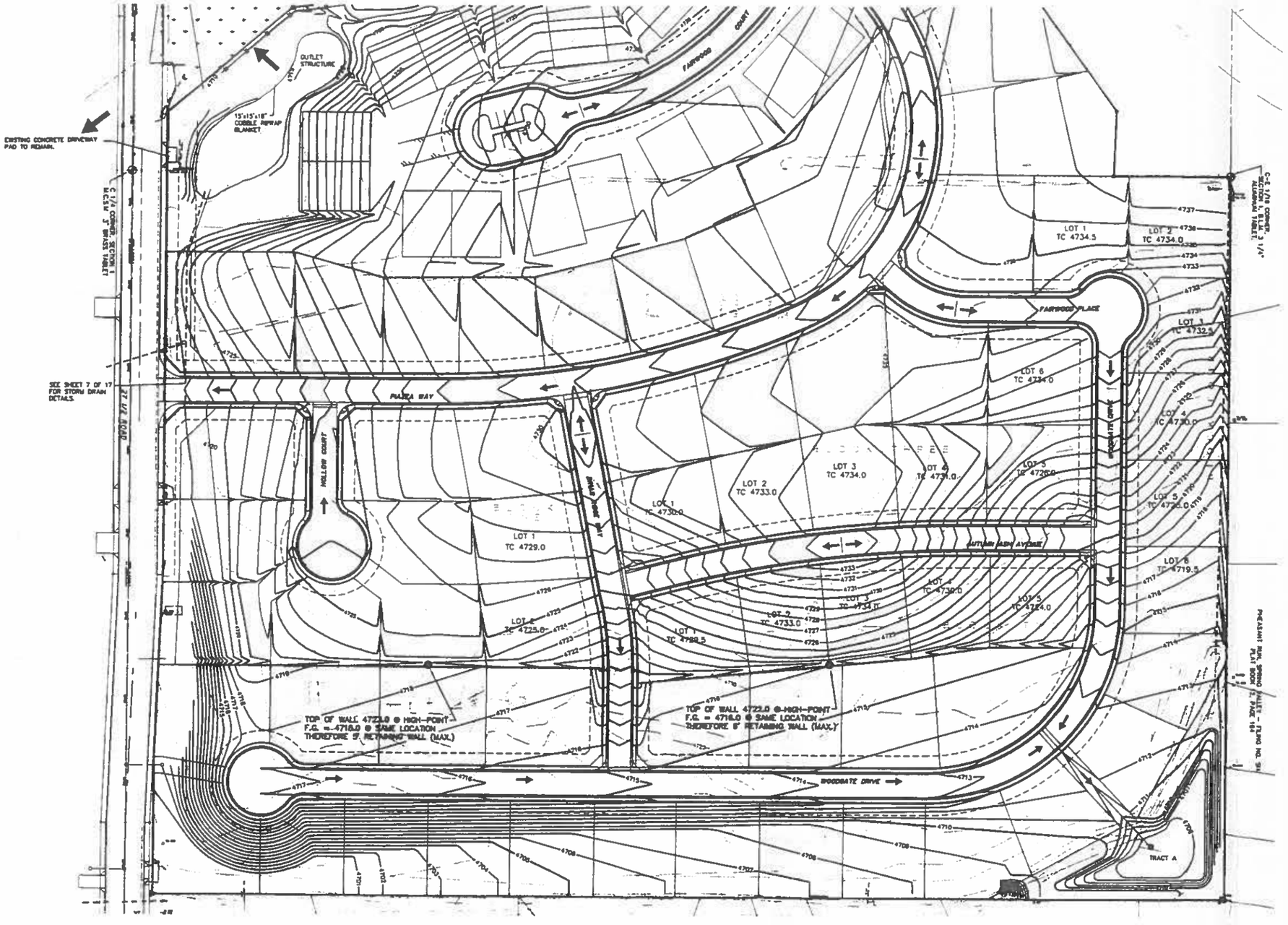
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

PRELIMINARY MAJOR BASIN DRAINAGE MAP



GENERAL NOTES:

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KNOLLS SUBDIVISION
TOP OF CONCRETE ELEVATION TABULATION
4/09/03

LOT	BLOCK	ADDRESS	T.C. ELEV.
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2	1	BRIAR RIDGE WAY	4725.0
1	2	AUTUMN ASH AVENUE	4729.5
1	2	BRIAR RIDGE WAY	4729.5
2	2	AUTUMN ASH AVENUE	4733.0
3	2	AUTUMN ASH AVENUE	4734.0
4	2	AUTUMN ASH AVENUE	4730.0
5	2	AUTUMN ASH AVENUE	4724.0
5	2	WOODGATE DRIVE	4724.0
1	3	AUTUMN ASH AVENUE	4730.0
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2	3	AUTUMN ASH AVENUE	4733.0
3	3	AUTUMN ASH AVENUE	4734.0
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5	3	AUTUMN ASH AVENUE	4726.0
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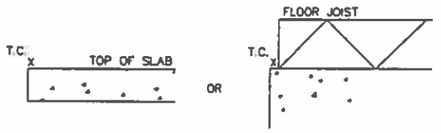
1	4	FAIRWOOD PLACE	4734.5
2	4	FAIRWOOD PLACE	4734.0
3	4	WOODGATE DRIVE	4732.5
4	4	WOODGATE DRIVE	4730.0
5	4	WOODGATE DRIVE	4725.0
6	4	WOODGATE DRIVE	4719.5



T.C. = TOP OF CONCRETE (MINIMUM ELEVATION)
NOT TO SCALE

LEGEND

- CONTOUR (EXISTING)
- 4716 CONTOUR (PROPOSED)
- FILING BOUNDARY
- DRAINAGE DIRECTION

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.083
EASTING 8679.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA. 38+38.80
NORTHING 3880.552
EASTING 8678.783

N

FEET 60 0 60 FEET
GRAPHIC SCALE
SCALE: 1 INCH = 60 FEET

APPROVED FOR CONSTRUCTION:
CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:
CITY DEVELOPMENT ENGINEER DATE

DRAWN BY: S.G.S.
DESIGNED BY: P.M.O.
CHECKED BY: P.M.O.
REVIEWED DATE FOR
REVIEWED DATE FOR VISTA ENGINEERING CORP

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

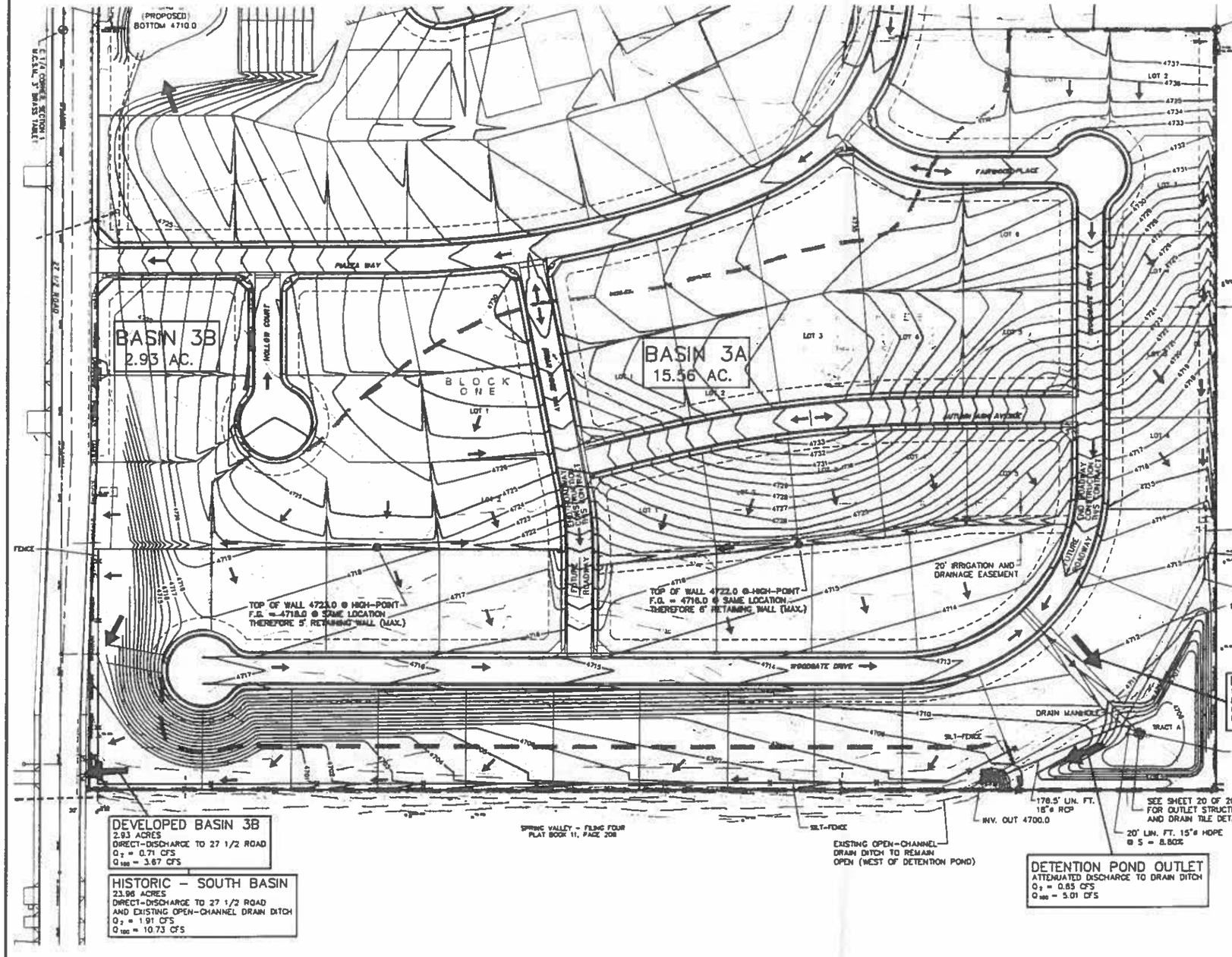
REVISION	DATE	DESCRIPTION	BY	CHD

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

SCALE: 1" = 60' | JOB NO: 4003.06-02 | DATE: 4-09-03

GRADING PLAN
THE KNOLLS SUBDIVISION, FILING 6

SHEET NO. 17 of 20



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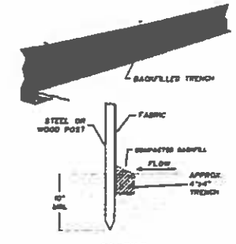
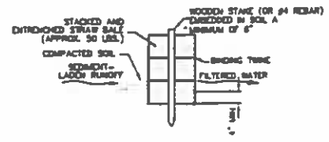
LEGEND

- CONTOUR (EXISTING)
- 4710 — CONTOUR (PROPOSED)
- BASIN BOUNDARY
- DRAINAGE DIRECTION
- SILT-FENCE



DETAIL B - SILT FENCE
N.T.S.



BALE INSTALLATION

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 9001.082
EASTING 8979.980
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 38+38.80
NORTHING 3880.593
EASTING 8978.783

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY: S.G.S.
DESIGNED BY: P.M.O.
CHECKED BY: P.M.O.

REVIEWED _____ DATE _____ FOR _____
REVIEWED _____ DATE _____ FOR VISTA ENGINEERING CORP

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

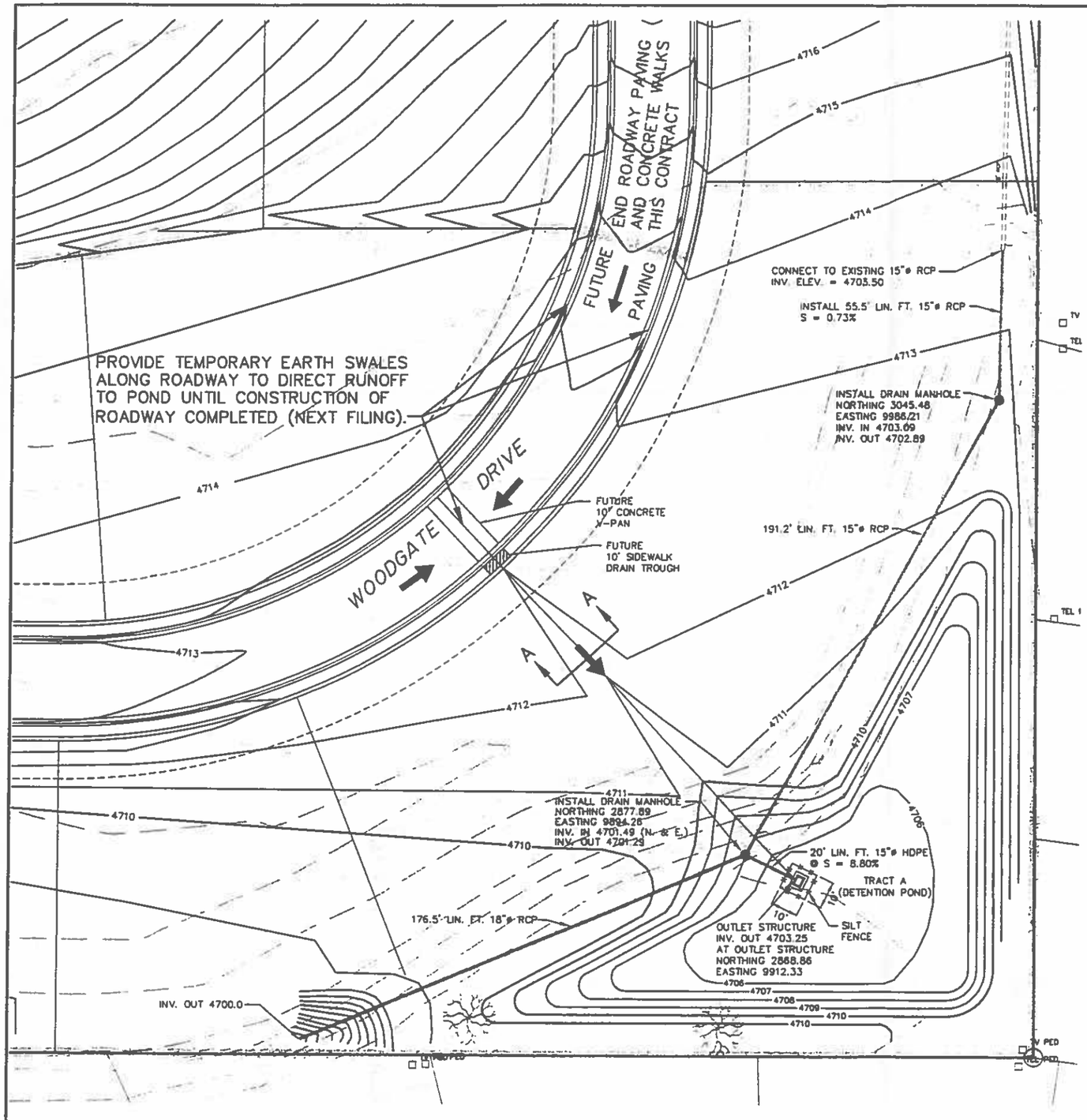
REVISION	DATE	DESCRIPTION	BY	CHD

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

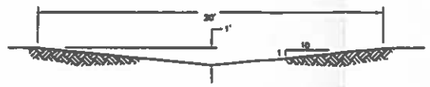
SCALE: 1" = 60' | JOB NO: 4003.06-02 | DATE: 4-08-03

STORMWATER MANAGEMENT PLAN
THE KNOLLS SUBDIVISION, FILING 6

SHEET NO: 18 of 20

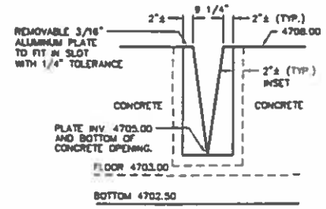


LANDSCAPE PLAN – TRACT A
SCALE: 1" = 20'

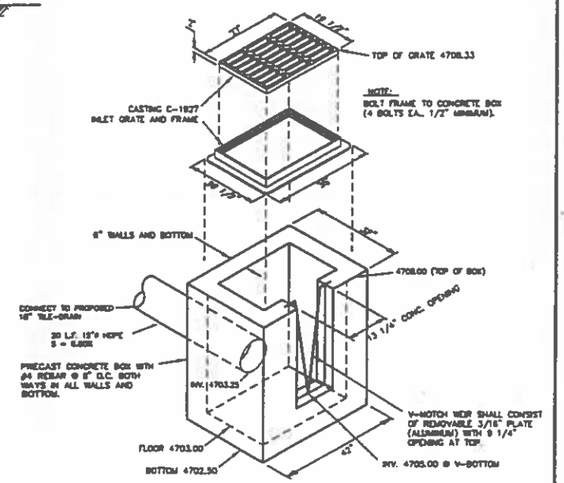


SECTION A–A
N.T.S.

NOTE:
ALL SITE GRADING FOR THIS AND FUTURE FILINGS TO BE COMPLETED AT THIS TIME (INCLUDING CONSTRUCTION OF DETENTION POND).

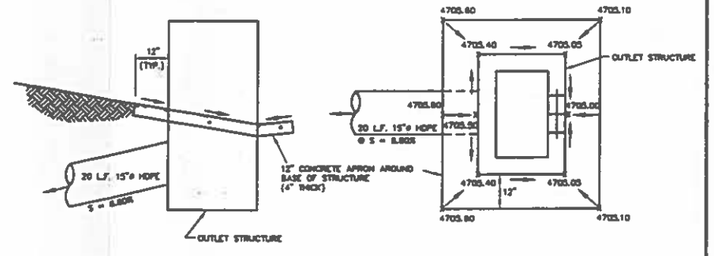


WEIR PLATE DETAIL
N.T.S.



CONCRETE OUTLET STRUCTURE
N.T.S.

2 YEAR STORM – W.S. ELEV = 4706.35 Q_{act} = 0.85 CFS
100 YEAR STORM – W.S. ELEV = 4708.00 Q_{act} = 5.01 CFS



OUTLET STRUCTURE DETAIL
N.T.S.

N

(ALL PLANS)

CALL 1-800-922-1987 UTILITY NOTIFICATION CENTER OF COLORADO

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1 27-1/2 ROAD & CORTLAND AVE.
NORTHING 3001.082
EASTING 9878.180
ELEVATION 4733.86

MCSM C 1/4 COR. SEC. 1 27-1/2 ROAD STA 36+36.90
NORTHING 3666.353
EASTING 9878.783

APPROVED FOR CONSTRUCTION:
CITY COMMUNITY DEVELOPMENT DATE

ACCEPTED AS CONSTRUCTED:
CITY COMMUNITY DEVELOPMENT DATE

DRAWN BY: S.G.S.
DESIGNED BY: P.M.O.
CHECKED BY: P.M.O.

REVIEWED _____ DATE _____ FOR _____
REVIEWED _____ DATE _____ FOR VISTA ENGINEERING CORP

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHD

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

POND GRADING DETAILS
THE KNOLLS SUBDIVISION, FILING 6

SCALE: AS SHOWN | JOB NO: 4003.06-02 | DATE: 4-09-03

SHEET NO: 20 of 20

SECTION 2
COEFFICIENTS

LAND USE OR SURFACE CHARACTERISTICS	SCS HYDROLOGIC SOIL GROUP (SEE APPENDIX "C" FOR DESCRIPTIONS)											
	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
UNDEVELOPED AREAS												
Bare ground	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .40 - .48	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Cultivated/Agricultural	.08 - .18 .14 - .24	.13 - .23 .18 - .28	.16 - .26 .22 - .32	.11 - .19 .16 - .24	.15 - .23 .21 - .29	.21 - .29 .28 - .36	.14 - .22 .20 - .28	.19 - .27 .25 - .33	.26 - .34 .34 - .42	.18 - .26 .24 - .32	.23 - .31 .29 - .37	.31 - .39 .41 - .49
Pasture	.12 - .22 .15 - .25	.20 - .30 .25 - .35	.30 - .40 .37 - .47	.18 - .26 .23 - .31	.28 - .36 .34 - .42	.37 - .45 .45 - .53	.24 - .32 .30 - .38	.34 - .42 .42 - .50	.44 - .52 .52 - .60	.30 - .38 .37 - .45	.40 - .48 .50 - .58	.50 - .58 .62 - .70
Meadow	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .44 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Forest	.05 - .15 .08 - .18	.08 - .18 .11 - .21	.11 - .21 .14 - .24	.08 - .16 .10 - .18	.11 - .19 .14 - .22	.14 - .22 .18 - .26	.10 - .18 .12 - .20	.13 - .21 .16 - .24	.16 - .24 .20 - .28	.12 - .20 .15 - .23	.16 - .24 .20 - .28	.20 - .28 .25 - .33
RESIDENTIAL AREAS												
1/8 acre per unit	.40 - .50 .48 - .58	.43 - .53 .52 - .62	.46 - .56 .55 - .65	.42 - .50 .50 - .58	.45 - .53 .54 - .62	.50 - .58 .59 - .67	.45 - .53 .53 - .61	.48 - .56 .57 - .65	.53 - .61 .64 - .72	.48 - .56 .56 - .64	.51 - .59 .60 - .68	.57 - .65 .69 - .77
1/4 acre per unit	.27 - .37 .35 - .45	.31 - .41 .39 - .49	.34 - .44 .42 - .52	.29 - .37 .38 - .46	.34 - .42 .42 - .50	.38 - .46 .47 - .55	.32 - .40 .41 - .49	.36 - .44 .45 - .53	.41 - .49 .52 - .60	.35 - .43 .43 - .51	.39 - .47 .47 - .55	.45 - .53 .57 - .65
1/3 acre per unit	.22 - .32 .31 - .41	.26 - .36 .35 - .45	.29 - .39 .38 - .48	.25 - .33 .33 - .41	.29 - .37 .38 - .46	.33 - .41 .42 - .50	.28 - .36 .36 - .44	.32 - .40 .41 - .49	.37 - .45 .48 - .56	.31 - .39 .39 - .47	.35 - .43 .43 - .51	.42 - .50 .53 - .61
1/2 acre per unit	.16 - .26 .25 - .35	.20 - .30 .29 - .39	.24 - .34 .32 - .42	.19 - .27 .28 - .36	.23 - .31 .32 - .40	.28 - .36 .36 - .44	.22 - .30 .31 - .39	.27 - .35 .35 - .43	.32 - .40 .42 - .50	.26 - .34 .34 - .42	.30 - .38 .38 - .46	.37 - .45 .48 - .56
1 acre per unit	.14 - .24 .22 - .32	.19 - .29 .26 - .36	.22 - .32 .29 - .39	.17 - .25 .24 - .32	.21 - .29 .28 - .36	.26 - .34 .34 - .42	.20 - .28 .28 - .36	.25 - .33 .32 - .40	.31 - .39 .40 - .48	.24 - .32 .31 - .39	.29 - .37 .35 - .43	.35 - .43 .46 - .54
MISC. SURFACES												
Pavement and roofs	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97
Traffic areas (soil and gravel)	.55 - .65 .65 - .70	.60 - .70 .70 - .75	.64 - .74 .74 - .79	.60 - .68 .68 - .76	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.69 - .77 .77 - .85	.72 - .80 .79 - .87	.75 - .83 .82 - .90	.77 - .85 .84 - .92
Green landscaping (lawns, parks)	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .42 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Non-green and gravel landscaping	.30 - .40 .34 - .44	.36 - .46 .42 - .52	.45 - .55 .50 - .60	.45 - .55 .50 - .60	.42 - .50 .48 - .56	.50 - .58 .57 - .65	.40 - .48 .46 - .54	.48 - .56 .55 - .63	.56 - .64 .64 - .72	.44 - .52 .50 - .58	.50 - .58 .60 - .68	.60 - .68 .70 - .78
Cemeteries, playgrounds	.20 - .30 .24 - .34	.26 - .36 .32 - .42	.35 - .45 .40 - .50	.35 - .45 .40 - .50	.32 - .40 .38 - .46	.40 - .48 .47 - .55	.30 - .38 .36 - .44	.38 - .44 .45 - .53	.46 - .54 .54 - .62	.34 - .42 .40 - .48	.40 - .48 .50 - .58	.50 - .58 .60 - .68

NOTES:
1. Values above and below pertain to the 2-year and 100-year storms, respectively.
2. The range of values provided allows for engineering judgement of site conditions such as basic shape, homogeneity of surface type, surface depression storage, and storm duration. In general, during shorter duration storms (Tc ≤ 10 minutes), infiltration capacity is higher, allowing use of a "C" value in the low range. Conversely, for longer duration storms (Tc) 30 minutes), use a ""C value in the higher range.
3. For residential development at less than 1/8 acre per unit or greater than 1 acre per unit, and also for commercial and industrial areas, use values under MISC SURFACES to estimate "C" value ranges for use.

RATIONAL METHOD RUNOFF COEFFICIENTS
(Modified from Table 4, UC-Davis, which appears to be a modification of work done by Rawls)

TABLE "B-1"

SECTION 3
TIMES OF CONCENTRATION

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Subarea descr.	Tc or Tt	Time (hrs)
HIST - SOUTH	Tc	0.46 - 28 MINUTES
DEV. BASIN 3a	Tc	0.30 - 18 MINUTES
DEV. BASIN 3b	Tc	0.22 - 13 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: HIST - SOUTH

SHEET FLOW (Applicable to Tc only)

Segment ID			1		
Surface description			FALLOW		
Manning's roughness coeff., n			0.0400		
Flow length, L (total < or = 300)		ft	300.0		
Two-yr 24-hr rainfall, P2		in	0.700		
Land slope, s		ft/ft	0.0200		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$		hrs	0.29	=	0.29

SHALLOW CONCENTRATED FLOW

Segment ID			2		3		
Surface (paved or unpaved)?			Unpaved		Unpaved		
Flow length, L		ft	700.0		600.0		
Watercourse slope, s		ft/ft	0.0100		0.0467		
Avg.V = $Csf * (s)^{0.5}$		ft/s	1.6135		3.4867		
where:	Unpaved Csf = 16.1345						
	Paved Csf = 20.3282						
T = L / (3600*V)		hrs	0.12	+	0.05	=	0.17

CHANNEL FLOW

Segment ID					
Cross Sectional Flow Area, a		sq.ft	0.00		
Wetted perimeter, Pw		ft	0.00		
Hydraulic radius, r = a/Pw		ft	0.000		
Channel slope, s		ft/ft	0.0000		
Manning's roughness coeff., n			0.0000		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$		ft/s	0.0000		
Flow length, L		ft	0		
T = L / (3600*V)		hrs	0.00	=	0.00

TOTAL TIME (hrs) 0.46

28 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: DEV. BASIN 3a

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		LAWN		
Manning's roughness coeff., n		0.0450		
Flow length, L (total < or = 300)	ft	120.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0300		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.13	=	0.13

SHALLOW CONCENTRATED FLOW

Segment ID		2		
Surface (paved or unpaved)?		Unpaved		
Flow length, L	ft	100.0		
Watercourse slope, s	ft/ft	0.0400		
$Avg.V = Csf * (s)^{0.5}$	ft/s	3.2269		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.01	=	0.01

CHANNEL FLOW

Segment ID		3		
Cross Sectional Flow Area, a	sq.ft	4.00		
Wetted perimeter, Pw	ft	24.00		
Hydraulic radius, r = a/Pw	ft	0.167		
Channel slope, s	ft/ft	0.0050		
Manning's roughness coeff., n		0.0160		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	1.9943		
Flow length, L	ft	1150		
T = L / (3600*V)	hrs	0.16	=	0.16

TOTAL TIME (hrs) 0.30

18 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: DEV. BASIN 3b

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		LAWN		
Manning's roughness coeff., n		0.0450		
Flow length, L (total < or = 300)	ft	170.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0350		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.16	=	0.16

SHALLOW CONCENTRATED FLOW

Segment ID		2		
Surface (paved or unpaved)?		Unpaved		
Flow length, L	ft	580.0		
Watercourse slope, s	ft/ft	0.0300		
$Avg.V = Csf * (s)^{0.5}$	ft/s	2.7946		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.06	=	0.06

CHANNEL FLOW

Segment ID				
Cross Sectional Flow Area, a	sq.ft	0.00		
Wetted perimeter, Pw	ft	0.00		
Hydraulic radius, r = a/Pw	ft	0.000		
Channel slope, s	ft/ft	0.0000		
Manning's roughness coeff., n		0.0000		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	0.0000		
Flow length, L	ft	0		
T = L / (3600*V)	hrs	0.00	=	0.00

TOTAL TIME (hrs) 0.22

13 Minutes

SECTION 4
RUNOFF

Quick TR-55 Ver.5.46 S/N:
Executed: 11:37:10 07-26-2000

KNOLLS FILING 4
HISTORIC - SOUTH SIDE (BASIN 2)
7/24/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
H - 2	0.140	23.96	28.00	0.140	0.140	0.570	23.96	1.91

Quick TR-55 Ver.5.46 S/N:
Executed: 11:37:10 07-26-2000

KNOLLS FILING 4
HISTORIC - SOUTH SIDE (BASIN 2)
7/24/00

* * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.4286
Adj. 'C' = Wtd.'C' x 1.4286

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
H - 2	0.140	23.96						
			28.00	0.140	0.200	2.240	23.96	10.73

Quick TR-55 Ver.5.46 S/N:
Executed: 15:34:30 03-24-2003

KNOLLS - BASIN 3A, FILING 6, DEVELOPED
BASIN 3A, NORTH PORTION BASIN 3
3/24/03

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
BASIN 3A	0.290	15.56						
			18.00	0.290	0.290	0.720	15.56	3.25

Quick TR-55 Ver.5.46 S/N:
Executed: 15:34:30 03-24-2003

KNOLLS - BASIN 3A, FILING 6, DEVELOPED
BASIN 3A, NORTH PORTION BASIN 3
3/24/03

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.3103
Adj. 'C' = Wtd.'C' x 1.3103

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
BASIN 3A	0.290	15.56						
			18.00	0.290	0.380	2.850	15.56	16.85

Quick TR-55 Ver.5.46 S/N:
Executed: 15:33:43 03-24-2003

KNOLLS - BASIN 3B, FILING 6, DEVELOPED
BASIN 3B, SOUTH PORTION BASIN 3
3/24/03

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
BASIN 3B	0.290	2.93						
			13.00	0.290	0.290	0.830	2.93	0.71

Quick TR-55 Ver.5.46 S/N:
Executed: 15:33:43 03-24-2003

KNOLLS - BASIN 3B, FILING 6, DEVELOPED
BASIN 3B, SOUTH PORTION BASIN 3
3/24/03

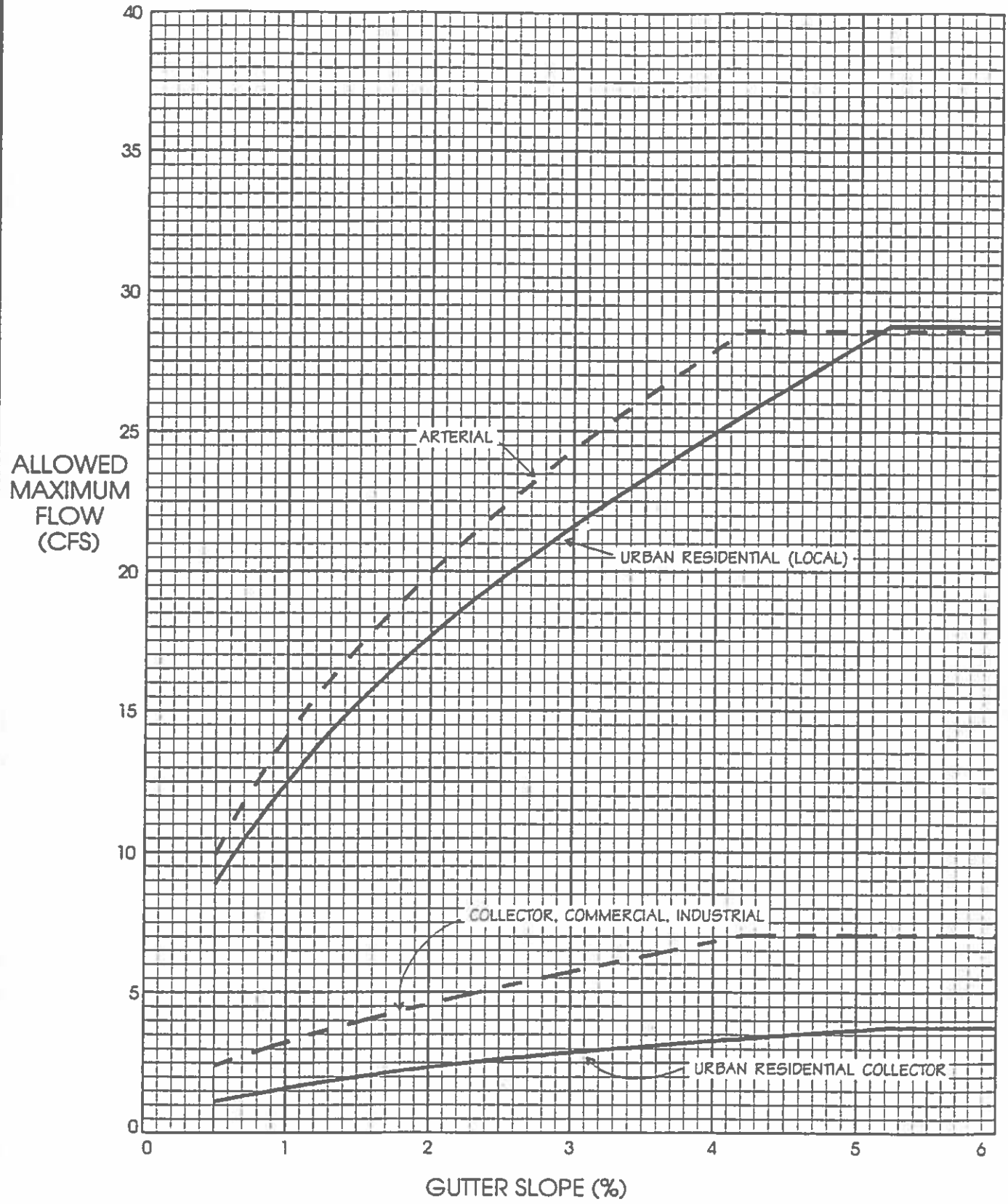
* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.3103
Adj. 'C' = Wtd.'C' x 1.3103

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
BASIN 3B	0.290	2.93						
			13.00	0.290	0.380	3.300	2.93	3.67

SECTION 5
HYDRAULICS



MAXIMUM HALF STREET FLOWS (Sx=2%, n=0.016)
(Based upon Figures G-3 and G-4)

FIGURE "G-5"

KNOLLS #6 - DETENTION OULET
Worksheet for Circular Channel

Project Description	
Project File	c:\haestad\fmw\knolls.fm2
Worksheet	KNOLLS #6 - DETENTION OUTLET
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Discharge

Input Data		
Mannings Coefficient	0.012	
Channel Slope	0.088000	ft/ft
Depth	1.25	ft
Diameter	15.00	in

Results		
Discharge	20.76	cfs
Flow Area	1.23	ft^2
Wetted Perimeter	3.93	ft
Top Width	0.33e-7	ft
Critical Depth	1.25	ft
Percent Full	100.00	
Critical Slope	0.083979	ft/ft
Velocity	16.92	ft/s
Velocity Head	4.45	ft
Specific Energy	5.70	ft
Froude Number	0.49e-3	
Maximum Discharge	22.33	cfs
Full Flow Capacity	20.76	cfs
Full Flow Slope	0.088000	ft/ft
Flow is subcritical.		

Percent Full ..... 85.7143 %

Weir Calculator

Given Input Data:

Weir Type	Triangular
Solving for	Angle
Flowrate	5.0000 cfs
Depth of Flow	36.0000 in
Coefficient	0.5830
Height	42.0000 in

Computed Results:

Angle	14.6557 deg
Full Flow	7.3508 cfs
Velocity	4.3201 fps
Crest length	9.2590 in @ 36" HEIGHT
Area	1.3503 ft2
Perimeter	84.6917 in
Wet Perimeter	72.5929 in
Wet Area	1.1574 ft2
Percent Full	85.7143 %

#Units=Structural Dimensions,in,Flowrate,cfs
#Rating Curve Rating Curve Data
#Depth - in Flowrate - cfs
#------------ -------------

0.00000000,	0.00000000 ← ELEV. 4705.00
1.20000000,	0.00101430
2.40000000,	0.00573774
3.60000000,	0.01581135
4.80000000,	0.03245755
6.00000000,	0.05670101
7.20000000,	0.08944249
8.40000000,	0.13149549
9.60000000,	0.18360763
10.80000000,	0.24647453
12.00000000,	0.32074934 ← 4706.00
13.20000000,	0.40704974
14.40000000,	0.50596315
15.60000000,	0.61805077
16.80000000,	0.74385084
18.00000000,	0.88388124
19.20000000,	1.03864163
20.40000000,	1.20861526
21.60000000,	1.39427048
22.80000000,	1.59606205
24.00000000,	1.81443225 ← 4707.00
25.20000000,	2.04981188
26.40000000,	2.30262105
27.60000000,	2.57327001
28.80000000,	2.86215977
30.00000000,	3.16968270
31.20000000,	3.49622310
32.40000000,	3.84215763
33.60000000,	4.20785578
34.80000000,	4.59368026
36.00000000,	4.99998735 ← 4708.00
37.20000000,	5.42712723
38.40000000,	5.87544431
39.60000000,	6.34527747

POND-2 Version: 5.21
S/N:

KNOLLS SUBDIVISION, FILING 6
DETENTION POND - FINAL
3/26/03

CALCULATED 03-26-2003 16:16:59
DISK FILE: KNOLLS6A.VOL

Planimeter scale: 1 inch = 10 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
4,705.00	0.00	0	0	0	0
4,706.00	41.99	4,199	4,199	1,400	1,400
4,707.00	81.65	8,165	18,219	6,073	7,473
4,708.00	100.67	10,067	27,298	9,099	16,572
4,709.00	121.14	12,114	33,224	11,075	27,647
4,710.00	142.59	14,259	39,516	13,172	40,819

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

****
*
* KNOLLS SUBDIVISION, FILING 6
* DETENTION POND - PROJECT BUILDOUT
* 3/26/03 - FINAL CONFIGURATION
* 2 YEAR STORM
*
****

Inflow Hydrograph: KL3AD2 .HYD
Rating Table file: KNOLLS6A.PND

----INITIAL CONDITIONS----
Elevation = 4705.00 ft
Outflow   =   0.00 cfs
Storage   =   0 cu-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
4705.00	0.0	0
4706.00	0.3	1,400
4707.00	1.8	7,473
4708.00	5.0	16,572
4709.00	9.8	27,647
4710.00	16.0	40,819

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.0	0.0
46.7	47.0
249.1	250.9
552.3	557.3
921.4	931.2
1360.4	1376.4

Time increment (t) = 0.017 hrs.

Pond File: KNOLLS6A.PND
Inflow Hydrograph: KL3AD2 .HYD
Outflow Hydrograph: KNL6PA .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.000	0.00	-----	0.0	0.0	0.00	4705.00
0.017	0.10	0.1	0.1	0.1	0.00	4705.00
0.033	0.19	0.3	0.4	0.4	0.00	4705.01
0.050	0.29	0.5	0.9	0.9	0.01	4705.02
0.067	0.38	0.7	1.5	1.5	0.01	4705.03
0.083	0.48	0.9	2.3	2.4	0.02	4705.05
0.100	0.57	1.1	3.3	3.4	0.02	4705.07
0.117	0.67	1.2	4.5	4.6	0.03	4705.10
0.133	0.76	1.4	5.9	5.9	0.04	4705.13
0.150	0.86	1.6	7.4	7.5	0.05	4705.16
0.167	0.95	1.8	9.1	9.2	0.06	4705.20
0.183	1.05	2.0	10.9	11.1	0.08	4705.24
0.200	1.14	2.2	12.9	13.1	0.09	4705.28
0.217	1.24	2.4	15.1	15.3	0.10	4705.33
0.233	1.33	2.6	17.4	17.7	0.12	4705.38
0.250	1.43	2.8	19.9	20.2	0.14	4705.43
0.267	1.52	3.0	22.5	22.9	0.16	4705.49
0.283	1.62	3.1	25.3	25.7	0.17	4705.55
0.300	1.71	3.3	28.3	28.7	0.20	4705.61
0.317	1.71	3.4	31.3	31.7	0.22	4705.67
0.333	1.71	3.4	34.2	34.7	0.24	4705.74
0.350	1.71	3.4	37.1	37.6	0.26	4705.80
0.367	1.71	3.4	40.0	40.5	0.28	4705.86
0.383	1.71	3.4	42.8	43.4	0.30	4705.92
0.400	1.71	3.4	45.6	46.2	0.31	4705.98
0.417	1.71	3.4	48.4	49.0	0.33	4706.01
0.433	1.71	3.4	51.1	51.8	0.36	4706.02
0.450	1.71	3.4	53.7	54.5	0.37	4706.04
0.467	1.71	3.4	56.4	57.2	0.39	4706.05
0.483	1.71	3.4	59.0	59.8	0.41	4706.06
0.500	1.71	3.4	61.5	62.4	0.43	4706.08
0.517	1.71	3.4	64.0	64.9	0.45	4706.09
0.533	1.71	3.4	66.5	67.5	0.47	4706.10
0.550	1.71	3.4	69.0	69.9	0.49	4706.11
0.567	1.71	3.4	71.4	72.4	0.51	4706.12
0.583	1.71	3.4	73.7	74.8	0.52	4706.14
0.600	1.71	3.4	76.1	77.2	0.54	4706.15
0.617	1.71	3.4	78.4	79.5	0.56	4706.16
0.633	1.71	3.4	80.7	81.8	0.57	4706.17
0.650	1.71	3.4	82.9	84.1	0.59	4706.18
0.667	1.71	3.4	85.1	86.3	0.61	4706.19
0.683	1.71	3.4	87.3	88.5	0.62	4706.20
0.700	1.71	3.4	89.4	90.7	0.64	4706.21
0.717	1.71	3.4	91.5	92.8	0.66	4706.22
0.733	1.71	3.4	93.6	94.9	0.67	4706.24

Pond File: KNOLLS6A.PND
Inflow Hydrograph: KL3AD2 .HYD
Outflow Hydrograph: KNL6PA .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.750	1.71	3.4	95.6	97.0	0.69	4706.25
0.767	1.71	3.4	97.7	99.1	0.70	4706.26
0.783	1.71	3.4	99.7	101.1	0.72	4706.27
0.800	1.71	3.4	101.6	103.1	0.73	4706.28
0.817	1.71	3.4	103.5	105.0	0.74	4706.28
0.833	1.71	3.4	105.5	107.0	0.76	4706.29
0.850	1.71	3.4	107.3	108.9	0.77	4706.30
0.867	1.71	3.4	109.2	110.7	0.79	4706.31
0.884	1.62	3.3	110.9	112.5	0.80	4706.32
0.900	1.52	3.1	112.4	114.0	0.81	4706.33
0.917	1.43	3.0	113.7	115.4	0.82	4706.34
0.934	1.33	2.8	114.8	116.5	0.83	4706.34
0.950	1.24	2.6	115.7	117.4	0.83	4706.35
0.967	1.14	2.4	116.4	118.1	0.84	4706.35
0.984	1.05	2.2	116.9	118.6	0.84	4706.35
1.000	0.95	2.0	117.3	118.9	0.85	4706.35
1.017	0.86	1.8	117.4	119.1	0.85	4706.35
1.034	0.76	1.6	117.3	119.0	0.85	4706.35
1.050	0.67	1.4	117.0	118.7	0.84	4706.35
1.067	0.57	1.2	116.6	118.3	0.84	4706.35
1.084	0.48	1.1	116.0	117.6	0.84	4706.35
1.100	0.38	0.9	115.2	116.8	0.83	4706.34
1.117	0.29	0.7	114.2	115.8	0.82	4706.34
1.134	0.19	0.5	113.0	114.7	0.81	4706.33
1.150	0.10	0.3	111.7	113.3	0.80	4706.33
1.167	0.00	0.1	110.2	111.8	0.79	4706.32

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: KNOLLS6A.PND
Inflow Hydrograph: KL3AD2 .HYD
Outflow Hydrograph: KNL6PA .HYD

Starting Pond W.S. Elevation = 4705.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	1.71 cfs
Peak Outflow	=	0.85 cfs
Peak Elevation	=	4706.35 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	3,547 cu-ft
Total Storage in Pond	=	3,547 cu-ft

****
*
* KNOLLS SUBDIVISION, FILING 6
* DETENTION POND - PROJECT BUILDOUT
* 3/26/03 - FINAL CONFIGURATION
*
* 100 YEAR STORM
*
****

Inflow Hydrograph: KL3AD100.HYD
Rating Table file: KNOLLS6A.PND

----INITIAL CONDITIONS----
Elevation = 4705.00 ft
Outflow   =   0.00 cfs
Storage   =   0 cu-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
4705.00	0.0	0
4706.00	0.3	1,400
4707.00	1.8	7,473
4708.00	5.0	16,572
4709.00	9.8	27,647
4710.00	16.0	40,819

INTERMEDIATE ROUTING COMPUTATIONS

2S/t (cfs)	2S/t + O (cfs)
0.0	0.0
46.7	47.0
249.1	250.9
552.3	557.3
921.4	931.2
1360.4	1376.4

Time increment (t) = 0.017 hrs.

Pond File: KNOLLS6A.PND
Inflow Hydrograph: KL3AD100.HYD
Outflow Hydrograph: KNL6PA .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.000	0.00	-----	0.0	0.0	0.00	4705.00
0.017	0.67	0.7	0.7	0.7	0.00	4705.01
0.033	1.33	2.0	2.6	2.7	0.02	4705.06
0.050	2.00	3.3	5.9	6.0	0.04	4705.13
0.067	2.67	4.7	10.4	10.5	0.07	4705.22
0.083	3.33	6.0	16.2	16.4	0.11	4705.35
0.100	4.00	7.3	23.2	23.5	0.16	4705.50
0.117	4.67	8.7	31.4	31.9	0.22	4705.68
0.133	5.33	10.0	40.9	41.4	0.28	4705.88
0.150	6.00	11.3	51.5	52.2	0.36	4706.03
0.167	6.67	12.7	63.3	64.1	0.45	4706.08
0.183	7.33	14.0	76.2	77.3	0.54	4706.15
0.200	8.00	15.3	90.2	91.5	0.65	4706.22
0.217	8.67	16.7	105.4	106.9	0.76	4706.29
0.233	9.34	18.0	121.6	123.4	0.88	4706.37
0.250	10.00	19.3	138.9	141.0	1.01	4706.46
0.267	10.67	20.7	157.3	159.6	1.14	4706.55
0.283	11.34	22.0	176.8	179.3	1.29	4706.65
0.300	12.00	23.3	197.2	200.1	1.44	4706.75
0.317	12.00	24.0	218.0	221.2	1.59	4706.85
0.333	12.00	24.0	238.5	242.0	1.75	4706.96
0.350	12.00	24.0	258.7	262.5	1.93	4707.04
0.367	12.00	24.0	278.4	282.7	2.14	4707.10
0.383	12.00	24.0	297.7	302.4	2.35	4707.17
0.400	12.00	24.0	316.6	321.7	2.55	4707.23
0.417	12.00	24.0	335.1	340.6	2.74	4707.29
0.433	12.00	24.0	353.2	359.1	2.94	4707.35
0.450	12.00	24.0	371.0	377.2	3.13	4707.41
0.467	12.00	24.0	388.4	395.0	3.31	4707.47
0.483	12.00	24.0	405.4	412.4	3.49	4707.53
0.500	12.00	24.0	422.1	429.4	3.67	4707.58
0.517	12.00	24.0	438.4	446.1	3.84	4707.64
0.533	12.00	24.0	454.3	462.4	4.01	4707.69
0.550	12.00	24.0	470.0	478.3	4.18	4707.74
0.567	11.34	23.3	484.7	493.3	4.33	4707.79
0.583	10.67	22.0	497.7	506.7	4.47	4707.83
0.600	10.00	20.7	509.2	518.4	4.60	4707.87
0.617	9.34	19.3	519.1	528.5	4.70	4707.91
0.633	8.67	18.0	527.6	537.2	4.79	4707.93
0.650	8.00	16.7	534.5	544.2	4.86	4707.96
0.667	7.33	15.3	540.0	549.8	4.92	4707.98
0.683	6.67	14.0	544.1	554.0	4.97	4707.99
0.700	6.00	12.7	546.8	556.7	4.99	4708.00
0.717	5.33	11.3	548.1	558.1	5.01	4708.00
0.733	4.67	10.0	548.0	558.1	5.01	4708.00

Pond File: KNOLLS6A.PND
Inflow Hydrograph: KL3AD100.HYD
Outflow Hydrograph: KNL6PA .HYD

INFLOW HYDROGRAPH

TIME (hrs)	INFLOW (cfs)
0.750	4.00
0.767	3.33
0.783	2.67
0.800	2.00
0.817	1.33
0.833	0.67
0.850	0.00

ROUTING COMPUTATIONS

I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
8.7	546.7	556.7	4.99	4708.00
7.3	544.1	554.1	4.97	4707.99
6.0	540.3	550.1	4.93	4707.98
4.7	535.2	544.9	4.87	4707.96
3.3	528.9	538.5	4.80	4707.94
2.0	521.5	530.9	4.73	4707.91
0.7	512.9	522.1	4.63	4707.89

********** SUMMARY OF ROUTING COMPUTATIONS **********

Pond File: KNOLLS6A.PND
Inflow Hydrograph: KL3AD100.HYD
Outflow Hydrograph: KNL6PA .HYD

Starting Pond W.S. Elevation = 4705.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	12.00 cfs
Peak Outflow	=	5.01 cfs
Peak Elevation	=	4708.00 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	16,594 cu-ft
Total Storage in Pond	=	16,594 cu-ft

WESTERN
COLORADO
TESTING,
INC.

GEOTECHNICAL EXPLORATION FOR THE KNOLLS SUBDIVISION IN GRAND JUNCTION, COLORADO

Prepared For:

Banner Associates. Inc.
2777 Crossroads Blvd.
Grand Junction, Colorado 81506

Prepared by:

Western Colorado Testing, Inc.
529 25 1/2 Road, Suite B101
Grand Junction, Colorado 81505
(970) 241-7700

April 26, 2000
Job No. 205500

TABLE OF CONTENTS

INTRODUCTION

This report presents the results of the geotechnical exploration performed for the Knolls Subdivision near the southeast corner of the intersection of 27½ Road and Cortland Road located in Grand Junction, Colorado. This exploration was authorized by Mr. David Chase with Banner Associates, Inc.

Included in this exploration were test borings, laboratory testing, and a report of our conclusions and recommendations. The scope of our report was limited to the following:

- Evaluating the engineering properties of the subsoils encountered.
- Recommending types and depths of foundation elements.
- Evaluating soil bearing capacity and estimated settlement.
- Presenting pavement design sections.
- Presenting recommendations for earthwork and soils related construction with respect to the subsoils encountered.

This report was prepared by the firm of Western Colorado Testing, Inc. (WCT) under the supervision of a professional engineer registered in the state of Colorado. Recommendations are based on the applicable standards of the profession at the time of this report within this geographic area. This report has been prepared for the exclusive use of Banner Associates, Inc. and the owner, for the specific application to the proposed project in accordance with generally accepted geotechnical engineering practices.

The scope of this exploration did not include any environmental assessment for the presence of hazardous or toxic materials in the soil or groundwater on or near this site. If contamination is a concern, it is recommended an environmental assessment be performed.

SITE CONDITIONS

The site slopes from the north property line toward the south. The maximum relief across the site is approximately 40 feet. The major topographic feature on the site is an irrigation canal in the southern portion of the site. A house is located on a knoll just south of TH-9 as shown on Figure 1. A foundation of a partially demolished house is present just to the northwest of TH-9. Most of the site is barren or covered with small vegetation. Only a few trees are present across the site. The only utilities noticed were those servicing the house and a concrete lined irrigation ditch crossing the site in an east-west direction.

The site is bordered by existing residential developments to the north, east, and south. The site is bounded by 27½ Road to the west.

PROPOSED CONSTRUCTION

The proposed construction will include 20 townhouses in the northwest corner of the site as shown on Figure 1. In addition to the townhouses, the site will be developed with 52 single family lots. We anticipate the townhouses and single family houses will be one or two story frame structures with attached garages.

Entrance to the site will be off 27½ Road near the southwest corner of the site and from an existing subdivision along the north property line. Several cul-de-sacs are planned as shown in Figure 1.

FIELD EXPLORATION

The field exploration was conducted on April 19, 2000. The exploratory program consisted of 15 test borings as shown on the Boring Location Plan (Appendix, Figures 2 through 16). The test hole locations were selected by Western Colorado Testing, Inc. and were located in the field by pacing distances from landmarks shown on the location plan. Test holes were drilled to depths of 7.0 to 21.0 feet with a 6 inch diameter, truck mounted auger. Soil samples were obtained at the sampling intervals shown on the Boring Logs (Appendix, Figures 2 through 16). Recovered samples were sealed in brass containers and the bulk samples were collected in cloth bags and transported to the laboratory for testing. Stratification lines shown on the logs represent the approximate boundary between soil types. The transition may be gradual.

LABORATORY TESTING

The field boring logs were reviewed to outline the depths, thicknesses, and extent of the soil strata. A testing program was established to evaluate the engineering properties of the recovered samples. Specific tests that were performed include swell/consolidations, unit weights, and moisture contents. These tests were performed in general accordance with current ASTM or state-of-the-art test procedures. Two R-value tests were also performed. The R-value tests were determined according to the Colorado Department of Transportation (CDOT) procedures, which is a modification to ASTM D-2844. The test results are presented on the boring logs and Figures 17 through 22.

Based on the results of this testing program, the field logs were reviewed and supplemented as presented in the Appendix, Figures 2 through 16. These final logs represent our interpretation of the field logs, and reflect the additional information gained in the laboratory testing program.

SUBSURFACE CONDITIONS

Topsoil was encountered at the ground surface in each test hole. Brown silty clay to clayey silt virgin soil was generally encountered below the topsoil and typically extended down to grey shale. The test holes were terminated upon encountering hard shale.

The topsoil is not suitable for support of the proposed construction and will have to be stripped from all areas to receive fill, and stockpiled for use during the final grading operations. The shallow virgin soils have stiff to hard consistencies based upon the Standard Penetration Tests and should provide adequate support for the proposed structures on footing foundations.

Ground water was encountered at the depths shown on the Test Hole Logs. Two piezometers were installed to monitor the ground water elevation in low lying areas. It should be noted that the ground water elevation is subject to fluctuations due to seasonal, climatic, and irrigation changes. However, we do not anticipate ground water problems during development of the site. If basements are constructed, perimeter drain systems and sump basins with pumps should be utilized to remove any water which may accumulate near the floor slab elevation.

CONCLUSIONS AND RECOMMENDATIONS

FOUNDATIONS

Based on the subsurface conditions encountered and the nature of the proposed construction, we recommend the residential structures be founded on footings bearing on the native soils. The clays encountered in the test borings are generally non-swelling to having very low swell potential at their present moisture content. They may be moderately collapsible if water is introduced;

Therefore, proper grading techniques around the perimeter of the houses are mandatory.

The following design and construction details should be observed for spread footing foundation systems.

- Footings placed on new structural fill should be designed for a maximum allowable soil bearing pressure of 2,000 pounds per square foot. All footings should be proportioned as much as practicable to minimize differential settlement.

- Due to the minor collapse potential of the upper soils, it is recommended the surface of the bearing soils below the footings be moisture conditioned and compacted to a minimum 95% of ASTM D-698 prior to placement of structural fill. Moisture contents should be maintained until covered.

- We estimate total settlement for footings designed and constructed as discussed in this section will be approximately one inch or less, and differential settlement will be one-half inch or less. These values are within generally accepted tolerances.

- Exterior footings and footings in unheated areas should extend to below the frost depth. The local building codes should be consulted, however we would recommend a minimum depth of 24 inches.

- Continuous foundation walls should be reinforced top and bottom to span an unsupported length of at least twelve (12) feet. A sulfate resistant concrete (Type I-II) should be used for all concrete exposed to the on-site soils.

- All loose or disturbed material encountered at the foundation bearing level should be removed and replaced with structural fill.

- A representative of the geotechnical engineer should observe all foundation excavations prior to the placement of fill and/or concrete, and during placement of fill.

LATERAL PRESSURES

Basement walls should be designed to withstand earth pressures caused by the dead weight of the soil backfill and any surcharge loads. We recommend that the basement walls be designed for an equivalent pressure based upon a fluid density of 45 pounds per cubic foot (pcf). This assumes the backfill will be a silty clay or clayey silt placed and compacted in thin lifts. Under no circumstances should the backfill be compacted by jetting. Jetting of the backfill causes increased hydrostatic pressures on the foundations which may result in cracking of the walls. The foundation walls should be either braced or the subfloor should be in place prior to the backfilling.

FLOOR SLABS

The natural soils, exclusive of topsoil, are suitable for support of slab-on-grade construction. However, the clayey soils have a moderate plasticity and if moisture contents are allowed to fluctuate, the clays may undergo some shrink-swell movement. The only way to prevent damage as a result of slab movement is to construct a structural floor above a well ventilated crawl space.

Slab-on-grade construction may be used, provided the risk of distress resulting from floor slab movement is accepted by the owner. The following construction details will help mitigate slab movement and should be observed for slab-on-grade construction.

- Floor slabs should be separated from all bearing walls, columns and utility lines with an expansion joint, which allows unrestrained vertical movement.

- The floor slabs should be provided with control joints to reduce damage due to shrinkage cracking. It is recommended control joints be spaced at 12 feet on center or less.

- The top 8 to 12 inches of subgrade soils should be moisture conditioned to (±)2% of optimum and recompacted to minimum 95% of ASTM D-698. The moisture content should be maintained until the slabs are placed.

- The risk of slab movement can be reduced by removing all soil encountered within 2 feet below the slabs and replacing it with structural fill.

- If slabs will have a moisture sensitive covering such as tile, a moisture barrier or capillary relief may be required. Heavy gauge polyethylene sheeting can be used with a 4 inch layer of sand between the slab and sheeting. The sand will mitigate the risk of floor slab curling due to differential curing. An alternate method would be to use a minimum 6 inch layer of gravel below the slab. If used, the gravel should consist of minus 2 inch aggregate with less than 20% passing the No. 4 sieve and less than 5% passing the No. 200 sieve.

- All fill placed below the slabs should consist of non-expansive material compacted to at least 95 percent of the maximum standard Proctor density at a moisture content (±)2% of optimum.

SLOPES

We recommend a maximum finish slope inclination of 3 horizontal to 1 vertical (3:1), including in the detention basins. After construction of the slopes is completed, the finish surface should be seeded and strawed or sodded, or an erosion-control fabric

should be placed on the slopes, to minimize surface erosion of the slopes.

SURFACE DRAINAGE AND LANDSCAPING

The success of shallow foundation and slab-on-grade floor systems is contingent upon keeping the subgrade soils at a more or less constant moisture content, and by not allowing surface drainage a path to the subsurface. Positive surface drainage away from structures must be maintained at all times. Landscaped areas should be designed and built such that irrigation and other surface water will be collected and carried away from foundation elements. The final grade of the foundation's backfill and any overlying concrete slabs or sidewalks should have a positive slope away from foundation walls on all sides. We recommend a minimum slope of 8 inches in the first 10 feet; however, the slope can be decreased to 3 inches in 10 feet if the ground surface adjacent to foundations is covered with concrete slabs or sidewalks.

Backfill material should be placed near optimum moisture content and compacted to at least 90% of maximum standard Proctor density in landscaped areas and to at least 95% maximum standard Proctor density beneath structural areas (sidewalks, patios, driveways, etc.). All roof downspouts and faucets should discharge well beyond the limits of all backfill. Irrigation within ten (10) feet of foundations should be carefully controlled and minimized.

STREET PAVEMENTS

The conclusions and recommendations discussed are based upon the subsurface conditions encountered in the test borings, the surrounding conditions and on information provided us. The pavement sections were designed based on the anticipated traffic and number of lots.

The pavement section thickness needed at the site is dependent mainly on the subgrade conditions and the traffic loadings. The pavement subgrade soils are indicated to be silty clays. The

clayey soils were tested for Atterberg limits and the results used to classify the soil using both the Unified and AASHTO classification systems. The soil was then tested to determine the R-Value according to the Colorado Department of Transportation procedure, which is a modification to ASTM D-2844.

An R-Value test was performed on the subsurface soils from Test Hole 5 at 2 - 4 feet. The R-Value test had a result of 60. A second R-Value test was performed in TH-12 at a depth of 2 - 4 feet. The results of this test were 16. Based on the test results, design manual procedures, freeze/thaw conditions and experience with similar projects, the following pavement section alternatives are indicated:

PAVEMENT ALTERNATIVE SECTIONS

Pavement Locations	Design Criteria				Alternative	Pavement Section-Inches				
	R-value	EDLA	RF	WSN		HBP	ABC	ASC	RP	Total
Laurel Drive and Willow Glen Drive	16 - 60	25.1	2.0	2.7	A	6				6
					B	3	8			11
					C	4	4			8
					D				5.5	5.5
					E					
Buttonwood Way Buttonwood Court Willowcroft Court	16 - 60	7.7	2.0	2.3	A	5.5				5.5
					B	3	6			9
					C	4	4			8
					D				5	5
					E					

R-value - CDOT Procedure
EDLA - Equivalent Daily Load Application
RF - Regional Factor
WSN - Weighted Structural Number

HBP - Hot Bituminous Pavement
ABC - Aggregate Base Course (Class 6)
ASC - Aggregate Subbase Course (Class 3)
RP - Rigid Pavement (Concrete)

Aggregate base course material should conform with Class 6 (minus ¾ inch) specifications of the Colorado Department of Transportation (CDOT) and be compacted to a minimum 95% of AASHTO T-180 at (±)2% of optimum moisture content. The aggregate subbase course material should conform with Class 3 CDOT specifications with a maximum 6" size, and be compacted to a minimum 95% of AASHTO T-180 at (±)2% of optimum moisture content.

Hot bituminous pavement (HBP) material should conform with CDOT Grading "C" or "CX" specifications and consist of an approved mix design giving the mix physical properties, job mix tolerances, and recommended mixing and placement temperatures. Hot bituminous pavement should be compacted to a minimum 95% of Marshall density, ASTM D-1559 or if a CDOT Hveem method is used, to 92 to 96% of maximum theoretical density. With a Hveem mix, an end point stress of 50 psi should be used.

The degree of compaction, uniformity, and the stability of the subgrade directly affect pavement performance. It is recommended that the top 6 to 8 inches of the subgrade be compacted to a minimum 95% of the maximum dry density as determined by ASTM D-698 "Standard Proctor Moisture-Density Relationship". The moisture content should also be controlled to between (-)2% and (+)3% of optimum. The final subgrade should be proofrolled immediately prior to placement of the subbase or base course materials to detect any localized areas of instability. Unstable areas should be reworked to provide a uniform subgrade. Additional stabilizing materials may be needed for these areas.

Positive drainage should be provided during construction and maintained throughout the life of the pavement. Adequate drainage is essential for continuing performance.

GENERAL

In the event that any changes in the nature, design, or location of the roadway or site layout are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analysis and recommendations submitted in this report are based in part upon the data obtained from the test holes. The nature and extent of variation between the test holes may not become evident until construction. If variations then appear, it will be necessary to reevaluate the recommendations in this report.

It is recommended that the geotechnical engineer be provided the opportunity for general review of the final designs and specifications in order that earthwork and pavement recommendations may be properly interpreted and implemented in the designs and specifications. It is also recommended that the geotechnical engineer be retained to provide continuous engineering services, and facilitate materials testing and inspection during construction of the pavement, and earthwork phases of the work. This is to observe compliance with the design concepts, specifications, or recommendations and to modify these recommendations in the event that subsurface conditions differ from those anticipated.

Respectfully Submitted:
WESTERN COLORADO TESTING, INC.

Wm. Daniel Smith

Wm. Daniel Smith, P.E.
Senior Geotechnical Engineer

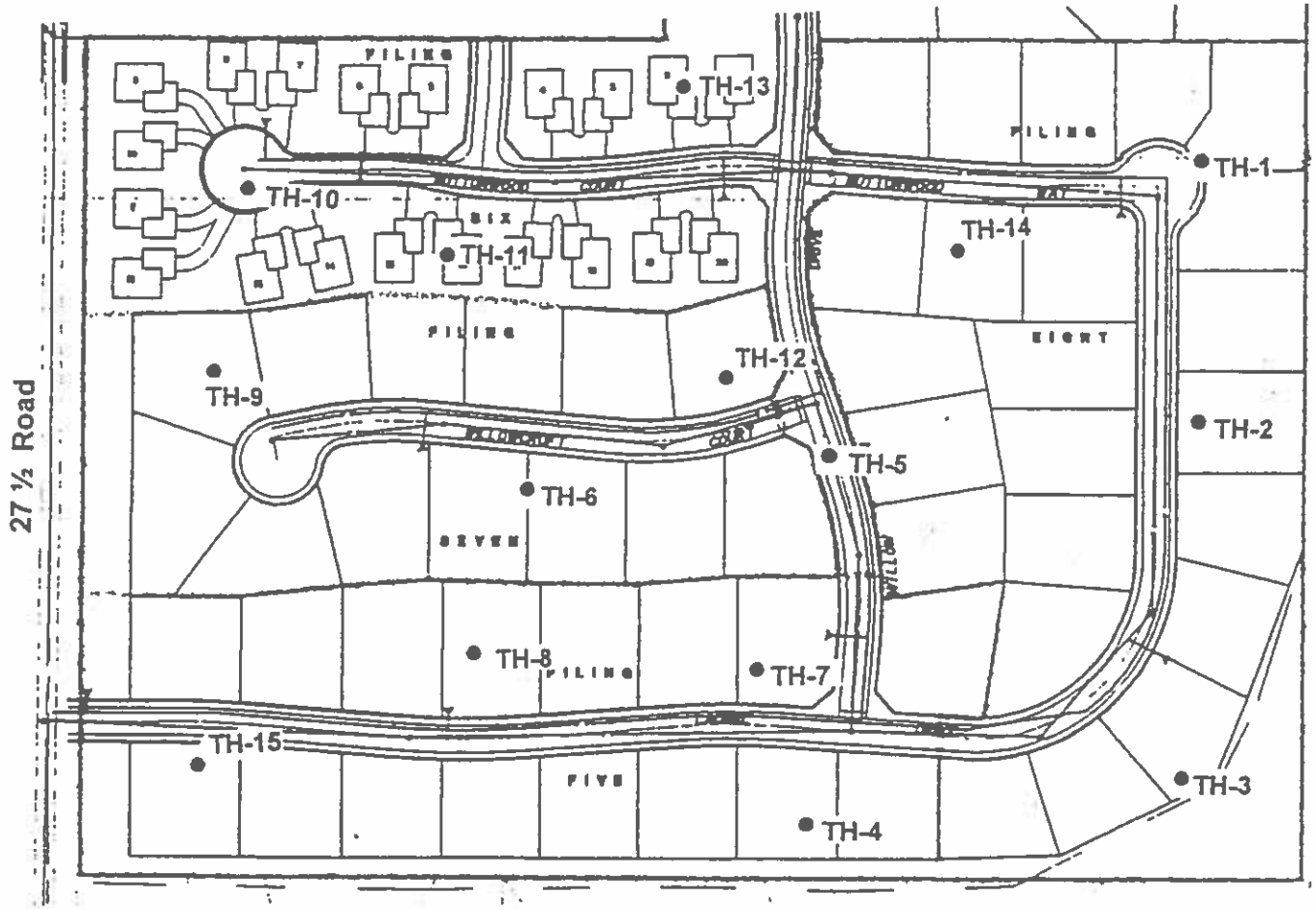
WDS/mh
Msb:\jobs\2055rep

APPENDIX

WESTERN COLORADO TESTING, INC.

Job No.	205500
Project:	The Knolls Subdivision, Filings 5-8
Location:	Grand Junction, Colorado
Date:	4/20/00

BORING LOCATION PLAN*



Scale: 1" = 200'

200 100 0 100 200 300
FEET

● WCT Test Bore Location

* Modified by Western Colorado Testing, Inc.

Figure 1

Project: The Knolls Subdivision, Filings 5-8

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-1	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Slope south, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
17.5'	17.5'	N/A		6" Continuous Flight Auger	21.0

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Clay, silty, organics					0
						hard	Clay, silty, sl sandy (very fine grained)					
4	C-1	59	100					8.5	131.6			4
					moist	very stiff	Clay, silty, calcareous					
	SP-1	17	100									
8												8
						loose	Sand (fine to medium grained), sl clayey, sl silty					
	SP-2	10	100									
12												12
				gray & brown	moist to very moist	medium stiff	Clay, gravelly, shale fragments, occasional cobbles					
	SP-3	8	100									
16												16
					wet							
				gray	moist	hard	Shale (silty)					
20	SP-4	56	100									20
							B.O.H. at 21.0'					
24												24

FIGURE 2

Project: The Knolls Subdivision, Filings 3-6

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-2	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Slope, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	10.8'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Clay, silty, trace organics					0
						very stiff	Clay, silty					
4	SP-1	26	100					11.2				4
	SP-2	32	100	gray		weathered	Shale (silty)					
8												8
	SP-3	50-9"	100			hard						
							B.O.H. at 10.8'					
12												12
16												16
20												20
24												24

FIGURE 3

Project: The Knolls Subdivision, Filings 5-8

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-3	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, low brush & weeds	CME 75
WHILE DRILLING	END OF DRILLING	8 DAYS AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	None		6" Continuous Flight Auger	16.0'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Clay, silty, organics					0
						stiff	Clay, very silty					
					moist							
4	C-1	9	100					17.3	106.1			4
					very moist	soft	Clay, sl sandy (fine to coarse grained)					
	SP-1	4	100									
8					wet							8
						medium stiff	Clay, sl sandy (fine to coarse grained), sl gravelly, gypsum					
	SP-2	5	100									
12												12
				gray		hard	Shale (silty)					
	SP-3	56	100									
16							B.O.H. at 16.0'					16
20												20
24												24

FIGURE 4

Project: The Knolls Subdivision, Filings 2 & 3

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-4	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Slope south, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	7.0'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	≈ REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	≈ MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Clay, silty, farce gravel, trace organics					0
					dry	stiff	Clay, silty					
4	SP-1	15	100					9.1				4
	SP-2	49	100	gray		firm	Shale (silty)					
8						hard	B.O.H. at 7.0'					8
12												12
16												16
20												20
24												24

FIGURE 5

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-5	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Slope, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	16.0'

DEPTH FT.	SAMPLE DATA: SAMPLE NO. & TYPE	SAMPLE DATA: "N" BLOWS FT	SAMPLE DATA: ≈ REC	SOIL DESCRIPTION: COLOR	SOIL DESCRIPTION: MOIST	SOIL DESCRIPTION: CONS.	SOIL DESCRIPTION: GEOLOGIC DESCRIPTION & OTHER REMARKS	LABORATORY DATA: ≈ MC	LABORATORY DATA: DRY DENS pcf	LABORATORY DATA: qu tsf	LABORATORY DATA: CLASS	DEPTH FT
0				brown	dry	medium stiff	Clay, silty, sl gravelly, trace organics					0
					sl moist	stiff	Clay, silty, gravelly					
	B-1											
4												4
					moist		Clay, silty					
	SP-1	13	100					12.7				
8												8
							Clay, sandy (fine grained), sl silty					
	SP-2	14	100									
					very moist							
12					wet							12
				gray/brown		hard	Shale (silty)					
	SP-3	54	100									
16							B.O.H. at 16.0'					16
20												20
24												24

FIGURE 6

Project: The Knolls Subdivision, Filings 5-8

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-6	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	21.0'

DEPTH FT.	SAMPLE DATA: SAMPLE NO. & TYPE	SAMPLE DATA: "N" BLOWS FT	SAMPLE DATA: ≈ REC	SOIL DESCRIPTION: COLOR	SOIL DESCRIPTION: MOIST	SOIL DESCRIPTION: CONS.	SOIL DESCRIPTION: GEOLOGIC DESCRIPTION & OTHER REMARKS	LABORATORY DATA: ≈ MC	LABORATORY DATA: DRY DENS pcf	LABORATORY DATA: qu tsf	LABORATORY DATA: CLASS	DEPTH FT
0				brown	sl moist	medium stiff	Clay, silty, trace gravel, trace organics					0
						hard stiff	Clay, silty, sl sandy (very fine to fine grained)					
	C-1	42	100					9.8	122.5			
4						dense	Sand (fine to coarse grained), sl clayey					4
	SP-1	38	100									
8												8
	SP-2	12	100									
12												12
					wet							
	SP-3	13	100									
16				gray		hard	Shale (silty)					16
20	SP-4	51	100									20
							B.O.H. at 21.0'					
24												24

FIGURE 7

Project: The Knolls Subdivision, Filings 5-8

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-7	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	21.0'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Clay, silty, trace gravel, trace organics					0
						hard	Clay, silty					
4	SP-1	44	100									4
						dense	Sand (fine to coarse grained), sl gravelly, sl clayey					
	C-1	43	100					7.3	107.3			
8					moist	stiff	Clay, silty					8
	SP-2	15	100									
12												12
	SP-3	17	100		moist to very moist		Clay, sandy (fine to medium grained)					
16												16
					sl moist	medium hard	Shale (silty)					
20	SP-4	42	100									20
							B.O.H. at 21.0'					
24												24

FIGURE 8

Project: The Knolls Subdivision, Filings 5-8

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-8	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, gravel driveway	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	16.0'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	dry	medium stiff	Clay, silty gravelly					0
					sl moist	medium dense	Sand (fine to coarse grained), gravelly					
4	SP-1	12	100									4
	C-1	21	100					7.1	113.5			
8												8
	SP-2	23	100									
12				gray		hard	Shale (silty)					12
	SP-3	50	100									
16							B.O.H. at 16.0'					16
20												20
24												24

FIGURE 9

Project: The Knolls Subdivision, Filings 5-8

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-9	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Slight slope, weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	15.8'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Clay, silty, trace gravel, organics					0
						hard	Clay, silty					
	SP-1	38	100					10.9				
4						medium dense	Sand (fine to coarse grained), sl gravelly					4
	SP-2	15	100		moist	medium stiff	Clay, silty, sl sandy (very fine to fine grained)					
8												8
	SP-3	7	100		very moist							
							Clay, silty, sl sandy (fine to coarse grained)					
12												12
					wet	medium dense	Sand (fine to coarse grained), gravelly					
				gray	sl moist	hard	Shale (silty)					
	SP-4	50-9"	100									
16							B.O.H. at 15.8'					16
20												20
24												24

FIGURE 10

Project: The Knolls Subdivision, Filings 3-5

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-10	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	16.0'

DEPTH FT.	SAMPLE DATA: SAMPLE NO. & TYPE	"N" BLOWS FT	≈ REC	SOIL DESCRIPTION: COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	LABORATORY DATA: ≈ MC	DRY DENS pcf	qu tsf	CLASS	DEPTH FT
0				brown	dry to sl moist	medium stiff	Clay, very silty, organics					0
					dry	hard	Clay, silty					
4	C-1	46	100					10.9	105.1			4
					dry to sl moist	dense	Sand (fine to coarse grained), gravelly					
8	SP-1	47	100									8
					moist	stiff	Clay, silty, sl sandy (very fine to medium grained)					
12	SP-2	14	100									12
				gray		hard	Shale (silty)					
16	SP-3	54	100				B.O.H. at 11.0'					16
20												20
24												24

FIGURE 11

Project: [illegible]

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-11	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	20.7'

DEPTH FT.	SAMPLE DATA: SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	SOIL DESCRIPTION: COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	LABORATORY DATA: % MC	DRY DENS pcf	qu tsf	CLASS	DEPTH FT
0				brown	sl moist	dense	Sand (very fine grained), silty, sl clayey					0
					dry	hard	Clay, silty					
4	SP-1	42	100					12.3				4
	SP-2	24	100									
8					sl moist		Clay, silty, sl sandy (fine grained), sl gravelly					8
	SP-3	29	100									
						dense	Sand (fine grained), clayey, sl gravelly					
12												12
						stiff	Clay, sandy (fine grained), sl gravelly					
	SP-4	9	100		wet							
16												16
20	SP-5	50-8"	100	gray	sl moist	hard	Shale (silty)					20
							B.O.H. at 20.7'					
24												24

FIGURE 12

Project: [illegible]

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-12	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	20.0'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	≈ REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	≈ MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Sand (very fine grained), silty, sl clayey					0
4	B-1				dry	hard	Clay, silty					4
					moist							
	SP-1	28	100					8.6				
8												8
	SP-2	22	100				Clay, silty, sandy (very fine grained)					
12												12
	SP-3	9	100			medium stiff						
16					wet							16
				gray	sl moist	hard	Shale (silty)					
20	SP-4	50-6"	100									20
							B.O.H. at 20.5'					
24												24

FIGURE 13

Project: [illegible]

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-13	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	20.7'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	≈ MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium dense	Sand (very fine grained), silty, sl clayey					0
4	C-1	50-10	100		dry	hard	Clay, silty	13.4	104.9			4
					sl moist							
	SP-1	34	100									
8						medium stiff	Clay, silty, sandy (fine grained), sl gravelly					8
	SP-2	10	100		moist to very moist	loose	Sand (fine to medium grained), silty, sl clayey					
12						very stiff	Clay, silty, snady (fine grained)					12
16	SP-3	22	100									16
20	SP-4	50-8"	100	gray	sl moist	hard	Shale (silty)					20
							B.O.H. at 20.7'					
24												24

FIGURE 14

Project: [illegible]

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-14	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	N/A		6" Continuous Flight Auger	20.6'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium dense	Sand (very fine grained), silty, clayey, trace organics					0
					dry	stiff	Clay, silty					
4	SP-1	15	100					9.8				4
	SP-2	19	100		moist		Clay, silty, sandy (fine grained)					
8												8
	SP-3	18	100			medium dense	Sand (fine to coarse grained), clayey, gravelly					
12						very stiff	Clay, silty, trace fine sand					12
16	SP-4	24	100									16
20	SP-5	50-7"	100	gray		hard	Shale (silty)					20
							B.O.H. at 20.6'					
24												24

FIGURE 15

Project: The Knolls Subdivision, Filing 3-C

Location: Grand Junction, Colorado

Job No.: 205500 Date: 4/27/2000

BORING LOG

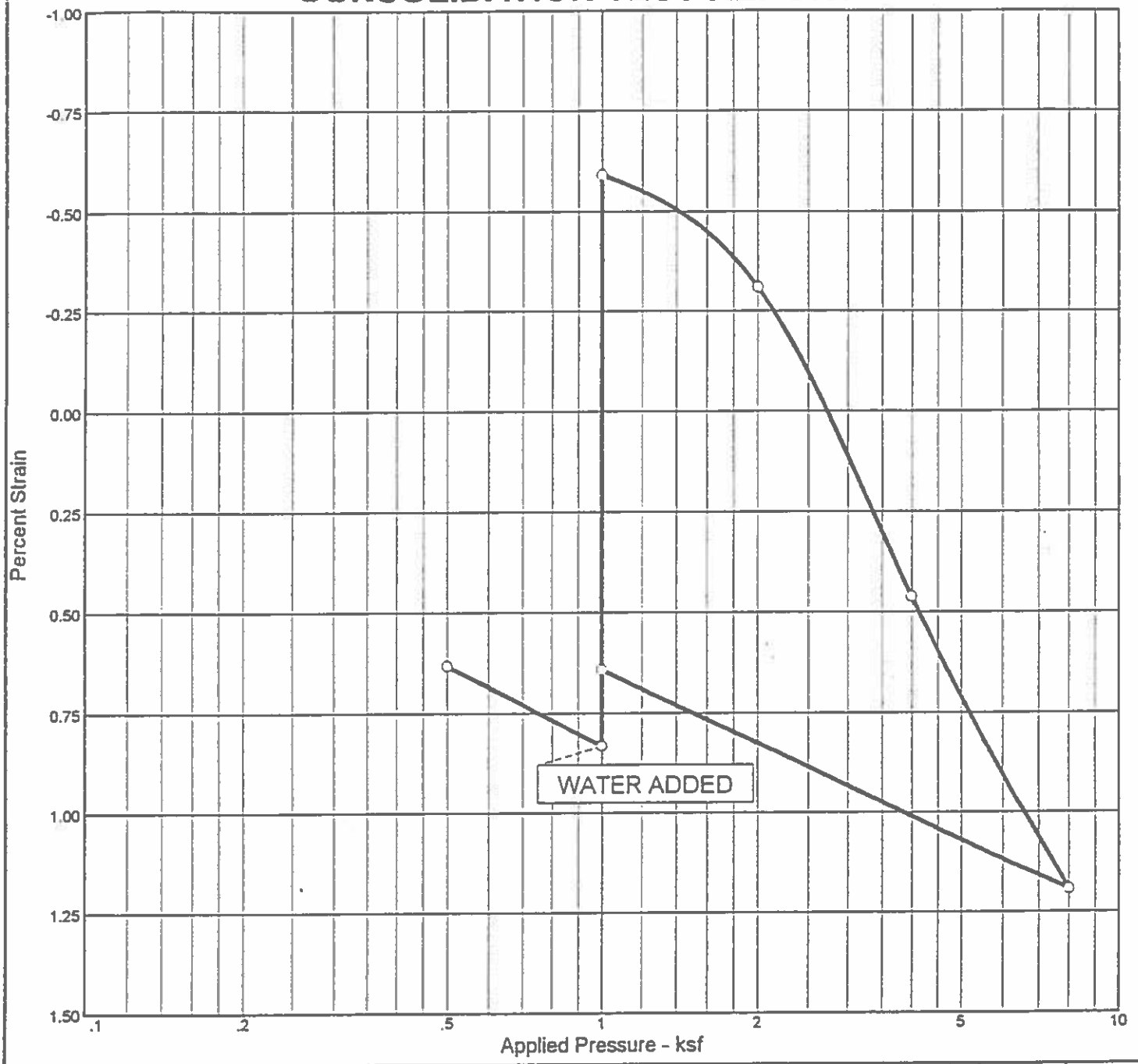
DRILL HOLE	LOCATION OF DRILL HOLE	DATE DRILLED	ELEVATION	DATUM	DRILLER	LOGGER
TH-15	See Boring Location Plan	4-19-00	----	----	D.A. Smith	J. Huddleston

WATER LEVEL OBSERVATIONS				TYPE OF SURFACE	DRILL RIG
				Flat, sparse weeds	CME 75
WHILE DRILLING	END OF DRILLING	8 DAYS AFTER DRILLING		DRILLING METHOD	TOTAL DEPTH
None	None	7.0'		6" Continuous Flight Auger	10.0'

DEPTH FT.	SAMPLE DATA			SOIL DESCRIPTION				LABORATORY DATA				DEPTH FT
	SAMPLE NO. & TYPE	"N" BLOWS FT	% REC	COLOR	MOIST	CONS.	GEOLOGIC DESCRIPTION & OTHER REMARKS	% MC	DRY DENS pcf	qu tsf	CLASS	
0				brown	sl moist	medium stiff	Clay, silty, trace organics					0
					moist	loose	Sand (very fine to fine grained), silty, clayey					
					wet	very loose						
4	SP-1	2	100					20.8				4
	SP-2	0	100									
8				gray	sl moist	hard	Shale (silty)					8
							B.O.H. at 10.0'					
12												12
16												16
20												20
24												24

FIGURE 16

CONSOLIDATION TEST REPORT



Natural		Dry Dens.	LL	PI	Sp.	Overburden	P_c	C_c	C_s	Swell Press.	Swell	e_o
Sat.	Moist.	(pcf)			Gr.	(ksf)	(ksf)			(ksf)	%	
87.5 %	8.5 %	131.6			2.65	2.00	1.60	0.03	0.01	4.64	1.4	0.257

MATERIAL DESCRIPTION	USCS	AASHTO
Clay, silty, sl sandy, brown		

Project No. 205500 **Client:** Banner & Associates

Project: The Knolls Subdivision, Filings 5-8

Location: TH-1

Remarks:

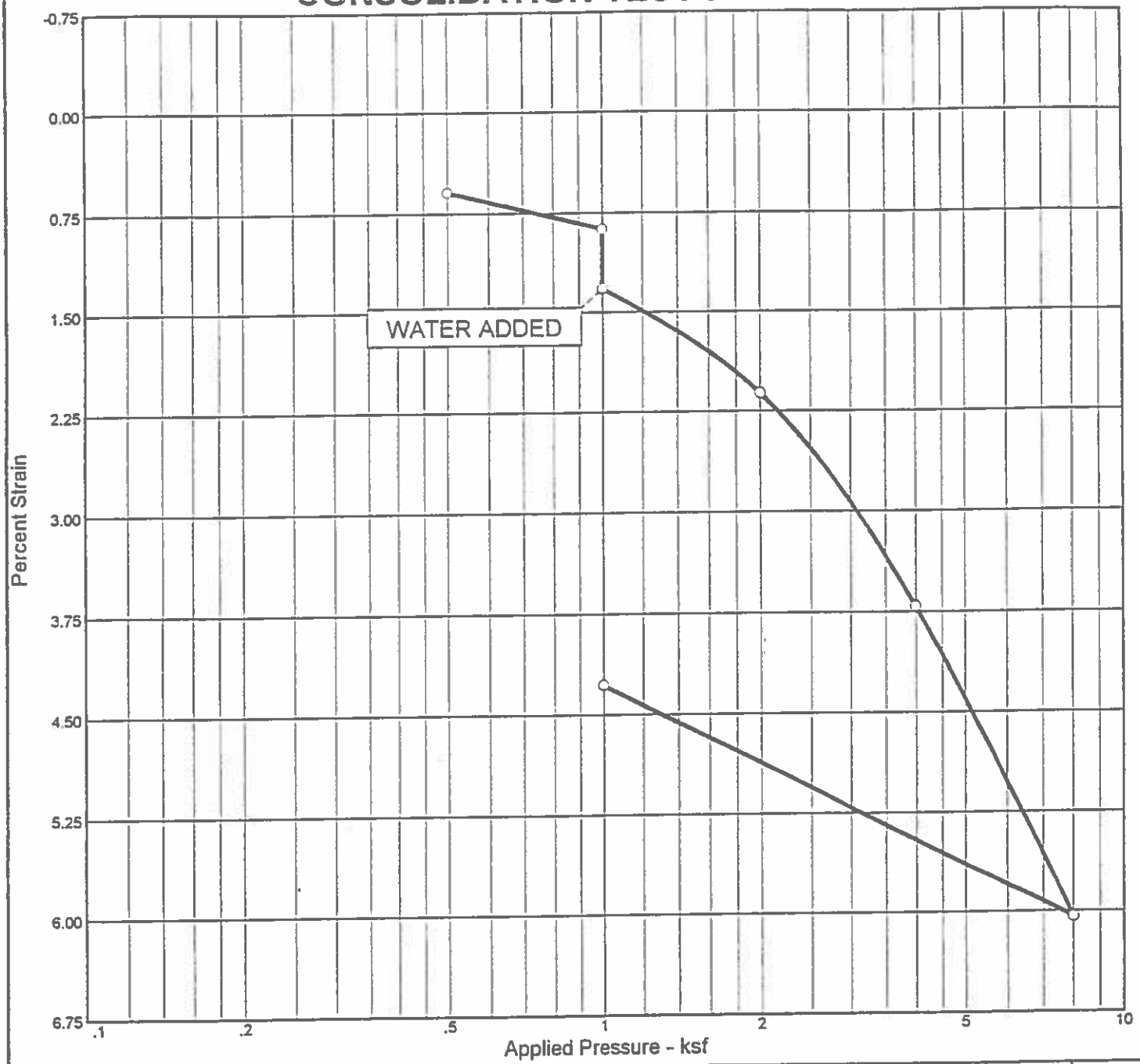
Tested By: RC, JCH

CONSOLIDATION TEST REPORT

WESTERN COLORADO TESTING, INC.

Figure 17

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_s	Swell Press. (ksf)	Clpse. %	e_o
Sat.	Moist.											
82.0 %	17.3 %	106.1			2.65	2.00	2.77	0.12	0.03		0.4	0.559

MATERIAL DESCRIPTION	USCS	AASHTO
Clay, very silty, brown		

Project No. 205500 Client: Banner & Associates

Project: The Knolls Subdivision, Filings 5-8

Location: TH-3

Remarks:

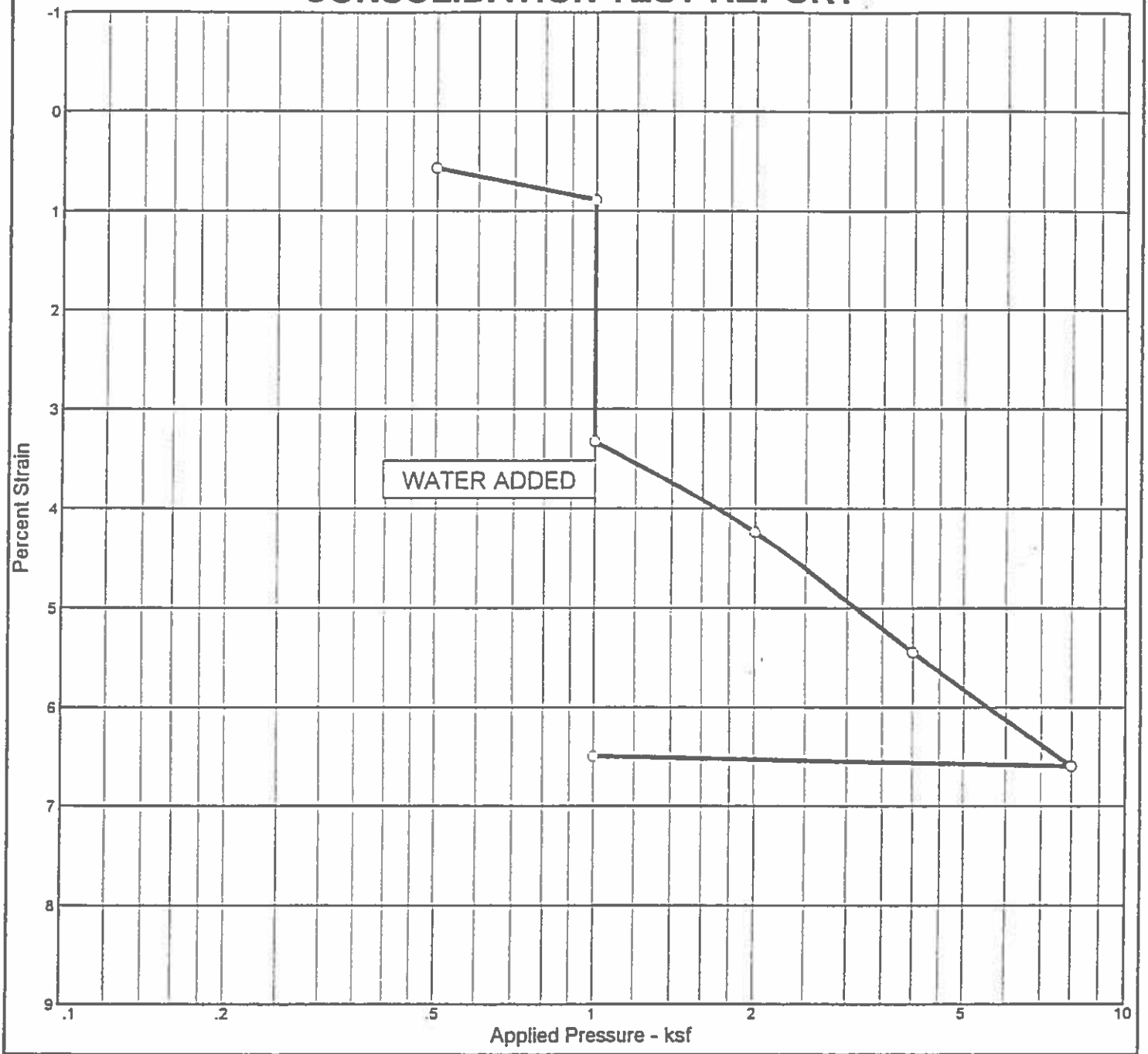
Tested By: RC, JCH

CONSOLIDATION TEST REPORT

WESTERN COLORADO TESTING, INC.

Figure 18

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_s	Swell Press. (ksf)	Clpse. %	e_o
Sat.	Moist.											
74.5 %	9.8 %	122.5			2.65	2.00	1.84	0.05	0.00		2.4	0.350

MATERIAL DESCRIPTION	USCS	AASHTO
Clay, silty, sl sandy, brown		

Project No. 205500 **Client:** Banner & Associates

Project: The Knolls Subdivision, Filings 5-8

Location: TH-6

Remarks:

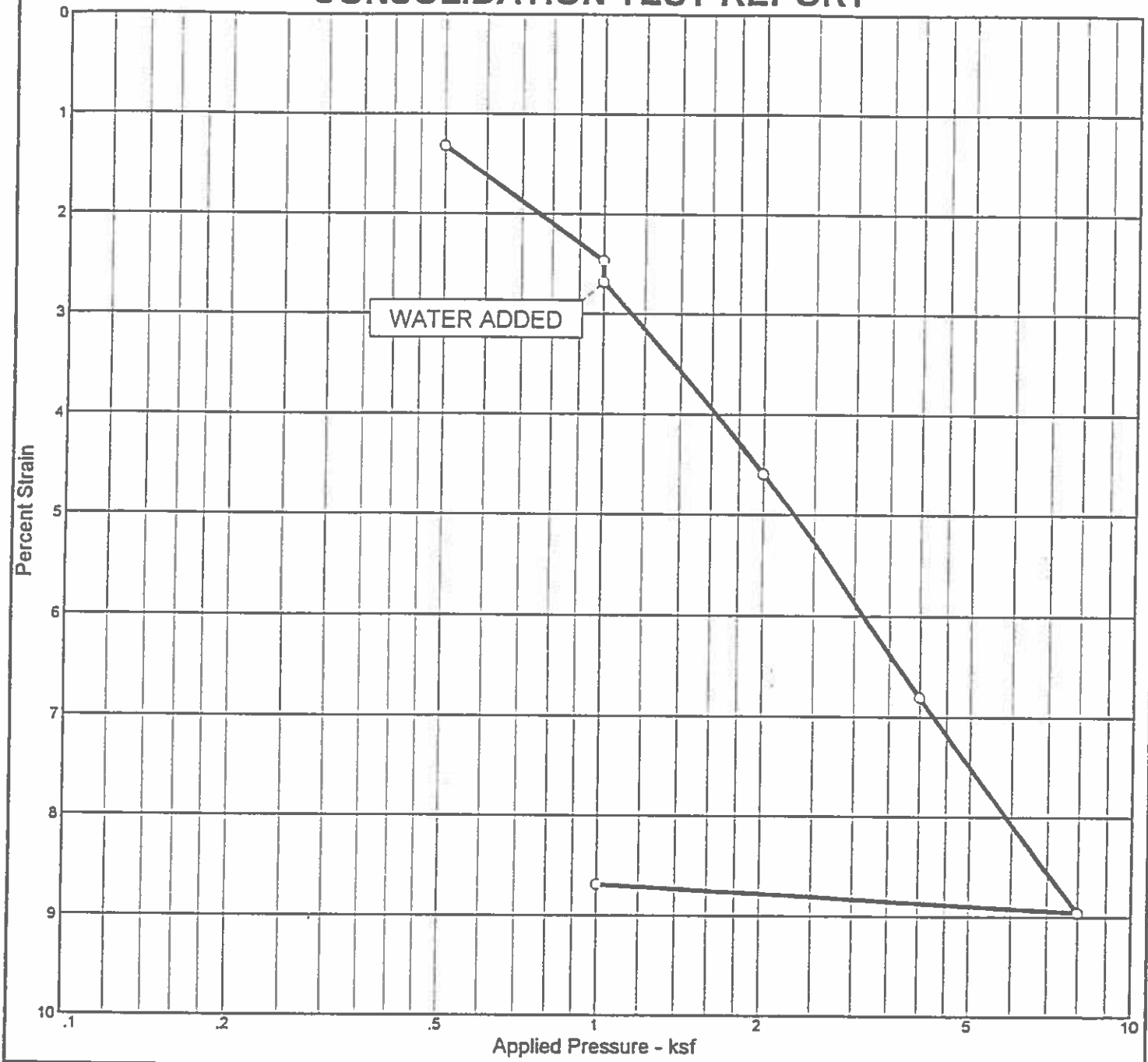
Tested By: RC, JCH

CONSOLIDATION TEST REPORT

WESTERN COLORADO TESTING, INC.

Figure 19

CONSOLIDATION TEST REPORT



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_s	Swell Press. (ksf)	Clpse. %	e_o
Sat.	Moist.											
50.1 %	10.9 %	105.1			2.65	2.00	1.89	0.11	0.00		0.2	0.575

MATERIAL DESCRIPTION	USCS	AASHTO
Clay, silty, brown		

Project No. 205500 **Client:** Banner & Associates

Project: The Knolls Subdivision, Filings 5-8

Location: TH-10

Remarks:
Tested By: RC, JCH

CONSOLIDATION TEST REPORT

WESTERN COLORADO TESTING, INC.

Figure 20

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS

ASTM D2844*

PROJECT: The Knolls Subdivision, Filings 5-8
CLIENT: Banner & Associates

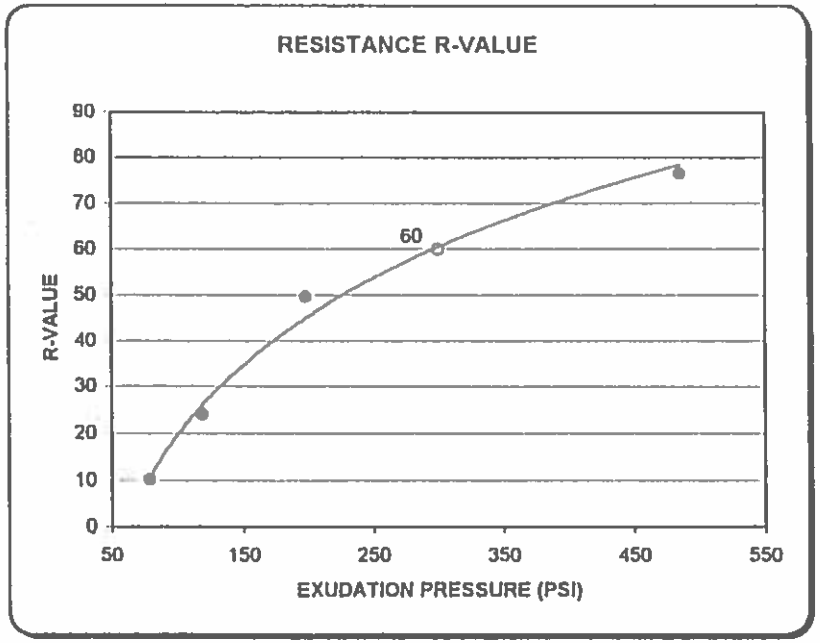
DATE: 4/27/00
JOB NUMBER: 205500

SAMPLE LOCATION: TH-5
SAMPLE DEPTH: 2'-4'
SAMPLE DESCRIPTION: Clay, silty, sl gravelly, brown

SPECIMEN IDENTIFICATION	A	B	C	D
COMPACTION				
FOOT PRESSURE (PSI)	100	350	350	350
EXUDATION				
EXUDATION LOAD (LBF)	1000	1500	2500	6100
EXUDATION PRESS. (PSI)	80	119	199	485
EXPANSION (OPTIONAL)				
SPRING CONST. (PSI/IN)				
DEFLECTION (IN)				
EXPANSION PRESS. (PSI)				
STABILOMETRY				
HORZ. PRESS. @ 2000 LBF	129	99	60	30
DISPLACEMENT @ 1000 LBF	5.25	5.21	4.61	4.64
SPECIMEN DATA				
HEIGHT (IN)	2.500	2.570	2.590	2.810
WET WEIGHT	1196.9	1240.2	1248.1	1347.9
DRY WEIGHT	1064.6	1114.7	1129.4	1232.4
MOISTURE CONTENT (%)	12.4	11.3	10.5	9.4
RESULTS				
RESISTANCE R-VALUE	10	23	47	70
HT. CORRECTED R-VALUE	10	24	50	77

R-VALUE @ 300 PSI EXUDATION*	60

DRY DENSITY, PCF	129.0	131.4	132.1	132.9



*As modified by the Colorado Department of Transportation Method

Figure 21

RESISTANCE R-VALUE AND EXPANSION PRESSURE OF COMPACTED SOILS

ASTM D2844*

PROJECT: The Knolls Subdivision, Filings 5-8
CLIENT: Banner & Associates

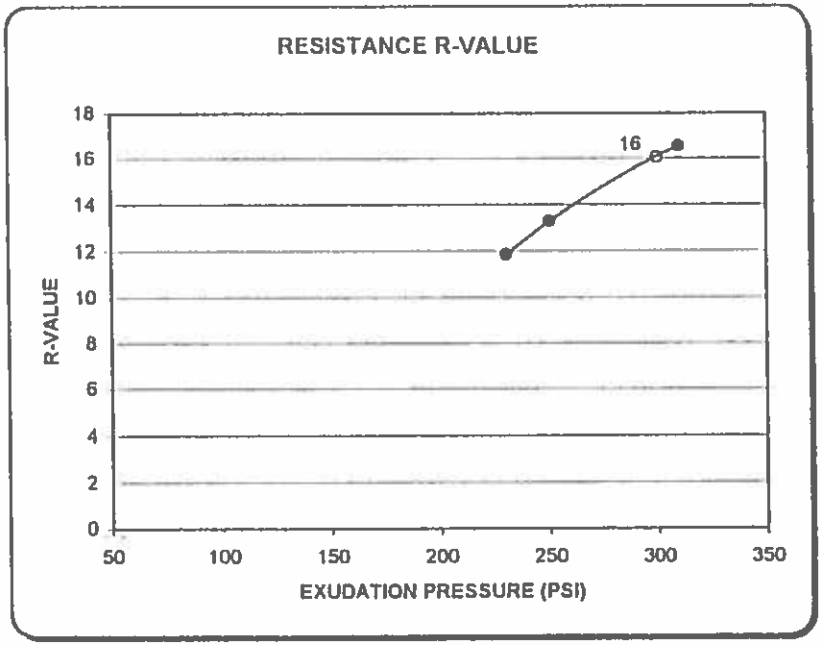
DATE: 4/27/00
JOB NUMBER: 205500

SAMPLE LOCATION: TH-12
SAMPLE DEPTH: 2'-4'
SAMPLE DESCRIPTION: Clay, very silty, brown

SPECIMEN IDENTIFICATION	A	B	C	D
COMPACTION				
FOOT PRESSURE (PSI)	145	160	275	
EXUDATION				
EXUDATION LOAD (LBF)	2900	3150	3900	
EXUDATION PRESS. (PSI)	231	251	310	
EXPANSION (OPTIONAL)				
SPRING CONST. (PSI/IN)				
DEFLECTION (IN)				
EXPANSION PRESS. (PSI)				
STABILOMETRY				
HORZ. PRESS. @ 2000 LBF	127	126	121	
DISPLACEMENT @ 1000 LBF	5.35	5.03	5.46	
SPECIMEN DATA				
HEIGHT (IN)	2.610	2.640	2.630	
WET WEIGHT	1193.8	1215.8	1314.5	
DRY WEIGHT	1019.6	1043.5	1139.6	
MOISTURE CONTENT (%)	17.1	16.5	15.3	
RESULTS				
RESISTANCE R-VALUE	11	12	13	
HT. CORRECTED R-VALUE	12	13	17	

R-VALUE @ 300 PSI EXUDATION*	16

DRY DENSITY, PCF	118.4	119.8	122.0	



*As modified by the Colorado Department of Transportation Method

Figure 22

FINAL
DRAINAGE REPORT

KNOLLS SUBDIVISION
FILING 6 (Developed)
FILING 7 (Undeveloped)
GRAND JUNCTION, COLORADO

PREPARED FOR:

O. P. DEVELOPMENT COMPANY, L.L.C.
c/o Robert C. Knapple
2421 Applewood Circle
Grand Junction, Colorado 81506

PREPARED BY:

VISTA ENGINEERING CORP.
2777 Crossroads Blvd.
Grand Junction, CO 81506
(970) 243-2242

August 8, 2003
VEC # 4003.06-02

FPP-2003-078

FINAL
DRAINAGE REPORT

KNOLLS SUBDIVISION
FILING 6 (Developed)
FILING 7 (Undeveloped)
GRAND JUNCTION, COLORADO

PREPARED FOR:

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PREPARED BY:

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2777 Crossroads Blvd.
Grand Junction, CO 81506
(970) 243-2242

August 8, 2003
VEC # 4003.06-02

CERTIFICATION

I hereby certify that this Final Drainage Report (dated 8/8/03) for Knolls Subdivision (Filing 6 Developed, Filing 7 Undeveloped)) was prepared by me, or under my direct supervision.

Patrick M. O'Connor, P.E.
Registered Professional Engineer
State of Colorado, #20759

TABLE OF CONTENTS

FINAL DRAINAGE REPORT
KNOLLS SUBDIVISION (Filing 6)

I. GENERAL LOCATION AND DESCRIPTION

Knolls Subdivision is located along the east side of 27½ Road between Cortland Avenue and Spring Valley Subdivision. Filings 6 and 7 can be found in the southern-third of the site at a location approximately ½ mile north of Patterson Road. The entire Knolls project consists of approximately 66.7 acres drained by two basins separating the northern and southern portions of the site. Filings 1 through 5 have been previously developed with individual drainage reports written for them. These filings generally flow to the upper basin draining the northern two-thirds of the project. This report is intended to address filings 6 and 7 (the remaining undeveloped portions of the project) which will drain to the lower southern basin, **but is written as an addendum to the previous report dated April 16, 2003. This report will address Filing 6 in a developed condition, and future Filing 7 in an undeveloped condition**. A small developed portion of Filing 4 (mainly rear-yards) flows south to this same basin which drains the lower-third of the project. A Vicinity Map included within the appendix of this report shows the project limits in relation to the surrounding area. This proposed site is bounded by Spring Valley Subdivision to the east and south with a large open drain ditch on the south boundary, 27 ½ Road to the west, and previous Filings 1 through 5 to the north. Across 27 ½ Road, to the west, is a vacant field with Crestview, Bell Ridge, and Ptarmigan Ridge Subdivisions to the north and west. Primary access to the site will be from 27 ½ Road through Piazza Way to extensions of Fairwood Place and Briar Ridge Way which were partially constructed in the previous filings to the north.

Ground cover for the site consists of native grasses and weeds with a few sparse clusters of sage brush and small trees. The site is currently fallow and previously contained two residential dwellings with associated outbuildings and large trees. Terrain is rolling, generally sloping to the southwest at 1 to 2 percent in most of the northern portion, but with bluffs in the southern portion having slopes of 10% to 30% on the face.

In researching the soils types at this location, information was obtained from the Natural Resources Conservation Service and it has been determined that the soils at the site can be classified as predominantly Fruita and Ravola loams, with small portions of the site containing Billings silty clay loam and Chipeta and Persayo materials. Given these soil types, the locations and quantities of the various types, and the site topography, the soils at this site would be generally categorized under a Hydrologic Soil Group B, which are soils having moderately high infiltration rates and relatively slow rates of runoff.

II. EXISTING DRAINAGE CONDITIONS

The entire Knolls project lies within an unnamed major drainage basin beginning approximately 1/4 mile to the northeast, near Interstate 70 and the Government Highline Canal. It lies between the major basins of Indian Wash and the Horizon Drive Channel in a drainage system known as "Drain D" which is currently maintained by the Grand Valley Water Users Association. This watershed flows southwest in open-channels and piped sections through the northwest areas of the city, ultimately draining into the Colorado River near 25 Road. The project is split by two sub-basins of this watershed which independently drain the northern 2/3 and southern 1/3 of the entire Knolls project. These two sub-basins merge into one channel approximately 1000 feet west of the site. The major basin can be seen on the enclosed Major Basin Drainage Map. Hydraulically, the project is fairly isolated with regard to impacts from offsite areas. Runoff onto the site from the north and east is diverted by Cortland Avenue and independently controlled stormwater management facilities of the surrounding developments.

The northern portion of the Knolls project is currently in a developed condition and drains to a stormwater detention facility located in the west-central part of the project, near the 27 ½ Road discharge point of the northern basin. In this area, existing wetlands were defined and delineated through the previous development process of filing two. No other wetlands are known to exist within the site.

Most of the area containing filings 1 through 5 drains to existing stormwater facilities in the northern basin. The remaining site (filings 6 and 7) drains generally to the southwest and is collected by the large open drain ditch (Drain "D")existing along the southern boundary. This ditch discharges to the west under 27 ½ Road through an existing 18" culvert. Some minor runoff from the existing Spring Valley Subdivision to the east and south of this ditch may be currently directed into the channel.

In researching the flood plain hazard for the area, reference was made to the Flood Insurance Rate Map for Mesa County as produced by the Federal Emergency Management Agency (FEMA), revised July, 1992 (Panel # 080117-0004 E). No part of the site exists within an identified 100-year flood boundary as defined by this map. Proposed development of this site is therefore not impacted by the flood plain.

III. PROPOSED DRAINAGE CONDITIONS

No adverse change in offsite drainage impact is proposed to adjacent lands surrounding The Knolls Subdivision. Proposed drainage patterns within the site will be modified, as customary, to accommodate development and to better control surface flows to designated collection areas. In general, runoff will continue to be collected from the site and flow south and west to the existing culverts under 27 ½ Road where it will be carried by existing channels and drain lines to the Colorado River. All but approximately three acres of filings 1 through 5 drain into the northern basin and utilize the existing stormwater management facilities. Three acres of existing developed ground, consisting mainly of rear-yards developed by filing 4, drain to the southern basin along with approximately 15 acres of currently undeveloped ground (proposed filings 6 & 7). These 18 acres make up the proposed southern basin. Once Filing 6 is developed and prior to development of the last filing, 15.84 acres of this basin (basin 3A) will be directed to a temporary retention facility proposed near the natural low area in the southwest corner of the project. The remaining 2.66 acres (basin 3B), consisting mainly of rear-yards and lots along 27 ½ Road, will drain west into the existing curb and gutter of that street. This will minimize the impact by the proposed filing directly to the open drain ditch (Drain "D") along the boundary north of Spring Valley. An analysis of the historic runoff for this southern basin and the amounts of developed runoff directed into it from filings 4, 6, and 7 is included in this report. Upon development, the temporary retention pond in the southwest corner will collect developed and undeveloped runoff from Filing 6 and future Filing 7. Once Filing 7 is developed, the proposal is to provide a permanent detention facility in the southeast corner to attenuate and discharge flows into the open drain ditch at levels below historic peak flowrates (the previous 4/16/03 report was prepared to provide information for this condition). A Grading Plan is included in the appendix of this report and illustrates the proposed drainage patterns and concepts for the site. Offsite patterns are unchanged.

As with all proposed drainage improvements, access will be provided to the improvements proposed for The Knolls Subdivision. This will be done by platting easements, or tracts, where necessary on this site and acquiring easements, if necessary, on adjoining lands. A Homeowners Association formed for this development will be responsible for maintaining the drainage improvements not covered by City policies to insure proper performance and to avoid potential impacts to neighboring areas. Access to the detention basins and outlet structures will be provided, by design, directly from the streets that border the basins.

IV. DESIGN CRITERIA AND APPROACH

To our knowledge there has been no master plan completed for this area to determine if any large-scale drainage improvements are proposed for the immediate region. For each development in the vicinity that has been approved and constructed, an individual Drainage Report would have been required to identify the proposed improvements for each development. These reports discuss how stormwater will be conveyed to prevent adverse impacts to adjoining properties. Given that this project is proposing to detain/retain undeveloped and developed runoff and release it at levels not exceeding historic peak rates, adjacent lands should be unaffected by improvements to this site.

This report is based on completion of grading for Filing 6, only, in this construction phase. Future Filing 7, for the purposes of this report, is considered generally undeveloped with the exception of construction of temporary swales and a retention pond. Streets and most utilities will be installed only to the extent required for servicing Filing 6, at this time. Temporary swales will direct runoff to the retention facility through unfinished portions of Filing 7, until such time as development is completed for that Filing. At ultimate build-out, the original report dated 4/16/03 will apply.

As required, this Final Drainage Report has been prepared to provide calculated runoff for the Knolls Subdivision from various storm events. Hydrology calculations were performed for historic and developed conditions for the 2-year and 100-year storms. The calculations are in accordance with the Stormwater Management (SWM) Manual, May, 1996, as prepared by the City of Grand Junction. Runoff calculations were performed using the Rational Method. To complete these calculations, parameter selection and design procedures were based on composite runoff coefficients and storm intensity values from tables presented in the SWM manual. The intensities correspond with the appropriate times of concentration obtained for each basin. Detention facilities proposed for this development utilize the Modified Rational Method to determine the required volume. Volume requirements were determined to detain developed stormwater flows and attenuate peak releases to levels equivalent to, or less than, the 2-year and 100 year historic events.

Some hydrologic and hydraulic data was obtained from previous drainage reports for filings 1 through 5. Outlet structures are detailed in the construction drawings for this filing. Pond routing was performed for the site by calculating all runoff using the Rational Method and routing it through proposed ponds as required. Developed peak runoff was successfully routed and attenuated to be at combined levels less than historic.

Once the hydrology calculations were completed for The Knolls Subdivision, drainage improvements and structures were designed where required. Size requirements for surface and circular channels were accomplished by the use of Manning's Equation for gravity flow. Additional characteristics of the proposed materials were considered in these calculations. Detention pond and outlet structure design utilized computer software, such as Haestad Methods Pond-2 software.

IV. RESULTS AND CONCLUSIONS

AREAS

Basin 3 (total)	18.50 acres	
Basin 3a-1 (developed)	8.31 acres	*Basin 3a drains to retention
Basin 3a-2 (undeveloped)	7.53 acres	
Basin 3b-1 (developed)	1.76 acres	*Basin 3b drains to 27 ½ Road
Basin 3b-2 (undeveloped)	0.90 acres	

RUNOFF COEFFICIENTS - "C"

Bare / Fallow	- 0.14 (2 yr.)	0.20 (100 yr.)
Developed (¼ ac /unit)	- 0.29 (2 yr.)	0.38 (100 yr.)

TIMES OF CONCENTRATION

South Basin	-	28 minutes (Historic)
Basin 3a	-	18 minutes
Basin 3b	-	13 minutes

RUNOFF (All Flows are C F S.)

-HISTORIC FLOWS-

		2 yr	100 yr	
South Basin	-	**1.91**	**10.73**	- (FROM PREVIOUS FILING 4 & 5 REPORT)

-DEVELOPED FLOWS-

		(Prior to retention)		(Released flows)		
		2 yr	100 yr	2 yr	100 yr	
Basin 3a	-	2.49	12.94	0.10*	0.10*	* - pumped per City
Basin 3b	-	0.53	2.75	0.53	2.75	
Basin 3 Total	-	n/a	n/a	**0.63**	**2.85**	(Total released less than historic)

RETENTION POND INFORMATION (Top bank elevation: 4705.0)

Volume Required = $\text{Precipitation}_{100}$ x Area x C_{100}
= 2.01" x 15.84 acres x 0.38
= 43,918 ft³ (required) (64,792 ft³ available, **therefore O.K.**)

CONCLUSION

In conformance with the City of Grand Junction SWM Manual, the developed site will discharge runoff at peak levels less than the historic rates. Basin 3b will discharge overland sheetflows directly to 27 ½ Road and Basin 3a will drain to the temporary retention pond for a controlled release (pumped) at a rate dictated by the City's requirement to drain retention volumes within 48 hours. The combined release rate of Basins 3a and 3b will be greatly reduced form the historic rate of the historic 18 acre basin.

This stormwater management concept, therefore, allows the Knolls Subdivision to conform with the drainage criteria established by the City of Grand Junction.

APPENDIX

1. SITE MAPS

Vicinity Map
PRE-DEVELOPMENT DRAINAGE MAP
POST-DEVELOPMENT DRAINAGE MAP
MAJOR BASIN DRAINAGE MAP
GRADING PLAN
STORMWATER MANAGEMENT PLAN

2. COEFFICIENTS

"C" Values - From SWM Manual

3. TIMES OF CONCENTRATION

Summary
SOUTH BASIN (HISTORIC)
Developed Basin 3a
Developed Basin 3b

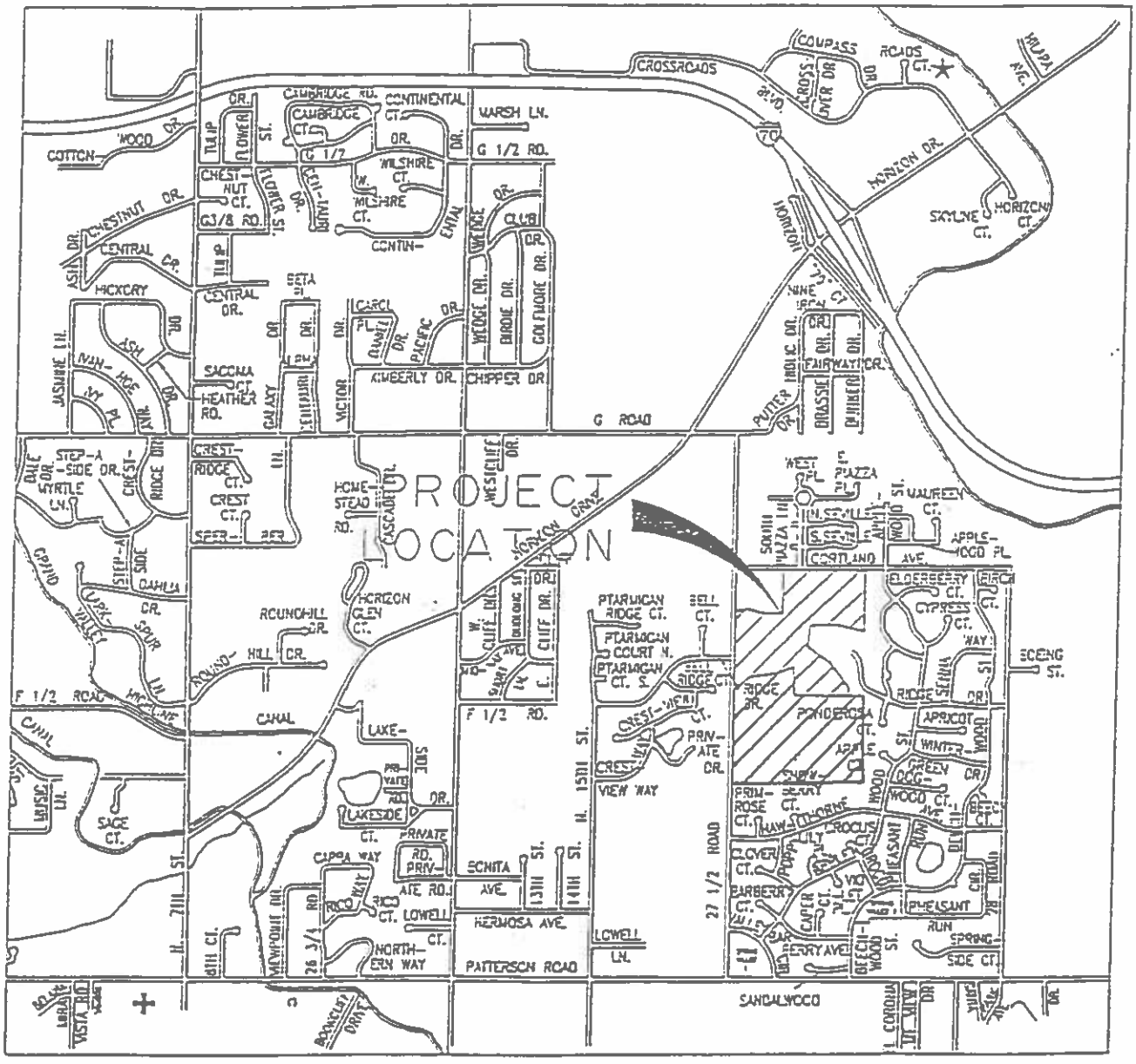
4. RUNOFF

South Basin Historic	-	2 Year
South Basin Historic	-	100 Year
Basin 3a Developed	-	2 Year
Basin 3a Developed	-	100 Year
Basin 3b Developed	-	2 Year
Basin 3b Developed	-	100 Year

5. HYDRAULICS

Stage / Storage Pond Information

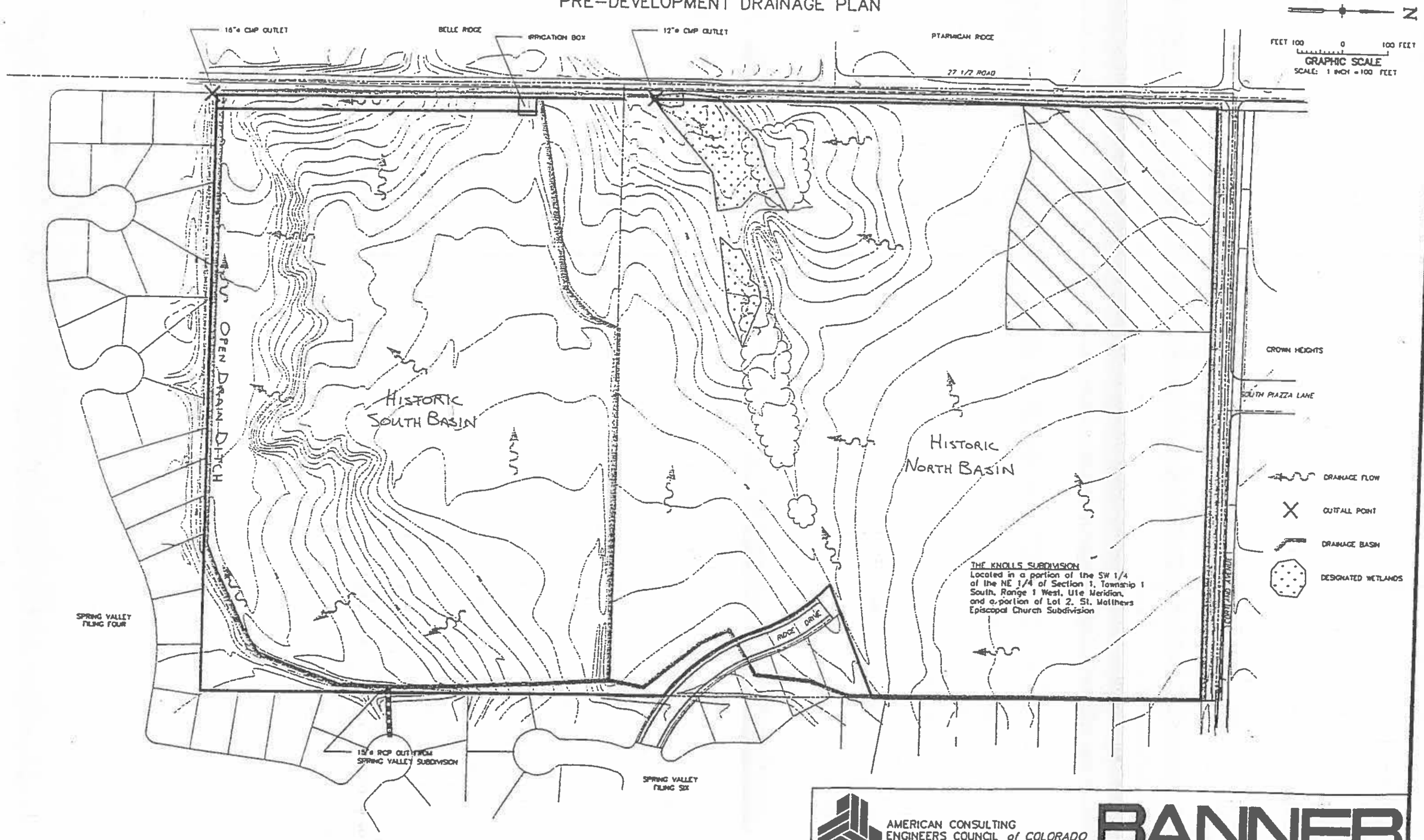
SECTION 1
SITE MAPS



VICINITY MAP

I

PRE-DEVELOPMENT DRAINAGE PLAN



AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

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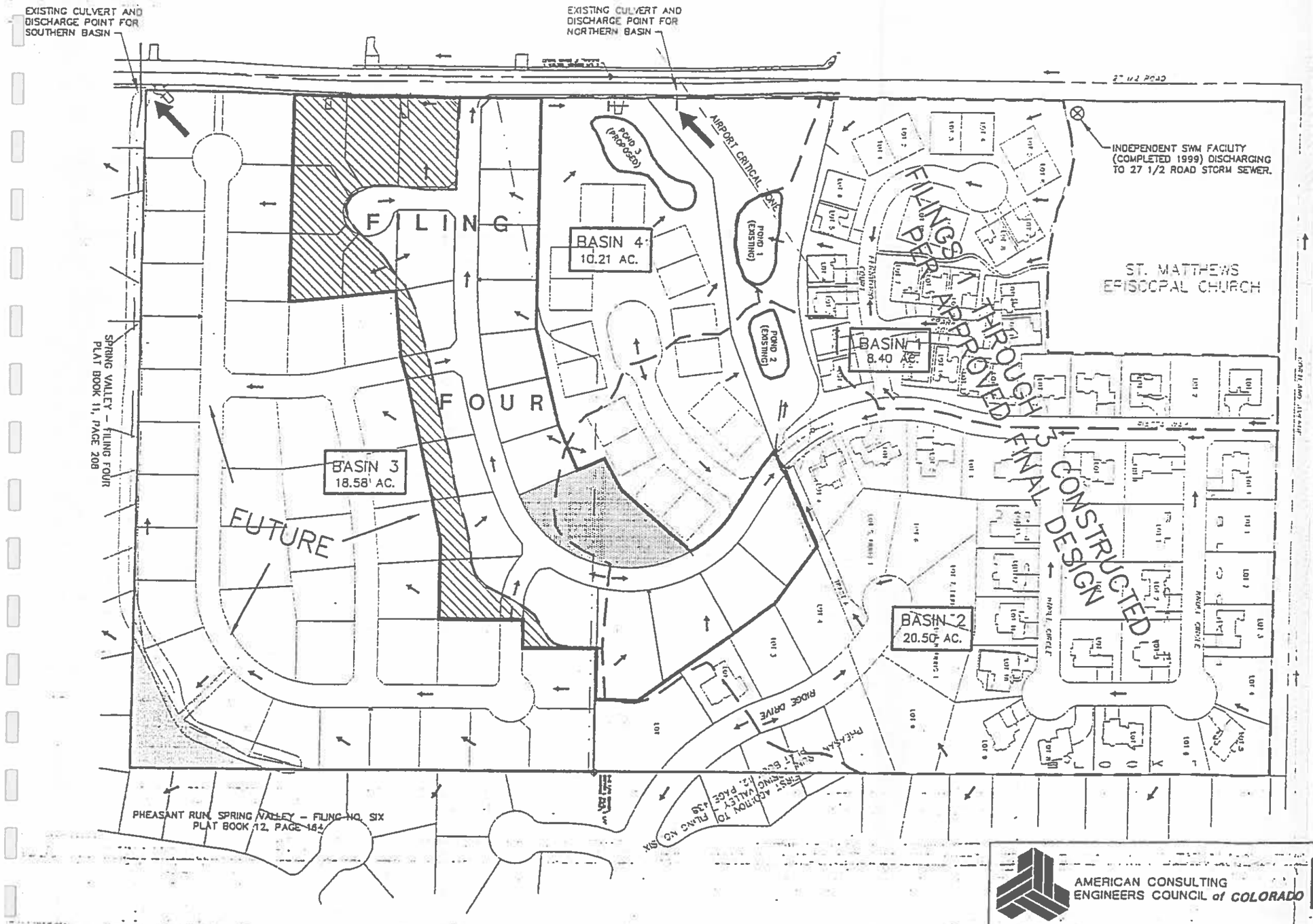
POST-DEVELOPMENT DRAINAGE MAP



N

FEET 200 0 200 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 200 FEET

LEGEND

- 3.08 AC. OF FILING 4 DRAINING TO SOUTHERN BASIN
- BASIN BOUNDARY
- FILING 4 BOUNDARY

AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

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PROJECT SITE

EXISTING FILINGS

SITE

Claypit

Bookcliff Country Club

WALKER FIELD

Walker Field

Radio Tower (KWSL)

Pamona Sch.

St Mary's Hospital

Trailer Park

Radio Towers (KREX)

Trope Sch.

Municipal Water Tower

Melrose Park

Valley Sch.

Radio Tower (KEXO)

Memorial Gardens of the Valley (Cemetery)

Drive-in Theater

Lincoln Park

Veterans Hospital

Armory

Golf Course

Grand Speedway

Shadow Park

Connecticut Lake

Gravel Pits

Durham

GRAND JUNCTION

Colorado River

Denver and Rio Grande Western

Highline Canal

Grand Valley Canal

Price Ditch

Ranchmens Ditch

Independent Ave.

F Road

G Road

Patterson Ave.

Orchard Ave.

North Ave.

Mesa

Main Line

Valley Line

Grand Valley Line

Highline Line

Base Line

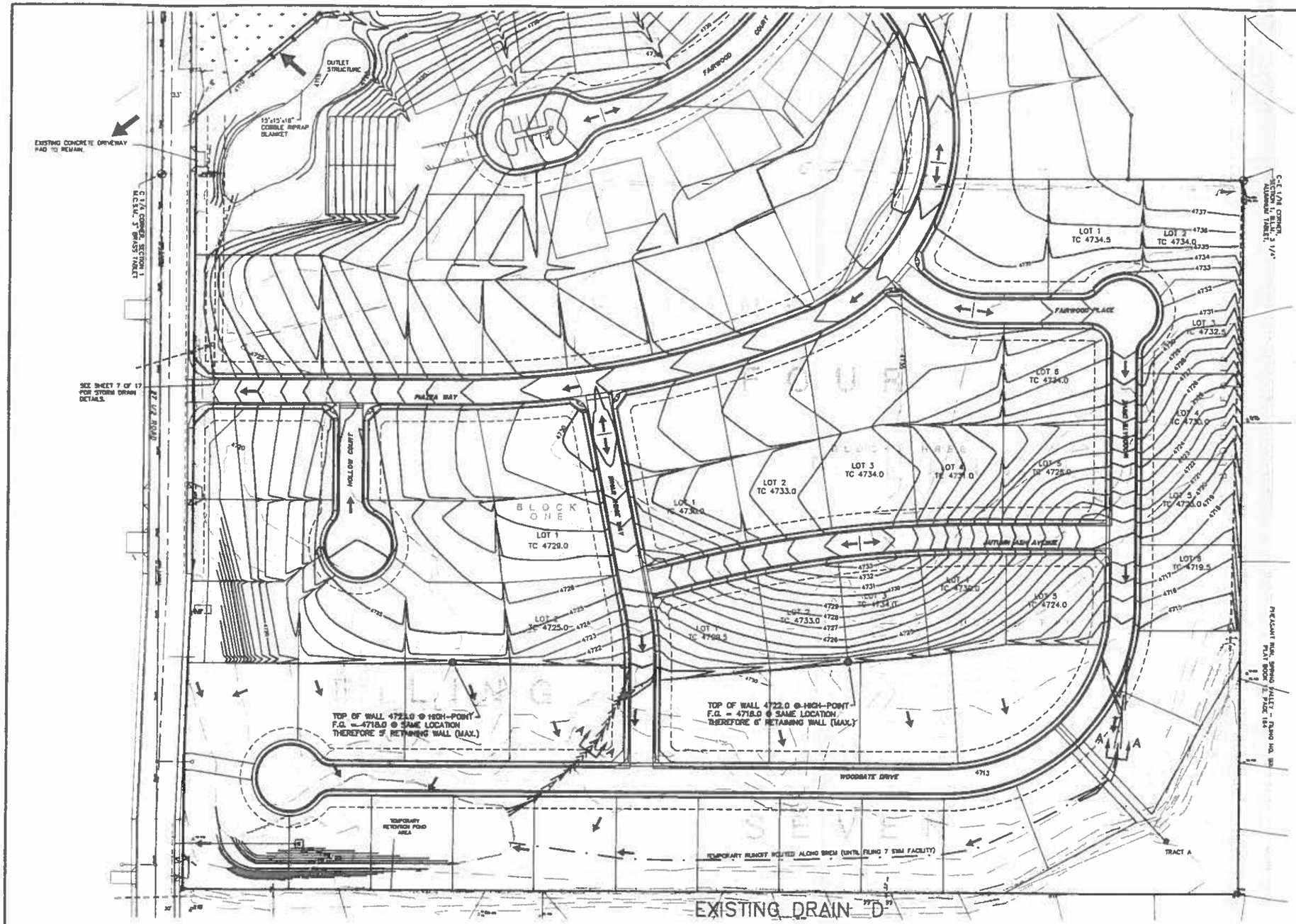
Sixth Principal Meridian

10 Mi. to U.S. 6 and 24

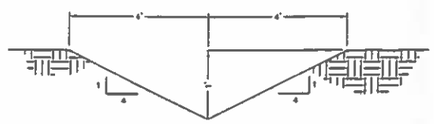
2.3 Mi. to Golo. 141

480 CCO Feet

PRELIMINARY MAJOR BASIN DRAINAGE MAP



NOTE: RUNOFF TO TEMPORARILY BE ROUTED TO RETENTION POND IN SOUTHWEST CORNER OF SITE (FUTURE FILING 7). PROVIDE SWALE (SEE SECTION A-A) FROM END OF FILING 6 ROADWAYS TO EXISTING NATURAL BERM NORTH OF DRAIN "D".



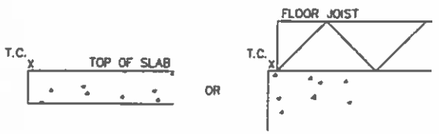
SECTION A-A
TEMPORARY SWALE
N.T.S.

GENERAL NOTES:

1. CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
2. ELEVATE EXISTING OVERFLOW SWALE (INVERT) TO ELEV. 4722.12 (FROM 4722.0± EXISTING).
3. SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

KNOLLS SUBDIVISION
TOP OF CONCRETE ELEVATION TABULATION
4/09/03

LOT	BLOCK	ADDRESS	T.C. ELEV.
1	1	BRIAR RIDGE WAY	4729.0
2	1	BRIAR RIDGE WAY	4725.0
1	2	AUTUMN ASH AVENUE	4729.5
1	2	BRIAR RIDGE WAY	4729.5
2	2	AUTUMN ASH AVENUE	4733.0
3	2	AUTUMN ASH AVENUE	4734.0
4	2	AUTUMN ASH AVENUE	4730.0
5	2	AUTUMN ASH AVENUE	4724.0
5	2	WOODGATE DRIVE	4724.0
1	3	AUTUMN ASH AVENUE	4730.0
1	3	BRIAR RIDGE WAY	4730.0
2	3	AUTUMN ASH AVENUE	4733.0
3	3	AUTUMN ASH AVENUE	4734.0
4	3	AUTUMN ASH AVENUE	4731.0
5	3	AUTUMN ASH AVENUE	4728.0
5	3	WOODGATE DRIVE	4728.0
6	3	WOODGATE DRIVE	4734.0
6	3	FAIRWOOD PLACE	4734.0
1	4	FAIRWOOD PLACE	4734.5
2	4	FAIRWOOD PLACE	4734.0
3	4	WOODGATE DRIVE	4732.5
4	4	WOODGATE DRIVE	4730.0
5	4	WOODGATE DRIVE	4725.0
6	4	WOODGATE DRIVE	4719.5



T.C. = TOP OF CONCRETE (MINIMUM ELEVATION)
NOT TO SCALE

LEGEND

- CONTOUR (EXISTING)
- CONTOUR (PROPOSED)
- FILING BOUNDARY
- DRAINAGE DIRECTION

PROJECT BENCHMARK/CONTROL

N

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 3001.082
EASTING 8879.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 35+35.90
NORTHING 3680.552
EASTING 8878.753

FEET 60 0 60 FEET
GRAPHIC SCALE
SCALE: 1 INCH = 60 FEET

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY: S.O.S.	REVIEWED		
DESIGNED BY: P.M.O.	DATE:	FOR	
CHECKED BY: P.M.O.	REVIEWED		
	DATE:	FOR VISTA ENGINEERING CORP.	

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

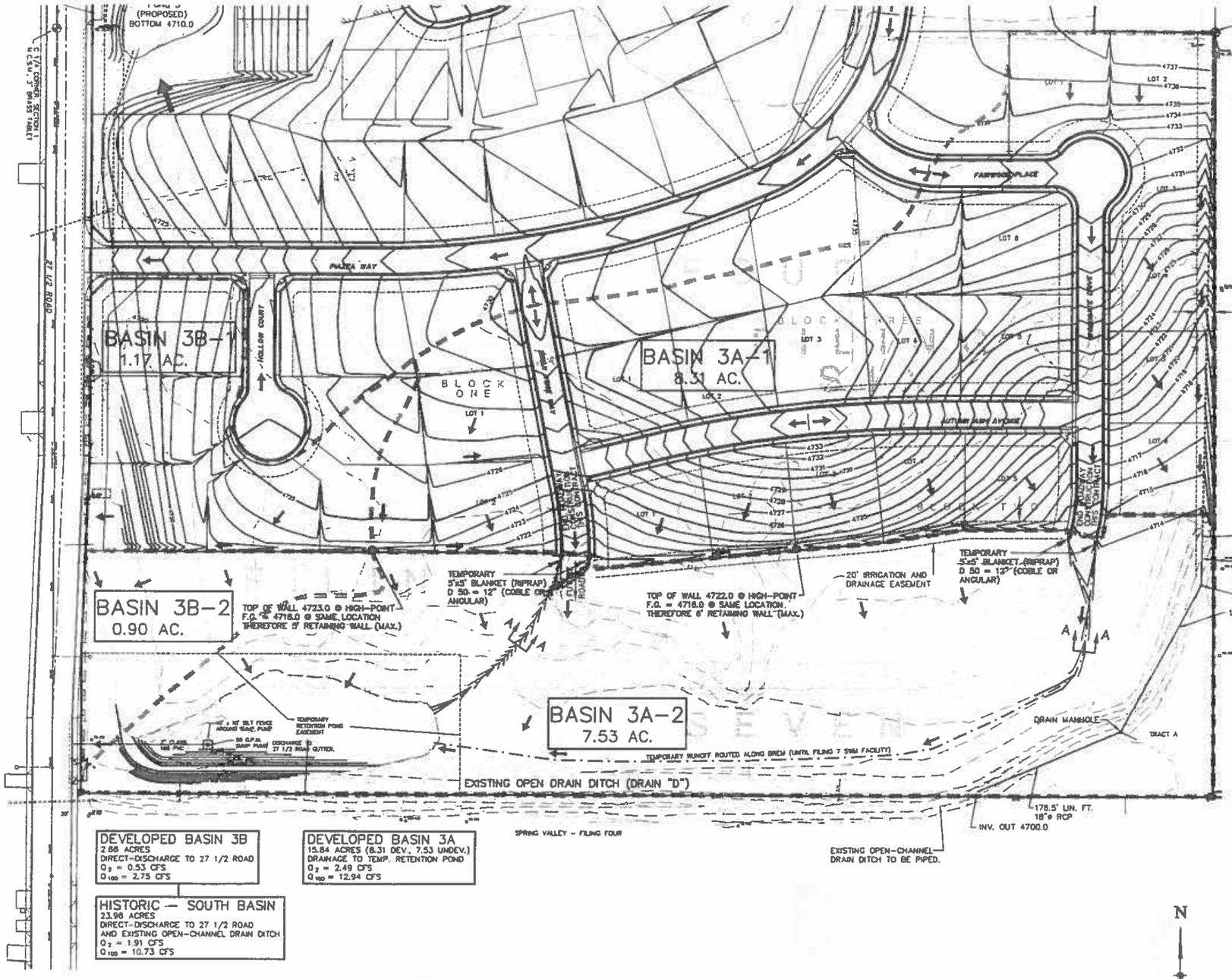
REVISION	DATE	DESCRIPTION	BY	CHD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SOS	PMO

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

GRADING PLAN
THE KNOLLS SUBDIVISION, FILING 6

SCALE:	JOB NO:	DATE:
1" = 60'	4003.06-02	4-09-03

SHEET NO: 17 of 20



GENERAL NOTES:

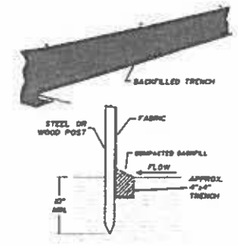
1. CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
2. SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

STORMWATER MANAGEMENT NOTES:

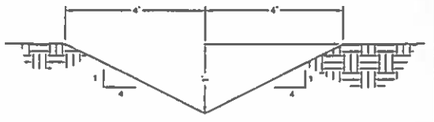
1. AT ALL TIMES DURING CONSTRUCTION, EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED BY THE DEVELOPER OR HIS DESIGNATED REPRESENTATIVE.
2. EROSION CONTROL SYSTEM SHALL BE INSTALLED AS GRADING PROGRESSES.
3. EROSION BALES SHALL BE STRAW OR HAY, DEPENDING ON AVAILABILITY.
4. DETAILS SHOWN ARE SCHEMATIC ONLY. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.
5. EROSION BALES SHALL BE PLACED TO AVOID RUNOFF FLOWING BETWEEN, AROUND OR UNDER BALES. BALES SHALL BE ANCHORED WITH 2" X 2" X 4' WOODEN STAKES OR #4 REINFORCING BARS. TWO PER BALE (SEE DETAILS FOR FURTHER INSTRUCTIONS).
6. NEGATIVE IMPACTS TO DOWNSTREAM AREAS (OR RECEIVING WATERS) CAUSED BY THE OVERLOT GRADING TO BE MONITORED AND CORRECTED BY THE DEVELOPER.
7. MULCH SHALL BE APPLIED TO ACHIEVE A STUBBLED SURFACE TO THE DESIGNATED AREAS TO PREVENT DUST AND AID IN LIMITING WIND EROSION. CONTRACTOR SHALL HAVE A WATER TRUCK MADE AVAILABLE TO ASSIST IN CONTROLLING DUST AND WIND EROSION.
8. CONSTRUCTION TRAFFIC ENTRANCES SHALL BE CLEANED ON A CONTINUAL BASIS DURING OVERLOTTING AND DURING THE DURATION HOME CONSTRUCTION.
9. MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS. RECORDS OF SUCH MAINTENANCE SHALL BE RETAINED BY THE H.O.A.

LEGEND

- CONTOUR (EXISTING)
- 4710 — CONTOUR (PROPOSED)
- BASIN BOUNDARY
- DRAINAGE DIRECTION
- SILT-FENCE



DETAIL B – SILT FENCE
N.T.S.



SECTION A-A
TEMPORARY SWALE
N.T.S.

DEVELOPED BASIN 3B
2.66 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD
Q_2 = 0.53 CFS
Q_{100} = 2.75 CFS

DEVELOPED BASIN 3A
15.84 ACRES (8.31 DEV., 7.53 UNDEV.)
DRAINAGE TO TEMP. RETENTION POND
Q_2 = 2.49 CFS
Q_{100} = 12.94 CFS

HISTORIC – SOUTH BASIN
23.98 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD AND EXISTING OPEN-CHANNEL DRAIN DITCH
Q_2 = 1.91 CFS
Q_{100} = 10.73 CFS

TEMPORARY RETENTION POND STAGE-VOLUME TABLE:

ELEV.	VOLUME (CUBIC-FEET)
4699	0
4700	1,388
4701	5,601
4702	13,808
4703	25,509
4704	42,096
4705	64,792

RETENTION VOLUME REQ'D:

V = PRECIP. x AREA x C (100 YEAR)

V = (2.01"/12) x (8.31 AC. x 43,560) x (0.38)
+ (2.01"/12) x (7.53 AC. x 43,560) x (0.20)

V = 23,040 + 10,988 = 34,028 CUBIC-FEET

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8878.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 36+38.90
NORTHING 3680.562
EASTING 8878.783

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY:	S.G.S.
DESIGNED BY:	P.M.O.
CHECKED BY:	P.M.O.

REVIEWED _____
DATE: _____ FOR _____
REVIEWED _____
DATE: _____ FOR VISTA ENGINEERING CORP.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO

O.P. DEVELOPMENT CO., LLC GRAND JUNCTION, COLORADO

STORMWATER MANAGEMENT PLAN
THE KNOLLS SUBDIVISION, FILING 6

SCALE:	JOB NO:	DATE:
1" = 60'	4003.06-02	4-09-03

SHEET NO:
18 of 20

SECTION 2
COEFFICIENTS

LAND USE OR SURFACE CHARACTERISTICS	SCS HYDROLOGIC SOIL GROUP (SEE APPENDIX "C" FOR DESCRIPTIONS)											
	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
UNDEVELOPED AREAS Bare ground	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .40 - .48	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Cultivated/Agricultural	.08 - .18 .14 - .24	.13 - .23 .18 - .28	.16 - .26 .22 - .32	.11 - .19 .16 - .24	.15 - .23 .21 - .29	.21 - .29 .28 - .36	.14 - .22 .20 - .28	.19 - .27 .25 - .33	.26 - .34 .34 - .42	.18 - .26 .24 - .32	.23 - .31 .29 - .37	.31 - .39 .41 - .49
Pasture	.12 - .22 .15 - .25	.20 - .30 .25 - .35	.30 - .40 .37 - .47	.18 - .26 .23 - .31	.28 - .36 .34 - .42	.37 - .45 .45 - .53	.24 - .32 .30 - .38	.34 - .42 .42 - .50	.44 - .52 .52 - .60	.30 - .38 .37 - .45	.40 - .48 .50 - .58	.50 - .58 .62 - .70
Meadow	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .44 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Forest	.05 - .15 .08 - .18	.08 - .18 .11 - .21	.11 - .21 .14 - .24	.08 - .16 .10 - .18	.11 - .19 .14 - .22	.14 - .22 .18 - .26	.10 - .18 .12 - .20	.13 - .21 .16 - .24	.16 - .24 .20 - .28	.12 - .20 .15 - .23	.16 - .24 .20 - .28	.20 - .28 .25 - .33
RESIDENTIAL AREAS 1/8 acre per unit	.40 - .50 .48 - .58	.43 - .53 .52 - .62	.46 - .56 .55 - .65	.42 - .50 .50 - .58	.45 - .53 .54 - .62	.50 - .58 .59 - .67	.45 - .53 .53 - .61	.48 - .56 .57 - .65	.53 - .61 .64 - .72	.48 - .56 .56 - .64	.51 - .59 .60 - .68	.57 - .65 .69 - .77
1/4 acre per unit	.27 - .37 .35 - .45	.31 - .41 .39 - .49	.34 - .44 .42 - .52	.29 - .37 .38 - .46	.34 - .42 .42 - .50	.38 - .46 .47 - .55	.32 - .40 .41 - .49	.36 - .44 .45 - .53	.41 - .49 .52 - .60	.35 - .43 .43 - .51	.39 - .47 .47 - .55	.45 - .53 .57 - .65
1/3 acre per unit	.22 - .32 .31 - .41	.26 - .36 .35 - .45	.29 - .39 .38 - .48	.25 - .33 .33 - .41	.29 - .37 .38 - .46	.33 - .41 .42 - .50	.28 - .36 .36 - .44	.32 - .40 .41 - .49	.37 - .45 .48 - .56	.31 - .39 .39 - .47	.35 - .43 .43 - .51	.42 - .50 .53 - .61
1/2 acre per unit	.16 - .26 .25 - .35	.20 - .30 .29 - .39	.24 - .34 .32 - .42	.19 - .27 .28 - .36	.23 - .31 .32 - .40	.28 - .36 .36 - .44	.22 - .30 .31 - .39	.27 - .35 .35 - .43	.32 - .40 .42 - .50	.26 - .34 .34 - .42	.30 - .38 .38 - .46	.37 - .45 .48 - .56
1 acre per unit	.14 - .24 .22 - .32	.19 - .29 .26 - .36	.22 - .32 .29 - .39	.17 - .25 .24 - .32	.21 - .29 .28 - .36	.26 - .34 .34 - .42	.20 - .28 .28 - .36	.25 - .33 .32 - .40	.31 - .39 .40 - .48	.24 - .32 .31 - .39	.29 - .37 .35 - .43	.35 - .43 .46 - .54
MISC. SURFACES Pavement and roofs	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97
Traffic areas (soil and gravel)	.55 - .65 .65 - .70	.60 - .70 .70 - .75	.64 - .74 .74 - .79	.60 - .68 .68 - .76	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.69 - .77 .77 - .85	.72 - .80 .79 - .87	.75 - .83 .82 - .90	.77 - .85 .84 - .92
Green landscaping (lawns, parks)	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .42 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Non-green and gravel landscaping	.30 - .40 .34 - .44	.36 - .46 .42 - .52	.45 - .55 .50 - .60	.45 - .55 .50 - .60	.42 - .50 .48 - .56	.50 - .58 .57 - .65	.40 - .48 .46 - .54	.48 - .56 .55 - .63	.56 - .64 .64 - .72	.44 - .52 .50 - .58	.50 - .58 .60 - .68	.60 - .68 .70 - .78
Cemeteries, playgrounds	.20 - .30 .24 - .34	.26 - .36 .32 - .42	.35 - .45 .40 - .50	.35 - .45 .40 - .50	.32 - .40 .38 - .46	.40 - .48 .47 - .55	.30 - .38 .36 - .44	.38 - .44 .45 - .53	.46 - .54 .54 - .62	.34 - .42 .40 - .48	.40 - .48 .50 - .58	.50 - .58 .60 - .68

NOTES:
1. Values above and below pertain to the 2-year and 100-year storms, respectively.
2. The range of values provided allows for engineering judgement of site conditions such as basic shape, homogeneity of surface type, surface depression storage, and storm duration. In general, during shorter duration storms (Tc ≤ 10 minutes), infiltration capacity is higher, allowing use of a "C" value in the low range. Conversely, for longer duration storms (Tc) 30 minutes), use a ""C value in the higher range.
3. For residential development at less than 1/8 acre per unit or greater than 1 acre per unit, and also for commercial and industrial areas, use values under MISC' SURFACES to estimate "C" value ranges for use.

RATIONAL METHOD RUNOFF COEFFICIENTS
(Modified from Table 4, UC-Davis, which appears to be a modification of work done by Rawls)

TABLE "B-1"

SECTION 3
TIMES OF CONCENTRATION

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Subarea descr.	Tc or Tt	Time (hrs)
HIST - SOUTH	Tc	0.46 – 28 MINUTES
DEV. BASIN 3a	Tc	0.30 – 18 MINUTES
DEV. BASIN 3b	Tc	0.22 – 13 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: HIST - SOUTH

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		FALLOW		
Manning's roughness coeff., n		0.0400		
Flow length, L (total < or = 300)	ft	300.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0200		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.29		= 0.29

SHALLOW CONCENTRATED FLOW

Segment ID		2	3			
Surface (paved or unpaved)?		Unpaved	Unpaved			
Flow length, L	ft	700.0	600.0			
Watercourse slope, s	ft/ft	0.0100	0.0467			
$Avg.V = Csf * (s)^{0.5}$	ft/s	1.6135	3.4867			
where: Unpaved Csf = 16.1345						
Paved Csf = 20.3282						
T = L / (3600*V)	hrs	0.12	+ 0.05	=	0.17	

CHANNEL FLOW

Segment ID				
Cross Sectional Flow Area, a	sq.ft	0.00		
Wetted perimeter, Pw	ft	0.00		
Hydraulic radius, r = a/Pw	ft	0.000		
Channel slope, s	ft/ft	0.0000		
Manning's roughness coeff., n		0.0000		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	0.0000		
Flow length, L	ft	0		
T = L / (3600*V)	hrs	0.00		= 0.00

::

TOTAL TIME (hrs) 0.46

28 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: DEV. BASIN 3a

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		LAWN	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	120.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0300	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.13	= 0.13

SHALLOW CONCENTRATED FLOW

Segment ID		2	
Surface (paved or unpaved)?		Unpaved	
Flow length, L	ft	100.0	
Watercourse slope, s	ft/ft	0.0400	
$Avg.V = Csf * (s)^{0.5}$	ft/s	3.2269	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.01	= 0.01

CHANNEL FLOW

Segment ID		3	
Cross Sectional Flow Area, a	sq.ft	4.00	
Wetted perimeter, Pw	ft	24.00	
Hydraulic radius, r = a/Pw	ft	0.167	
Channel slope, s	ft/ft	0.0050	
Manning's roughness coeff., n		0.0160	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	1.9943	
Flow length, L	ft	1150	
T = L / (3600*V)	hrs	0.16	= 0.16

::

TOTAL TIME (hrs) 0.30

18 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: DEV. BASIN 3b

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		LAWN		
Manning's roughness coeff., n		0.0450		
Flow length, L (total < or = 300)	ft	170.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0350		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.16	=	0.16

SHALLOW CONCENTRATED FLOW

Segment ID		2		
Surface (paved or unpaved)?		Unpaved		
Flow length, L	ft	580.0		
Watercourse slope, s	ft/ft	0.0300		
$Avg.V = Csf * (s)^{0.5}$	ft/s	2.7946		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.06	=	0.06

CHANNEL FLOW

Segment ID				
Cross Sectional Flow Area, a	sq.ft	0.00		
Wetted perimeter, Pw	ft	0.00		
Hydraulic radius, r = a/Pw	ft	0.000		
Channel slope, s	ft/ft	0.0000		
Manning's roughness coeff., n		0.0000		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	0.0000		
Flow length, L	ft	0		
T = L / (3600*V)	hrs	0.00	=	0.00

::

TOTAL TIME (hrs) 0.22

13 Minutes

SECTION 4
RUNOFF

Quick TR-55 Ver.5.46 S/N:
Executed: 11:37:10 07-26-2000

KNOLLS FILING 4
HISTORIC - SOUTH SIDE (BASIN 2)
7/24/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
H - 2	0.140	23.96						
			28.00	0.140	0.140	0.570	23.96	1.91

Quick TR-55 Ver.5.46 S/N:
Executed: 11:37:10 07-26-2000

KNOLLS FILING 4
HISTORIC - SOUTH SIDE (BASIN 2)
7/24/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.4286
Adj. 'C' = Wtd.'C' x 1.4286

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
H - 2	0.140	23.96						
			28.00	0.140	0.200	2.240	23.96	10.73

Quick TR-55 Ver.5.46 S/N:
Executed: 14:18:59 08-06-2003

KNOLLS - BASIN 3B, FILING 6 only, DEVELOPED
BASIN 3B, SOUTH PORTION BASIN 3
8/6/03

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	1.76						
BARE	0.140	0.90						
			13.00	0.239	0.239	0.830	2.66	0.53

Quick TR-55 Ver.5.46 S/N:
Executed: 14:18:59 08-06-2003

KNOLLS - BASIN 3B, FILING 6 only, DEVELOPED
BASIN 3B, SOUTH PORTION BASIN 3
8/6/03

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.3103
Adj. 'C' = Wtd.'C' x 1.3103

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	1.76						
BARE	0.140	0.90						
			13.00	0.239	0.313	3.300	2.66	2.75

Quick TR-55 Ver.5.46 S/N:
Executed: 14:23:36 08-06-2003

KNOLLS - BASIN 3A, FILING 6, only DEVELOPED
BASIN 3A, NORTH PORTION BASIN 3
8/6/03 FILING 7 UNDEVELOPED CONDITION

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	8.31						
BARE	0.140	7.53						
			18.00	0.219	0.219	0.720	15.84	2.49

Quick TR-55 Ver.5.46 S/N:
Executed: 14:23:36 08-06-2003

KNOLLS - BASIN 3A, FILING 6, only DEVELOPED
BASIN 3A, NORTH PORTION BASIN 3
8/6/03 FILING 7 UNDEVELOPED CONDITION

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.3103
Adj. 'C' = Wtd.'C' x 1.3103

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	8.31						
BARE	0.140	7.53						
			18.00	0.219	0.287	2.850	15.84	12.94

SECTION 5
HYDRAULICS

POND-2 Version: 5.21
S/N:

KNOLLS SUBDIVISION, FILING 6
RETENTION POND - TEMPORARY
LOCATED IN FUTURE FILING 7
7/11/03

CALCULATED 08-04-2003 17:27:19
DISK FILE: KNOLLRET.VOL

Planimeter scale: 1 inch = 10 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
4,699.00	4.34	434	0	0	0
4,700.00	26.07	2,607	4,105	1,368	1,368
4,701.00	61.02	6,102	12,697	4,232	5,601
4,702.00	100.78	10,078	24,022	8,007	13,608
4,703.00	138.23	13,823	35,704	11,901	25,509
4,704.00	195.14	19,514	49,761	16,587	42,096
4,705.00	260.33	26,033	68,086	22,695	64,792

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

FINAL
DRAINAGE REPORT

KNOLLS SUBDIVISION
FILING 6 (Developed)
FILING 7 (Undeveloped)
GRAND JUNCTION, COLORADO

PREPARED FOR:

O. P. DEVELOPMENT COMPANY, L.L.C.
c/o Robert C. Knapple
2421 Applewood Circle
Grand Junction, Colorado 81506

PREPARED BY:

VISTA ENGINEERING CORP.
2777 Crossroads Blvd.
Grand Junction, CO 81506
(970) 243-2242

Revised: 12/10/03
August 8, 2003
VEC # 4003.06-02

STAMP/SEAL
- REVISIONS INCLUDED -
+ INSERT REVISED
SHEET (S)

FINAL
DRAINAGE REPORT

KNOLLS SUBDIVISION
FILING 6 (Developed)
FILING 7 (Undeveloped)
GRAND JUNCTION, COLORADO

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REVISED: 12/10/03
August 8, 2003
VEC # 4003.06-02

CERTIFICATION

I hereby certify that this Final Drainage Report (original dated 8/8/03 - revised 12/10/03) for Knolls Subdivision (Filing 6 Developed, Filing 7 Undeveloped)) was prepared by me, or under my direct supervision.

Patrick M. O'Connor, P.E.
Registered Professional Engineer
State of Colorado, #20759

CERTIFICATION

I hereby certify that this Final Drainage Report (dated 8/8/03) for Knolls Subdivision (Filing 6 Developed, Filing 7 Undeveloped)) was prepared by me, or under my direct supervision.

Patrick M. O'Connor, P.E.
Registered Professional Engineer
State of Colorado, #20759

TABLE OF CONTENTS

FINAL DRAINAGE REPORT
KNOLLS SUBDIVISION (Filing 6)

I. GENERAL LOCATION AND DESCRIPTION

Knolls Subdivision is located along the east side of 27½ Road between Cortland Avenue and Spring Valley Subdivision. Filings 6 and 7 can be found in the southern-third of the site at a location approximately ½ mile north of Patterson Road. The entire Knolls project consists of approximately 66.7 acres drained by two basins separating the northern and southern portions of the site. Filings 1 through 5 have been previously developed with individual drainage reports written for them. These filings generally flow to the upper basin draining the northern two-thirds of the project. This report is intended to address filings 6 and 7 (the remaining undeveloped portions of the project) which will drain to the lower southern basin, **but is written as an addendum to the previous report dated April 16, 2003. This report will address Filing 6 in a developed condition, and future Filing 7 in an undeveloped condition**. A small developed portion of Filing 4 (mainly rear-yards) flows south to this same basin which drains the lower-third of the project. A Vicinity Map included within the appendix of this report shows the project limits in relation to the surrounding area. This proposed site is bounded by Spring Valley Subdivision to the east and south with a large open drain ditch on the south boundary, 27 ½ Road to the west, and previous Filings 1 through 5 to the north. Across 27 ½ Road, to the west, is a vacant field with Crestview, Bell Ridge, and Ptarmigan Ridge Subdivisions to the north and west. Primary access to the site will be from 27 ½ Road through Piazza Way to extensions of Fairwood Place and Briar Ridge Way which were partially constructed in the previous filings to the north.

Ground cover for the site consists of native grasses and weeds with a few sparse clusters of sage brush and small trees. The site is currently fallow and previously contained two residential dwellings with associated outbuildings and large trees. Terrain is rolling, generally sloping to the southwest at 1 to 2 percent in most of the northern portion, but with bluffs in the southern portion having slopes of 10% to 30% on the face.

In researching the soils types at this location, information was obtained from the Natural Resources Conservation Service and it has been determined that the soils at the site can be classified as predominantly Fruita and Ravola loams, with small portions of the site containing Billings silty clay loam and Chipeta and Persayo materials. Given these soil types, the locations and quantities of the various types, and the site topography, the soils at this site would be generally categorized under a Hydrologic Soil Group B, which are soils having moderately high infiltration rates and relatively slow rates of runoff.

II. EXISTING DRAINAGE CONDITIONS

The entire Knolls project lies within an unnamed major drainage basin beginning approximately 1/4 mile to the northeast, near Interstate 70 and the Government Highline Canal. It lies between the major basins of Indian Wash and the Horizon Drive Channel in a drainage system known as "Drain D" which is currently maintained by the Grand Valley Water Users Association. This watershed flows southwest in open-channels and piped sections through the northwest areas of the city, ultimately draining into the Colorado River near 25 Road. The project is split by two sub-basins of this watershed which independently drain the northern 2/3 and southern 1/3 of the entire Knolls project. These two sub-basins merge into one channel approximately 1000 feet west of the site. The major basin can be seen on the enclosed Major Basin Drainage Map. Hydraulically, the project is fairly isolated with regard to impacts from offsite areas. Runoff onto the site from the north and east is diverted by Cortland Avenue and independently controlled stormwater management facilities of the surrounding developments.

The northern portion of the Knolls project is currently in a developed condition and drains to a stormwater detention facility located in the west-central part of the project, near the 27 ½ Road discharge point of the northern basin. In this area, existing wetlands were defined and delineated through the previous development process of filing two. No other wetlands are known to exist within the site.

Most of the area containing filings 1 through 5 drains to existing stormwater facilities in the northern basin. The remaining site (filings 6 and 7) drains generally to the southwest and is collected by the large open drain ditch (Drain "D")existing along the southern boundary. This ditch discharges to the west under 27 ½ Road through an existing 18" culvert. Some minor runoff from the existing Spring Valley Subdivision to the east and south of this ditch may be currently directed into the channel.

In researching the flood plain hazard for the area, reference was made to the Flood Insurance Rate Map for Mesa County as produced by the Federal Emergency Management Agency (FEMA), revised July, 1992 (Panel # 080117-0004 E). No part of the site exists within an identified 100-year flood boundary as defined by this map. Proposed development of this site is therefore not impacted by the flood plain.

III. PROPOSED DRAINAGE CONDITIONS

No adverse change in offsite drainage impact is proposed to adjacent lands surrounding The Knolls Subdivision. Proposed drainage patterns within the site will be modified, as customary, to accommodate development and to better control surface flows to designated collection areas. In general, runoff will continue to be collected from the site and flow south and west to the existing culverts under 27 ½ Road where it will be carried by existing channels and drain lines to the Colorado River. All but approximately three acres of filings 1 through 5 drain into the northern basin and utilize the existing stormwater management facilities. Three acres of existing developed ground, consisting mainly of rear-yards developed by filing 4, drain to the southern basin along with approximately 15 acres of currently undeveloped ground (proposed filings 6 & 7). These 18 acres make up the proposed southern basin. Once Filing 6 is developed and prior to development of the last filing, 15.84 acres of this basin (basin 3A) will be directed to a temporary retention facility proposed near the natural low area in the southeast corner of the project. The remaining 2.66 acres (basin 3B), consisting mainly of rear-yards and lots along 27 ½ Road, will drain west into the existing curb and gutter of that street. This will minimize the impact by the proposed filing directly to the open drain ditch (Drain "D") along the boundary north of Spring Valley. An analysis of the historic runoff for this southern basin and the amounts of developed runoff directed into it from filings 4, 6, and 7 is included in this report. Upon development, the temporary retention pond in the southwest corner will collect developed and undeveloped runoff from Filing 6 and future Filing 7. Once Filing 7 is developed, the proposal is to provide a permanent detention facility in the southeast corner to attenuate and discharge flows into the open drain ditch at levels below historic peak flowrates (the previous 4/16/03 report was prepared to provide information for this condition). A Grading Plan is included in the appendix of this report and illustrates the proposed drainage patterns and concepts for the site. Offsite patterns are unchanged.

As with all proposed drainage improvements, access will be provided to the improvements proposed for The Knolls Subdivision. This will be done by platting easements, or tracts, where necessary on this site and acquiring easements, if necessary, on adjoining lands. A Homeowners Association formed for this development will be responsible for maintaining the drainage improvements not covered by City policies to insure proper performance and to avoid potential impacts to neighboring areas. Access to the detention basins and outlet structures will be provided, by design, directly from the streets that border the basins.

III. PROPOSED DRAINAGE CONDITIONS

No adverse change in offsite drainage impact is proposed to adjacent lands surrounding The Knolls Subdivision. Proposed drainage patterns within the site will be modified, as customary, to accommodate development and to better control surface flows to designated collection areas. In general, runoff will continue to be collected from the site and flow south and west to the existing culverts under 27 ½ Road where it will be carried by existing channels and drain lines to the Colorado River. All but approximately three acres of filings 1 through 5 drain into the northern basin and utilize the existing stormwater management facilities. Three acres of existing developed ground, consisting mainly of rear-yards developed by filing 4, drain to the southern basin along with approximately 15 acres of currently undeveloped ground (proposed filings 6 & 7). These 18 acres make up the proposed southern basin. Once Filing 6 is developed and prior to development of the last filing, 15.84 acres of this basin (basin 3A) will be directed to a temporary retention facility proposed near the natural low area in the southwest corner of the project. The remaining 2.66 acres (basin 3B), consisting mainly of rear-yards and lots along 27 ½ Road, will drain west into the existing curb and gutter of that street. This will minimize the impact by the proposed filing directly to the open drain ditch (Drain "D") along the boundary north of Spring Valley. An analysis of the historic runoff for this southern basin and the amounts of developed runoff directed into it from filings 4, 6, and 7 is included in this report. Upon development, the temporary retention pond in the southwest corner will collect developed and undeveloped runoff from Filing 6 and future Filing 7. Once Filing 7 is developed, the proposal is to provide a permanent detention facility in the southeast corner to attenuate and discharge flows into the open drain ditch at levels below historic peak flowrates (the previous 4/16/03 report was prepared to provide information for this condition). A Grading Plan is included in the appendix of this report and illustrates the proposed drainage patterns and concepts for the site. Offsite patterns are unchanged.

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IV. DESIGN CRITERIA AND APPROACH

To our knowledge there has been no master plan completed for this area to determine if any large-scale drainage improvements are proposed for the immediate region. For each development in the vicinity that has been approved and constructed, an individual Drainage Report would have been required to identify the proposed improvements for each development. These reports discuss how stormwater will be conveyed to prevent adverse impacts to adjoining properties. Given that this project is proposing to detain/retain undeveloped and developed runoff and release it at levels not exceeding historic peak rates, adjacent lands should be unaffected by improvements to this site.

This report is based on completion of grading for Filing 6, only, in this construction phase. Future Filing 7, for the purposes of this report, is considered generally undeveloped with the exception of construction of temporary swales and a retention pond. Streets and most utilities will be installed only to the extent required for servicing Filing 6, at this time. Temporary swales will direct runoff to the retention facility through unfinished portions of Filing 7, until such time as development is completed for that Filing. At ultimate build-out, the original report dated 4/16/03 will apply.

As required, this Final Drainage Report has been prepared to provide calculated runoff for the Knolls Subdivision from various storm events. Hydrology calculations were performed for historic and developed conditions for the 2-year and 100-year storms. The calculations are in accordance with the Stormwater Management (SWM) Manual, May, 1996, as prepared by the City of Grand Junction. Runoff calculations were performed using the Rational Method. To complete these calculations, parameter selection and design procedures were based on composite runoff coefficients and storm intensity values from tables presented in the SWM manual. The intensities correspond with the appropriate times of concentration obtained for each basin. Detention facilities proposed for this development utilize the Modified Rational Method to determine the required volume. Volume requirements were determined to detain developed stormwater flows and attenuate peak releases to levels equivalent to, or less than, the 2-year and 100 year historic events.

Some hydrologic and hydraulic data was obtained from previous drainage reports for filings 1 through 5. Outlet structures are detailed in the construction drawings for this filing. Pond routing was performed for the site by calculating all runoff using the Rational Method and routing it through proposed ponds as required. Developed peak runoff was successfully routed and attenuated to be at combined levels less than historic.

Once the hydrology calculations were completed for The Knolls Subdivision, drainage improvements and structures were designed where required. Size requirements for surface and circular channels were accomplished by the use of Manning's Equation for gravity flow. Additional characteristics of the proposed materials were considered in these calculations. Detention pond and outlet structure design utilized computer software, such as Haestad Methods Pond-2 software.

IV. RESULTS AND CONCLUSIONS

AREAS

Basin 3 (total)	18.50 acres	
Basin 3a-1 (developed)	8.31 acres	*Basin 3a drains to retention
Basin 3a-2 (undeveloped)	7.53 acres	
Basin 3b-1 (developed)	1.76 acres	*Basin 3b drains to 27 ½ Road
Basin 3b-2 (undeveloped)	0.90 acres	

RUNOFF COEFFICIENTS - "C"

Bare / Fallow	- 0.14 (2 yr.)	0.20 (100 yr.)
Developed (¼ ac./unit)	- 0.29 (2 yr.)	0.38 (100 yr.)

TIMES OF CONCENTRATION

South Basin	-	28 minutes (Historic)
Basin 3a	-	18 minutes
Basin 3b	-	13 minutes

RUNOFF (All Flows are C.F.S.)

-HISTORIC FLOWS-

		2 yr	100 yr	
South Basin	-	**1.91**	**10.73**	- (FROM PREVIOUS FILING 4 & 5 REPORT)

-DEVELOPED FLOWS-

		(Prior to retention)		(Released flows)		
		2 yr	100 yr	2 yr	100 yr	
Basin 3a	-	2.49	12.94	0.10*	0.10*	* - pumped per City
Basin 3b	-	0.53	2.75	0.53	2.75	
Basin 3 Total	-	n/a	n/a	**0.63**	**2.85**	(Total released less than historic)

RETENTION POND INFORMATION (Top bank elevation: 4710.0)

Volume Required = $Precipitation_{100}$ x Area x C_{100}
= (2.01" x 8.31 ac. x 0.38) + (2.01" x 7.53 ac. x 0.20)
= 34,028 ft^3 (required) (40,819 ft^3 available, **therefore O.K.**)

IV. RESULTS AND CONCLUSIONS

AREAS

Basin 3 (total)	18.50 acres	
Basin 3a-1 (developed)	8.31 acres	*Basin 3a drains to retention
Basin 3a-2 (undeveloped)	7.53 acres	
Basin 3b-1 (developed)	1.76 acres	*Basin 3b drains to 27 ½ Road
Basin 3b-2 (undeveloped)	0.90 acres	

RUNOFF COEFFICIENTS - "C"

Bare / Fallow	- 0.14 (2 yr.)	0.20 (100 yr.)
Developed (¼ ac./unit)	- 0.29 (2 yr.)	0.38 (100 yr.)

TIMES OF CONCENTRATION

South Basin	-	28 minutes (Historic)
Basin 3a	-	18 minutes
Basin 3b	-	13 minutes

RUNOFF (All Flows are C.F.S.)

-HISTORIC FLOWS-

		2 yr	100 yr	
South Basin	-	**1.91**	**10.73**	- (FROM PREVIOUS FILING 4 & 5 REPORT)

-DEVELOPED FLOWS-

		(Prior to retention)		(Released flows)		
		2 yr	100 yr	2 yr	100 yr	
Basin 3a	-	2.49	12.94	0.10*	0.10*	* - pumped per City
Basin 3b	-	0.53	2.75	0.53	2.75	
Basin 3 Total	-	n/a	n/a	**0.63**	**2.85**	(Total released less than historic)

RETENTION POND INFORMATION (Top bank elevation: 4705.0)

Volume Required = $Precipitation_{100}$ x Area x C_{100}
= 2.01" x 15.84 acres x 0.38
= 43,918 ft^3 (required) (64,792 ft^3 available, **therefore O.K.**)

CONCLUSION

In conformance with the City of Grand Junction SWM Manual, the developed site will discharge runoff at peak levels less than the historic rates. Basin 3b will discharge overland sheetflows directly to 27 ½ Road and Basin 3a will drain to the temporary retention pond for a controlled release (pumped) at a rate dictated by the City's requirement to drain retention volumes within 48 hours. The combined release rate of Basins 3a and 3b will be greatly reduced form the historic rate of the historic 18 acre basin.

This stormwater management concept, therefore, allows the Knolls Subdivision to conform with the drainage criteria established by the City of Grand Junction.

APPENDIX

1. SITE MAPS

Vicinity Map
PRE-DEVELOPMENT DRAINAGE MAP
POST-DEVELOPMENT DRAINAGE MAP
MAJOR BASIN DRAINAGE MAP
GRADING PLAN
STORMWATER MANAGEMENT PLAN

2. COEFFICIENTS

"C" Values - From SWM Manual

3. TIMES OF CONCENTRATION

Summary
SOUTH BASIN (HISTORIC)
Developed Basin 3a
Developed Basin 3b

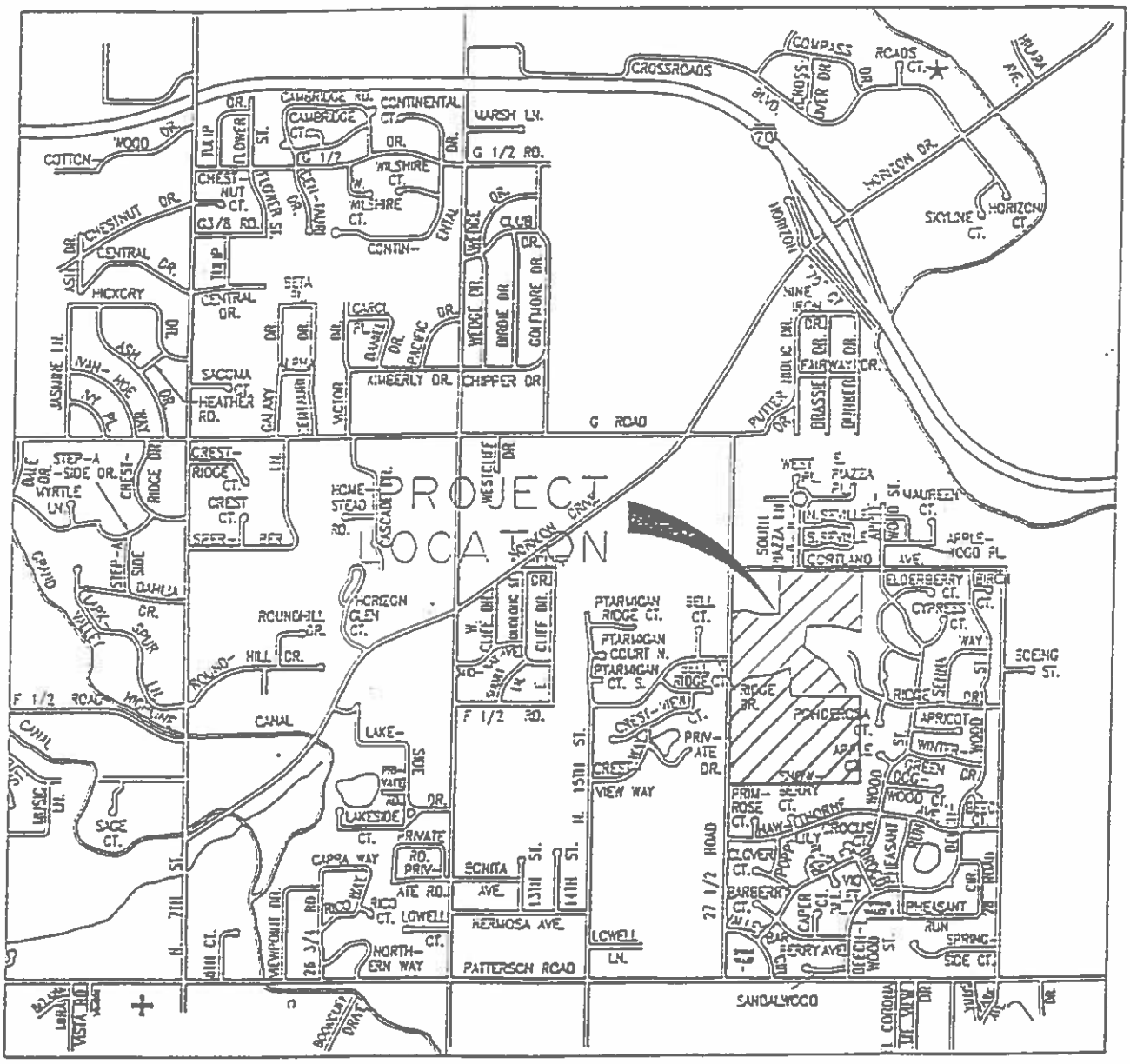
4. RUNOFF

South Basin Historic	-	2 Year
South Basin Historic	-	100 Year
Basin 3a Developed	-	2 Year
Basin 3a Developed	-	100 Year
Basin 3b Developed	-	2 Year
Basin 3b Developed	-	100 Year

5. HYDRAULICS

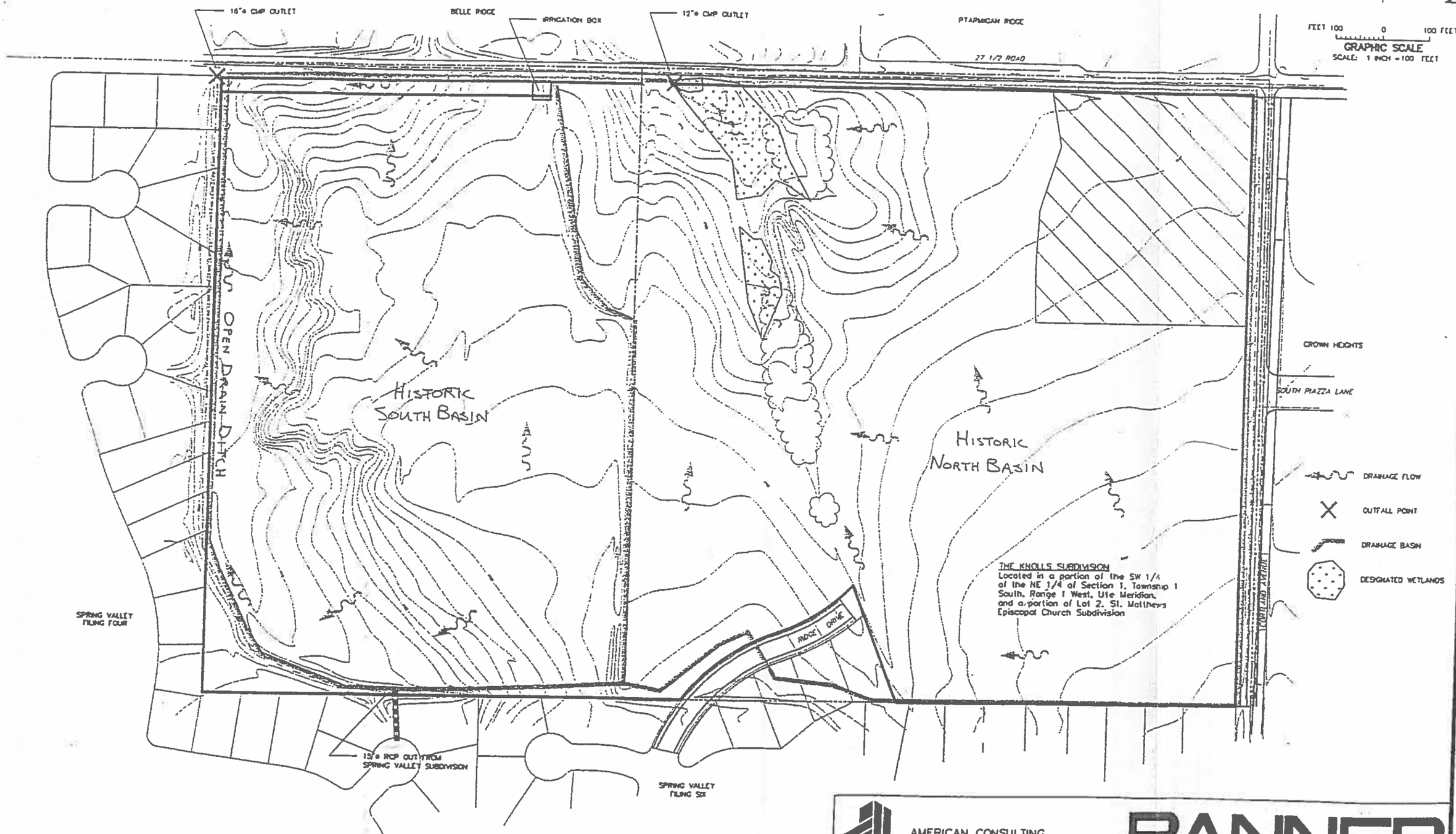
Stage / Storage Pond Information

SECTION 1
SITE MAPS



VICINITY MAP

PRE-DEVELOPMENT DRAINAGE PLAN

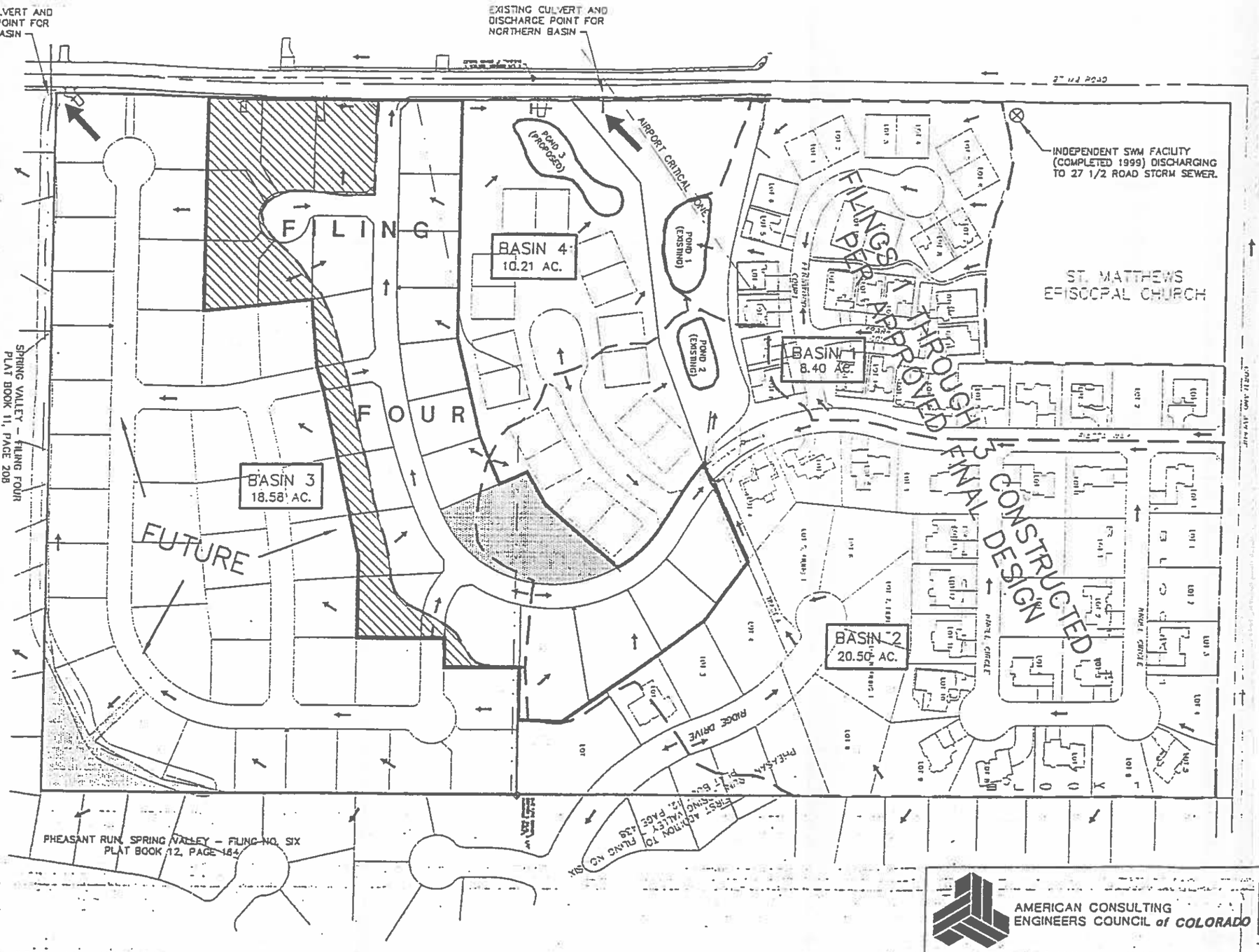


AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

BANNER

BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

POST-DEVELOPMENT DRAINAGE MAP



N

FEET 200 0 200 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 200 FEET

LEGEND

- 3.08 AC. OF FILING 4 DRAINING TO SOUTHERN BASIN
- BASIN BOUNDARY
- FILING 4 BOUNDARY

AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO

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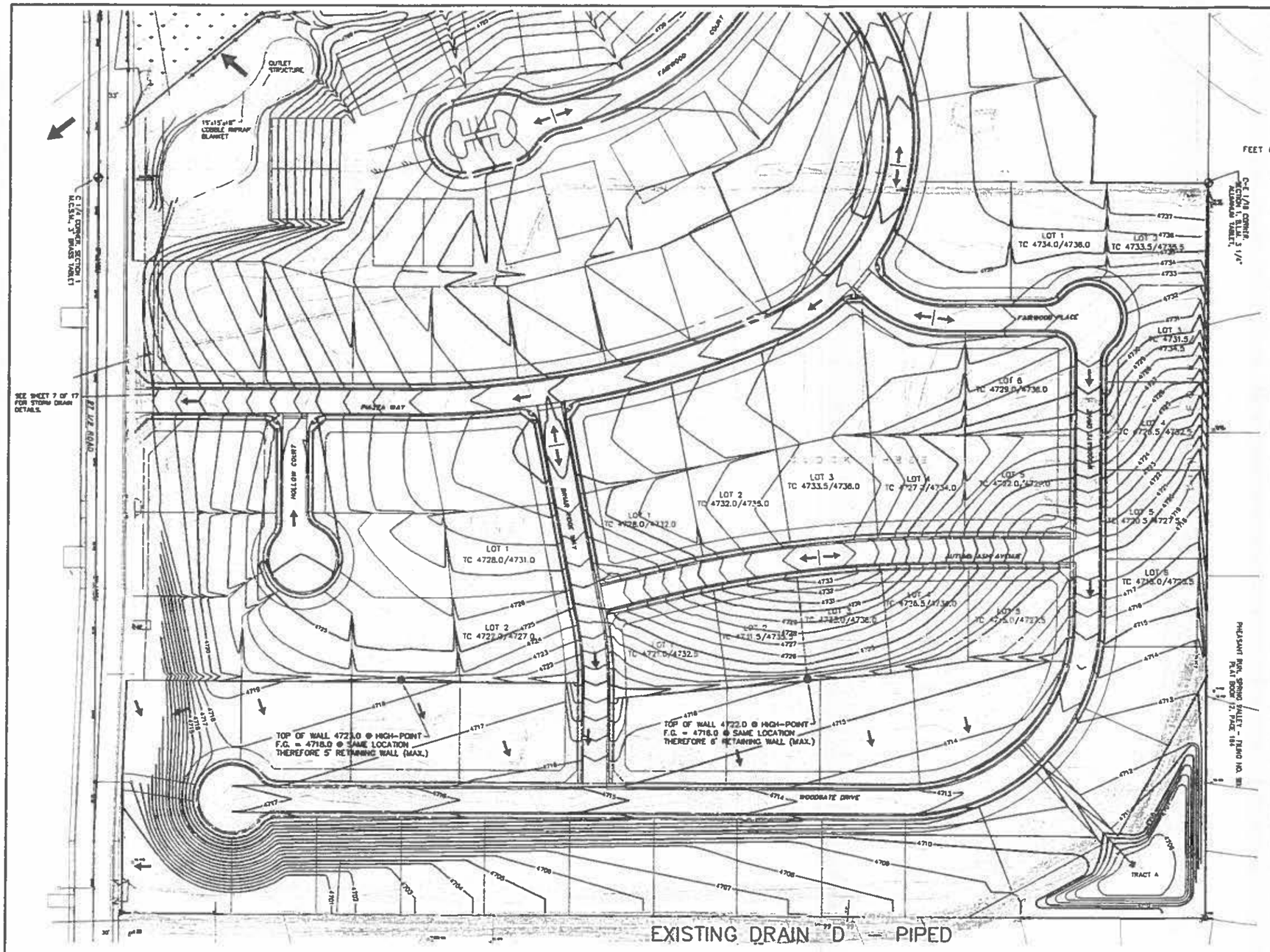
BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

PRELIMINARY MAJOR BASIN
DRAINAGE MAP



NOTE: SITE RUNOFF TO BE ROUTED TO DETENTION POND IN SOUTHEAST CORNER OF SITE (TRACT-A FUTURE FILING 7) FOR TEMPORARY PUMPING TO 27 1/2 ROAD PER CITY OF GRAND JUNCTION RETENTION REQUIREMENTS.

GENERAL NOTES:

1. CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
2. SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

N

FEET 60 0 60 FEET

GRAPHIC SCALE

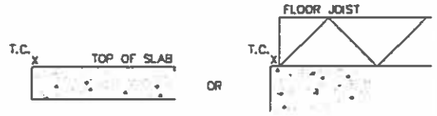
SCALE: 1 INCH = 60 FEET

KNOLLS SUBDIVISION
TOP OF CONCRETE ELEVATION TABULATION
9/26/03

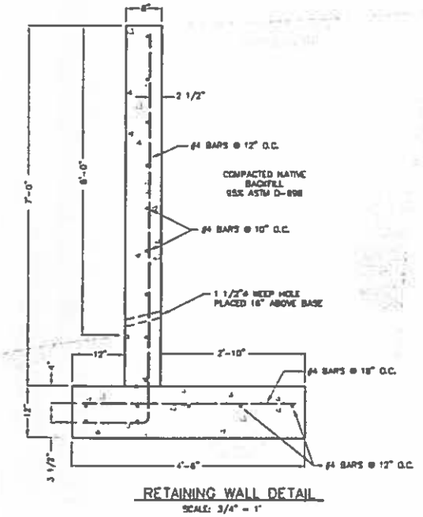
LOT	BLOCK	ADDRESS	(MINIMUM) T.C. ELEV.	(MAXIMUM) T.C. ELEV.
1	1	____ BRIAR RIDGE WAY	4728.0	4731.0
2	1	____ BRIAR RIDGE WAY	4722.0	4727.0
1	2	____ AUTUMN ASH AVENUE	4721.0	4732.5
1	2	____ BRIAR RIDGE WAY	4721.0	4732.5
2	2	____ AUTUMN ASH AVENUE	4731.5	4735.5
3	2	____ AUTUMN ASH AVENUE	4733.0	4736.0
4	2	____ AUTUMN ASH AVENUE	4726.5	4734.0
5	2	____ AUTUMN ASH AVENUE	4715.0	4727.5
5	2	____ WOODGATE DRIVE	4715.0	4727.5
1	3	____ AUTUMN ASH AVENUE	4728.0	4732.0
1	3	____ BRIAR RIDGE WAY	4728.0	4732.0
2	3	____ AUTUMN ASH AVENUE	4732.0	4735.0
3	3	____ AUTUMN ASH AVENUE	4733.5	4736.0
4	3	____ AUTUMN ASH AVENUE	4727.0	4734.0
5	3	____ AUTUMN ASH AVENUE	4722.0	4729.0
5	3	____ WOODGATE DRIVE	4722.0	4729.0
6	3	____ WOODGATE DRIVE	4729.0	4736.0
6	3	____ FAIRWOOD PLACE	4729.0	4736.0
1	4	____ FAIRWOOD PLACE	4734.0	4736.0
2	4	____ FAIRWOOD PLACE	4733.5	4735.5
3	4	____ WOODGATE DRIVE	4731.5	4734.5
4	4	____ WOODGATE DRIVE	4726.5	4732.5
5	4	____ WOODGATE DRIVE	4720.5	4727.5
6	4	____ WOODGATE DRIVE	4718.0	4720.5

NOTE:

MINIMUM T.C. ELEVATIONS MUST BE 12" (MINIMUM) ABOVE THE BACK-OF-WALK ELEVATION PERPENDICULAR TO THE FOUNDATION (TO CREATE POSITIVE DRAINAGE TO THE STREET AND AWAY FROM FOUNDATION). MAXIMUM T.C. ELEVATIONS MUST NOT CREATE DRIVEWAY SLOPES IN EXCESS OF ALLOWABLE MAXIMUMS OR SIDE-SLOPES AWAY FROM FOUNDATIONS IN EXCESS OF 3:1 (HORIZ:VERT). THE WIDE RANGE OF ELEVATIONS IS NECESSARY, AT THIS TIME, DUE TO UNCERTAINTY IN FINAL BUILDING LOCATIONS.



T.C. = TOP OF CONCRETE
NOT TO SCALE



RETAINING WALL DETAIL
SCALE: 3/4" = 1'

LEGEND

CONTOUR (EXISTING)
CONTOUR (PROPOSED)
FILING BOUNDARY
DRAINAGE DIRECTION

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8678.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 264+38.90
NORTHING 3800.522
EASTING 8678.783

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY: S.G.S.
DESIGNED BY: P.M.O.
CHECKED BY: P.M.O.

REVIEWED _____ DATE: _____ FOR _____
REVIEWED _____ DATE: _____ FOR VISTA ENGINEERING CORP.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CK'D
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO
2	9-26-03	REVISED T.C. ELEVATIONS AS PER 2ND ROUND REVIEW COMMENTS	FJB	PMO
3	12-9-03	ADDED FILING 7 CONTOURS AND 3RD ROUND REVIEW COMMENTS	SGS	PMO

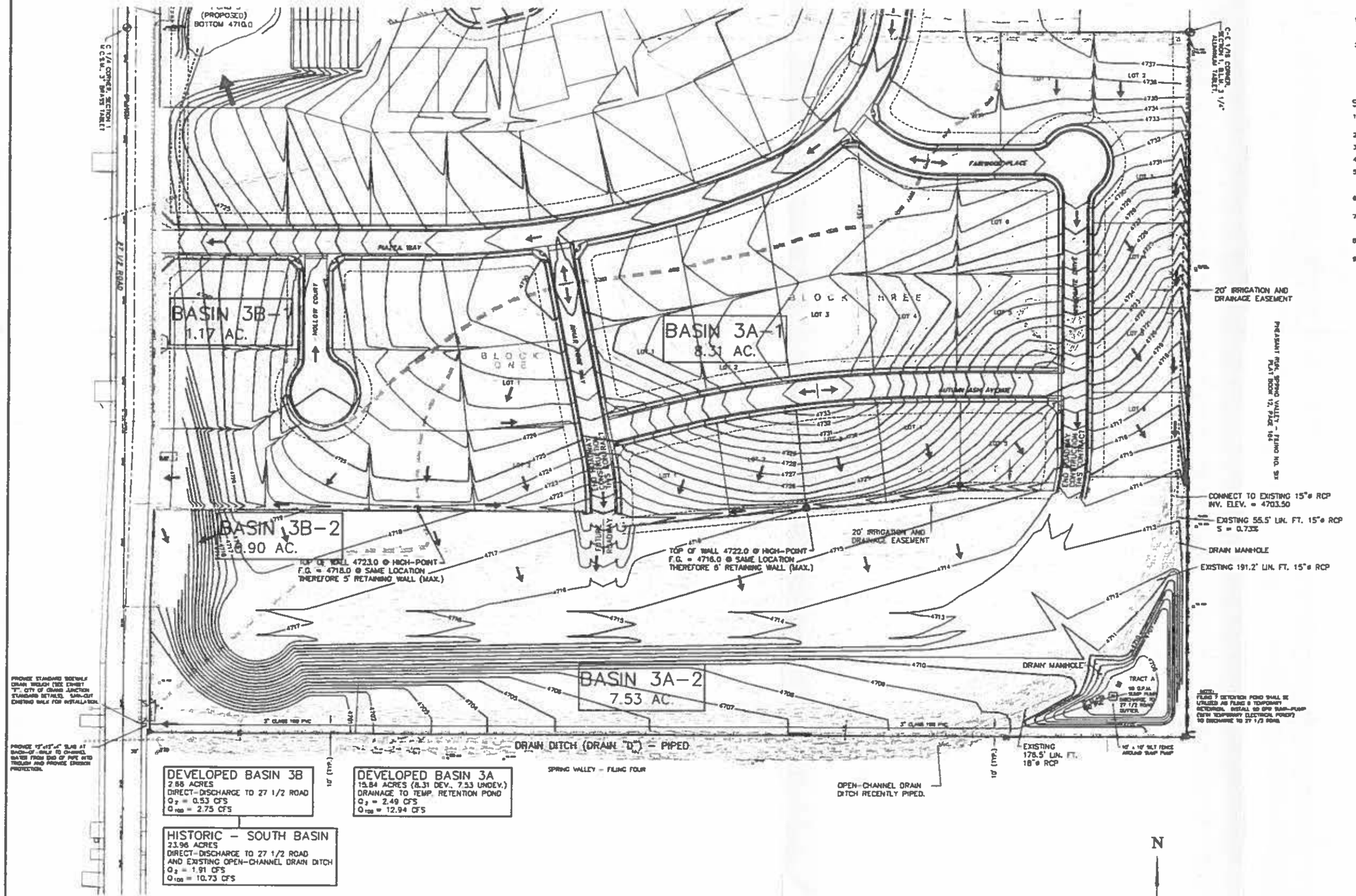
O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

GRADING PLAN
THE KNOLLS SUBDIVISION, FILING 6

SCALE: 1" = 60' | JOB NO: 4003.06-02 | DATE: 4-09-03

SHEET NO: 17 of 20

As-built 12/16/03



GENERAL NOTES:

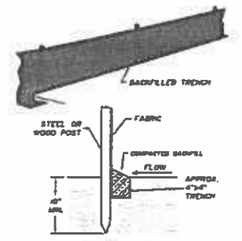
1. CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
2. SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

STORMWATER MANAGEMENT NOTES:

1. AT ALL TIMES DURING CONSTRUCTION, EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED BY THE DEVELOPER OR HIS DESIGNATED REPRESENTATIVE.
2. EROSION CONTROL SYSTEM SHALL BE INSTALLED AS GRADING PROGRESSES.
3. EROSION BALES SHALL BE STRAW OR HAY, DEPENDING ON AVAILABILITY.
4. DETAILS SHOWN ARE SCHEMATIC ONLY. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.
5. EROSION BALES SHALL BE PLACED TO AVOID RUNOFF FLOWING BETWEEN, AROUND OR UNDER BALES. BALES SHALL BE ANCHORED WITH 2" X 2" X 4' WOODEN STAKES OR #4 REINFORCING BARS, TWO PER BALE (SEE DETAILS FOR FURTHER INSTRUCTIONS).
6. NEGATIVE IMPACTS TO DOWNSTREAM AREAS (OR RECEIVING WATERS) CAUSED BY THE OVERLOT GRADING TO BE SHOWCASED AND CORRECTED BY THE DEVELOPER.
7. MULCH SHALL BE APPLIED TO ACHIEVE A STUBBLED SURFACE TO THE DESIGNATED AREAS TO PREVENT DUST AND AID IN LIMITING WIND EROSION. CONTRACTOR SHALL HAVE A WATER TRUCK MADE AVAILABLE TO ASSIST IN CONTROLLING DUST AND WIND EROSION.
8. CONSTRUCTION TRAFFIC ENTRANCES SHALL BE CLEANED ON A CONTINUAL BASIS DURING OVERLOTING AND DURING THE DURATION HOME CONSTRUCTION.
9. MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS. RECORDS OF SUCH MAINTENANCE SHALL BE RETAINED BY THE H.O.A.

LEGEND

- CONTOUR (EXISTING)
- 4710 CONTOUR (PROPOSED)
- BASIN BOUNDARY
- DRAINAGE DIRECTION
- SILT-FENCE



DETAIL B - SILT FENCE
N.T.S.

TEMPORARY RETENTION POND STAGE-VOLUME TABLE:

ELEV.	VOLUME (CUBIC-FEET)
4705	0
4706	1,400
4707	7,473
4708	16,572
4709	27,847
4710	40,819

RETENTION VOLUME REQ'D:

V = PRECIP. x AREA x C (100 YEAR)

V = (2.01"/12) x (8.31 AC. x 43,560) x (0.38)
+ (2.01"/12) x (7.53 AC. x 43,560) x (0.20)

V = 23,040 + 10,988 = 34,028 CUBIC-FEET

RETENTION POND EVACUATION:

34,028 FT 3 x 7.48 GAL/FT 3 = 254,529 GALLONS
254,529 GAL/90 G.P.M. = 2828 MINUTES = 47.1 HOURS
POND EVACUATED IN 47.1 HOURS @ 90 G.P.M.

N

FEET 60 0 60 FEET
GRAPHIC SCALE
SCALE: 1 INCH = 60 FEET

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.052
EASTING 8678.160
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 38+38.90
NORTHING 3880.552
EASTING 8678.783

APPROVED FOR CONSTRUCTION:

CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:

CITY DEVELOPMENT ENGINEER DATE

DRAWN BY:	S.G.S.	
DESIGNED BY:	P.M.O.	
CHECKED BY:	P.M.O.	

REVIEWED _____ DATE _____ FOR _____
REVIEWED _____ DATE _____ FOR VISTA ENGINEERING CORP

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CK'D
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO
2	9-26-03	REVISED AS PER 2ND ROUND REVIEW COMMENTS	SGS	PMO
3	12-3-03	ADDED FILING 7 CONTOURS AND 3RD ROUND REVIEW COMMENTS	SGS	PMO

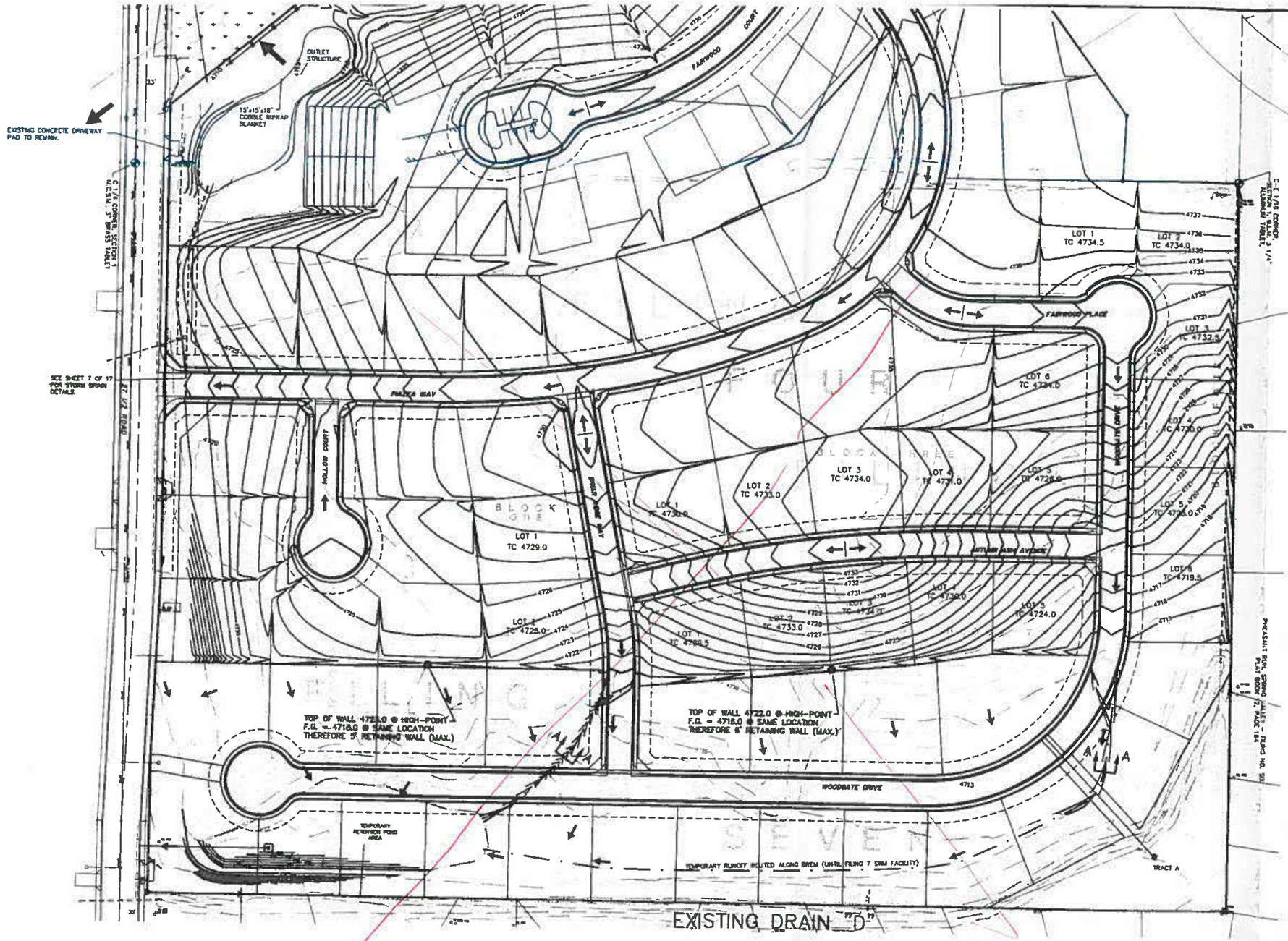
O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

STORMWATER MANAGEMENT PLAN
THE KNOLLS SUBDIVISION, FILING 6

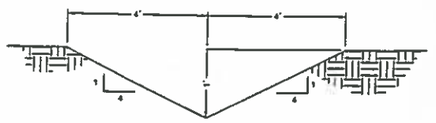
SCALE:	JOB NO.	DATE:
1" = 60'	4003.06-02	4-09-03

SHEET NO. 18 of 20

ADDED: 12/10/03



NOTE: RUNOFF TO TEMPORARILY BE ROUTED TO RETENTION POND IN SOUTHWEST CORNER OF SITE (FUTURE FILING 7). PROVIDE SWALE (SEE SECTION A-A) FROM END OF FILING 6 ROADWAYS TO EXISTING NATURAL BERM NORTH OF DRAIN "D".



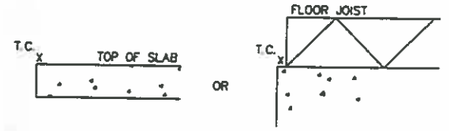
SECTION A-A
TEMPORARY SWALE
N.T.S.

GENERAL NOTES:

1. CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
2. ELEVATE EXISTING OVERFLOW SWALE (INVERT) TO ELEV. 4722.12 (FROM 4722.08 EXISTING).
3. SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION. TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

KNOLLS SUBDIVISION
TOP OF CONCRETE ELEVATION TABULATION
4/09/03

LOT	BLOCK	ADDRESS	T.C. ELEV.
1	1	BRIAR RIDGE WAY	4729.0
2	1	BRIAR RIDGE WAY	4725.0
1	2	AUTUMN ASH AVENUE	4729.5
2	2	BRIAR RIDGE WAY	4729.5
3	2	AUTUMN ASH AVENUE	4733.0
4	2	AUTUMN ASH AVENUE	4734.0
5	2	AUTUMN ASH AVENUE	4730.0
6	2	AUTUMN ASH AVENUE	4724.0
7	2	WOODGATE DRIVE	4724.0
1	3	AUTUMN ASH AVENUE	4730.0
2	3	BRIAR RIDGE WAY	4730.0
3	3	AUTUMN ASH AVENUE	4733.0
4	3	AUTUMN ASH AVENUE	4734.0
5	3	AUTUMN ASH AVENUE	4731.0
6	3	AUTUMN ASH AVENUE	4728.0
7	3	WOODGATE DRIVE	4728.0
8	3	WOODGATE DRIVE	4734.0
9	3	FAIRWOOD PLACE	4734.0
1	4	FAIRWOOD PLACE	4734.5
2	4	FAIRWOOD PLACE	4734.0
3	4	WOODGATE DRIVE	4732.5
4	4	WOODGATE DRIVE	4730.0
5	4	WOODGATE DRIVE	4725.0
6	4	WOODGATE DRIVE	4719.5



T.C. = TOP OF CONCRETE (MINIMUM ELEVATION)
NOT TO SCALE

REVISED 12/10/03

LEGEND

- CONTOUR (EXISTING)
- 4710 CONTOUR (PROPOSED)
- FILING BOUNDARY
- DRAINAGE DIRECTION

PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8878.160
ELEVATION 4733.96

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA. 58+36.90
NORTHING 3981.582
EASTING 8878.783

N

FEET 60 0 60 FEET
GRAPHIC SCALE
SCALE: 1 INCH = 60 FEET

APPROVED FOR CONSTRUCTION:
CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:
CITY DEVELOPMENT ENGINEER DATE

DRAWN BY:	S.O.S.
DESIGNED BY:	P.M.O.
CHECKED BY:	P.M.O.

REVIEWED _____
DATE: _____ FOR _____
REVIEWED _____
DATE: _____ FOR VISTA ENGINEERING CORP.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

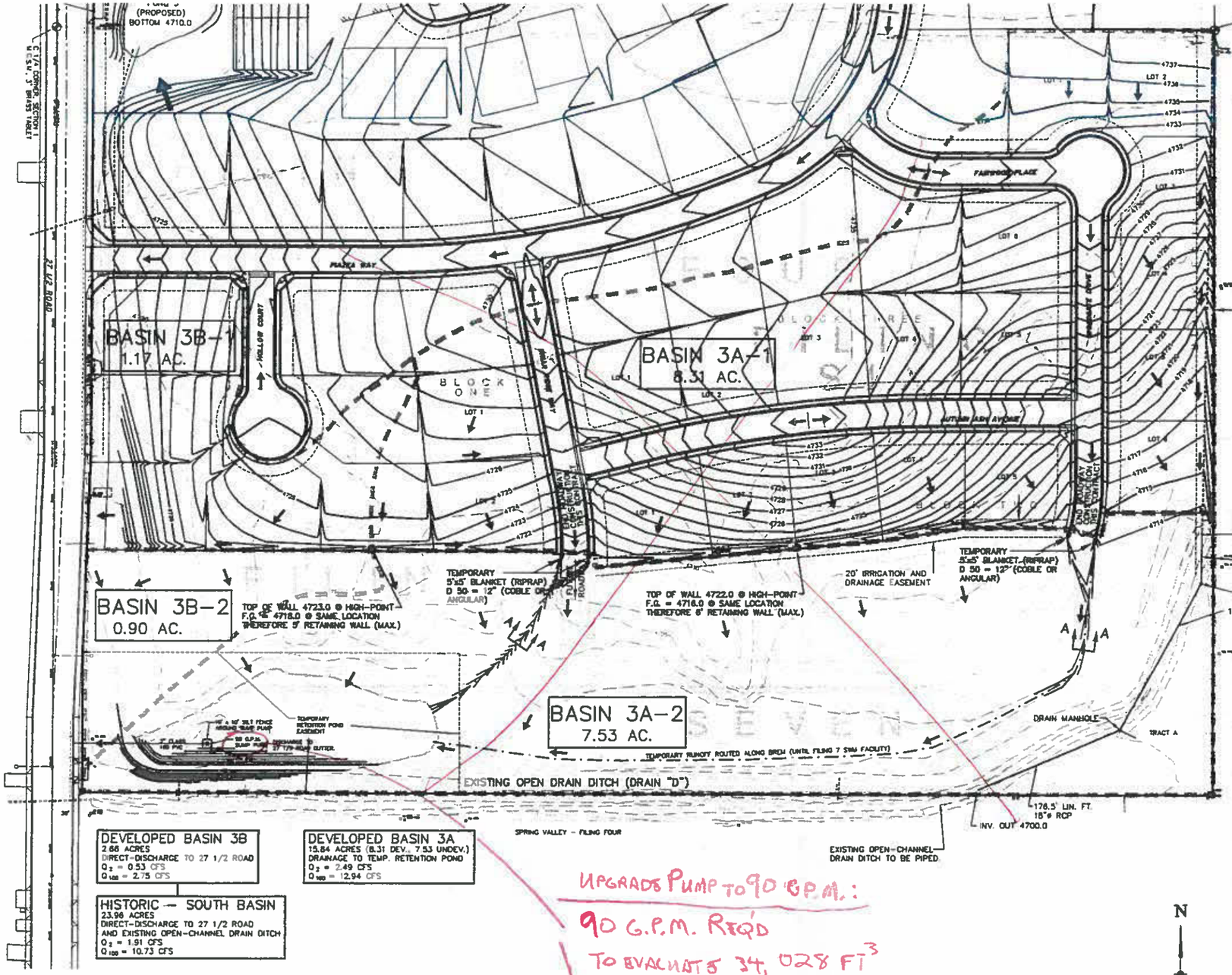
REVISION	DATE	DESCRIPTION	BY	CHD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SOS	PMO

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

GRADING PLAN
THE KNOLLS SUBDIVISION, FILING 6

SCALE:	JOB NO.	DATE:
1" = 60'	4003.06-02	4-09-03

SHEET NO.
17 of 20



GENERAL NOTES:

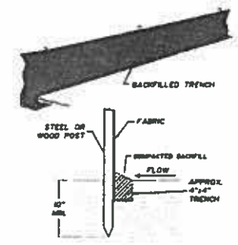
1. CONSTRUCTION STAGING AREAS WILL BE THE UNDEVELOPED LOTS THAT MAKE UP THE LOTS. NO STAGING AREAS WILL BE PERMITTED ON ANY ADJACENT PROPERTIES.
2. SITE TOPSOIL IS NOT SUITABLE FOR SUPPORT OF PROPOSED CONSTRUCTION TOPSOIL SHALL BE STRIPPED FROM ALL FILL AREAS AND STRUCTURAL PAD AREAS AND STOCKPILED FOR USE ON FINAL OVERLOT GRADING.

STORMWATER MANAGEMENT NOTES:

1. AT ALL TIMES DURING CONSTRUCTION, EROSION AND SEDIMENT CONTROL SHALL BE MAINTAINED BY THE DEVELOPER OR HIS DESIGNATED REPRESENTATIVE.
2. EROSION CONTROL SYSTEM SHALL BE INSTALLED AS GRADING PROGRESSES.
3. EROSION BALES SHALL BE STRAW OR HAY, DEPENDING ON AVAILABILITY.
4. DETAILS SHOWN ARE SCHEMATIC ONLY. ADJUST AS NECESSARY TO FIT FIELD CONDITIONS.
5. EROSION BALES SHALL BE PLACED TO AVOID RUNOFF FLOWING BETWEEN, AROUND OR UNDER BALES. BALES SHALL BE ANCHORED WITH 2" X 2" X 4' WOODEN STAKES OR #4 REINFORCING BARS, TWO PER BALE (SEE DETAILS FOR FURTHER INSTRUCTIONS).
6. NEGATIVE IMPACTS TO DOWNSTREAM AREAS (OR RECEIVING WATERS) CAUSED BY THE OVERLOT GRADING TO BE MONITORED AND CORRECTED BY THE DEVELOPER.
7. MULCH SHALL BE APPLIED TO ACHIEVE A STUBBLED SURFACE TO THE DESIGNATED AREAS TO PREVENT DUST AND AID IN LIMITING WIND EROSION. CONTRACTOR SHALL HAVE A WATER TRUCK MADE AVAILABLE TO ASSIST IN CONTROLLING DUST AND WIND EROSION.
8. CONSTRUCTION TRAFFIC ENTRANCES SHALL BE CLEANED ON A CONTINUAL BASIS DURING OVERLOTTING AND DURING THE DURATION HOME CONSTRUCTION.
9. MAINTENANCE OF THE STORMWATER MANAGEMENT FACILITIES SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS. RECORDS OF SUCH MAINTENANCE SHALL BE RETAINED BY THE H.O.A.

LEGEND

- 4710 — CONTOUR (EXISTING)
- CONTOUR (PROPOSED)
- BASIN BOUNDARY
- DRAINAGE DIRECTION
- SILT-FENCE



DETAIL B – SILT FENCE
N.T.S.

REVISED 12/10/03

SECTION A-A
TEMPORARY SWALE
N.T.S.

DEVELOPED BASIN 3B
2.66 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD
Q_2 = 0.53 CFS
Q_{100} = 2.75 CFS

DEVELOPED BASIN 3A
15.84 ACRES (8.31 DEV., 7.53 UNDEV.)
DRAINAGE TO TEMP. RETENTION POND
Q_2 = 2.49 CFS
Q_{100} = 12.94 CFS

HISTORIC – SOUTH BASIN
23.98 ACRES
DIRECT-DISCHARGE TO 27 1/2 ROAD AND EXISTING OPEN-CHANNEL DRAIN DITCH
Q_2 = 1.91 CFS
Q_{100} = 10.73 CFS

UPGRADE PUMP TO 90 G.P.M.:
90 G.P.M. REQ'D TO EVACUATE 34,028 FT³ IN 48 HOURS

TEMPORARY RETENTION POND STAGE-VOLUME TABLE:

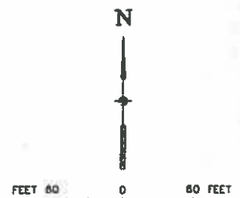
ELEV.	VOLUME (CUBIC-FEET)
4699	0
4700	1,368
4701	5,601
4702	13,608
4703	25,509
4704	42,096
4705	64,792

RETENTION VOLUME REQ'D:

V = PRECIP. x AREA x C (100 YEAR)

V = (2.01"/12) x (8.31 AC. x 43,560) x (0.38)
+ (2.01"/12) x (7.53 AC. x 43,560) x (0.20)

V = 23,040 + 10,988 = 34,028 CUBIC-FEET



PROJECT BENCHMARK/CONTROL

MCSM C-N 1/16 COR. SEC. 1
27-1/2 ROAD & CORTLAND AVE.
NORTHING 5001.082
EASTING 8978.180
ELEVATION 4733.98

MCSM C 1/4 COR. SEC. 1
27-1/2 ROAD STA 36+38.90
NORTHING 3680.552
EASTING 8978.783

APPROVED FOR CONSTRUCTION:
CITY DEVELOPMENT ENGINEER DATE

ACCEPTED AS CONSTRUCTED:
CITY DEVELOPMENT ENGINEER DATE

DRAWN BY:	S.G.S.
DESIGNED BY:	P.M.O.
CHECKED BY:	P.M.O.

REVIEWED _____ DATE: _____ FOR _____
REVIEWED _____ DATE: _____ FOR VISTA ENGINEERING CORP.

VISTA ENGINEERING CORP.
CONSULTING ENGINEERS AND LAND SURVEYORS
2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242

REVISION	DATE	DESCRIPTION	BY	CHD
1	7-14-03	REVISED AS PER 1ST ROUND REVIEW COMMENTS	SGS	PMO

O.P. DEVELOPMENT CO., LLC — GRAND JUNCTION, COLORADO

STORMWATER MANAGEMENT PLAN
THE KNOLLS SUBDIVISION, FILING 6

SCALE: 1" = 60' | JOB NO: 4003.06-02 | DATE: 4-09-03
SHEET NO: 18 of 20

SECTION 2
COEFFICIENTS

LAND USE OR SURFACE CHARACTERISTICS	SCS HYDROLOGIC SOIL GROUP (SEE APPENDIX "C" FOR DESCRIPTIONS)											
	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
UNDEVELOPED AREAS												
Bare ground	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .40 - .48	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Cultivated/Agricultural	.08 - .18 .14 - .24	.13 - .23 .18 - .28	.16 - .26 .22 - .32	.11 - .19 .16 - .24	.15 - .23 .21 - .29	.21 - .29 .28 - .36	.14 - .22 .20 - .28	.19 - .27 .25 - .33	.26 - .34 .34 - .42	.18 - .26 .24 - .32	.23 - .31 .29 - .37	.31 - .39 .41 - .49
Pasture	.12 - .22 .15 - .25	.20 - .30 .25 - .35	.30 - .40 .37 - .47	.18 - .26 .23 - .31	.28 - .36 .34 - .42	.37 - .45 .45 - .53	.24 - .32 .30 - .38	.34 - .42 .42 - .50	.44 - .52 .52 - .60	.30 - .38 .37 - .45	.40 - .48 .50 - .58	.50 - .58 .62 - .70
Meadow	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .44 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Forest	.05 - .15 .08 - .18	.08 - .18 .11 - .21	.11 - .21 .14 - .24	.08 - .16 .10 - .18	.11 - .19 .14 - .22	.14 - .22 .18 - .26	.10 - .18 .12 - .20	.13 - .21 .16 - .24	.16 - .24 .20 - .28	.12 - .20 .15 - .23	.16 - .24 .20 - .28	.20 - .28 .25 - .33
RESIDENTIAL AREAS												
1/8 acre per unit	.40 - .50 .48 - .58	.43 - .53 .52 - .62	.46 - .56 .55 - .65	.42 - .50 .50 - .58	.45 - .53 .54 - .62	.50 - .58 .59 - .67	.45 - .53 .53 - .61	.48 - .56 .57 - .65	.53 - .61 .64 - .72	.48 - .56 .56 - .64	.51 - .59 .60 - .68	.57 - .65 .69 - .77
1/4 acre per unit	.27 - .37 .35 - .45	.31 - .41 .39 - .49	.34 - .44 .42 - .52	.29 - .37 .38 - .46	.34 - .42 .42 - .50	.38 - .46 .47 - .55	.32 - .40 .41 - .49	.36 - .44 .45 - .53	.41 - .49 .52 - .60	.35 - .43 .43 - .51	.39 - .47 .47 - .55	.45 - .53 .57 - .65
1/3 acre per unit	.22 - .32 .31 - .41	.26 - .36 .35 - .45	.29 - .39 .38 - .48	.25 - .33 .33 - .41	.29 - .37 .38 - .46	.33 - .41 .42 - .50	.28 - .36 .36 - .44	.32 - .40 .41 - .49	.37 - .45 .48 - .56	.31 - .39 .39 - .47	.35 - .43 .43 - .51	.42 - .50 .53 - .61
1/2 acre per unit	.16 - .26 .25 - .35	.20 - .30 .29 - .39	.24 - .34 .32 - .42	.19 - .27 .28 - .36	.23 - .31 .32 - .40	.28 - .36 .36 - .44	.22 - .30 .31 - .39	.27 - .35 .35 - .43	.32 - .40 .42 - .50	.26 - .34 .34 - .42	.30 - .38 .38 - .46	.37 - .45 .48 - .56
1 acre per unit	.14 - .24 .22 - .32	.19 - .29 .26 - .36	.22 - .32 .29 - .39	.17 - .25 .24 - .32	.21 - .29 .28 - .36	.26 - .34 .34 - .42	.20 - .28 .28 - .36	.25 - .33 .32 - .40	.31 - .39 .40 - .48	.24 - .32 .31 - .39	.29 - .37 .35 - .43	.35 - .43 .46 - .54
MISC. SURFACES												
Pavement and roofs	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97
Traffic areas (soil and gravel)	.55 - .65 .65 - .70	.60 - .70 .70 - .75	.64 - .74 .74 - .79	.60 - .68 .68 - .76	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.69 - .77 .77 - .85	.72 - .80 .79 - .87	.75 - .83 .82 - .90	.77 - .85 .84 - .92
Green landscaping (lawns, parks)	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .42 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Non-green and gravel landscaping	.30 - .40 .34 - .44	.36 - .46 .42 - .52	.45 - .55 .50 - .60	.45 - .55 .50 - .60	.42 - .50 .48 - .56	.50 - .58 .57 - .65	.40 - .48 .46 - .54	.48 - .56 .55 - .63	.56 - .64 .64 - .72	.44 - .52 .50 - .58	.50 - .58 .60 - .68	.60 - .68 .70 - .78
Cemeteries, playgrounds	.20 - .30 .24 - .34	.26 - .36 .32 - .42	.35 - .45 .40 - .50	.35 - .45 .40 - .50	.32 - .40 .38 - .46	.40 - .48 .47 - .55	.30 - .38 .36 - .44	.38 - .44 .45 - .53	.46 - .54 .54 - .62	.34 - .42 .40 - .48	.40 - .48 .50 - .58	.50 - .58 .60 - .68

NOTES:
1. Values above and below pertain to the 2-year and 100-year storms, respectively.
2. The range of values provided allows for engineering judgement of site conditions such as basic shape, homogeneity of surface type, surface depression storage, and storm duration. In general, during shorter duration storms (Tc ≤ 10 minutes), infiltration capacity is higher, allowing use of a "C" value in the low range. Conversely, for longer duration storms (Tc) 30 minutes), use a ""C value in the higher range.
3. For residential development at less than 1/8 acre per unit or greater than 1 acre per unit, and also for commercial and industrial areas, use values under MISC' SURFACES to estimate "C" value ranges for use.

RATIONAL METHOD RUNOFF COEFFICIENTS
(Modified from Table 4, UC-Davis, which appears to be a modification of work done by Rawls)

TABLE "B-1"

SECTION 3
TIMES OF CONCENTRATION

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Subarea descr.	Tc or Tt	Time (hrs)	
HIST - SOUTH	Tc	0.46	- 28 MINUTES
DEV. BASIN 3a	Tc	0.30	- 18 MINUTES
DEV. BASIN 3b	Tc	0.22	- 13 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: HIST - SOUTH

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		FALLOW		
Manning's roughness coeff., n		0.0400		
Flow length, L (total < or = 300)	ft	300.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0200		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.29	=	0.29

SHALLOW CONCENTRATED FLOW

Segment ID			2	3		
Surface (paved or unpaved)?			Unpaved	Unpaved		
Flow length, L		ft	700.0	600.0		
Watercourse slope, s		ft/ft	0.0100	0.0467		
$Avg.V = Csf * (s)^{0.5}$		ft/s	1.6135	3.4867		
where: Unpaved Csf = 16.1345						
Paved Csf = 20.3282						
T = L / (3600*V)		hrs	0.12	+ 0.05	=	0.17

CHANNEL FLOW

Segment ID					
Cross Sectional Flow Area, a	sq.ft	0.00			
Wetted perimeter, Pw	ft	0.00			
Hydraulic radius, r = a/Pw	ft	0.000			
Channel slope, s	ft/ft	0.0000			
Manning's roughness coeff., n		0.0000			
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	0.0000			
Flow length, L	ft	0			
T = L / (3600*V)	hrs	0.00		=	0.00

::

TOTAL TIME (hrs) 0.46

28 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: DEV. BASIN 3a

SHEET FLOW (Applicable to Tc only)

Segment ID		1		
Surface description		LAWN		
Manning's roughness coeff., n		0.0450		
Flow length, L (total < or = 300)	ft	120.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0300		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.13	=	0.13

SHALLOW CONCENTRATED FLOW

Segment ID		2		
Surface (paved or unpaved)?		Unpaved		
Flow length, L	ft	100.0		
Watercourse slope, s	ft/ft	0.0400		
$Avg.V = Csf * (s)^{0.5}$	ft/s	3.2269		
where: Unpaved Csf = 16.1345				
Paved Csf = 20.3282				
T = L / (3600*V)	hrs	0.01	=	0.01

CHANNEL FLOW

Segment ID		3		
Cross Sectional Flow Area, a	sq.ft	4.00		
Wetted perimeter, Pw	ft	24.00		
Hydraulic radius, r = a/Pw	ft	0.167		
Channel slope, s	ft/ft	0.0050		
Manning's roughness coeff., n		0.0160		
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	1.9943		
Flow length, L	ft	1150		
T = L / (3600*V)	hrs	0.16	=	0.16

::

TOTAL TIME (hrs) 0.30

18 MINUTES

Quick TR-55 Ver.5.46 S/N:
Executed: 15:06:34 03-24-2003 KNOLLS6.TCT

KNOLLS SUBDIVISION - FILING 6 (AND FUTURE AREAS)
REMAINDER OF PROJECT
3/24/03

Tc COMPUTATIONS FOR: DEV. BASIN 3b

SHEET FLOW (Applicable to Tc only)

Segment ID		1	
Surface description		LAWN	
Manning's roughness coeff., n		0.0450	
Flow length, L (total < or = 300)	ft	170.0	
Two-yr 24-hr rainfall, P2	in	0.700	
Land slope, s	ft/ft	0.0350	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.16	= 0.16

SHALLOW CONCENTRATED FLOW

Segment ID		2	
Surface (paved or unpaved)?		Unpaved	
Flow length, L	ft	580.0	
Watercourse slope, s	ft/ft	0.0300	
Avg.V = Csf * (s)$^{0.5}$	ft/s	2.7946	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.06	= 0.06

CHANNEL FLOW

Segment ID			
Cross Sectional Flow Area, a	sq.ft	0.00	
Wetted perimeter, Pw	ft	0.00	
Hydraulic radius, r = a/Pw	ft	0.000	
Channel slope, s	ft/ft	0.0000	
Manning's roughness coeff., n		0.0000	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	0.0000	
Flow length, L	ft	0	
T = L / (3600*V)	hrs	0.00	= 0.00

:::

TOTAL TIME (hrs) 0.22

13 MINUTES

SECTION 4
RUNOFF

Quick TR-55 Ver.5.46 S/N:
Executed: 11:37:10 07-26-2000

KNOLLS FILING 4
HISTORIC - SOUTH SIDE (BASIN 2)
7/24/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
H - 2	0.140	23.96	28.00	0.140	0.140	0.570	23.96	1.91

Quick TR-55 Ver.5.46 S/N:
Executed: 11:37:10 07-26-2000

KNOLLS FILING 4
HISTORIC - SOUTH SIDE (BASIN 2)
7/24/00

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.4286
Adj. 'C' = Wtd.'C' x 1.4286

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
H - 2	0.140	23.96						
			28.00	0.140	0.200	2.240	23.96	10.73

Quick TR-55 Ver.5.46 S/N:
Executed: 14:18:59 08-06-2003

KNOLLS - BASIN 3B, FILING 6 only, DEVELOPED
BASIN 3B, SOUTH PORTION BASIN 3
8/6/03

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	1.76						
BARE	0.140	0.90						
			13.00	0.239	0.239	0.830	2.66	0.53

Quick TR-55 Ver.5.46 S/N:
Executed: 14:18:59 08-06-2003

KNOLLS - BASIN 3B, FILING 6 only, DEVELOPED
BASIN 3B, SOUTH PORTION BASIN 3
8/6/03

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.3103
Adj. 'C' = Wtd.'C' x 1.3103

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	1.76						
BARE	0.140	0.90						
			13.00	0.239	0.313	3.300	2.66	2.75

Quick TR-55 Ver.5.46 S/N:
Executed: 14:23:36 08-06-2003

KNOLLS - BASIN 3A, FILING 6, only DEVELOPED
BASIN 3A, NORTH PORTION BASIN 3
8/6/03 FILING 7 UNDEVELOPED CONDITION

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 2 years
'C' adjustment, k = 1
Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	8.31						
BARE	0.140	7.53						
			18.00	0.219	0.219	0.720	15.84	2.49

Quick TR-55 Ver.5.46 S/N:
Executed: 14:23:36 08-06-2003

KNOLLS - BASIN 3A, FILING 6, only DEVELOPED
BASIN 3A, NORTH PORTION BASIN 3
8/6/03 FILING 7 UNDEVELOPED CONDITION

* * * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * * *

Q = adj * C * I * A
Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
'C' adjustment, k = 1.3103
Adj. 'C' = Wtd.'C' x 1.3103

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
DEVELOPED	0.290	8.31						
BARE	0.140	7.53						
			18.00	0.219	0.287	2.850	15.84	12.94

SECTION 5
HYDRAULICS

POND-2 Version: 5.21
S/N:

KNOLLS SUBDIVISION, FILING 6
RETENTION POND - TEMPORARY
LOCATED IN FUTURE FILING 7
7/11/03

CALCULATED 08-04-2003 17:27:19
DISK FILE: KNOLLRET.VOL

Planimeter scale: 1 inch = 10 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
4,699.00	4.34	434	0	0	0
4,700.00	26.07	2,607	4,105	1,368	1,368
4,701.00	61.02	6,102	12,697	4,232	5,601
4,702.00	100.78	10,078	24,022	8,007	13,608
4,703.00	138.23	13,823	35,704	11,901	25,509
4,704.00	195.14	19,514	49,761	16,587	42,096
4,705.00	260.33	26,033	68,086	22,695	64,792

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2