Table of Contents

File **PDR-1996-217** Name: The Knolls – SE Corner 27 Road /Cortland Avenue

Present	Scanned	
		A few items are denoted with an asterisk (*), which means they are to be scanned for permanent record on the ISYS retrieval system. In some instances, items are found on the list but are not present in the scanned electronic development file because they are already scanned elsewhere on the system. These scanned documents are denoted with (**) and will be found on the ISYS query system in their designated categories. Documents specific to certain files, not found in the standard checklist materials, are listed at the bottom of the page. Remaining items, (not selected for scanning), will be listed and marked present. This index can serve as a quick guide for the contents of each file.
X	X	**Table of Contents**
		***Review Sheet Summary**
X	X	***Application form**
X		Review Sheets
X		Receipts for fees paid for anything
X	X	***Submittal checklist**
		***General project report**
		Reduced copy of final plans or drawings
X	X	Reduction of assessor's map.
		Evidence of title, deeds, easements
X	X	***Mailing list to adjacent property owners**
		Public notice cards
		Record of certified mail
X	X	Legal description
		Appraisal of raw land
		Reduction of any maps – final copy
		***Final reports for drainage and soils (geotechnical reports)**
		Other bound or non-bound reports
		Traffic studies
X	X	***Review Comments**
X	X	***Petitioner's response to comments**
X	X	***Staff Reports**
		***Planning Commission staff report and exhibits**
		***City Council staff report and exhibits**
		***Summary sheet of final conditions**

DOCUMENT DESCRIPTION:

X	X	Final Decision – Approved with conditions	X		Grading and Stormwater Management Plan
X	X	Final Drainage Report – 9/96 – and addendum – 10/30/96	X		Water , Sewer Plan and Profile
X		Preliminary Drainage Report – 9/96	X		Preliminary Plan
X		Warranty Deed – Bk 2239 / Pg 154	X		Standard Concrete Details
X	X	Preliminary Subsurface Soils Investigation – 8/17/81	X		Storm Drain Details
X		Declaration of Covenants – Bk 2403 / Pg 866	X		Water Line Details
X	X	General Report	X		Sanitary Sewer Details
X		Treasurer's Certificate of Taxes Due – 9/25/96	X		Signed Final Plat
X		Posting of Public Notice Signs – 102/22/96	X		Composite Plan – not signed
X	X	Planning Commission Minutes – 11/5/96 - **	X	X	Final Plat – not signed version
X	X	Correspondence	X	X	File close-out summary
X	X	Utility Committee Approval – 12/11/96	X		Notice of Public Hearing Mail-out – sent 10/4/96
X	X	Certification of Plat – 1/17/97	X	X	DIA – Released Bk 3018 / Pg 734
X		Final Plat- signed and dated – See GIS Historical Maps - **			
X		Utility Composite			

DEVELOPMENT APPLICATION

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

Receipt _____
Date _____
Rec'd By _____
File No. PDR-96-217

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

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
☐ Subdivision Plat/Plan	☐ Minor ☐ Major		REVISED PRELIM FILING #1	PD-8 FROM RSF-4 TO PR	SF
☒ Rezone			FILING #1	From: PD-8 To: RSF-4	SF
☒ Planned Development	☐ ODP ☒ Prelim ☒ Final	REVISED PRELIMINARY FILING #1	FOR REMAINING 6	RSF-4 PROPOSED	SF
☐ Conditional Use					
☐ Zone of Annex					
☐ Variance					
☒ Special Use		LOW DENSITY SF RESIDENTIAL	& CHURCH IN AIRPORT CRITICAL ZONE		
☐ Vacation					☐ Right-of Way ☐ Easement
☐ Revocable Permit					
☐ Site Plan Review					
☐ Property Line Adj.					

Property Owner Name	Developer Name	Representative Name
O.P. Development Co., LLC	O.P. Development Co., LLC	Robert C. Knapple
2421 Applewood Circle	2421 Applewood Circle	2421 Applewood Circle
Address	Address	Address
Grand Junction, CO 81506	Grand Junction, CO 81506	Grand Junction, CO 81506
City/State/Zip	City/State/Zip	City/State/Zip
(970)241-2373	(970)241-2373	(970)241-2373
Business Phone No.	Business Phone No.	Business Phone No.

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

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

Signature of Person Completing Application (Banner Assoc.) — Date 10-1-96

X _____ — Date 10/1/96
For St. Matthews Episcopal Church

X _____ Managing Director — Date 10-1-96
Signature of Property Owner(s) - attach additional sheets if necessary

REZONE

SUBMITTAL CHECKLIST — REVISED PRELIMINARY

MAJOR SUBDIVISION: FINAL — SPECIAL USE PERMIT

Location: SEC CORTLAND / 27 1/2 Project Name: THE KNOLLS

Date Received 10-1-96

Receipt # 4668

File # PDR-96-217

DESCRIPTION $1330

ITEMS	SSID REFERENCE	DISTRIBUTION: ● City Community Development	● City Dev. Eng.	● City Utility Eng.	● City Property Agent	● City Parks/Recreation	● City Fire Department	● City Attorney	● City G.J.P.C. (8 sets)	O City Downtown Dev. Auth.	● City Police	● County Planning	O County Building Department	[redacted]	● Walker Field	● School Dist. #51	● Irrigation District 6V WATER USERS	O Drainage District USE	● Water District USE	O Sewer District	● U.S. West	● Public Service	O GVRP	O CDOT	● Corps of Engineers	● Colorado Geologic Survey	● U.S. Postal Service	● Persigo WWTF	● TCI Cable	● CITY COUNCIL		TOTAL REQ'D.
● Application Fee $ [redacted]	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	[redacted]		
● Application Form*	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
● Reduction of Assessor's Map	VII-1	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
● Evidence of Title	VII-2	1			1			1																								
O Appraisal of Raw Land	VII-1	1			1	1																										
● Names and Addresses*	VII-2	1																														
● Legal Description*	VII-2	1			1																											
O Deeds	VII-1	1			1			1																								
O Easements	VII-2	1	1	1	1			1													1	1	1						1			
● Avigation Easement	VII-1	1			1			1							1																	
O ROW	VII-2	1	1	1	1			1													1	1	1						1			
O 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																													
● [redacted] FULL SIZE ASSB MAP	[redacted]	1	[redacted]																													
O Floodplain Permit*	VII-4	1	1																													
● General Project Report	X-7	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1		
● Composite Plan	IX-10	1	2	1	1																											
● 11"x17" Reduction Composite Plan	IX-10	1				1	1	1	[redacted]	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	[redacted]	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							8	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														
● Road Cross-sections FINAL & PRELIM	IX-27	1	2																													
O Detail Sheet	IX-12	1	2																													
O Landscape Plan	IX-20	2	1	1					8																							
● 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														
O 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													
● [redacted] PIZELIM DRAINAGE	X-[redacted]	1	2																					1								
O Site Plan REPORT - PRELIM	IX-29	1	2	1	1		1		8																							

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

PRE-APPLICATION CONFERENCE

Date: 8-13-96 DENNY BRAHAM

Conference Attendance: BILL NEBEKER, DAVID CHASE, JOHN NELSON BOB KNAPPLE

Proposal: REVISED PRELIMINARY, FINAL PLAT, REZONE & SPECIAL USE PERMIT

Location: SEC CORTLAND & 27 1/2 RD

Tax Parcel Number: _____

Review Fee: $820 + $15/ACRE (34) 33.9 ACRES = $1330

(Fee is due at the time of submittal. Make check payable to the City of Grand Junction.)

Additional ROW required? CORTLAND NEEDS 30' 1/2 ST. 27 1/2 NEEDS 30' 1/2 ST.

Adjacent road improvements required? CORTLAND - YES, 27 1/2 MAYBE

Area identified as a need in the Master Plan of Parks and Recreation? —

Parks and Open Space fees required? YES $225/UNIT Estimated Amount: _____

Recording fees required? YES Estimated Amount: _____

Half street improvement fees/TCP required? 1/2 ST IMP. TO CORTLAND Estimated Amount: _____

Revocable Permit required? —

State Highway Access Permit required? NO

On-site detention/retention or Drainage fee required? —

Applicable Plans, Policies and Guidelines _____

Located in identified floodplain? FIRM panel # _____

Located in other geohazard area? _____

Located in established Airport Zone? Clear Zone, Critical Zone, Area of Influence? _____

Avigation Easement required? _____

While all factors in a development proposal require careful thought, preparation and design, the following "checked" items are brought to the petitioner's attention as needing special attention or consideration. Other items of special concern may be identified during the review process.

O Access/Parking	O Screening/Buffering	O Land Use Compatibility
O Drainage	O Landscaping	O Traffic Generation
O Floodplain/Wetlands Mitigation	O Availability of Utilities	O Geologic Hazards/Soils

O Other _____

Related Files: _____

It is recommended that the applicant inform the neighboring property owners and tenants of the proposal prior to the public hearing and preferably prior to submittal to the City.

PRE-APPLICATION CONFERENCE

WE RECOGNIZE that we, ourselves, or our representative(s) must be present at all hearings relative to this proposal and it is our responsibility to know when and where those hearings are.

In the event that the petitioner is not represented, the proposed item will be dropped from the agenda, and an additional fee shall be charged to cover rescheduling expenses. Such fee must be paid before the proposed item can again be placed on the agenda. Any changes to the approved plan will require a re-review and approval by the Community Development Department prior to those changes being accepted.

WE UNDERSTAND that incomplete submittals will not be accepted and submittals with insufficient information, identified in the review process, which has not been addressed by the applicant, may be withdrawn from the agenda.

WE FURTHER UNDERSTAND that failure to meet any deadlines as identified by the Community Development Department for the review process may result in the project not being scheduled for hearing or being pulled from the agenda.

_____ _____

Signature(s) of Petitioner(s) Signature(s) of Representative(s)

PDR-96-217

2945-011-24-003
FRANK A DIEHL
BETTY J
4011 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8405

2945-011-24-004
MARY CHRISTINE HEIMBURGER

JOHN W
3935 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8407

2945-011-24-005
HAROLD E CRUSON
JOYCE E CRUSON
3925 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8407

2945-011-24-006
KAREN TURNER
3915 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8407

2945-011-24-007
JEROME F PALMER
EVELYN E
3910 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8408

2945-011-24-013
DONALD E LOVERN
LYNDA L
2421 APPLEWOOD PL
GRAND JUNCTION, CO 81506-8480

2945-011-24-014
TOMMY DALE PETTY
GLINDA L
3920 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8408

2945-011-28-001
MICHAEL O RAMLOW
B J & K L RAMLOW
4010 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8406

2945-011-31-034
ROSE MARIE MARFITANO
3750 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8412

2945-011-32-002
ROBERT R RHYNE
PAULA SUE WADKINS
3725 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8411

2945-011-32-003
GARY L WUSTER
JUDITH A
3735 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8411

2945-011-32-004
JACK D ELLIOTT
BARBARA G
3730 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8475

2945-011-32-005
RICHARD W TUMA
JEANNETTE S
3720 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8475

2945-011-32-006
ROBERT L BENAC
ARLENE E & LYNN A WALSH
3710 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8475

2945-011-32-007
LOUIS A MCCOWEN
MARION G
3630 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8453

2945-011-33-006
DICK OLSEN
DORRIS JEAN
PO BOX 3565
GRAND JUNCTION, CO 81502-3565

2945-011-33-008
JAMES E FRASER
GUDRUN H - C/O COLDWELL BANKER
3530 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8458

2945-011-33-009
MARK A TWARDOWSKI
DEBORAH
3610 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8483

2945-011-33-012
GORDON N MCFERRON
MARY C
3520 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8458

2945-011-33-015
ROBERT D YOUNGQUIST
GAIL L
3620 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8483

2945-011-39-001
WESLEY JAMES PIDCOCK
DOLORES K
2256 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8507

2945-011-39-002
MURIEL F CRAWFORD
TRUSTEE
3943 S PIAZZA PL
GRAND JUNCTION, CO 81506-8501

2945-011-40-001
JOSE L GALLEGOS
VICTORIA A GALLEGOS
2257 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8508

2945-011-45-001
WILLIAM L DAVIS
CATHARINE S
652 27 1/2 RD
GRAND JUNCTION, CO 81506-4102

2945-011-45-002
ST MATTHEWS PARISH
PO BOX 776
GRAND JUNCTION, CO 81502-0776

2945-012-16-001
ROBERT W BERSHENYI
MARCIA C
1837 RIDGE DR
GRAND JUNCTION, CO 81506-4032

2945-012-16-002
ALLEN L STEVENSON
DOROTHY L STEVENSON
1829 RIDGE DR
GRAND JUNCTION, CO 81506-4032

2945-012-16-003
ALTON B CRISMAN
GAE E
1819 RIDGE DR
GRAND JUNCTION, CO 81506-4032

2945-012-16-010
KENNETH E GREGORY
CAROL L
1820 BELL RIDGE CT
GRAND JUNCTION, CO 81506-4011

2945-012-16-011
MICHAEL J DEBUONO
WILMA A
1828 BELL RIDGE CT
GRAND JUNCTION, CO 81506-4011

96-217

2945-012-16-012
LAWRENCE W BROZOVICH

NADINE S BROZOVICH
1830 BELL RIDGE CT
GRAND JUNCTION, CO 81506-4011

2945-012-16-016
RICHARD E HOLLINGER
WYONA J
1831 BELL RIDGE CT
GRAND JUNCTION, CO 81506-4069

2945-012-16-017
ELIZABETH ANN WILLIS
TR - ELIZABETH A WILLIS TRUST
1825 BELL RIDGE CT
GRAND JUNCTION, CO 81506-4069

2945-012-64-001
GAIL PALMER
MARY F BARTON-PALMER
1810 CORTLAND CT
GRAND JUNCTION, CO 81506-5249

2945-012-64-002
RUDY HERRERA
LINDA L HERRERA
PO BOX 41025
GRAND JUNCTION, CO 81501

2945-012-68-001
KENT W MARSH
192 EDLUN RD
GRAND JUNCTION, CO 81503

2945-012-68-002
RUFUS JONES
FLORENCE M JONES
3716 CHRISTENSEN CT
GRAND JUNCTION, CO 81506-5250

2945-012-68-003
R LEON MOORE
MARTHA S MOORE
3745 CHRISTENSON CT
GRAND JUNCTION, CO 81506-5250

2945-013-10-001
CAROL A CADEZ
TRUST
1755 CRESTVIEW DR APT A
GRAND JUNCTION, CO 81506-5236

2945-013-10-002
HENRY J FAUSSONE
1755-B CRESTVIEW DR
GRAND JUNCTION, CO 81506-5227

2945-013-10-009
WILLIAM A COOPER
MYRNA M
1755 CRESTVIEW DR
GRAND JUNCTION, CO 81506-5236

2945-014-00-038
DARLA M BANKERT
8023 HYGIENE RD
LONGMONT, CO 80503-9120

2945-011-34-011
LEONARD L SARTZ
MARGUERITE E
3805 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8409

2945-011-34-012
M IRENE DARLINGTON
3815 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8409

2945-011-34-013
EVERETT L POND
DOREEN L POND
3825 APPLEWOOD ST
GRAND JUNCTION, CO 81506-8409

2945-011-34-005
A PENKO
LUCILLE M
3635 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8444

2945-011-34-017
RODNEY SUNDHEIM
SHERI
3615 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8444

2945-011-34-015
ROBERT H BLOM
KARALEE P
3526 RIDGE DR
GRAND JUNCTION, CO 81506-8478

2945-011-34-014
JACK C STOUT
KATHERINE E
3515 PONDEROSA WAY
GRAND JUNCTION, CO 81506-8482

2945-011-34-006
DONALD J MCFARLAND
BETTY I
3705 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8485

2945-011-34-007
LYNN E LICKERS
ETAL
3715 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8485

2945-011-34-008
STEVEN J JOHNSON
CYNTHIA A
3725 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8485

2945-011-34-009
ELIJAH DEAN HINES
BERNA SUE
3735 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8485

2945-011-34-010
CLAUDE E EARLY
JUNE E
3745 ELDERBERRY CIR
GRAND JUNCTION, CO 81506-8485

2945-011-34-016
DANIEL KUDZY
GLORIA E
3618 RIDGE DR
GRAND JUNCTION, CO 81506-8497

2945-011-34-018
GENE C COLEMAN
KARLA A
3626 RIDGE DR
GRAND JUNCTION, CO 81506-8497

2945-011-36-006
COLORADO NATIONAL BANK - TRUSTEE
MARY E L JONES TRUST
PO BOX 608
GRAND JUNCTION, CO 81502-0608

2945-011-36-008
HAROLD L GRAFE
MARILYN G
510 TIARA DR
GRAND JUNCTION, CO 81503-9747

2945-011-36-002
E WILLIAM TRAINOR
PHYLLIS E
2297 SEVILLE CIR
GRAND JUNCTION, CO 81506

2945-011-36-007
JAMES M FLYNN
CAROLE L
3918 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8472

96-217

2945-011-36-009
DAVID L DOTY
CANDACE D
3934 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8472

2945-011-36-001
VIRGINIA JOHNSON
2285 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8493

2945-011-36-003
ROBERT R SPROWELL
LUCRETIA
2311 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8494

2945-011-36-004
THOMAS G SARMO
ELAINE R
2325 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8494

2945-011-36-005
THOMAS F SHEA
REBECCA T
2335 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8494

2945-011-37-002
COLORADO NATIONAL BANK
DONNA M GREGORY REV LIVING TRST
PO BOX 5168
DENVER, CO 80217-5168

2945-011-37-010
E ROMAINE MAHAFFEY
PO BOX 773035
STEAMBOAT SPRINGS, CO 80477-3035

2945-011-37-006
DORIS E ARCIERI
2335 M SEVILLE CIR
GRAND JUNCTION, CO 81506

2945-011-37-001
PATRICE HOWEY
3936 S PIAZZA PL
GRAND JUNCTION, CO 81506-8440

2945-011-37-003
GORDON A HARSHMAN
TRUDORA V
2312 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8456

2945-011-37-004
ARLENA R HURST
2324 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8456

2945-011-37-009
WILLIAM D POTTER
CHRISTINA C
2297 N SEVILLE CIR
GRAND JUNCTION, CO 81506-8490

2945-011-37-007
DAVID G MICKLE
MILDRED L
2325 N SEVILLE CIR
GRAND JUNCTION, CO 81506-8491

2945-011-37-008
GARY HILTBRAND
JULIE L
2311 N SEVILLE CIR
GRAND JUNCTION, CO 81506-8491

2945-011-37-005
LUANNE M ANTRONICA
3933 S SEVILLE CIR
GRAND JUNCTION, CO 81506-8495

2945-012-25-006
MAX CLIFFORD KENDALL

JEANNINE KENDALL
3620 BELL CT
GRAND JUNCTION, CO 81506-4009

2945-012-25-007
WILLIAM K JOHNSON
LINDA L
3636 BELL CT
GRAND JUNCTION, CO 81506-4009

2945-012-25-008
BARBARA A LACY
3644 BELL CT
GRAND JUNCTION, CO 81506-4009

2945-012-25-009
HOWARD A RUDOLPH
MINNIE J
3648 BELL CT
GRAND JUNCTION, CO 81506-4009

2945-012-25-004
M L RAY SMITH
RUTH M
1836 RIDGE DR
GRAND JUNCTION, CO 81506-4070

2945-012-25-005
DOROTHY B GULLEY
1820 RIDGE DR
GRAND JUNCTION, CO 81506-4070

2945-012-25-001
DEBORAH D TAYLOR
3645 27 1/2 RD
GRAND JUNCTION, CO 81506-4135

2945-012-25-002
JOHN J GLISAN
PAMELA K GLISAN
3635 27 1/2 RD
GRAND JUNCTION, CO 81506-4135

2945-012-25-003
HERBERT M WHEELER
H LOUISE WHEELER
3625 27 1/2 RD
GRAND JUNCTION, CO 81506-4135

2945-012-68-014
RICHARD A TOPE
MELINDA S TOPE
560 E SADDLE
GRAND JUNCTION, CO 81503

2945-012-68-015
RICHARD A TOPE
MELINDA S TOPE
560 E SADDLE
GRAND JUNCTION, CO 81503

2945-012-68-009
FORREST HOLGATE
2936 G RD
GRAND NUNCTION, CO 81504

2945-012-68-010
PAUL G TRINKLEIN
MATSUYO M TRINKLEIN
3728 CHRISTENSEN CT
GRAND JUNCTION, CO 81506

2945-012-68-008
RUFUS JONES
FLORENCE M JONES
3716 CHRISTENSEN CT
GRAND JUNCTION, CO 81506-5250

2945-012-68-012
LORI A NELSON
3740 CHRISTENSON CT
GRAND JUNCTION, CO 81506-5250

96-217

2945-012-68-013
SHERRY HEPBURN
3748 CHRISTENSON CT
GRAND JUNCTION, CO 81506-5250

2945-012-68-011
STEVE C VOYTILLA
SCOTT L VOYTILLA
2631 CENTRAL DR
GRAND JUNCTION, CO 81506-8325

2945-012-00-052
JACK A BROWN
W AVIS
681 27 1/2 RD
GRAND JUNCTION, CO 81506-4138

Robert C. Knapple
O.P. Development Co., LLC
2421 Applewood Circle
Grand Junction, CO 81506

David Chase
Banner Associates
2777 Crossroads Blvd.
Grand Junction, CO 81506

City of Grand Junction
Community Development Dept.
250 N 5th St.
Grand Junction, CO 81501

POSTING OF PUBLIC NOTICE SIGNS

The posting of the Public Notice Sign is to make the public aware of development proposals. The requirement and procedure for public notice sign posting are required by the City of Grand Junction Zoning and Development Code.

To expedite the posting of public notice signs the following procedure list has been prepared to help the petitioner in posting the required signs on their properties.

1. All petitioners/representatives will receive a copy of the Development Review Schedule for the month advising them of the date by which the sign needs to be posted. **IF THE SIGN HAS NOT BEEN PICKED UP AND POSTED BY THE REQUIRED DATE, THE PROJECT WILL NOT BE SCHEDULED FOR THE PUBLIC HEARING.**
2. A deposit of $50.00 per sign is required at the time the sign is picked up.
3. You must call for utility locates before posting the sign. Mark the location where you wish to place the sign and call 1-800-922-1987. You must allow two (2) full working days after the call is placed for the locates to be performed.
4. Sign(s) shall be posted in a location, position and direction so that:
   a. It is accessible and readable, and
   b. It may be easily seen by passing motorists and pedestrians.
5. Sign(s) MUST be posted at least **10 days** before the Planning Commission hearing date and, if applicable, shall stay posted until after the City Council Hearing(s).
6. **After the Public Hearing(s) the sign(s) must be taken down and returned to the Community Development Department within FIVE (5) working days to receive a full refund of the sign deposit.** For each working day thereafter the petitioner will be charged a $5.00 late fee. After eight working days Community Development Department staff will retrieve the sign and the sign deposit will be forfeited in its' entirety.

The Community Development Department staff will field check the property to ensure proper posting of the sign. If the sign is not posted, or is not in an appropriate place, the item will be pulled from the public hearing agenda.

I have read the above information and agree to its terms and conditions.

Robert C. Knapp — 10-22-96

SIGNATURE — DATE

FILE #/NAME PDR-96-217 The Knolls — RECEIPT #4748

PETITIONER/REPRESENTATIVE: O.P. Development, LLC — PHONE #241-2373

DATE OF HEARING: 11/5/96 — POST SIGN(S) BY: 10/25/96

DATE SIGN(S) PICKED-UP 10/22/96 — RETURN SIGN(S) BY: 11/13/96

DATE SIGN(S) RETURNED 11/12/96 — RECEIVED BY: SLC

V# 40009079

Lincoln DeVore
1000 West Fillmore St.
Colorado Springs, Colorado 80907
(303) 632-3593
Home Office

August 17, 1981

Gingery & Associates
1310 Ute Avenue
Grand Junction, CO 81501

RE: PRELIMINARY

SUBSURFACE SOILS INVESTIGATION

ONION HILL SUBDIVISION

GRAND JUNCTION, COLORADO

Gentlemen:

Transmitted herein are the results of a Preliminary Subsurface Soils Investigation and Foundation Recommendations for the proposed Onion Hill Subdivision of 27½ Road and F3/4 Road in Grand Junction, Colorado.

Respectfully submitted,

LINCOLN-DeVORE TESTING LABORATORY, INC.

By: Gary M. Krzisnik
Gary M. Krzisnik, P.E.
Grand Junction Office

Reviewed by: George D. Morris

GEORGE D. MORRIS
REGISTERED
PROFESSIONAL
ENGINEER
STATE OF COLORADO

GMK/jb

LDTL Job No. 40644J

602 East 8th Street, Pueblo, Colo 81001, (303) 546-1150
P.O. Box 1427, Glenwood Springs, Colo 81601, (303) 945-6020
86 Rosemont Plaza, Montrose, Colo 81401, (303) 249-7838
P.O. Box 1882, Grand Junction, Colo 81501, (303) 242-8968
P.O. Box 1643, Rock Springs, Wyo 82901, (307) 382-2649

ABSTRACT:

The contents of this report are a Preliminary Subsurface Soils Investigation and Foundation Recommendations for the proposed Onion Hill Subdivision at 27½ Road and F 3/4 Road in Grand Junction, Colorado.

Topographically, the site is approximately level, with a general southwesterly gradient, and is located on an alluvial plain of the Colorado River.

The foundation soils underlying the site were found to consist of silty clays interbedded with layers of fine grained sands. The upper 8 to 26 feet of the soil profile are of lower moisture, medium density and are mildly expansive. The soil below this is wet, soft and of low density in the southwest portion of the site. At other areas, the medium density fine-grained soils are underlain by Mancos Shale. In general, shallow foundation systems are recommended for most types of structures at this site, using maximum and minimum allowable pressures of 3500 and 2000 psf, respectively. Local variations in these pressures should be expected. Several foundation options are available for use in this site, depending on the design of the structure and the magnitude of the foundation loads anticipated.

Because of the expansive nature of the foundation materials, we would recommend that the foundation system be well balanced and heavily reinforced.

All floor slabs on grade must be constructed to act independently of other structural portions of the buildings.

Adequate drainage must be provided at all times. Water must never be allowed to pond above the foundation soils.

Surface and subsurface drainage must be carefully designed and controlled. A perimeter drain would be recommended around the building exterior.

A Type II Cement would be recommended in all concrete in contact with the soil on this site.

More detailed recommendations can be found within the body of this report. All recommendations will be subject to the limitations set forth herein.

The information herein has been obtained to obtain a general and preliminary indication of the soils which will probably be found under presently unknown types of structures proposed for the site. Site specific information must be obtained beneath each proposed structure after its exact location is determined, since the soil types

and conditions differ across the overall site and the type of structure proposed is not known.

This report is intended to identify general soil conditions on the site, as requested. Nine test borings spread over a 30 acre site, can only be used as an overview of the soil conditions and not for site specific design purposes.

GENERAL:

The purpose of this investigation was to determine the general suitability of the site for construction of a 30 acre residential subdivision southeast of the intersection of 27½ and F 3/4 Roads in Grand Junction, Colorado. Characteristics of the individual soils found within the test borings were examined for use in designing foundations on this site.

Although Lincoln-DeVore has not seen a set of construction drawings for any of the multiple family dwelling units proposed, we believe that they will be basically frame structures of more or less conventional design. Foundation loads for structures of this nature are normally light to medium weight in magnitude.

The topography of the site is relatively flat, being located on an alluvial plain of the Colorado River. The ground surface in the vicinity of the site has an overall gradient to the southwest towards the river. The exact direction of surface runoff on this site will be controlled to an extend by the proposed construction, and therefore, will be variable. In general, however, surface runoff will travel to the south and southwest, eventually entering the Colorado River. Surface and subsurface drainage on this site can be described as poor.

The foundation soils encountered on this site consisted predominantly of alluvial and some colluvial deposits. The deposits are placed by past flooding action from the Colorado River and, more recently (in geological time) by slope wash from the Book Cliffs located north and northeast of the site. These soils were deposited over bedrock of the Mancos Shale Formation.

The Mancos Shale can broadly be described as a thin-bedded, drab, light to dark gray marine shale, with thinly interbedded fine grain sandstone and limestone layers. Some portions of the Mancos Shale are bentonitic, and therefore, are highly expansive. The majority of the shale, however, has only a moderate expansion potential. Formational shale was encountered in most of the borings at depths varying from 8 to 22 feet. It is anticipated that this formational shale in some areas could affect the construction and the performance of the foundations on the site.

BORINGS, LABORATORY TESTS AND RESULTS:

Nine test borings were drilled across the subdivision site and are located approximately as shown on the attached Test Boring Location Diagram. The test borings were placed in such a manner as to obtain a reasonably good profile of the subsurface soils. All test borings were drilled with a power-driven, continuous auger drill. Samples were taken with a standard split-spoon sampler and by bulk methods.

The precise gradational and plasticity characteristics associated with the soils encountered during drilling can be found on the attached summary sheets. The representative number for each soil group is indicated in a small circle immediately below the sampling point on the Drilling Logs. The following discussion of the soil groups will be general in nature.

The site soils profile varied somewhat but may be generalized into 3 layers. The first layer consists of medium density silty and sandy clays and silty sand. The second layer, occurring in the southwest part of the property, is of very low density, soft silty clay. The underlying Mancos Shale bedrock would constitute the third and final layer of the profile.

Soil Type No. 1 classified as a silty sand (SM) of medium to very fine grain size. Soil Type No. 1 is of very low plasticity, low moisture content and of low to moderate density. In themselves, these soils will have virtually no tendency to expand upon the addition of moisture nor to long-term consolidate under applied foundation stresses. Granular materials, such as these, do have a tendency to rapidly settle under the initial application of static foundation pressures. However, these settlements are characteristically fairly rapid in nature and should be virtually complete by the end of construction. In any event, if the allowable bearing values given in this report are not exceeded, and if recommendations pertaining to inspection, reinforcing, balancing and drainage are followed, it is felt that differential movement can be held to a tolerable magnitude. At shallow foundation depths across the site, these soils were found to have an average allowable bearing capacity on the order of 1200 to 3500 psf. In general, foundations located on a minimum of 3 feet of this fine granular deposit could be designed for a minimum pressure of 250 psf.

Soil Type No. 2 classified as a silty clay (CL) of fine grain size. Soil Type No. 2 is of moderate plasticity and water content and of moderate density.

These soils have a tendency to expand upon the addition of moisture with swell pressures on the order of 1715 psf being considered typical. While this magnitude of expansion should not be sufficient to affect the heavy structural members of the building, it can cause some movement beneath light structural members and floor slabs on grade. These soils will have a slight tendency to long-term consolidate under applied foundation pressures. However, if the allowable bearing values given are not exceeded, we feel that differential movement would be tolerable. This soil group was found to have an allowable bearing value on the order of 2500 to 3500 psf maximum. In order to resist the remaining potential swell of these soils at the existing 13 to 19 percent water content range, a minimum pressure of 1500 psf will be required for design of the foundations. Please note that in the southwest part of the site soils of this group occur in such a low density state that we cannot recommend directly bearing footings on them.

Soil Type Nos. 3 and 4 also classified as a silty clay (CL), like Soil Type No. 2 previously described. However, the sand content of these soils varied considerably as shown on the soil summary sheets. The expansion and settlement characteristics of these soil groups will be

nearly identical to those previously described for Soil Type No. 2. Allowable bearing values on the order of 1500 to 3500 psf maximum would be associated with this soil group. Required minimum contact pressures could range from 1500 to 2000 psf for these soils.

Soil Type No. 5 classified as silty clay (CL) of fine to very fine grain size. Soil Type No. 5 is typical of the formational shale which underlies the site and serves as bedrock in the area. Soil Type No. 5 is plastic, of very low permeability and of high to very high density. The shales are expansive in nature with swell pressures on the order of 1330 psf being measured. Should drilled piers be used for the building, the expansive nature of the fine grained bedrock must be given consideration. Owing to its initial high density condition, these soils would have virtually no tendency to long-term consolidate. At a penetration of 5 feet into the shale layer, tip bearing capacities on the order of 15,000 psf could be achieved. Where the shale occurs at suitable depths for shallow type foundations under full basements or shallower structures, maximum allowable pressures varying from 2000 psf (in the severely weathered zone) to 6000 psf are recommended. Minimum contact pressures

of 1300 to 1500 psf are likely. Soil Type No. 5 was found to contain sulfates in detrimental quantities.

Free water was found in the majority of the test borings placed on the site. The depth to this free water table varied from 12 to 18 feet over the site. Each building site should be investigated to determine the depth to free water, if any, prior to planning basements on the sites. In general, this free water is believed to be associated with seepage from area irrigation ditches and from nearby irrigated properties, and can therefore, be expected to continue to exist for the foreseeable future.

CONCLUSIONS AND RECOMMENDATIONS:

Since the exact magnitude and nature of the foundation loads are not precisely known at the present time, the following recommendations must be somewhat general in nature. Any special loads or unusual design conditions should be reported to Lincoln-DeVore so that changes in these recommendations may be made, if necessary. However, based upon our analysis of the soil conditions and project characteristics previously outlined, the following recommendations are made.

In general, the soils found across the subdivision will form a reasonably good base of the proposed residential structures. Silty sands of low to moderate density were encountered at or near the present ground surface in the region of the majority of the test borings drilled. For these non-expansive (or low expansive) areas, spread footings of various widths, in conjunction with a reinforced concrete grade beam stem wall, will probably be the most suitable foundation type, if the higher expansive clays are not located within 3 feet of the bottom of the foundations.

For those areas of the subdivision where the clays are encountered, foundations must be designed

with the expansive potential of the subsurface soils in mind. The foundation configuration which can be used on the expansive clays will depend upon the magnitude of foundation loads exerted by the residential units as well as the exact degree of expansion anticipated from the soils. Several foundation types are acceptable for use on these clays. These foundation configurations would include, but are not limited to:

1) The first option would consist of the engineered no footing design, with the stem wall resting directly on the ground surface. The judicious use of voids would be employed to balance the structure and to increase the contact stresses beneath any very light walls. For most moderately loaded foundation systems, this voided stem wall design would probably prove satisfactory considering the magnitude of expansion pressures encountered across the subdivision, and the anticipated foundation loads for these single family dwelling units. We would anticipate that the majority of the foundation systems used on the clays across the subdivision will fall into this category.

2) A balanced pad and grade beam type of foundation system would form the second general foundation option. This alternative would involve the use of small bearing pads beneath a reinforced concrete grade beam. The grade beam would be continually voided between pads with the foundation loads being transferred by the pads only, and not the grade beam between pads. This foundation alternative will probably be suitable for very light structures on clays of high expansion potential. This configuration generally allows the designer to maintain a fairly high minimum dead load pressure.

3) The third option would consist of a drilled pier and grade beam system. The expansive clays do have side frictional effects which must be taken into account when designing the drilled piers. The diameter and length of the pier must be balanced so that the appropriate load carrying capacity is developed while maintaining enough minimum pressure to prevent upward movement of the piers as a result of expansive action. The grade beam would span from pier to pier and be continually voided between these bearing points. This foundation type would be required where the structural tolerance of differential movement is very small, or where full basement construction would locate foundations of significant loads close to or in soft soils.

4) The fourth foundation system could consist of a structural slab thickened under areas of bearing walls and concentrated loads. This type, basically a modified mat foundation, would be used in areas of low expansive, low density soils to support light and moderate weight residential structures. The use of the thickened slab foundation could aid in minimizing excavation, filling and recompaction of existing soils. Careful proportioning of thickened areas to balance and distribute loads and the use of more extensive reinforcing steel than is usual in residential slabs would be imperative with this foundation option.

5) The fifth and final foundation configuration would essentially be a combination of one of the preceding alternatives in conjunction with an overexcavated, compacted, granular pad. The depth of overexcavation would be related to the expansion potential of the clays as well as the nature of the residential units. Typical depths of overexcavation should range from about 3 to 10 feet. After overexcavation, a compacted granular pad using non-expansive, non-free draining soils could be constructed, maintaining a minimum of 90% of the soil's modified maximum Proctor dry density, ASTM D-1557. The purpose of this compacted pad is not entirely

overcome the expansive potential of the clays, but rather to provide a "buffer" zone between the clays and the foundations. A designed foundation system, similar to one of the preceding alternatives, would then be constructed on top of the granular pad. Frequent density tests would be required during pad construction to ensure that an adequate density level is being maintained. This option would also be used if any areas of uncontrolled fill are encountered during the excavation process.

At the present time, it is difficult to establish the exact maximum and minimum allowable design parameters for each residential building site across the subdivision. As noted earlier, the foundation soils are somewhat variable in terms of their classification and engineering characteristics. The engineering properties given in this report were based upon those soil materials encountered in our subsurface exploration program. While it is unlikely that drastically different soil types will be encountered during excavation for foundations, the possibility exists that intermediate variations between several of the soil types outlined here could be encountered.

It must, therefore, be recommended that the open foundation excavation be inspected prior to the placing of forms to establish the appropriate design parameters for each individual building site. Further exploration on a building site to building site basis may be warranted. At

the time of inspection or further investigation, the maximum and minimum bearing values can be established and recommendations made as to the suitable foundation type for that particular building site. Also, this inspection will ensure that no debris, soft spots, or areas of unusually low density are located within the foundation region. Any changes in the recommendations included in this report can easily be made at the time of such inspection.

Regardless of the foundation type used, it is recommended that the foundation components be balanced to lower the possibility of differential movement. This balancing will help the buildings move more or less as single units, rather than in a differential manner. The foundation system should be proportioned such that the pressure on the soil is approximately the same throughout the building. The judicious use of voids beneath very light walls will help balance the structure, as well as to develop the minimum design pressures dictated by the expansive clays. Using the criterion of dead load plus approximately one-half the live load, the contact pressures should be balanced to within $\pm$300 psf beneath all load bearing walls throughout the residential units. For the sandier soils, isolated interior column pads should be designed for pressures of slightly less than the average selected for the bearing

walls. On the clays, isolated pads should be designed for pressures of slightly more than the exterior wall average. Using whichever criterion is applicable, we would recommend balancing these internal pads on pressures of approximately 150 psf more or less than the average of the exterior walls.

To help ensure that the structure moves more or less as a single unit rather than in a differential manner, we would recommend that all stem walls be supported by a grade beam capable of spanning at least 15 feet. This grade beam would apply to both interior and exterior load bearing walls. Such a grade beam should be horizontally reinforced continuously around the structure with no gaps or breaks in reinforcing steel unless they are specially designed. Beams should be reinforced at both the top and the bottom with the major reinforcement being located at the top where foundations bear on the more expansive soils. Otherwise, major reinforcing should be approximately equally distributed between the top and bottom of the stem wall section. All interior bearing walls should rest on a grade beam and foundation system of their own and should not be allowed to rest on a thickened slab section or "shovel" footing except

where the entire foundation system of a structure is of the thickened slab type.

Where the stem walls are relatively shallow, vertical reinforcing will probably not be necessary. However, where the walls retain soil in excess of about 5 feet in height such as partial or full basement walls, vertical reinforcing may be necessary to resist the active pressure of the soils along the wall exterior. To aid in designing such vertical reinforcing, the following equivalent fluid pressures can be utilized:

> 40 pcf for wall backfill (at least 2 feet thick) consisting of pitrun sand and gravel or other well draining granular material.

It should be noted that the above values should be modified to take into account any surcharge loads applied at the top of the walls as a result of stored goods, live loads on the floor, machinery, or any other externally applied forces. The above equivalent fluid pressures should also be modified for the effects of any free water table.

The bottom of all foundation components should rest a minimum of 1½ feet below finished grade or as required by the local building codes. Foundation components must not be placed on frozen soils.

Where floor slabs are used, they may be placed directly on grade or over a compacted gravel blanket of 4 to 6 inches in thickness. Under no circumstances should this gravel pad be allowed to act as a water trap beneath the floor slab. In areas where very expansive soils occur at grade, it could be necessary to overexcavate in slab-on-grade areas in order to provide a minimum of 2 feet of compacted granular, non-expansive fill under the slabs. A vapor barrier is recommended beneath any and all floor slabs on grade which will lie below the finished exterior ground surface. All fill placed beneath the interior floor slabs must be compacted to at least 90% of its maximum Proctor dry density, ASTM D-698.

All floor slabs on grade must be constructed to act independently of the other structural portions of the building. These floor slabs should contain deep construction or contraction joints to facilitate even breakage and to help minimize any unsightly cracking which could result from differential movement. Floor slabs on grade should be placed in sections no greater than 20 feet on a side. In some of the areas where 2 feet of non-expansive fill has been placed, it may be possible to delete this "floating" slab construction from the design if the fill is not underlain by highly expansive soil. Prior to constructing

slabs on grade, all existing topsoil and organics must be removed from the building interior. Likewise, all foundations must penetrate the topsoil layer.

Any interior, non-load bearing partitions which will be constructed to rest on the floor slab should be constructed with a minimum space of 1½ inches at either the top or bottom of the wall. The bottom of the wall would be the preferred location for this space. This space will allow for any future potential expansion of the subgrade soils and will prevent damage to the wall and/or roof section above which could be caused by this movement.

Adequate drainage must be provided in the foundation area both during and after construction to prevent the ponding of water. The ground surface around the building should be graded so that surface water will be carried quickly away from the structure. The minimum gradient within 10 feet of the building will depend upon surface landscaping. Bare or paved areas should maintain a minimum gradient of 2%, while landscaped areas should maintain a minimum gradient of 5%. Roof drains must be carried across all backfilled areas and discharged well away from the structure.

The existing drainage in the area must either be maintained or improved. Water should be drained away from the structures as rapidly as possible and should not

be allowed to stand or pond in the area of the buildings. The surface drainage across the entire subdivision must be carefully controlled to prevent infiltration and saturation of the foundation soils. All backfill around the buildings should be compacted to a minimum of 90% of its maximum Proctor dry density, ASTM D-698. Roof drains must be carried across all backfilled regions and discharged well away from the structure.

A subsurface peripheral drain, including an adequate gravel collector, sand filter and perforated drain pipe, should be constructed around the outside of the building at foundation level. Dry wells should not be used anywhere on this site. The discharge pipe should be given a free gravity oulet to the ground surface. If "daylight" is not available, a sealed sump and pump should be used.

Due to the varying condition of the soil materials encountered, construction of basements may be difficult and dewatering techniques may be necessary during construction. Additionally, problems with basement foundations may be encountered during periods of strong seepage due to uplift against the foundation and the possibility of seepage into the basement. While we would not

entirely recommend against the construction of basements on this site, it is strongly recommended that basement or half basement foundations be well sealed and that they be provided with the peripheral drains and underslab drainage layers described in this report. It is extremely important that the subsurface drains be properly installed and in good working order. We also strongly recommend that a subsurface soils investigation tailored to basement construction be performed on a site specific basis where such construction is planned.

Samples of the typical surficial soils were evaluated using the Hveem-Carmany method to determine their support characteristics. These soils (unstable unless confined, according to the test) were found to have a Hveem (R) value of 9. For a multiple family subdivision of this type, we believe a reasonable traffic mix would include 70-75% passenger cars, 20-25% pickup trucks and 5% or less of single - or multiple - axle medium and heavy trucks. For such a traffic mix, we have evaluated the Hveem-Carmany characteristics of the soil at several levels of traffic volume. The table below indicates the recommended pavement section at each traffic volume:

ADT	Aggregate Base Course Thickness (inches) For Alternate Bitumen Paving Thickness		
	3"	4"	5"
Under 500	12	9	5
500-1000	14	11	8
Over 1000	15	12	9

We suggest that the aggregate used for the hot-mix bituminous course and the base course conform to Colorado DOT grading B and class 6 gradation requirements, respectively. The bituminous mixture used should develop a Total Resistance value (R_t) of at least 87.

In general, no major excavation difficulties are anticipated. In some areas, isolated cobbles could occur in the Type No. 4 Soils. If encountered in half or full basement excavations, the Mancos Shale is generally rippable for the upper several feet that is highly weathered. Deeper (basement) excavations may also require bracing or sloping of sidewalls. The extent of such safety provisions, if needed, must be determined from the results of site specific investigations.

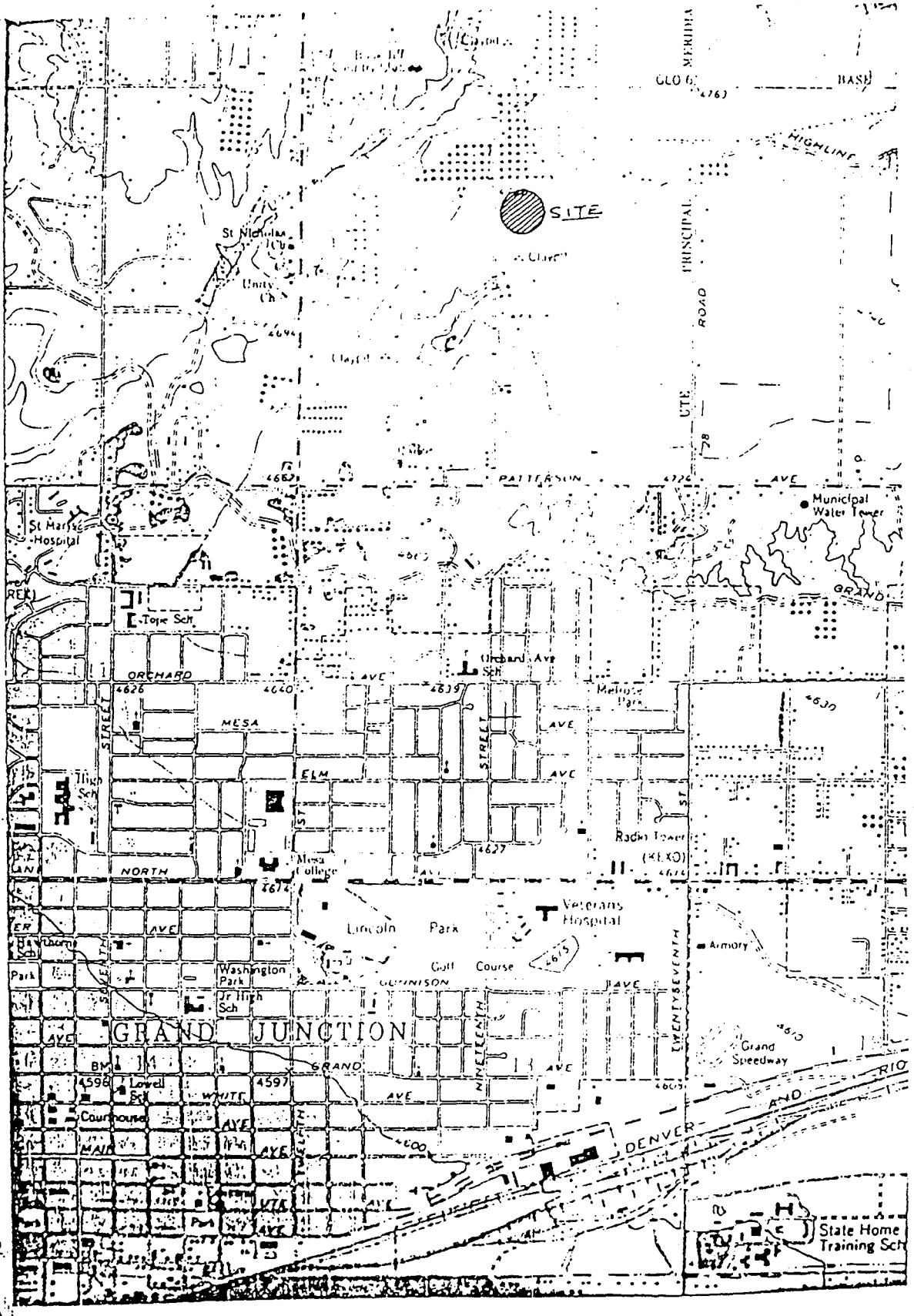
The soils on this site were found to contain sulfates in detrimental quantities. Therefore, Type II Cement would be recommended in all concrete in contact with the soil. Under no circumstances should calcium chloride

ever be added to a Type II Cement. In the event that Type II Cement is difficult to obtain, a Type I Cement may be used, but only if it is protected from the soils by an impermeable membrane.

The open foundation excavation must be inspected prior to the placing of forms and pouring of concrete to establish that adequate design bearing materials have been reached and that no debris, soft spots or areas of unusually low density are located within the foundation region. All fill placed below the foundations must be fully controlled and tested to ensure that adequate densification has occurred.

It is extremely important due to the nature of data obtained by the random sampling of such a heterogeneous material as soil that we be informed of any changes in the subsurface conditions observed during construction from those outlined in the body of this report. Construction personnel should be made familiar with the contents of this report and instructed to relate any differences immediately if encountered.

It is believed that all pertinent points concerning the subsurface soils on this site have been covered in this report. If questions arise or further information is required, please feel free to contact Lincoln-DeVore at any time.

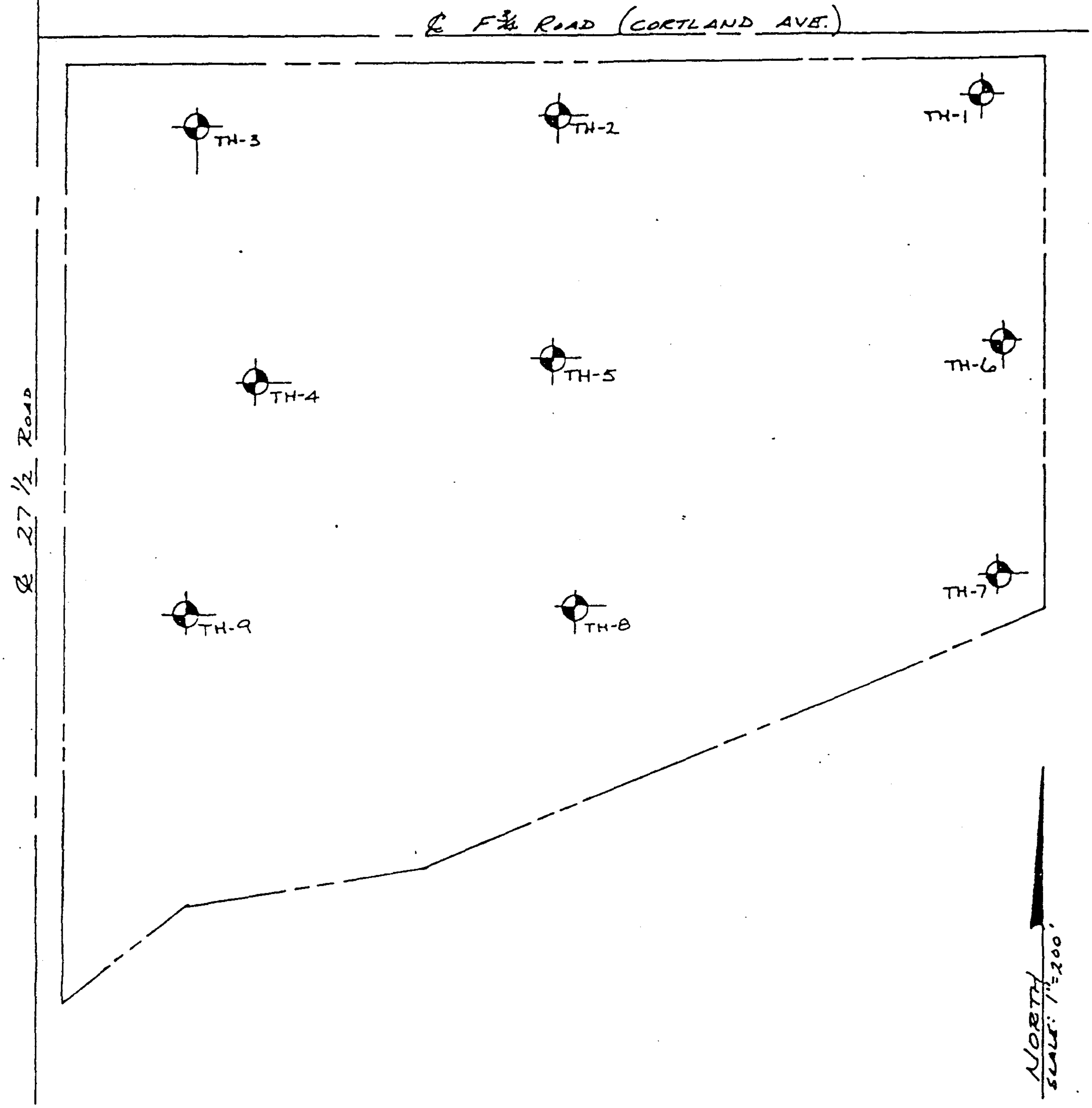


LDTL #40644J

GENERAL SITE LOCATION - ONION HILL SUB - GRAND JUNCTION CO

LINCOLN DeVORE ENGINEERS

COLORADO: COLORADO SPRINGS, PUEBLO, GLENWOOD SPRINGS, GRAND JUNCTION, MONTROSE,



LDTL #40644 J

...oil Boring Locations

...ion Hill Sub - Gd Jct CO

LINCOLN DeVORE ENGINEERS-GEOLOGISTS

COLORADO: COLORADO SPRINGS, PUEBLO, GLENWOOD SPRINGS, GRAND JUNCTION, MONTROSE, WYOMING: ROCK SPRINGS

SOILS DESCRIPTIONS:

SYMBOL	USCS	DESCRIPTION
		Topsoil
		Man-made Fill
	GW	Well-graded Gravel
	GP	Poorly-graded Gravel
	GM	Silty Gravel
	GC	Clayey Gravel
	SW	Well-graded Sand
	SP	Poorly-graded Sand
	SM	Silty Sand
	SC	Clayey Sand
	ML	Low-plasticity Silt
	CL	Low-plasticity Clay
	OL	Low-plasticity Organic Silt and Clay
	MH	High-plasticity Silt
	CH	High-plasticity Clay
	OH	High-plasticity Organic Clay
	Pt	Peat
	GW/GM	Well-graded Gravel, Silty
	GW/GC	Well-graded Gravel, Clayey
	GP/GM	Poorly-graded Gravel, Silty
	GP/GC	Poorly-graded Gravel, Clayey
	GM/GC	Silty Gravel, Clayey
	GC/GM	Clayey Gravel, Silty
	SW/SM	Well-graded Sand, Silty
	SW/SC	Well-graded Sand, Clayey
	SP/SM	Poorly-graded Sand, Silty
	SP/SC	Poorly-graded Sand, Clayey
	SM/SC	Silty Sand, Clayey
	SC/SM	Clayey Sand, Silty
	CL/ML	Silty Clay

ROCK DESCRIPTIONS:

SYMBOL	DESCRIPTION
	SEDIMENTARY ROCKS
	CONGLOMERATE
	SANDSTONE
	SILTSTONE
	SHALE
x x x x x x	CLAYSTONE
	COAL
	LIMESTONE
	DOLOMITE
	MARLSTONE
	GYPSUM
	Other Sedimentary Rocks
	IGNEOUS ROCKS
	GRANITIC ROCKS
	DIORITIC ROCKS
	GABBRO
	RHYOLITE
	ANDESITE
	BASALT
	TUFF & ASH FLOWS
	BRECCIA & Other Volcanics
	Other Igneous Rocks
	METAMORPHIC ROCKS
	GNEISS
	SCHIST
	PHYLLITE
	SLATE
	METAQUARTZITE
	MARBLE
	HORNFELS
	SERPENTINE
	Other Metamorphic Rocks

SYMBOLS & NOTES:

DESCRIPTION

- 9/12 Standard penetration drive. Numbers indicate 9 blows to drive the spoon 12" into ground.
- ST 2-1/2" Shelby thin wall sample
- W_o Natural Moisture Content
- W_x Weathered Material
- Free water — Free water table
- γ^o Natural dry density
- T.B. – Disturbed Bulk Sample
- (2) Soil type related to samples in report
- 15' W_x Form. — Top of formation
- Test Boring Location
- Test Pit Location
- Seismic or Resistivity Station. Lineation indicates approx. length & orientation of spread (S = Seismic, R = Resistivity)

Standard Penetration Drives are made by driving a standard 1.4" split spoon sampler into the ground by dropping a 140 lb. weight 30". ASTM test des. D-1586.

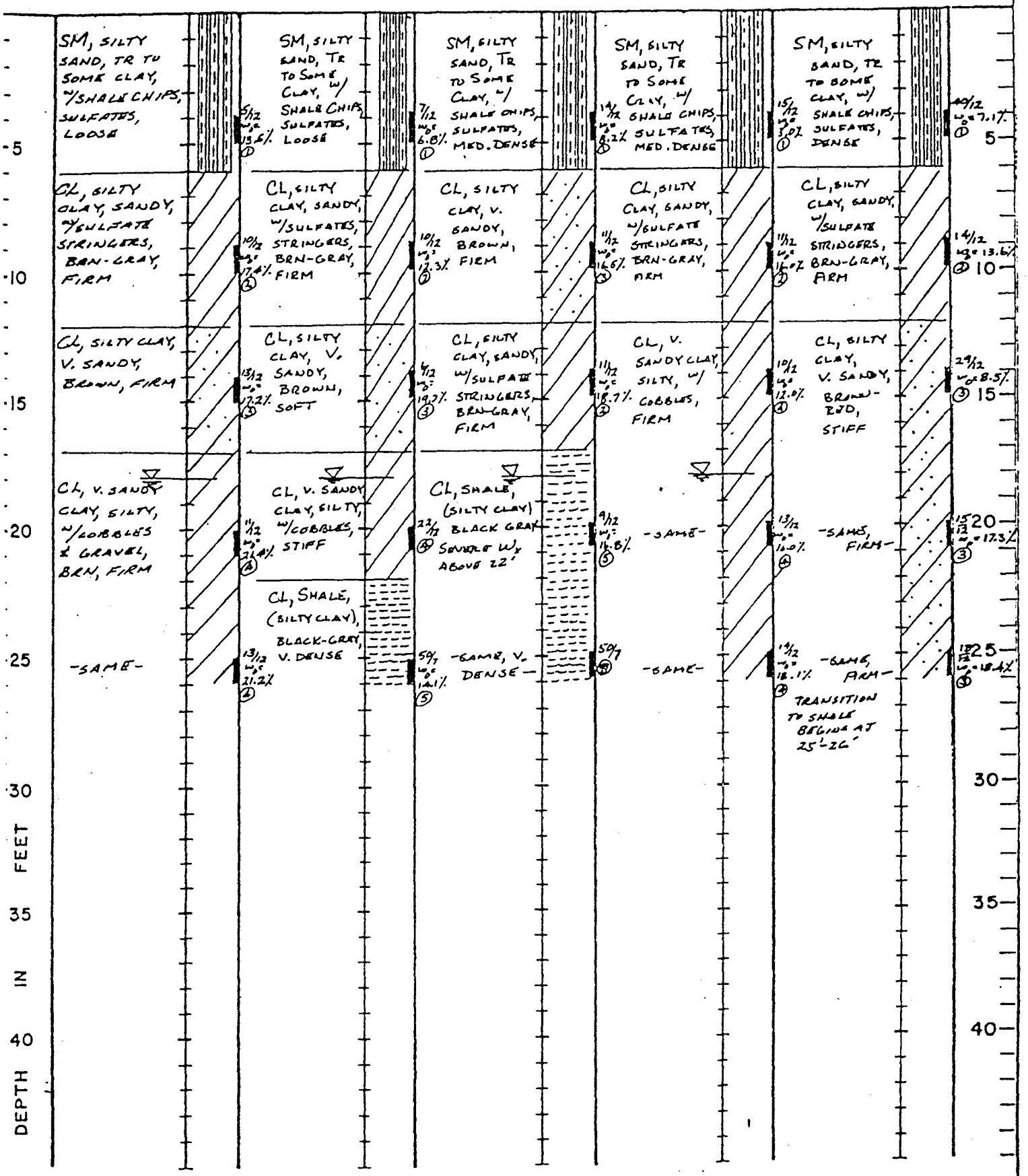
Samples may be bulk, standard split spoon (both disturbed) or 2-1/2" I.D. thin wall ("undisturbed") Shelby tube samples. See log for type.

The boring logs show subsurface conditions at the dates and locations shown, and it is not warranted that they are representative of subsurface conditions at other locations and times.

LINCOLN DeVORE TESTING LABORATORY

COLORADO: Colorado Springs, Pueblo, Glenwood Springs, Montrose, Gunnison, Grand Junction. – WYO. – Rock Springs

EXPLANATION OF BOREHOLE LOGS AND LOCATION DIAGRAMS



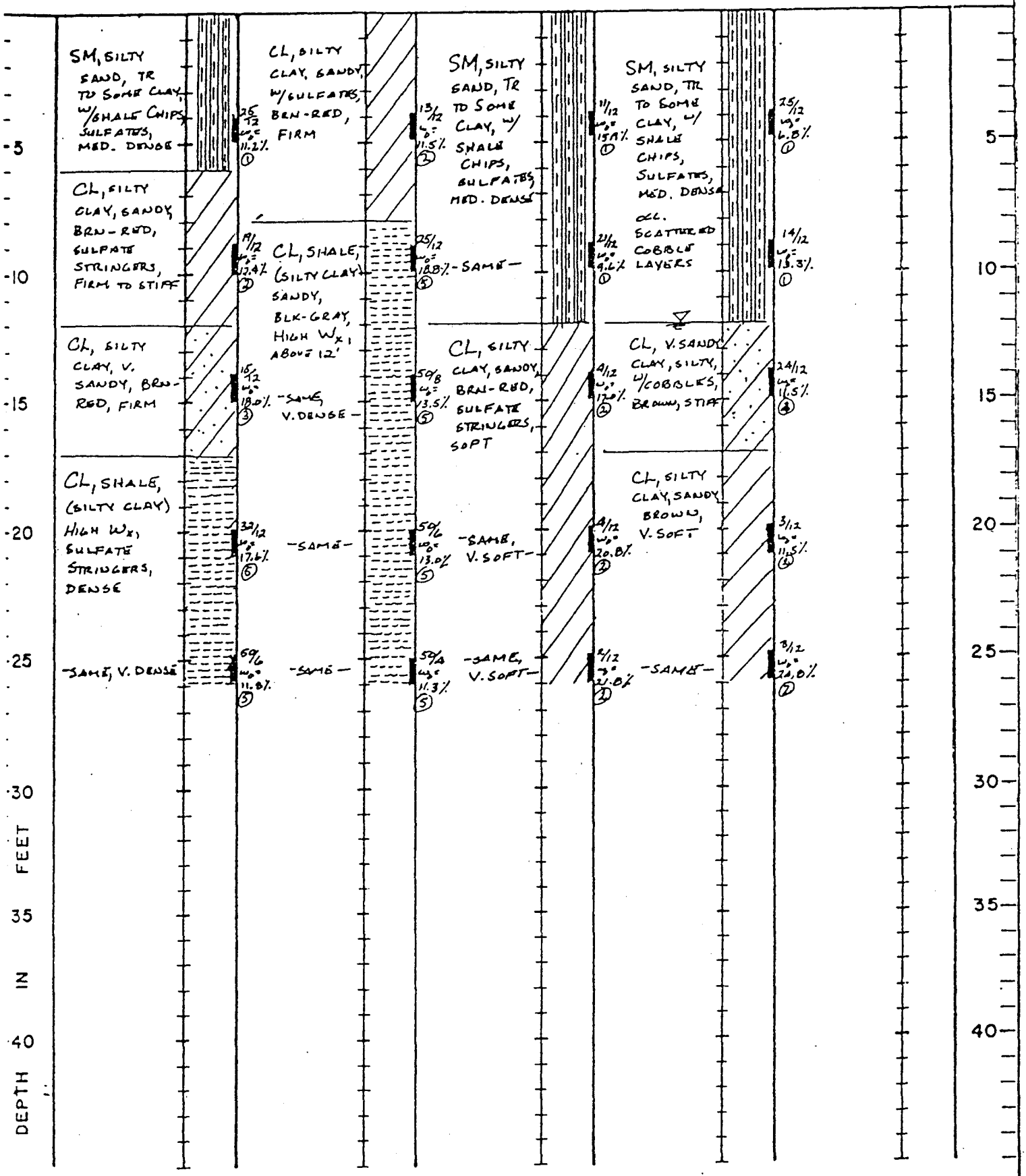
DRILLING LOGS

LINCOLN DeVORE ENGINEERS · GEOLOGISTS

COLORADO: COLORADO SPRINGS, PUEBLO, GLENWOOD SPRINGS, GRAND JUNCTION, MONTROSE, WYOMING: ROCK SPRINGS

TEST HOLE NO. 6 7 8 9

TOP ELEVATION



DRILLING LOGS

LINCOLN DeVORE ENGINEERS · GEOLOGISTS

COLORADO: COLORADO SPRINGS, PUEBLO, GLENWOOD SPRINGS, GRAND JUNCTION, MONTROSE, WYOMING: ROCK SPRINGS

SUMMARY SHEET

Soil Sample SM

Test No. 40644 J

Location Onion Hill Subdivision - Gd. Jct., CO

Date 8-11-81

Boring No. _____ Depth _____

Sample No. 1

Test by ADD

Natural Water Content (w) _____ %

Specific Gravity (Gs) _____

In Place Density (γ_o) _____ pcf

SIEVE ANALYSIS:

Sieve No.	% Passing
1 1/2"	
1"	
1/2"	100.0
3/8"	97.3
4	94.0
10	84.6
20	73.4
40	66.6
100	52.4
200	41.0

HYDROMETER ANALYSIS:

Grain size (mm)	%
0.02	21.3
0.005	13.3

Plastic Limit P.L. 17.4 %

Liquid Limit L. L. 21.2 %

Plasticity Index P.I. 3.8 %

Shrinkage Limit _____ %

Flow Index _____

Shrinkage Ratio _____ %

Volumetric Change _____ %

Lineal Shrinkage _____ %

MOISTURE DENSITY: ASTM METHOD

Optimum Moisture Content _____ %

Maximum Dry Density - γ_d _____ pcf

California Bearing Ratio (av) _____ %

Swell: _____ Days _____ %

Swell against 122 psf Wo gain 15.0 %

BEARING:

Housel Penetrometer (av) _____ psf

Unconfined Compression (qu) _____ psf

Plate Bearing: _____ psf

Inches Settlement _____

Consolidation _____ % under _____ psf

PERMEABILITY:

K (at 20°C) _____

Void Ratio _____

Sulfates _____ ppm.

SOIL ANALYSIS

LINCOLN-DeVORE TESTING LABORATORY
COLORADO SPRINGS, COLORADO

SUMMARY SHEET

Soil Sample CL

Test No. 40644 J

Location Onion Hill Sub - Go Jct, CO

Date 8-11-81

Boring No. _____ Depth _____

Sample No. 2

Test by ADD

Natural Water Content (w) _____ %

Specific Gravity (Gs) _____

In Place Density (γ_o) _____ pcf

SIEVE ANALYSIS:

Sieve No.	% Passing
1 1/2"	
1"	
3/4"	
1/2"	
4	100.0
10	99.7
20	98.5
40	96.6
100	89.2
200	78.7

HYDROMETER ANALYSIS:

Grain size (mm)	%
0.02	42.5
0.005	27.0

Plastic Limit P.L. 15.7 %

Liquid Limit L. L. 25.8 %

Plasticity Index P.I. 10.1 %

Shrinkage Limit _____ %

Flow Index _____

Shrinkage Ratio _____ %

Volumetric Change _____ %

Lineal Shrinkage _____ %

MOISTURE DENSITY: ASTM METHOD

Optimum Moisture Content w_o _____ %

Maximum Dry Density - γ_d _____ pcf

California Bearing Ratio (av) _____ %

Swell: _____ Days _____ %

Swell against 1715 psf Wo gain 14.1 %

BEARING:

Housel Penetrometer (av) _____ psf

Unconfined Compression (qu) _____ psf

Plate Bearing: _____ psf

Inches Settlement _____

Consolidation _____ % under _____ psf

PERMEABILITY:

K (at 20°C) _____

Void Ratio _____

Sulfates _____ ppm.

SOIL ANALYSIS

LINCOLN-DeVORE TESTING LABORATORY
COLORADO SPRINGS, COLORADO

SUMMARY SHEET

Soil Sample CL

Test No. 40644 J

Location Onion Hill Sub. - Go. Jct., CO

Date 8-11-81

Boring No. _____ Depth _____

Sample No. 3

Test by ADD

Natural Water Content (w) _____ %

Specific Gravity (Gs) _____

In Place Density (γ_o) _____ pcf

SIEVE ANALYSIS:

Sieve No.	% Passing
1 1/2"	
1"	
3/4"	
1/2"	100.0
4	99.1
10	97.7
20	92.9
40	87.9
100	78.5
200	66.3

HYDROMETER ANALYSIS:

Grain size (mm)	%
0.02	36.9
0.005	22.9

Plastic Limit P.L. 16.4 %

Liquid Limit L. L. 25.2 %

Plasticity Index P.I. 8.8 %

Shrinkage Limit _____ %

Flow Index _____

Shrinkage Ratio _____ %

Volumetric Change _____ %

Lineal Shrinkage _____ %

MOISTURE DENSITY: ASTM METHOD

Optimum Moisture Content - w_o _____ %

Maximum Dry Density - γ_d _____ pcf

California Bearing Ratio (av) _____ %

Swell: _____ Days _____ %

Swell against 1690 psf Wo gain 15.6 %

BEARING:

Housel Penetrometer (av) _____ psf

Unconfined Compression (qu) _____ psf

Plate Bearing: _____ psf

Inches Settlement _____

Consolidation % under psf

PERMEABILITY:

K (at 20°C) _____

Void Ratio _____

Sulfates ppm.

SOIL ANALYSIS

LINCOLN-DeVORE TESTING LABORATORY
COLORADO SPRINGS, COLORADO

SUMMARY SHEET

Soil Sample CL

Test No. 40644 J

Location Onion Hill Sub - Gd Jct., CO

Date 8-11-81

Boring No. _____ Depth _____

Sample No. 4

Test by ADD

Natural Water Content (w) _____ %

Specific Gravity (Gs) _____

In Place Density (γ_o) _____ pcf

SIEVE ANALYSIS:

Sieve No.	% Passing
1 1/2"	
1"	
1/2"	100.0
3/8"	98.7
4	95.7
10	87.8
20	75.8
40	69.0
100	60.1
200	50.5

HYDROMETER ANALYSIS:

Grain size (mm)	%
0.02	28.9
0.005	20.7

Plastic Limit P.L. 19.8 %

Liquid Limit L. L. 28.8 %

Plasticity Index P.I. 9.0 %

Shrinkage Limit _____ %

Flow Index _____

Shrinkage Ratio _____ %

Volumetric Change _____ %

Lineal Shrinkage _____ %

MOISTURE DENSITY: ASTM METHOD

Optimum Moisture Content - w_o _____ %

Maximum Dry Density - γ_d _____ pcf

California Bearing Ratio (av) _____ %

Swell: _____ Days _____ %

Swell against 1945 psf Wo gain 16.3 %

BEARING:

Housel Penetrometer (av) _____ psf

Unconfined Compression (qu) _____ psf

Plate Bearing: _____ psf

Inches Settlement _____

Consolidation % under psf

PERMEABILITY:

K (at 20°C) _____

Void Ratio _____

Sulfates ppm.

SOIL ANALYSIS

LINCOLN-DeVORE TESTING LABORATORY
COLORADO SPRINGS, COLORADO

SUMMARY SHEET

Soil Sample SHALE-CL

Test No. 40644 J

Location ONION HILL SUB. - GD. JCT., CO

Date 8-11-81

Boring No. _____ Depth _____

Sample No. 5

Test by ADD

Natural Water Content (w) _____ %

Specific Gravity (Gs) _____

In Place Density (γ_o) _____ pcf

SIEVE ANALYSIS:

Sieve No.	% Passing
1 1/2"	
1"	
3/4"	
1/2"	
4	100.0
10	99.9
20	98.7
40	97.6
100	94.9
200	89.6

HYDROMETER ANALYSIS:

Grain size (mm)	%
0.02	76.1
0.005	52.7

Plastic Limit P.L. 20.4 %

Liquid Limit L. L. 43.6 %

Plasticity Index P.I. 23.2 %

Shrinkage Limit _____ %

Flow Index _____

Shrinkage Ratio _____ %

Volumetric Change _____ %

Lineal Shrinkage _____ %

MOISTURE DENSITY: ASTM METHOD

Optimum Moisture Content - w_o _____ %

Maximum Dry Density - γ_d _____ pcf

California Bearing Ratio (av) _____ %

Swell: _____ Days _____ %

Swell against 1330 psf Wo gain 17.1 %

BEARING:

Housel Penetrometer (av) _____ psf

Unconfined Compression (qu) _____ psf

Plate Bearing: _____ psf

Inches Settlement _____

Consolidation % under psf

PERMEABILITY:

K (at 20°C) _____

Void Ratio _____

Sulfates ppm.

SOIL ANALYSIS

LINCOLN-DeVORE TESTING LABORATORY
COLORADO SPRINGS, COLORADO

GENERAL PROJECT REPORT
THE KNOLLS SUBDIVISION

A. Project Description

The proposed Knolls Subdivision is located at the southeast corner of 27½ Road and Cortland Avenue. The project will consist of approximately 33.8 acres and is more particularly described as being located in the SW¼ of the NE¼ of Section 1, Township 1 South, Range 1 West, of the Ute Principle Meridian. This proposal will be to rezone this entire area into a Planned Residential development consisting of 51 single family homesites and 23 patio homes platted on common open space. Filing One of The Knolls Subdivision, which approval of the Final Plan is also being requested with this application, will contain nine of these single family lots. These lots in Filing One, ranging in size from 0.31 acres to 0.64 acres, will be situated on the extension of the existing Ridge Drive into a cul-de-sac.

As part of this application, it is being proposed to include Lot 2 of the St. Matthews Episcopal Church Subdivision into the development. Lot 2 of this subdivision, which was platted in May of 1988 and contains approximately 5.53 acres, will be replatted into single family lots. In return, St. Matthews Episcopal Church will be deeded a 4.80 acre tract at the corner of 27½ Road and Cortland Avenue. This is shown as Tract A on the Final Plat.

B. Public Benefit

The housing market for the Grand Junction vicinity still demands new homesites. This area is attractive to buyers due to its proximity to Horizon Drive, Patterson Road, Bookcliff Country Club and the upper-class developments that surround the site. This development will be an "in-fill" project on vacant land that currently has no use. It does provide a frequently used walking and jogging area, which will be maintained in the proposed development plan.

C. Project Compliance, Compatibility, and Impact

Recent history of this project is that a Preliminary Plan was heard before the Grand Junction Planning Commission and the City Council on July 9 and August 7, 1996, respectively. In short, the applicant received approval to eliminate the connection of Ridge Drive from Spring Valley Subdivision to 27½ Road and preliminary plan approval for Filing One. However, a new and revised Preliminary Plan was required and resubmitted. Therefore, this submittal of The Knolls Subdivision consists of a new Preliminary Plan and the Final Plan/Plat for Filing One. Along with this, a rezone of a portion of site is being sought to bring the entire site into a PR-4 zoning.

As touched on briefly, this site will be an "in-fill" development. Spring Valley Subdivision is located at the east boundary of the site, Crown Heights Subdivision is located directly to the north across Cortland Avenue, and Ptarmigan Ridge North and Bell Ridge Subdivisions are located directly to the west across 27½ Road. To the south of this parcel is one single family tract, 2.9 acres in size, and a large undeveloped parcel approximately 27 acres in size. Access to the project will be via Cortland Avenue. Frontage with Cortland will be improved to a collector street standard as detailed in the City of Grand Junction Major Street Standards. For Filing One, the improvements to Ridge Drive will be to match existing improvements which will consist of a vertical curb and gutter along with a detached 4½ foot wide sidewalk. Remaining interior streets that will be constructed in future filings will be consistent with the urban residential street standard (44 ft. R.O.W.) also as detailed by the City of Grand Junction. In addition, the Applicant is seeking approval to construct a "private street" section in a future phase. This private street is being proposed with a right-of-way width corresponding to 33 feet and will be comprised of a 26 foot asphalt mat with a 2½ foot concrete curb and gutter. No sidewalk is be proposed with this section.

As existing developments are currently situated around this site, all utilities are available for connection into the proposed Knolls Subdivision. The proposed routing for the sanitary sewer and domestic water lines are depicted on the revised Preliminary Plan, along with the fire hydrant locations. There will be no special or unusual demands on these utilities. As this project has been reviewed recently, there has been no indication of any adverse impact to public facilities.

Included as part of this submittal is soil information gathered both from the Soil Conservation Service and a Subsurface Soils Investigation prepared by Lincoln Devore in 1981. Data contained in this information is typical of the area and does not appear to pose any risk to developing at this site. This information has been submitted as required. During the previous application and subsequent review, there was an area of the site that was identified as potential wetlands. The Applicant has since employed the services of a wetland consultant, Bio Environs, to delineate possible wetlands for the planning of this project. This information has been included in the Preliminary Drainage Report.

D. Development Schedule and Phasing

At this time it is anticipated that there will be four phases, or filings, associated with this development. Filing One, which approval of the Final Plan/Plat is being requested for, will be the nine lots fronting Ridge Drive. Construction of Filing One will be completed in the spring of 1997. Subsequent filings will be submitted for approval and constructed at six to 12 month intervals with the entire project being completed by the fall of 1999.

FINAL
DRAINAGE REPORT

FILING ONE

THE KNOLLS SUBDIVISION

27½ ROAD & CORTLAND AVENUE

CITY OF GRAND JUNCTION

Prepared For:

O. P. DEVELOPMENT COMPANY, L.L.C.
c/o Robert C. Knapple
2421 Applewood Circle
Grand Junction, Colorado 81506

September 1996

BANNER

Banner Associates, Inc. • Consulting Engineers & Surveyors
2777 Crossroads Blvd. • Grand Junction, CO 81506 • (970)243-2242
605 E. Main • Suite 6 • Aspen, CO 81611 • (970)925-5857

FINAL
DRAINAGE REPORT

FILING ONE

THE KNOLLS SUBDIVISION

27½ ROAD & CORTLAND AVENUE

CITY OF GRAND JUNCTION

Prepared For:

O. P. DEVELOPMENT COMPANY, L.L.C.
c/o Robert C. Knapple
2421 Applewood Circle
Grand Junction, Colorado 81506

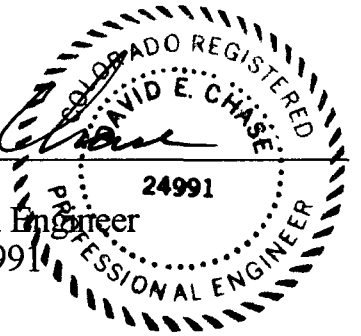
Prepared By:

BANNER ASSOCIATES, INC.
2777 Crossroads Boulevard
Grand Junction, Colorado 81506

September 1996

CERTIFICATION

I hereby certify that this Final Drainage Report for Filing One of The Knolls Subdivision was prepared under my direct supervision.



David E. Chase
Registered Professional Engineer
State of Colorado, #24991

TABLE OF CONTENTS

I. GENERAL LOCATION AND DESCRIPTION

FINAL DRAINAGE REPORT
THE KNOLLS SUBDIVISION

SITE AND MAJOR BASIN LOCATION

Filing One of the Knolls Subdivision, being proposed by O. P. Development Co., is located in the southeast corner of the subdivision. The subdivision is located in the southeast corner of the intersection of 27½ Road and Cortland Avenue, as shown on the Vicinity Map that is included in Appendix A of this report. Filing One is bounded to the east by Spring Valley Subdivision, and to the south, west, and north by undeveloped land. Development in the vicinity also consists of Crown Heights Subdivision in the north, single family homes and undeveloped land to the southwest, and Belle and Ptarmigan Ridge Subdivisions in the west.

SITE AND MAJOR BASIN DESCRIPTION

The proposed Filing One of the Knolls Subdivision is approximately 4.4 acres in size. This area consists mostly of weeds with grass understory with surface grades ranging from 1 - 4% sloping downward to the southwest. Vegetation covers approximately 50 - 70% of the ground as observed in this region.

In researching the soils on the site, reference was made to the Soil Survey of the Grand Junction Area as issued by the U.S. Department of Agriculture, Soil Conservation Service, November 1955. The soil in the northern 20% of the filing is Fruita clay loam (Fe) and the southern 80% is Avalon loam (AvC) as described in Appendix A of this report. Both of these soils are classified as hydrologic soil type B, having moderate infiltration rates when thoroughly wetted.

II. EXISTING DRAINAGE CONDITIONS

MAJOR BASIN

In researching the floodplain hazard for the area, reference was made to the Flood Insurance Rate Map for the City of Grand Junction as produced by the Federal Emergency Management Agency, revised July, 1992. The existing site lies approximately 2,200 feet southeast of the 100-year flood delineation for Horizon Drive Channel. Therefore, no part of the proposed filing is within the 100-year flood limits.

SITE

The northern boundary is adjacent to undeveloped land that drains to the southwest. This area may contribute some runoff to Filing One. The irregular eastern boundary is adjacent to developed land of Spring Valley Subdivision. Approximately 200 feet of Ridge Drive drains northwest into Filing One across a part of this eastern boundary. The southern boundary consists of an irrigation ditch that flows westward, preventing runoff from being introduced from any south areas. The existing topography of the area of Filing One slopes downward to the southwest, therefore no runoff is introduced from the west. The ultimate outfall point of the entire subdivision consists of a 12" corrugated metal pipe that drains westward under 27 1/2 Road into Belle Ridge Subdivision's Irrigation pond system. This CMP is approximately 1000 feet southwest of the western boundary of Filing One.

III. PROPOSED DRAINAGE CONDITIONS

CHANGES IN DRAINAGE PATTERNS

No change in drainage patterns is proposed for the lands adjacent to and surrounding Filing One. Proposed drainage patterns within the site will be modified, as is customary, to accommodate development and to better control surface flows to designed collection areas. A Preliminary Drainage Map is included in Appendix B that illustrates the existing drainage basin. Upon development, inlet and storm drain structures will be constructed under Ridge Drive for storm water runoff. Flows from this storm drain line will ultimately reach the outfall point of the entire subdivision and be discharged at historic levels into the existing 12" drain.

MAINTENANCE ISSUES

Access to drainage and outlet structures are provided, by design, to be directly from the streets that border them. The Knolls Subdivision Homeowners Association will claim ownership and maintenance responsibilities for the drainage basin.

IV. DESIGN CRITERIA & APPROACH

GENERAL CONSIDERATIONS

Due to the isolation of the site on the north and west, the development to the east, and natural topography affecting runoff patterns to the south, larger scale master planning for drainage is difficult. Strategic location of detention ponds within future development of the entire subdivision site lends itself as an attractive and effective layout for stormwater collection. No constraints should be imposed on future adjacent development due to the development of this filing.

HYDROLOGY

Hydrology calculations will be based on the 2 and 100-year rainfall events and precipitation based on the Depth-Duration-Frequency (DDF) Table "A-2" as obtained from the City of Grand Junction Stormwater Management Manual (SWMM), June 1994. Runoff calculations will be performed using the SCS Curve Number method. Detention basin design will be accomplished by the Modified Rational Method using Haestad Methods software for maximum volume required with historic flow release rates. Parameter selection and design procedures will be based on using a composite Curve Number, an IDF value corresponding to the largest time of concentration (Tc) obtained for each drainage basin and the respective basin area obtained by use of a planimeter or computer.

HYDRAULICS

Hydraulic calculations will be accomplished by Manning's equation for gravity flow in circular channels using Haestad Methods FlowMaster Professional Edition and/or StormCAD software. Detention pond outlet structure design will be based on use of Haestad Methods Pond-2 software. Parameter selection will be determined by the pipe material selected, accompanying pipe characteristics and the City of Grand Junction standards and specifications for storm sewer construction. Analysis and design procedures will be based on individual and combined subcatchments within the development using Manning's formula and the Rational Method for storm sewer sizing. Again, pipeline sizing may be determined using Haestad Methods StormCAD software.

V. RESULTS & CONCLUSIONS

RUNOFF RATES

Historic runoff rates for the entire parcel are tabulated below.

2 year storm:	0 cfs
100 year storm:	1 cfs

The 0 cfs value for the 2-year storm event is qualified by noting the large basin area, relatively flat slope, and existing soil conditions. See appendix C for these calculations.

COMPLIANCE

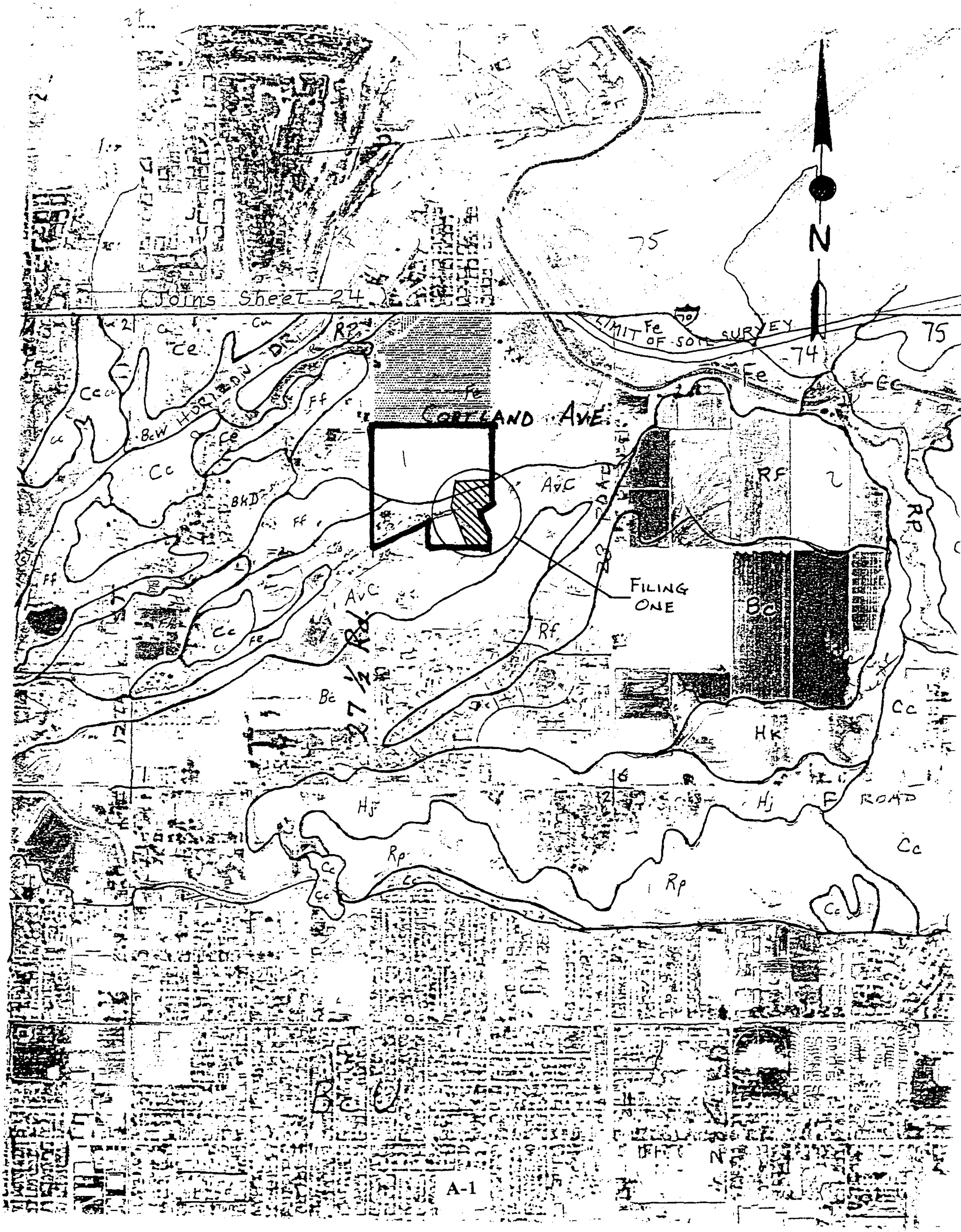
Developing Filing One of this parcel will insignificantly affect its total runoff. The Composite Runoff Curve Number (CN) for this parcel does not change after Filing One's development. The hydraulically most distant point from the parcel's outfall point is used in determining the Time of Concentration, (Tc). This path does not change after developing Filing One, either. These calculations are in appendix D.

A developed Filing One, analyzed independently, produces the runoff rates shown below:

2 year storm:	0 cfs
100 year storm:	1 cfs

These flows will be released from Filing One's outfall point, a 12" diameter HDPE in Outlot A. Approximately 1000 feet of gently sloping, moderately vegetated terrain lies between this outfall point and the outfall point for the entire parcel. Therefore, the flows released from Filing One will insignificantly affect the flows released from the entire subdivision.

APPENDIX A



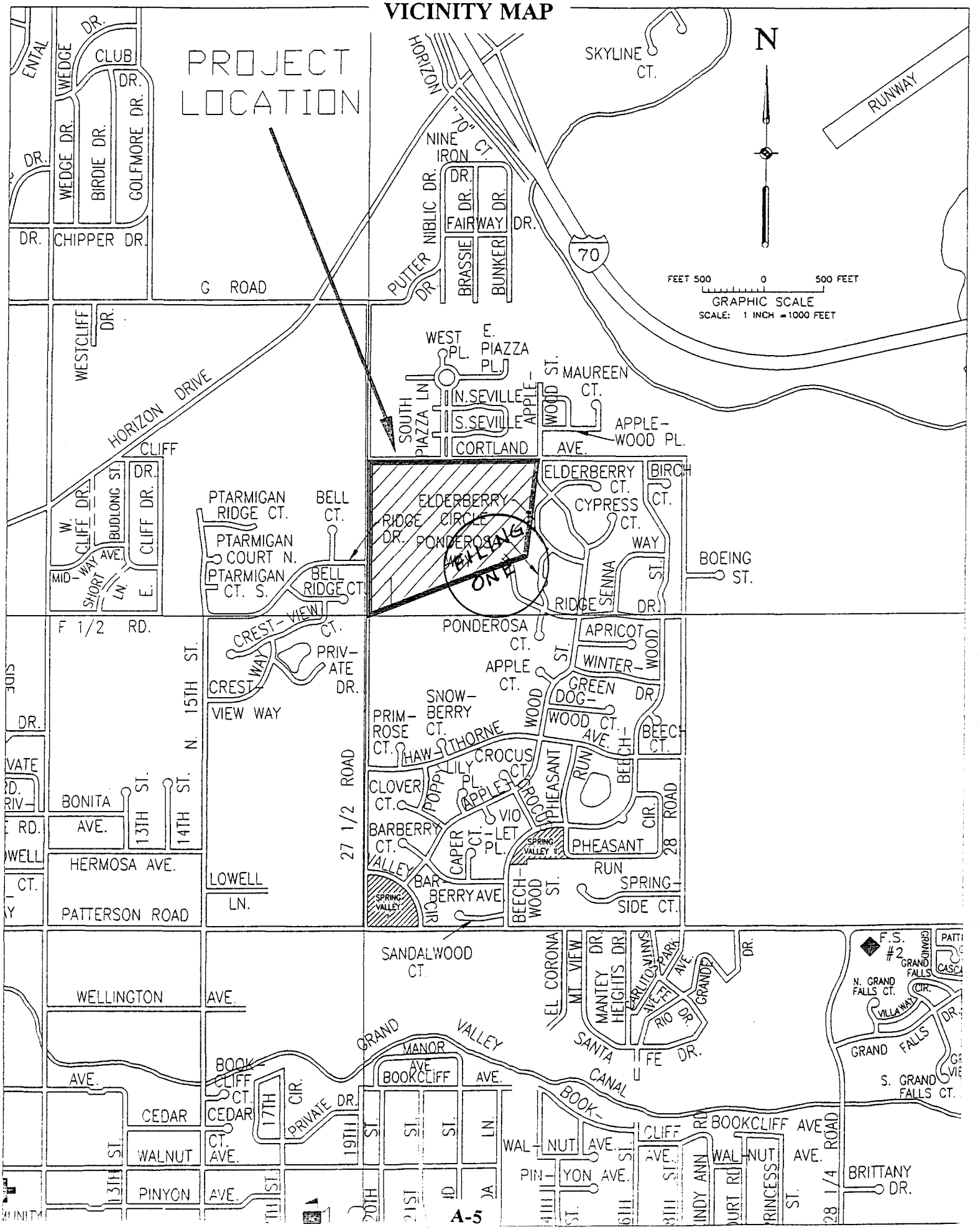
N
75
(Joins Sheet 24)
LIMIT OF SOIL SURVEY
Fe
74
75
Ce
Cc
BcW HORIZON DR
RP
Ff
Ce
CORTLAND AVE.
1
AvC
RF
2
RP
BkD
Ff
Ff
AvC
FILING ONE
Bc
Cc
Fe
Rf
Bc
27 1/2 Rd.
Cc
Hk
Hj
Hj
F ROAD
Rp
Cc
Rp
Cc
Cc
Bc

Map Symbol	Soil name and description
AvC	Avalon loam, 5 to 25 percent slopes This unit is unsuited for row crops due to slope. This unit is best suited to a permanent cover crop such as irrigated pastureland. Because of the slope, sprinkler or drip irrigation is most suitable for the less sloping areas. Irrigation water needs to be applied at a rate that insures optimum production without increasing deep percolation, runoff, and erosion. This unit consists of very deep, well drained soils on intermediate valley terraces. These soils formed in loess modified alluvium derived dominantly from mixed shale and sandstone sources. The surface layer is sandy loam about 3 inches thick. The upper 14 inches of the subsoil are loam, and the lower 13 inches are clay loam. The upper 12 inches of the substratum are clay loam, and the lower part to a depth of more than 60 inches is gravelly loam. Permeability of this soil is moderate. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high. Capability Subclass 7C; nonirrigated Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farming. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. The soils are classified according to degree and kind of permanent limitation, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soils; without consideration of possible unlikely major reclamation projects. Class VII - Not suited for cultivation. Very severe limitations. Suited for range, woodland or wildlife uses if carefully managed. Usually cannot apply physical practices such as pitting, furrowing, seeding, etc.

Map Symbol	Soil name and description
	C - Climate is the major hazard. Growing season may be very short; there is a shortage of rainfall or both.
Fe	Fruita clay loam, 0 to 2 percent slopes This unit is suited for irrigated crops. It has few limitations. Furrow and sprinkler irrigation is suited to this soil. Irrigation water needs to be applied at a rate that insures optimum production without increasing deep percolation, runoff, and erosion. Use of pipe or ditch lining reduces water loss and deep percolation. Tilth and fertility can be improved by returning crop residue to the soil and using a suitable rotation. Excessive cultivation can result in the formation of a tillage pan. This pan can be broken by subsoiling when the soil is dry. Because of the undulating topography, onsite investigations may be needed before leveling. This unit consists of deep, well drained soils on old terraces. These soils formed in residuum derived dominantly from mixed calcareous sedimentary deposits. The surface layer is clay loam about 4 inches thick. The upper 16 inches of the subsoil are clay loam, and the lower 10 inches are loam. The substratum to a depth of 60 inches or more is brown sandy loam. Permeability of this soil is moderate. Available water capacity is high. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. This unit is considered prime farmland. Capability Subclass 2E; irrigated; 7C; nonirrigated

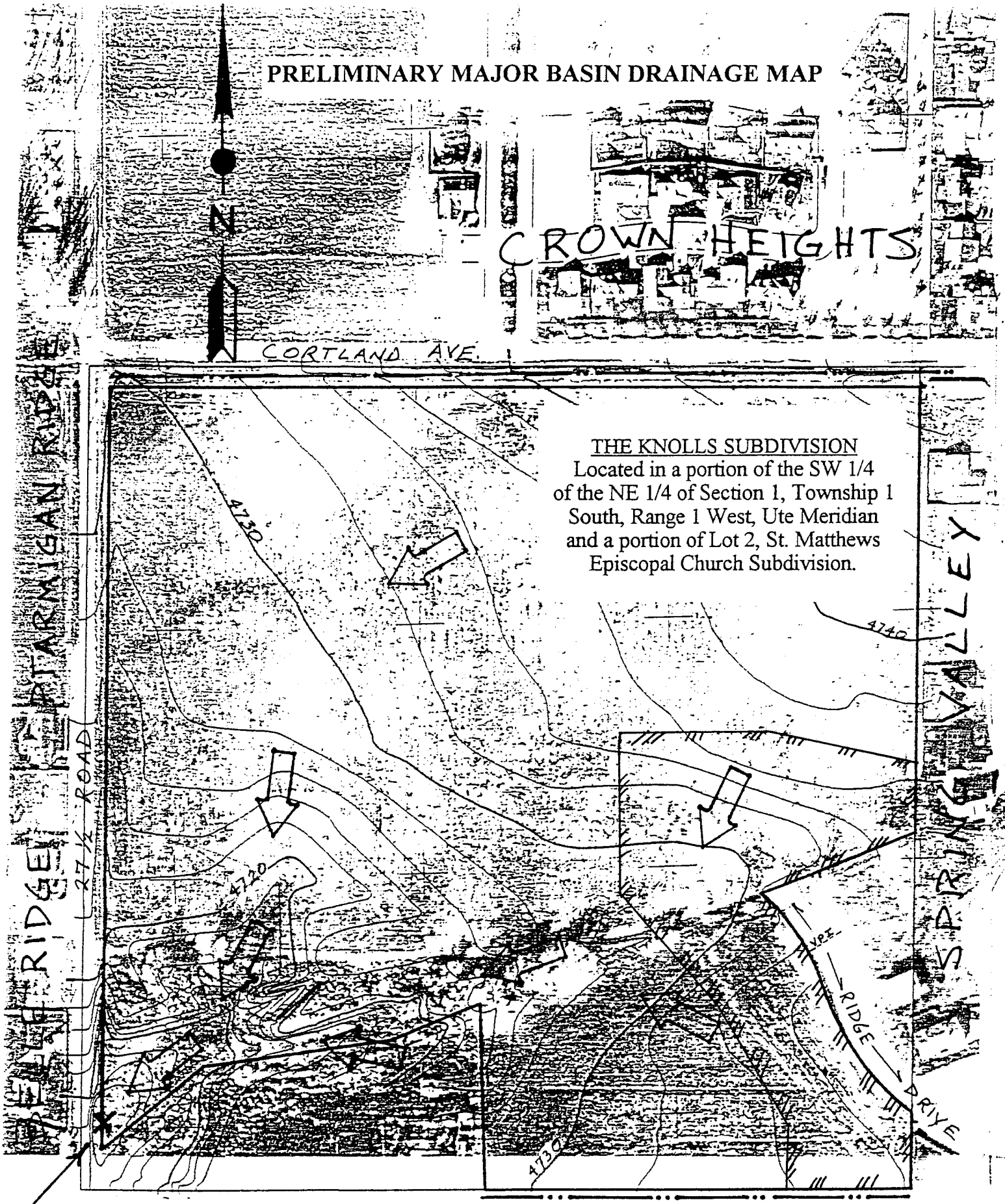
Map Symbol	Soil name and description
	Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of farming. It is a practical classification based on limitations of the soils, the risk of damage when they are used, and the way they respond to treatment. The soils are classified according to degree and kind of permanent limitation, but without consideration of major and generally expensive landforming that would change the slope, depth, or other characteristics of the soils; without consideration of possible unlikely major reclamation projects. Class II - Some limitations that reduce the choice of crops or require moderate conservation measures. Class VII - Not suited for cultivation. Very severe limitations. Suited for range, woodland or wildlife uses if carefully managed. Usually cannot apply physical practices such as pitting, furrowing, seeding, etc. E - Erosion by wind of water is the major problem. C - Climate is the major hazard. Growing season may be very short; there is a shortage of rainfall or both.

VICINITY MAP



APPENDIX B

PRELIMINARY MAJOR BASIN DRAINAGE MAP



APPENDIX C

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 14:23:03 09-20-1996

THE KNOLLS SUBDIVISION
HISTORIC RUNOFF CONDITIONS

RUNOFF CURVE NUMBER DATA

Composite Area:

SURFACE DESCRIPTION	AREA (acres)	CN	
ARID, HERBACIOUS, FAIR, B	25.00	71	
AG, WOODS, GOOD, B	8.80	55	
ATTACHED ASPHALT, RIDGE DRIVE	0.20	98	
COMPOSITE AREA --->	34.00	67.0	(67)

/ENDFILE/

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 14:23:03 09-20-1996

THE KNOLLS SUBDIVISION
HISTORIC RUNOFF CONDITIONS

RUNOFF CURVE NUMBER SUMMARY

Subarea Description	Area (acres)	CN (weighted)
	34.00	67

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 16:29:06 09-20-1996 PRE-KNOL.TCT

THE KNOLLS SUBDIVISION
HISTORIC RUNOFF CONDITIONS

Tc COMPUTATIONS FOR:

SHEET FLOW (Applicable to Tc only)

Segment ID			AB		
Surface description			ARID,WEEDS		
Manning's roughness coeff., n			0.1500		
Flow length, L (total < or = 300)		ft	300.0		
Two-yr 24-hr rainfall, P2		in	0.700		
Land slope, s		ft/ft	0.0083		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$		hrs	1.20	=	1.20

SHALLOW CONCENTRATED FLOW

Segment ID			BD		DF		
Surface (paved or unpaved)?			Unpaved		Unpaved		
Flow length, L		ft	1104.0		444.0		
Watercourse slope, s		ft/ft	0.0188		0.0270		
$Avg.V = Csf * (s)^{0.5}$		ft/s	2.2123		2.6512		
where:	Unpaved Csf = 16.1345						
	Paved Csf = 20.3282						
T = L / (3600*V)		hrs	0.14	+	0.05	=	0.19

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) 1.38

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 16:29:06 09-20-1996 PRE-KNOL.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

THE KNOLLS SUBDIVISION
HISTORIC RUNOFF CONDITIONS

Subarea descr.	Tc or Tt	Time (hrs)
	Tc	1.38

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

THE KNOLLS SUBDIVISION
HISTIORIC DRAINAGE CONDITIONS

CALCULATED
DISK FILE: PRE-KNOL.GPD

Drainage Area	(acres)	33.8	--->	0.0528 sq.mi.
Runoff Curve Number	(CN)	67		
Time of Concentration,Tc	(hrs)	1.38		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	.2	--->	0.1 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.985	0.985	0.985
Ia/p Ratio	1.407	0.490	0.000
Unit Discharge, * qu (csm/in)	135	141	0
Runoff, Q (in)	0.00	0.18	0.00
Pond & Swamp Adjustment Factor	0.97	0.97	0.97
PEAK DISCHARGE, qp (cfs)	0	1	0

Summary of Computations for qu

Ia/p	#1	0.500	0.450	0.000
C0	#1	2.203	2.292	0.000
C1	#1	-0.516	-0.570	0.000
C2	#1	-0.013	-0.023	0.000
qu (csm)	#1	135.020	163.003	0.000
Ia/p	#2	0.500	0.500	0.000
C0	#2	2.203	2.203	0.000
C1	#2	-0.516	-0.516	0.000
C2	#2	-0.013	-0.013	0.000
qu (csm)	#2	135.020	135.020	0.000
* qu (csm)		135	141	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

APPENDIX D

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:01:40 09-24-1996

DEVELOPED RUNOFF CONDITIONS
THE KNOLLS SUBDIVISION
IMPACT ON ENTIRE PARCEL FROM DEVELOPMENT
OF FILING ONE

RUNOFF CURVE NUMBER DATA

Composite Area:

SURFACE DESCRIPTION	AREA (acres)	CN	
IMPERVIOUS, ROADS, ROOFS, SW	1.23	98	
DEVELOPED LAWNS, OPEN SPACE	3.16	61	
AG, WOODS, GOOD, B	8.60	55	
ARID, HERBACIOUS, FAIR, B	20.81	71	
ATTACHED ASPHALT, RIDGE DRIVE	0.20	98	
COMPOSITE AREA --->	34.00	67.2	(67)

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 10:01:40 09-24-1996

DEVELOPED RUNOFF CONDITIONS
THE KNOLLS SUBDIVISION
IMPACT ON ENTIRE PARCEL FROM DEVELOPMENT
OF FILING ONE

RUNOFF CURVE NUMBER SUMMARY

Subarea Description	Area (acres)	CN (weighted)
	34.00	67

No change. See page C-2

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 08:32:50 09-24-1996

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION

RUNOFF CURVE NUMBER DATA

Composite Area:

SURFACE DESCRIPTION	AREA (acres)	CN	
IMPERVIOUS LOTS, ROOFS, DRIVES	1.00	98	
PERVIOUS LOTS, YARDS	2.99	61	
ROADS, ASPHALT	0.23	98	
ROADS-- 13' OF GRASS IN R.O.W.	0.06	61	
OPEN SPACE	0.11	61	
COMPOSITE AREA --->	4.39	71.4	(71)

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 08:32:50 09-24-1996

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION

RUNOFF CURVE NUMBER SUMMARY

Subarea Description	Area (acres)	CN (weighted)
	4.39	71

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 09:39:25 09-24-1996 POST-FI.TCT

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION

Tc COMPUTATIONS FOR:

SHEET FLOW (Applicable to Tc only)

		AB	BC	
Segment ID				
Surface description		LAWN	SIDEWALK	
Manning's roughness coeff., n		0.2400	0.0110	
Flow length, L (total < or = 300)	ft	165.0	8.0	
Two-yr 24-hr rainfall, P2	in	0.700	0.700	
Land slope, s	ft/ft	0.0240	0.0250	
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	0.71	+ 0.01	= 0.71

SHALLOW CONCENTRATED FLOW

		CD	
Segment ID			
Surface (paved or unpaved)?		Unpaved	
Flow length, L	ft	12.0	
Watercourse slope, s	ft/ft	0.0250	
$Avg.V = Csf * (s)^{0.5}$	ft/s	2.5511	
where: Unpaved Csf = 16.1345			
Paved Csf = 20.3282			
T = L / (3600*V)	hrs	0.00	= 0.00

CHANNEL FLOW

		DE *	EF **	
Segment ID				
Cross Sectional Flow Area, a	sq.ft	4.35	0.79	
Wetted perimeter, Pw	ft	18.95	3.14	
Hydraulic radius, r = a/Pw	ft	0.230	0.250	
Channel slope, s	ft/ft	0.0210	0.0050	
Manning's roughness coeff., n		0.0130	0.0110	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$	ft/s	6.2269	3.7995	
Flow length, L	ft	265	75	
T = L / (3600*V)	hrs	0.01	+ 0.01	= 0.02

TOTAL TIME (hrs) 0.73

* Curb & gutter flowing full to road's crown.

** 12" of [illegible]

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 09:39:25 09-24-1996 POST-FI.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION

Subarea descr.	Tc or Tt	Time (hrs)
	Tc	0.73

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION

CALCULATED
DISK FILE: POST-F1 .GPD

Drainage Area	(acres)	4.39	--->	0.0069 sq.mi.
Runoff Curve Number	(CN)	71		
Time of Concentration,Tc	(hrs)	.73		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2	100	
Rainfall, P, 24-hr (in)	.7	2.01	
Initial Abstraction, Ia (in)	0.817	0.817	0.817
Ia/p Ratio	1.167	0.406	0.000
Unit Discharge, * qu (csm/in)	188	273	0
Runoff, Q (in)	0.00	0.27	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	0	1	0

Summary of Computations for qu

Ia/p	#1	0.500	0.400	0.000
C0	#1	2.203	2.364	0.000
C1	#1	-0.516	-0.599	0.000
C2	#1	-0.013	-0.056	0.000
qu (csm)	#1	187.546	278.516	0.000
Ia/p	#2	0.500	0.450	0.000
C0	#2	2.203	2.292	0.000
C1	#2	-0.516	-0.570	0.000
C2	#2	-0.013	-0.023	0.000
qu (csm)	#2	187.546	234.351	0.000
* qu (csm)		188	273	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

REVIEW COMMENTS

FILE #PDR-96-217 **TITLE HEADING:** The Knolls

LOCATION: SE corner 27 Road & Cortland Avenue

PETITIONER: Robert C. Knapple

PETITIONER'S ADDRESS/TELEPHONE: O.P. Development Company, LLC
2421 Applewood Circle
Grand Junction, CO 81506
241-2373

PETITIONER'S REPRESENTATIVE: Banner Associates

STAFF REPRESENTATIVE: Bill Nebeker

NOTE: THE PETITIONER IS REQUIRED TO SUBMIT FOUR (4) COPIES OF WRITTEN RESPONSE AND REVISED DRAWINGS ADDRESSING ALL REVIEW COMMENTS ON OR BEFORE 5:00 P.M., OCTOBER 24, 1996.

CITY COMMUNITY DEVELOPMENT
Bill Nebeker **244-1447**

NOTE: In the future, please list engineer (Banner) as your representative on the application form so comments and inquiries regarding this project can be directed towards him

REZONE:

1. Although your narrative states that the site is to be rezoned PR-4, in accordance with the final decision (#PP-96-111), the overall density of the site is 2.18 dwellings per acre (including the church site). Prior to the Planning Commission hearing staff will determine the appropriate density of the residential portion of the site, and the appropriate zoning classification for the church site.
2. Are there any estimates on when the church will develop? Approval of this plan will limit the use of the church parcel in the future if it is decided not to build a church here.

FINAL PLAT:

1. To achieve a consistency of platting terms, please redesignate Tract A as a lot. Redesignate Outlot A as a Tract. Outlot B & C shall be designated as lots for future development.
2. What are setbacks for filing #1
3. Cortland Road improvements for the portion adjacent to the church site shall be installed during filing #2
4. Revise plat dedication statement for the pedestrian easement to include the following: "pedestrian easements to the City of Grand Junction as perpetual easement for ingress and egress use by the general public pedestrian."
5. A 10' wide concrete pedestrian path shall be required in Tract A (outlot A). The path shall be shown on improvement plans with an appropriate ramp onto Ridge Drive. Show where drainage will go in relation to the pedestrian path.

PRELIMINARY PLAN:

1. Regarding Jody's comment (#5) that the street system on the preliminary plan exceeds the maximum 250 ADT for a single outlet street, do you have any idea of the likelihood or timeline that Willow Glen Drive will be extended to the parcel to the south and connect to 27 ½ Road? Any other suggestions for an alternate access to this subdivision?
2. See attached draft administrative regulations regarding private street standards, for use in design of the patio homes phase.
3. Additional pedestrian/bicycle connections are needed from North Knoll Circle to Cortland Avenue; and from Willow Glen Drive or Spring Court to the church site. Without these connections this isn't much of a planned residential subdivision.
4. The plan needs better definition of the turnaround in Spring Court.
5. Is street or private access no longer needed for the home on the parcel in the southwest corner of the site?
6. By building the patio homes in filing 3 you risk opposition to the final plan approval from all persons who buy homes in filings 1 & 2. It will be important to notify all home buyers in filings 1 & 2 that patio homes are proposed for phase 3 of this development. What will you tell them and how will you get the message across?
7. Provide more detail regarding the nature overlook.
8. I didn't see any active recreation areas that was stressed so much during the first preliminary review. I suggest you eliminate lot 1, block 1 in filing 3 and provide some.
9. Place the airport critical zone boundary on the preliminary plan, and final plat if applicable.
10. Are any provisions proposed for soundproofing homes that lie in the airport critical zone boundaries?

NOTE: Please submit reduced copies (11" X 17") of all revised plans that are resubmitted with response to comments.

CITY DEVELOPMENT ENGINEER **10/14/96**

Jody Kliska **244-1591**

1. The submitted geotechnical report was done in 1981 and does not meet current pavement design requirements. A new pavement design must be submitted.
2. The final drainage report does not appear to have the time of concentration calculations for the 100 year storm.
3. The preliminary plan indicates a sidewalk connection to filing 1. The filing 1 plans do not show the sidewalk and in fact show a drainage discharge where the sidewalk should be. Construction of the sidewalk will be required with the filing, and drainage needs to be designed for the ultimate sidewalk extension. The sidewalk must be handicap accessible.
4. There appears to be minimal cover over the storm sewer pipe in the street. Please explain why HDPE is specified for this application. The manufacturer's literature for this product does not appear that this is the best choice of materials.
5. The preliminary plan as shown does not met the TEDS standards for single outlet streets. The proposal for 42 single family and 23 townhomes exceeds the traffic generation of 250 ADT on a maximum length cul-de-sac of 1000 feet.
6. Willow Glen Drive needs to be analyzed for future traffic needs. It may need to be an urban residential collector street section.

CITY UTILITY ENGINEER **10/16/96**
Trent Prall **244-1590**

PRELIMINARY PLAN:

A. 10' Wide Concrete Pedestrian shall be 6" thick between 27 ½ Rd to manhole south of Lots 19 and 20, Filing 3 to allow City sewer cleaning trucks access.

B. Please reconfigure manhole in front of Lots 6 and 7, Block 1, Filing 2 westward to eliminate possible interference with water line.

FINAL PLAN:

1. Final Plans shall have City and Ute signoff blocks on all water and sewer related construction drawings.
2. All lots not able to sewer by gravity such as Lot 5, Filing 1, shall have note on the plat stating "pump required for sewer service."

CITY PROPERTY AGENT **10/15/96**
Steve Pace **256-4003**

1. Outlot B should be labeled Lot 1, Block 2 and Outlot C should be labeled Lot 1, Block 3.
2. Tract "A" should be addressed in the dedication.
3. Remove verbage referring to drainage and detention / retention easements from the dedication.
4. Building set-back lines?
5. Outer monumentation needs to be set or reset in concrete, plus the outer monuments for each block.

CITY PARK & RECREATION **10/7/96**
Shawn Cooper **256-3869**

1. Is Outlot A intended for public pedestrian use? This route is identified on the "pending" Urban Trails Plan. Connections to future filings must be required. This should be identified as a public pedestrian easement to avoid confusion for area property owners in the future.
2. Parks & Open Space fees - 9 lots @ $225 = $2,025.

CITY FIRE DEPARTMENT **10/8/96**
Hank Masterson **244-1414**

The private drives proposed as Willow View Court and Spring Court are acceptable. The "T" turn around area of Spring Court must be posted as a no parking zone.

Make the following changes to the utility composite: Minimum fire line sizes are 6". Line sizes must be shown on drawing. Move the hydrant shown at southwest corner of Lot 1, block one of Filing Two to the corner of Cortland and Willow Glen Drive. Move the hydrant shown at Lot 1, block one of Filing four to the intersection of Willow Glen and Hollow Court. Delete the hydrants proposed at the end of Hollow Court and the end of Spring Court. Petitioner must submit a revised Utility Composite showing these changes.

CITY ATTORNEY **10/11/96**
Dan Wilson **244-1505**

ISSUES

1. Street improvements for Tract A
2. "Outlot B" should be redesignated as noted, as well as "C".

3. I'll need to see / review proposed homeowners documents creating the association and providing for liens, maintenance, etc. along with provisions for integrating this filing with future filings.
4. See notes on the plat sheets (red-line attached).
5. The Development Improvements Agreement doesn't show guarantee for landscaping of "outlots".

CITY POLICE DEPARTMENT **10/7/96**
Lisa Dicamillo **244-3587**

The use of cul-de-sacs follows the trend in crime preventions practices.

MESA COUNTY PLANNING **10/14/96**
Richard Goecke **244-1744**

1. Would meet County standards for setbacks, parking, etc.
2. This "in-fill" project encourages creative design for new single family homes on varied lot sizes/shapes.

WALKER FIELD AIRPORT **10/14/96**
Dennis Wiss **244-9100**

1. The proposed subdivision lies approximately on e mile southwest of the approach end of Runway 04 at Walker Field and as such lies within the Airport's Area of Influence (AOI). Therefore, this subdivision may be subjected to overflight of aircraft and the associated noise from aircraft. It is recommended that additional soundproofing measures be taken on the residential structures in this subdivision, to include additional sound-deadening insulation and planned landscaping in order to help mitigate noise level perceptions.
2. The planned church in this area is a compatible land use with the Airport and no special measures are recommended for its construction.
3. The Airport Authority requests that an Avigation Easement be recorded at or before the filing of the subdivision plat and further requests that a copy of the easement be forwarded to the Airport Authority after filing.

GRAND VALLEY WATER USERS **10/16/96**
Richard Proctor **242-5065**

Grand Valley Project Lateral 2B crosses the full width of the northern edge of the proposed development south of Cortland Avenue (F 3/4 Road). Lateral 2B is an underground pipeline with one manhole located in the northwest corner of the property and two associated manholes located in the northeast corner of the property . The south manhole located in the northeast corner contains a headgate from which the property will take delivery of its irrigation water.

The Association requires a 30 foot wide right-of-way, 15 feet either side of the pipeline. The manhole containing the headgate requires a described right-of-way of 20 feet surrounding it. Said right-of-way shall be free of building structures and trees.

Also, located in the southeast corner of the proposed subdivision, in Lot 1, Filing 1 is a portion of Lateral 2C pipeline. Said Lateral 2C pipeline is located within the proposed Lot 1 adjacent to the eastern north/south property line. Said property line is shown to be 121.89 feet long. The Association will require a 20 foot wide right-of-way over the Lateral 2C pipeline.

The Grand Valley Project is a federal reclamation irrigation project managed by the Grand Valley Water Users Association. The Grand Valley Project also includes drainage ditch channels managed by the Association.

The Knolls Subdivision plan states that a storm water detention facility will be located in the southwest corner of the property adjacent to the east side of 27 Road in an existing low lying drainage channel. This drainage channel is not part of the Grand Valley Project. However, storm water released from said detention facility will eventually will eventually be drained into a Grand Valley Project drainage channel more than a 1/4 mile southwest of the detention pond's location. The Bureau of Reclamation's policy is that a license agreement must be obtained from them before any storm water run-off is discharged into a Grand Valley Project drainage channel. The developers will be provided with a license agreement application.

U S WEST **10/8/96**
Max Ward **244-4721**

For timely telephone service, as soon as you have a plat and power drawing for your housing development, please.....

MAIL COPY TO: AND CALL THE TOLL FREE NUMBER FOR:
U.S. West Communications Developer contact group
P.O. Box 1720 1-800-526-3557
Denver, CO 80201

We need to hear from you at least 60 days prior to trenching.

PUBLIC SERVICE COMPANY **10/11/96**
John Salazar **244-2781**

GAS: No objections
ELECTRIC: Request that Outlot A between lots 4 & 5 also be designated as a utility easement. Additional utility easements may be required later depending on design of electric facilities.

COMMENTS RECEIVED LATE

UTE WATER **10/16/96**
Gary R Mathews **242-7491**

1. Water mains shall be c-900, class 150. Installation of pipe fittings, valves and services including testing and disinfection shall be in accordance with Ute Water standard specification and drawings.
2. Developer will install the meter pits and yokes. Ute will furnish the pits and yokes.
3. Construction plans required 48 hours before development begins.
4. Policies and fees in effect at the time of application will apply.

RESPONSE TO REVIEW COMMENTS

FILE: #PDR-96-217 **TITLE HEADING:** The Knolls

LOCATION: SE Corner of 27½ Road and Cortland Avenue

PETITIONER: Robert C. Knapple

PETITIONER'S ADDRESS/TELEPHONE: O.P. Development Company, L.L.C.
2421 Applewood Circle
Grand Jct., CO 81506
241-2373

PETITIONER'S REPRESENTATIVE: Banner Associates, Inc.
2777 Crossroads Blvd., G.J., CO
243-2242

STAFF REPRESENTATIVE: Bill Nebeker

COMMUNITY DEVELOPMENT DEPARTMENT

REZONE:

1. Comment noted, no response necessary.

2. It is not known when St. Matthews Episcopal Church may develop on this site. The Petitioner has no objection to limiting the use of the church site with this plan if St. Matthews does not decide to build.

FINAL PLAT:

1. Redesignation of the tract and outlots has been done.

2. Setbacks for Filing #1 are 25' Front, 10' Side and 25' Rear. These setbacks have been added to the Final Plat.

3. Comment noted, no response necessary.

4. Verbage in plat dedication has been modified as requested.

5. It has always been the intention to construct the 10 ft. wide pedestrian path in Tract A shown as part of Filing 1. Additional details regarding construction and the relationship with storm drainage has been added to the Grading and Drainage Plan.

PRELIMINARY PLAN:

1. Regarding the development of the property to the south, we do not have a time line on when that will happen. However, there has been discussions with the owner and representatives of that parcel that would indicate that development of this site is being seriously considered. If the Petitioner were to estimate a time frame, 5-years would be suggested for development of this parcel to begin. There are no other suggestions for an alternate access to this subdivision other than through this parcel.

2. Comment noted, no response necessary.

3. We do not feel as though a pedestrian/bicycle connection is warranted between North Knoll Circle and Cortland Avenue since the intersection of Willow Glen Drive and Cortland provides this connection. Concerns such as maintenance and security from crime are examples on why a connection should not be provided. The Petitioner is agreeable to providing a connection from the townhome area to the church site, but was not shown since the final configuration of buildings and their exact location is not known.

4. To better define the turnaround in Spring Court, an enlarged detail has been added to Sheet 2 of 3 of the Preliminary Plan.

5. After receiving comments from the previous submittal, it does not appear that providing access to the Davis parcel at the southwest corner of the project was as critical as providing an access point to the larger parcel to the south. Although we have discussed several different alternatives for providing a new driveway into the Davis parcel, nothing has been decided on where it might be placed. The Petitioner has no objection to providing access if required to do so.

6. The Knolls is set up to be a development where the developer will also be involved in constructing the homes. Home buyers will choose their lot and floor plan in conjunction with the entire planned development, including the townhomes shown as Filing 3. Lots will not be sold individually.

7. At this time we do not anticipate any major structure being provided for the Nature Overlook, although some sort of gazebo may provide a nice ammenity to the area. The location planned for the Nature Overlook does not lend itself to any new developed use due to it's size and proximity to the possible wetlands. To leave the area as a natural open space providing access to it by the pedestrian trails seems to be the logical choice. Additional improvements will be to grade the area to a possible amphitheater-type setting overlooking the wetlands and ponds which to view the open space and wildlife that will use it. Several weather-proof benches would be proposed which would provide individuals the opportunity to sit for longer periods of time. This area has several existing mature trees that would be left in tact which would add to the nature and rural feel.

8. The Petitioner is still unsure what is meant by "active recreation areas". This site is currently used extensively by people jogging and walking in the area, in the area that is planned to be open space with trails. These trails can provide active recreation such walking, jogging, and possibly fitness stations that are seen in some City parks. This development will be marketed to a clientel that will that will be using this type of activity. Although other clientel wanting other types of activities will not be discouraged, these activities are found nearby at the country club and City parks. The Petitioner does not feel that providing usable space for something that won't be used is good planning.

9. The airport critical zone has been added to the Preliminary Plan and the Final Plat for Filing One where applicable.

10. No sound-proofing provisions are being planned for Filing One as it falls either outside the airport critical zone or on the outer limits of the zone. Future construction of homes may include additional insulation to mitigate noise if necessary.

CITY DEVELOPMENT ENGINEER

1. In recognizing that the geotechnical report submitted was performed in 1981 and does not address the possible wetlands area, the Petitioner is in the process of having a updated soils investigation performed by **Lambert and Associates** that will include a pavement design. This investigation and design will be completed prior to any construction taking place and be submitted to the City staff for approval.

2. On pages D-5 and D-6 of Appendix D in the Final Drainage Report, the calculations for the Time of Concentration is shown.

3. Refer to Response #5 under CITY COMMUNITY DEVELOPMENT, FINAL PLAT.

4. Many times High Density Polyethylene (HDPE) pipe is specified for construction due to its' ease of placement. We would agree that HDPE would not be the best choice of material in making a crossing of Ridge Drive. This section of pipe has been changed to Reinforced Concrete Pipe (RCP).

5. Refer to Response #1 under CITY COMMUNITY DEVELOPMENT, PRELIMINARY PLAN.

6. Previous investigations by **Banner Associates** indicate that approximately 55 single family lots could be placed on the vacant ground to the south. Obviously an access onto 27½ Road would be necessary with this development that would tie into Willow Glen Drive. It is not possible to estimate exact traffic projections, however, using the Residential Trip Generation Rates given by the City, the total ADT for both developments would be in the order of 1060 trips per day. If it is approximated that half of these trips will be using each of the two access points, this would correspond to 530 ADT, still well below the 1000 ADT limit for a Urban Residential Street. Therefore, it is felt that streets within The Knolls can remain as shown on the Preliminary Plan.

CITY UTILITY ENGINEER

PRELIMINARY PLAN:

1. The concrete pedestrian path will be constructed as stipulated.

2. The manhole in front of Lots 6 and 7, Block 1, Filing 2 has been reconfigured to avoid possible conflict with the water line.

FINAL PLAN:

1. Sign-off blocks for both the City and Ute have been added.

2. There is no intention to develop lots that will require sewage pumps for their service. It is proposed to construct homesites at the necessary elevation to avoid pumping.

CITY PROPERTY AGENT

1. Refer to Response #1 under CITY COMMUNITY DEVELOPMENT, FINAL PLAT.

2. Refer to Response #4 under CITY COMMUNITY DEVELOPMENT, FINAL PLAT.

3. Verbage referring to drainage and detention/retention easements has been removed from the dedication as requested.

4. Refer to Response #2 under CITY COMMUNITY DEVELOPMENT, FINAL PLAT.

5. Monumentation shall be set in concrete as stated.

CITY PARK & RECREATION

1. Refer to Response #4 under CITY COMMUNITY DEVELOPMENT, FINAL PLAT.

2. Comment noted, no response necessary.

CITY FIRE DEPARTMENT

Spring Court shall be posted as a "no parking zone".

Sizes for proposed water lines have been added to the Preliminary Plan. Locations of fire hydrants have been modified as requested.

CITY ATTORNEY

1. Refer to Response #5 under CITY COMMUNITY DEVELOPMENT, FINAL PLAT.

2. Refer to Response #1 under CITY COMMUNITY DEVELOPMENT, FINAL PLAT.

3. Homeowners documents are being finalized and will be submitted for review as soon as they are available.

4. Comment noted, no response necessary.

5. The Total Estimated Cost of Improvements shown on the Development Improvements Agreement will be increase by $6,500 to account for constructing the 10' wide concrete pedestrian path and placement of grass in of Tract A of Filing 1.

CITY POLICE DEPARTMENT

Comment noted, no response necessary.

MESA COUNTY PLANNING

Comment noted, no response necessary.

WALKER FIELD AIRPORT

1. Refer to Response #10 under CITY COMMUNITY DEVELOPMENT, PRELIMINARY PLAN.

2. Comment noted, no response necessary.

3. An Avigation Easement was completed and submitted as part of this application. A copy of the recorded easement will be provided to the Airport Authority.

GRAND VALLEY WATER USERS

Easements for Laterals 2B and 2C will be provided for as requested.

We do not dispute that drainage from this site will ultimately reach irrigation canals that are part of the Grand Valley Project. However, it is our estimate that the distance required to travel is greater than a ¼ mile in addition to traveling through other developments prior to this discharge. It should be stated that this storm drainage is not a direct discharge into the Grand Valley Project. If the license agreement is required for only direct discharges into a Grand Valley Project channel, then it is our opinion that this application may not be necessary. Although, if making this license agreement application is typical of any and all developments that may be upstream from any Grand Valley Project channel, then the Petitioner has no objection with completing this process.

U S WEST

Comment noted, no response necessary.

PUBLIC SERVICE COMPANY

GAS: No response necessary.

ELECTRIC: Tract A (Outlot A) will also be designated as a utility easement as requested.

UTE WATER DISTRICT

Comments noted, no response necessary.

CITY DEVELOPMENT ENGINEER **10/28/96**

Jody Kliska **244-1591**

Response to response to comments:

1. The updated geotechnical report is required prior to approval of construction plans.
2. The drainage report pages D-5 and D-6 only have calculations for the 2 year storm time of concentration. The original comment was for the 100 year storm, and this still has not been addressed.
3. The final plans for filing 1 while showing 200' feet of pipe and what appears to be the pedestrian path, do not contain sufficient detail for the pedestrian path including the size, length, cross-section, material, and ramp connection.
4. The question of this project providing only a single outlet for the development has not been addressed. The City TEDS section 6.14 allows cul-de-sacs of length up to 1000' and maximum ADT of 250. This project essentially functions as a cul-de-sac and as such exceeds these requirements. The response reads "obviously an access onto 27 1/2 Road would be necessary...", leading to the conclusion the petitioner thinks the next development should be the responsible party for providing the necessary access.

THE KNOLLS SUBDIVISION

ADDENDUM TO FINAL DRAINAGE REPORT

A critical step in calculating historic and developed runoff was overlooked in preparing the original Final Drainage Report. The Time of Concentration (Tc) will have different values for the 2 year and 100 year storm events in this TR-55 method of analysis. The equations on page E-2 of the Grand Junction SWM Manual produce the following relationship for the sheet flow time (To) portion of the Tc equation:

$$To_{100} = 0.6 * To_2$$

The drainage calculations were run again and the runoff results are tabulated below. Please note the only change from page 5 of the original Final Drainage Report is the historic 100-year runoff is now 2 cfs instead of 1 cfs.

Historic Conditions

2-year runoff:	0 cfs
100-year runoff:	2 cfs

Filing One, developed, analyzed independently

2-year runoff:	0 cfs
100-year runoff:	1 cfs

This 1 cfs released from Filing One will insignificantly affect the flows released from the entire parcel, as approximately 1000 feet of gently sloping, moderately vegetated terrain lies between Filing One's outfall point and the outfall point for the entire parcel.

The calculations showing this proper method of Tc computation are attached as part of this addendum.

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 16:35:10 10-29-1996 PRE-KNOL.TCT

THE KNOLLS SUBDIVISION
HISTORIC RUNOFF CONDITIONS

Tc COMPUTATIONS FOR:

SHEET FLOW (Applicable to Tc only)

Segment ID		AB		
Surface description		ARID,WEEDS		
Manning's roughness coeff., n		0.1500		
Flow length, L (total < or = 300)	ft	300.0		
Two-yr 24-hr rainfall, P2	in	0.700		
Land slope, s	ft/ft	0.0083		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$	hrs	1.20		= 1.20

$T_{100} = 0.6(1.20) = 0.72$

SHALLOW CONCENTRATED FLOW

Segment ID			BD	DF		
Surface (paved or unpaved)?			Unpaved	Unpaved		
Flow length, L		ft	1104.0	444.0		
Watercourse slope, s		ft/ft	0.0188	0.0270		
$Avg.V = Csf * (s)^{0.5}$		ft/s	2.2123	2.6512		
where: Unpaved Csf = 16.1345						
Paved Csf = 20.3282						
T = L / (3600*V)		hrs	0.14	+ 0.05	=	0.19

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) 1.38

$T_{c_{100}}$ = 0.91 hrs

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 16:35:10 10-29-1996 PRE-KNOL.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

THE KNOLLS SUBDIVISION
HISTORIC RUNOFF CONDITIONS

Subarea descr.	Tc or Tt	Time (hrs)
	Tc	1.38

$T_{c_{100}}$ = 0.91 hrs

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

THE KNOLLS SUBDIVISION
HISTIORIC DRAINAGE CONDITIONS
2 YEAR STORM

CALCULATED
DISK FILE: PRE-KNOL.GPD

Drainage Area	(acres)	33.8	--->	0.0528 sq.mi.
Runoff Curve Number	(CN)	67		
Time of Concentration,Tc	(hrs)	1.38		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	.2	--->	0.1 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2		
Rainfall, P, 24-hr (in)	.7		
Initial Abstraction, Ia (in)	0.985	0.985	0.985
Ia/p Ratio	1.407	0.000	0.000
Unit Discharge, * qu (csm/in)	135	0	0
Runoff, Q (in)	0.00	0.00	0.00
Pond & Swamp Adjustment Factor	0.97	0.97	0.97
PEAK DISCHARGE, qp (cfs)	0	0	0

Summary of Computations for qu

Ia/p	#1	0.500	0.000	0.000
C0	#1	2.203	0.000	0.000
C1	#1	-0.516	0.000	0.000
C2	#1	-0.013	0.000	0.000
qu (csm)	#1	135.020	0.000	0.000
Ia/p	#2	0.500	0.000	0.000
C0	#2	2.203	0.000	0.000
C1	#2	-0.516	0.000	0.000
C2	#2	-0.013	0.000	0.000
qu (csm)	#2	135.020	0.000	0.000
* qu (csm)		135	0	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

THE KNOLLS SUBDIVISION
HISTIORIC DRAINAGE CONDITIONS
100 YEAR STORM

CALCULATED
DISK FILE: PRE-KNOL.GPD

Drainage Area	(acres)	33.8	--->	0.0528 sq.mi.
Runoff Curve Number	(CN)	67		
Time of Concentration,Tc	(hrs)	0.91		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	.2	--->	0.1 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	100		
Rainfall, P, 24-hr (in)	2.01		
Initial Abstraction, Ia (in)	0.985	0.985	0.985
Ia/p Ratio	0.490	0.000	0.000
Unit Discharge, * qu (csm/in)	175	0	0
Runoff, Q (in)	0.18	0.00	0.00
Pond & Swamp Adjustment Factor	0.97	0.97	0.97
PEAK DISCHARGE, qp (cfs)	2	0	0

Summary of Computations for qu

Ia/p	#1	0.450	0.000	0.000
C0	#1	2.292	0.000	0.000
C1	#1	-0.570	0.000	0.000
C2	#1	-0.023	0.000	0.000
qu (csm)	#1	206.867	0.000	0.000
Ia/p	#2	0.500	0.000	0.000
C0	#2	2.203	0.000	0.000
C1	#2	-0.516	0.000	0.000
C2	#2	-0.013	0.000	0.000
qu (csm)	#2	167.469	0.000	0.000
* qu (csm)		175	0	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 07:51:10 10-30-1996 POST-FI.TCT

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION

Tc COMPUTATIONS FOR:

SHEET FLOW (Applicable to Tc only)

Segment ID			AB	BC		
Surface description			LAWN	SIDEWALK		
Manning's roughness coeff., n			0.2400	0.0110		
Flow length, L (total < or = 300)		ft	165.0	8.0		
Two-yr 24-hr rainfall, P2		in	0.700	0.700		
Land slope, s		ft/ft	0.0240	0.0250		
$T = \frac{.007 * (n*L)^{0.8}}{P2^{0.5} * s^{0.4}}$		hrs	0.71	+ 0.01	=	0.71
$T_{o_{100}} = 0.6\, T_{o_2} = 0.6\,(0.71) =$			0.43			

SHALLOW CONCENTRATED FLOW

Segment ID			CD		
Surface (paved or unpaved)?			Unpaved		
Flow length, L		ft	12.0		
Watercourse slope, s		ft/ft	0.0250		
$Avg.V = Csf * (s)^{0.5}$		ft/s	2.5511		
where:	Unpaved Csf = 16.1345				
	Paved Csf = 20.3282				
T = L / (3600*V)		hrs	0.00		= 0.00

CHANNEL FLOW

Segment ID			DE	EF	
Cross Sectional Flow Area, a		sq.ft	4.35	0.79	
Wetted perimeter, Pw		ft	18.95	3.14	
Hydraulic radius, r = a/Pw		ft	0.230	0.250	
Channel slope, s		ft/ft	0.0210	0.0050	
Manning's roughness coeff., n			0.0130	0.0110	
$V = \frac{1.49 * r^{2/3} * s^{1/2}}{n}$		ft/s	6.2269	3.7995	
Flow length, L		ft	265	75	
T = L / (3600*V)		hrs	0.01	+ 0.01	= 0.02

::

TOTAL TIME (hrs) 0.73

$T_{c_{100}} =$ 0.45

Quick TR-55 Ver.5.46 S/N:1315430326
Executed: 07:51:10 10-30-1996 POST-FI.TCT

SUMMARY SHEET FOR Tc or Tt COMPUTATIONS
(Solved for Time using TR-55 Methods)

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION

Subarea descr.	Tc or Tt	Time (hrs)
	Tc	0.73

$T_{c_{100}}$ = 0.45

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION
2 YEAR STORM EVENT

CALCULATED
DISK FILE: POST-F1 .GPD

Drainage Area	(acres)	4.39	--->	0.0069 sq.mi.
Runoff Curve Number	(CN)	71		
Time of Concentration,Tc	(hrs)	.73		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	2		
Rainfall, P, 24-hr (in)	.7		
Initial Abstraction, Ia (in)	0.817	0.817	0.817
Ia/p Ratio	1.167	0.000	0.000
Unit Discharge, * qu (csm/in)	188	0	0
Runoff, Q (in)	0.00	0.00	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	0	0	0

Summary of Computations for qu

Ia/p	#1	0.500	0.000	0.000
C0	#1	2.203	0.000	0.000
C1	#1	-0.516	0.000	0.000
C2	#1	-0.013	0.000	0.000
qu (csm)	#1	187.546	0.000	0.000
Ia/p	#2	0.500	0.000	0.000
C0	#2	2.203	0.000	0.000
C1	#2	-0.516	0.000	0.000
C2	#2	-0.013	0.000	0.000
qu (csm)	#2	187.546	0.000	0.000
* qu (csm)		188	0	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

Quick TR-55 Version: 5.46 S/N: 1315430326

>>>>> GRAPHICAL PEAK DISCHARGE METHOD <<<<<

DEVELOPED RUNOFF CONDITIONS
FILING ONE -- THE KNOLLS SUBDIVISION
100 YEAR STORM EVENT

CALCULATED
DISK FILE: POST-F1 .GPD

Drainage Area	(acres)	4.39	--->	0.0069 sq.mi.
Runoff Curve Number	(CN)	71		
Time of Concentration,Tc	(hrs)	0.45		
Rainfall Distribution	(Type)	II		
Pond and Swamp Areas	(%)	0	--->	0.0 acres

	Storm #1	Storm #2	Storm #3
Frequency (years)	100		
Rainfall, P, 24-hr (in)	2.01		
Initial Abstraction, Ia (in)	0.817	0.817	0.817
Ia/p Ratio	0.406	0.000	0.000
Unit Discharge, * qu (csm/in)	359	0	0
Runoff, Q (in)	0.27	0.00	0.00
Pond & Swamp Adjustment Factor	1.00	1.00	1.00
PEAK DISCHARGE, qp (cfs)	1	0	0

Summary of Computations for qu

Ia/p	#1	0.400	0.000	0.000
C0	#1	2.364	0.000	0.000
C1	#1	-0.599	0.000	0.000
C2	#1	-0.056	0.000	0.000
qu (csm)	#1	367.203	0.000	0.000
Ia/p	#2	0.450	0.000	0.000
C0	#2	2.292	0.000	0.000
C1	#2	-0.570	0.000	0.000
C2	#2	-0.023	0.000	0.000
qu (csm)	#2	307.131	0.000	0.000
* qu (csm)		359	0	0

* Interpolated for computed Ia/p ratio (between Ia/p #1 & Ia/p #2)
If computed Ia/p exceeds Ia/p limits, bounding limit for Ia/p is used.

$$\log(qu) = C0 + (C1 * \log(Tc)) + (C2 * (\log(Tc))^2)$$

qp (cfs) = qu(csm) * Area(sq.mi.) * Q(in.) * (Pond & Swamp Adj.)

STAFF REVIEW - PLANNING COMMISSION REPORT - NOVEMBER 5, 1996 HEARING

FILE:	PDR-96-217
DATE:	October 30, 1996
STAFF:	Bill Nebeker
REQUEST:	Final Plat and Plan for The Knolls, Filing #1 Revised Preliminary for The Knolls Rezone from RSF-4 and PR 7.2 to PR 2.6 and PR Special Use Permit for Low Density Development in the Airport Critical Zone
LOCATION:	Southeast corner of 27 1/2 Road and Cortland Avenue (F 3/4 Road)
APPLICANT:	Robert C. Knapple

EXECUTIVE SUMMARY: The applicant proposes a planned residential development consisting of 51 single family homes, 23 townhomes and a 4.8 acre site reserved for a future church. The site is located in the Airport Critical Zone which requires a special use permit for low density residential uses and churches. The site is proposed to be rezoned from PR 7.2 and RSF-4 to PR 2 on the church site and PR 2.6 on the residential portion of the site. Preliminary approval was previously approved for phase I of the subdivision which consists of the 9 lots located on Ridge Drive. Final plat approval is requested for phase I, and preliminary approval is requested for the remainder of the subdivision, including the church site. The entire site is located on 33.84 acres. Staff recommends approval with conditions

EXISTING LAND USE:	Vacant
PROPOSED LAND USE:	single family lots and church site
SURROUNDING LAND USE:	
NORTH:	Single Family homes & Church
SOUTH:	Vacant
EAST:	Single Family homes
WEST:	Single Family homes
EXISTING ZONING:	PR 7.2 & RSF-4
PROPOSED ZONING:	church site - PR 2 remainder - PR 2.6
SURROUNDING ZONING:	
NORTH:	RSF-4 & PR-8
SOUTH:	RSF-4
EAST:	RSF-4

WEST: PR-4, RSF-4, PR 1.9

RELATIONSHIP TO COMPREHENSIVE PLAN: The approved Growth Plan shows this area developing as Residential Medium-Low (2-3.9 dwellings per acre).

STAFF ANALYSIS: The applicant proposes to develop a planned residential development consisting of 51 single family homes, 23 townhomes and a 4.8 acre site reserved for a future church. The site is located in the Airport Critical Zone which requires a special use permit for low density residential uses and churches. The site is proposed to be rezoned from PR 7.2 and RSF-4 to PR 2 on the church site and PR-2.6 on the residential portion of the site. Preliminary approval was previously approved for phase I of the subdivision which consists of the 9 lots located on Ridge Drive. Final plat approval is requested for phase I, and preliminary approval is requested for the remainder of the subdivision, including the church site. The entire site is located on 33.84 acres.

Rezone: This site was formerly known as "Onion Hill" which received a change of zoning and preliminary plan approval during the late 1980's. The plan was never completed and lapsed. The PR 7.2 zoning remains on the site. The Onion Hill site is being added to Lot 2 of the St. Matthew's Episcopal Church Subdivision which is zoned RSF-4. Since that time the surrounding area has developed at a density much less than 7.2 dwellings per acre. The average overall surrounding density appears to be at about 4 dwellings per acre. The Growth Plan recommends that the density not exceed 3.9 dwellings per acre. The plan is based on surrounding densities and the fact that most of this site is located within the Airport Critical Zone boundaries. Residential densities higher than 4 units per acre are compatible within the Critical Zone boundaries.

The applicant is proposing a density of approximately 2.6 dwellings per acre over the residential portion of the site, including the townhomes. By themselves the townhome density is approximately 3.85 dwellings per acre which is still in conformance with the Growth Plan and the Critical Zone boundaries. Because this proposal is a Planned Residential Development, the overall density including single family homes, townhomes, open space and roads, is used to calculate the 2.6 units per acre zoning. The church site is excluded from this calculation. The church site is assigned it own zoning of PR-2. This site is limited for use as a future church.

Staff finds that the proposed rezone meets the criteria established in Section 4-4-4 of the Grand Junction Zoning and Development Code as noted below:

A. **Was the existing zone an error at the time of adoption?** No. The zoning reflected an approved development plan with a higher density not desirable at this time due to the proximity of the airport and lower surrounding densities.

B. **Has there been a change in character in the area due to the installation of public facilities, other zone changes, new growth trends, deterioration, development**

transitions, etc.? Yes. As mentioned in A above, the majority of the surrounding area as developed at a much lower density. Also the Airport has identified that densities higher than 4 dwellings per acre are incompatible within the Critical Zone.

C. **Is there an area of community need for the proposed rezone?** The project is a response to an anticipated market demand for the proposed residential use which includes single family homes and townhomes.

D. **Is the proposed rezone compatible with the surrounding area or will there be adverse impacts?** Yes. The density of the townhomes is still within the average density of surrounding uses. The townhomes are located between open space and the church site, adjacent to the heavier traveled 27 1/2 Road. The density of the single family homes in below the density of surrounding uses.

E. **Will there be benefits derived by the community, or area, by granting the proposed rezone?** This site has been a constant nuisance for Code Enforcement over the past years due to uncontrolled weed growth. Development of this site to residential uses will result in City resources being spent in other areas of the community. The proposal also infills a vacant parcel almost surrounded by development. Benefits derived by the community also include the widening of Cortland Avenue and the increase in the property tax base.

F. **Is the proposal in conformance with the policies, intents and requirements of this Code, with the City Master Plan (Comprehensive Plan), and other adopted plans and policies?** Yes. The zoning is in conformance with the Growth Plan Map, which shows this area developing as residential 2-3.9 dwellings per acre.

G. **Area adequate public facilities available to serve development for the type and scope suggested by the proposed zone?** Yes. Utilities are available to serve this development. There will be a lesser impact on area schools based on the down zoning of this parcel.

Special Use Permit: A Special Use Permit is required for low density residential uses (less than 4 units/acre) and churches to locate within Airport Critical Zones. The Airport Critical Zone is a rectangular-shaped zone located directly off the end of a runway's primary surface, beginning 200 feet from the end of the pavement, which is critical to aircraft operations (i.e. more apt to have accidents within it because of the takeoff and landing mode of aircraft in that particular area). The Airport has recommended that additional soundproofing measures be taken on the residential structures in to subdivision, to include additional sound-deadening insulation and planned landscaping in order to help mitigate noise level perceptions.

The applicant has incorrectly shown the location of the Airport Critical Zone on the preliminary plat and final plat. The Critical Zone encompasses all of the townhomes and about 28 of the single family homes. The majority of the lots in Filing 1 are outside the Critical Zone boundaries. Staff recommends that as part of the approval of the Special Use Permit that soundproofing measures and

planned landscaping be taken for the affected residential dwellings. The church will be required to apply for its own Special Use Permit during a future site plan review.

Final Plat: The final plat proposes 9 lots, ranging in size from 13,547 square feet (0.311 acres) to 27,965 square feet (0.642 acres). Proposed setbacks are 25 feet front, 20 feet rear, and 10 feet sides. Ridge Drive in Spring Valley will be extended about 175 feet and terminated in a cul-de-sac. A detached sidewalk matching those on the continuation of Ridge Drive will be constructed. A pedestrian path located in an open space tract will connect Filing 1 with the remainder of the subdivision. Although plans showed the pedestrian path in Tract A there were no details given. Construction plans shall be revised to show the size, length, cross-section, material and ramp connection for the path. The path shall be concrete, a minimum of 10 feet wide. A portion of the subdivision will drain through a pipe in the open space tract. An updated geotechnical report with pavement design for Ridge Drive shall be required before construction plans are approved.

Preliminary Plan: The remainder of the preliminary plan consists a 4.8 acre church site, 42 single family homes on individual lots, 23 townhomes clustered together around common open space, and an open space area with wetlands, irrigation ponds and nature areas.

Church Site: Lot 2 of St. Matthew's Episcopal Church Subdivision is included in this development. The applicant is trading the church's 5.53 acre lot located interior to the site, with a 4.8 acre lot at the corner of Cortland and 27 1/2 Road. The lot the church currently owns is located approximately where Hollow Court and adjacent lots on Ridge Drive are proposed. There are advantages and disadvantages to moving the church site. A large church is better suited at the intersection of two collector streets. It routes traffic off of residential streets and provides more exposure for the church. On the other hand the church has moved into the Airport Critical Zone boundaries. A church is allowed in the Critical Zone with a Special Use Permit, but it is not allowed to have a school as an accessory use because of the conflict with the congregation of children on a regular basis.

The church site will be platted with Filing 1 of The Knolls. A timeline for construction of the church is unknown. Street improvements on Cortland Avenue adjacent to the church will be required at the same time that improvements on the remainder of the street are constructed in conjunction with the platting of Filing 2. 27 1/2 Road in on the City's Capital Improvement Project and is scheduled for construction in 2003, although there are proposals to move it to 2000.

Planning Commission approval will be required for the church prior to construction because of its location in a planned zone.

Single Family Homes: Forty-two single family lots about 12,000 square feet in size (0.27 acres) are proposed in three remaining phases. Willow Glen Drive will be extended to the south property line to connect with future development to the south. It is anticipated that this road will eventually connect with 27 1/2 Road to provide an additional outlet for this subdivision. Without this

connection, this subdivision exceeds the TEDS (Transportation Engineering Design Standards) requirement of 250 maximum ADT (average daily traffic) for a subdivision with only one outlet.

During preliminary review of this subdivision the applicant stressed the importance of providing an alternate access to the single family home on the large lot directly south of the irrigation ponds. The home on this lot has access only on 27 1/2 Road in a location with a limited sight distance. A street stub was proposed to this location to provide additional access. Staff felt that the street stub was needed to extend to the parcel to the south, which had a better chance of redevelopment. A single driveway over a private ingress-egress easement would be sufficient to provide an alternate access to this home. Staff recommends that a private ingress-egress easement be provided for this lot with access to Willow Glen Drive.

Townhomes: Twenty-three townhomes clustered around private open space and served by a private street are proposed in Filing 3. Staff is in the process of preparing administrative guidelines for developments with private streets. Listed below are some revisions needed for the townhome development that are proposed by those administrative guidelines:

1. Pedestrian connections to Willow Glen Drive, 27 1/2 Road, the pedestrian path in the open space area and to the church site to the north will be required.
2. The "T" turnaround in Spring Court shall be at least 20 feet wide.
3. Additional off-street parking may be required within the development.
4. A pedestrian trail system may be substituted for an attached sidewalk if in the opinion of the Director, properties adjacent to the street section could easily access the trail and trail system links other trails and facilities. A pedestrian trail system will be required to be shown during final approval.
5. Street trees will be required.

A detailed analysis of the proposed townhome development will be made when Filing 3 plat is reviewed. The townhomes are detached with individual garages and a shared driveway. Some of the shared driveways exceed 50 feet in width. These driveways should be narrowed to reduce the expanse of asphalt in front of the homes.

Open Space: The applicant is proposing 2.8 acres of open space, located largely within an existing draw that is unsuited for development. A wetlands delineation has been performed and wetlands vegetation will be retained on the site. Two man-made ponds for storage of irrigation water and to provide storm runoff detention are proposed. A 10 foot wide pedestrian path connecting 27 1/2 Road with Ridge Drive runs just north of the open space area. A 5 foot wide nature trail is also proposed. A nature overlook is provided.

An area for active recreation has not been provided within the development. Typically planned residential developments are required to provide at a minimum, open flat grassy areas for a variety of active sports or play. Residents that live within the townhomes need active recreation areas, especially due to the small lots associated with the townhomes. Staff recommends that Lot 1, block

1 within Filing 3 be eliminated and this area be used as a park for this development. This would be an appropriate place for a sidewalk connection to the church located on the corner.

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.

STAFF RECOMMENDATION: Approval with the following conditions:

Special Use Permit:

1. Soundproofing measures shall be taken on the residential structures in Filings 2-4 located in the Airport Critical Zone to include additional sound-deadening insulation and planned landscaping in order to help mitigate noise level perceptions. A note shall be placed on the final plat and in the development's CC&Rs showing this requirement.
2. A Special Use Permit for the church to locate in the Airport Critical Zone shall be filed at the time construction is planned for the church.

Final Plan:

3. Construction plans shall be revised to show the size, length, cross-section, material and ramp connection for the pedestrian path in Tract A. The path shall be concrete, a minimum of 10 feet wide.
4. An updated geotechnical report with pavement design for Ridge Drive shall be required before construction plans are approved.

Preliminary Plan:

5. Cortland Avenue improvements including the portion in front of the church shall be constructed during filing #2.
6. A private ingress-egress easement shall be provided between Willow Glen Drive and Lot 2, St. Matthew's Church Subdivision, to provide an alternate access for the home on this lot.
7. A pedestrian connection shall be made between the church site and the townhomes or Willow Glen Drive.
8. The townhome development shall comply with administrative guidelines for private streets.
9. Shared driveways in the townhome development shall be narrowed to reduce the expanse of asphalt in front of the homes.
10. Lot 1, block 1, Filing 3 shall be eliminated and this area used as a park for residents of The Knolls subdivision.

11. A note shall be placed on the plat for Filings 1 and 2 notifying potential lot owners that the townhomes are proposed as part of this subdivision.
12. The Airport Critical Zone Boundary shall be correctly identified on the plat.

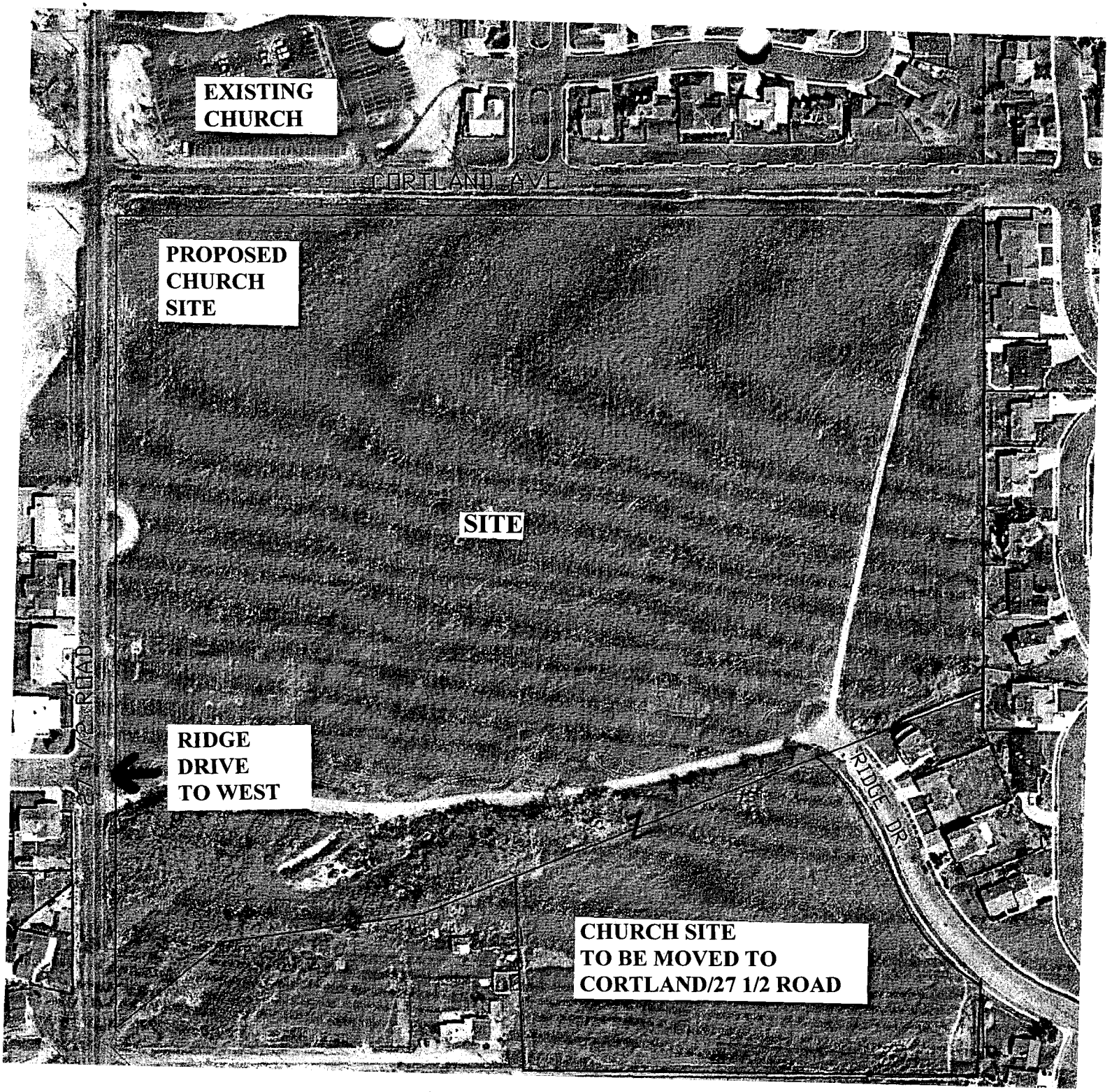
RECOMMENDED PLANNING COMMISSION MOTION:

Mr. Chairman, on item 96-217 I move that we:

1. Forward a recommendation of approval to the City Council for the rezoning of the church site from PR 7.2 to PR 2; and the remainder of the subdivision from PR 7.2 and RSF-4 to PR 2.6.

2. Approve The Knolls Filing #1, the revised preliminary plan for The Knolls and the Special Use Permit per staff's recommendation.

bn\pd\96217pcr.doc



PDR-96-217
THE KNOLLS

CITY OF GRAND JUNCTION
PLANNING COMMISSION

FOR	)	**FINAL DECISION**
	)	
Robert Knapple	)	**PDR-96-217**
O.P. Development Co. LLC	)	
2421 Applewood Circle	)	
Grand Junction, CO 81506	)	

An application by O.P. Development Co., requesting the following;

1. Rezone from Pr 7.2 to PR 2.2;
2. Approval of a revised preliminary plan for 51 single family lots, 23 patio home lots and 1 church site;
3. Approval of Filing #1 for 9 single family lots;
4. Approval of a special use permit for a church and residential development in an Airport Critical Zone;

affecting the parcel at the southeast corner of Cortland Avenue and 27 1/2 Road as described in the file referenced above, was considered by the City of Grand Junction Planning Commission on November 5, 1996.

After considering all the pertinent testimony and reviewing various data, the Planning Commission made the following actions:

A. Approved the special use permit upon a finding that the proposal complies with Section 4-8-1 of the City of Grand Junction Zoning and Development Code, with the following conditions:

   1. Soundproofing measures shall be taken on the residential structures in Filings 2-4 located in the Airport Critical Zone to include additional sound-deadening insulation and planned landscaping in order to help mitigate noise level perceptions. A note shall be placed on the final plat and in the development's CC&Rs showing this requirement.

   2. A Special Use Permit for the church to locate in the Airport Critical Zone shall be filed at the time construction is planned for the church.

B. Approved the final plat for filing #1 with the following conditions:

3. Construction plans shall be revised to show the size, length, cross-section, material and ramp connection for the pedestrian path in Tract A. The path shall be concrete, a minimum of 10 feet wide.

4. An updated geotechnical report with pavement design for Ridge Drive shall be required before construction plans are approved.

C. Accepted a withdrawal from the applicant for the preliminary plan and rezone request.

Bill Nebeker
Senior Planner

11-6-96
date

c: Banner Associates, Inc.

Memorandum

DATE: December 6, 1996

TO: David Chase, Banner

FROM: Bill Nebeker, City Planning

RE: The Knolls

David - attached to the plat is the Memorandum of Improvements Agreement & Guarantee. Please have Bob Knapple sign and return with the plat.

I'll need the following before the plat can be recorded:

2 full size mylars of plat

1 reduced 11" X 17" mylar of plat

computer disk with plat info

$21 recording fee for plat + $6 recording fee for Memorandum of Improvements Agreement

signed Memorandum of Improvements Agreement

letter of credit for Development Improvements Agreement

Please also note that a homeowner's association will be required to be formed for maintenance of the Tract A.

If you have any questions please call me at 244-1447.

CITY OF GRAND JUNCTION FILE **#PDR-96-217 PLANNED DEVELOPMENT REVIEW - THE KNOLLS, FILING #1** LOCATED AT SE CORNER OF CORTLAND AVENUE & 27 ½ ROAD HAS BEEN REVIEWED AND APPROVED BY THE UTILITY COORDINATING COMMITTEE.

Phil Bertrand
CHAIRMAN

12-11-96
DATE

PDR-96-217

CITY OF GRAND JUNCTION
DEPARTMENT OF PUBLIC WORKS & UTILITIES
250 NORTH 5TH STREET
GRAND JUNCTION, CO 81501
(970) 244-4003

1785315 0925AM 01/17/97
MONIKA TODD CLK&REC MESA COUNTY CO

TO THE MESA COUNTY CLERK & RECORDER:

THIS IS TO CERTIFY that the herein named Subdivision Plat,

KNOLLS SUBDIVISION, FILING NO. 1,

Situated in the NE 1/4 of Section 1,

Township 1 SOUTH, Range 1 WEST,

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 adjc and/or omissions, including, but not limited to, rights-of-ways and/or easements, whether or nc liens and encumbrances, whether or not of qualifications, licensing status and/or any representation(s) made by the surveyor who prepar subdivision plat.

RECORDS

IMP AGREEMENT

243-244

BOOK 2294 PG 931

Dated this 6 day of December, 1996

City of Grand Junction,
Department of Public Works & Utilities

By: James L. Shanks
James L. Shanks, P.E., P.L.S.
Director of Public Works & Utilities

Recorded in Mesa County

Date: _____

Plat Book: 15 Page: 243 & 244

Drawer: CC135

g:\special\platcert.doc

TYPE LEGAL DESCRIPTION(S) BELOW, USING ADDITIONAL SHEETS AS NECESSARY. USE SINGLE SPACING WITH A ONE INCH MARGIN ON EACH SIDE.

****

DESCRIPTION OF THE KNOLLS SUBDIVISION, FILING 1

A tract of land located in the SW¼ of the NE¼ of Section 1, Township 1 South, Range 1 West of the Ute Meridian, County of Mesa, State of Colorado more fully described as follows:

Beginning at the southeasterly corner of The Knolls Subdivision, Filing 1, being a Bureau of Land Management Monument for the C-E 1/16 Corner of Section 1, Township 1 South, Range 1 West, Ute Principal Meridian.

1. Thence N 89° 54' 17" W, 676.81 feet;
2. Thence N 02° 03' 32" W, 298.77 feet;
3. Thence S 68° 06' 13" W, 155.90 feet;
4. Thence S 81° 59' 06" W, 299.62 feet;
5. Thence S 50° 15' 06" W, 206.71 feet;
6. Thence N 00° 00' 59" E, 1221.94 feet;
7. Thence S 89° 57' 11" E, 1287.84 feet;
8. Thence S 00° 00' 59" W, 713.29 feet;
9. Thence S 68° 17' 12" W, 263.02 feet;
10. Thence southeasterly 185.52 feet along the arc of a circular curve to the right with a radius of 370.00 feet, a delta of 28° 43' 43", and a chord bearing S 33° 03' 51" E, 183.58 feet;
11. Thence southeasterly 251.82 feet along the arc of a circular curve to the left with a radius of 430.00 feet, a delta of 33° 33' 14", and a chord bearing S 35° 28' 36" E, 248.24 feet;
12. Thence S 00° 00' 59" W, 121.89 feet to the Point of Beginning.

The Knolls Subdivision, as described above contains 33.844 acres more or less.

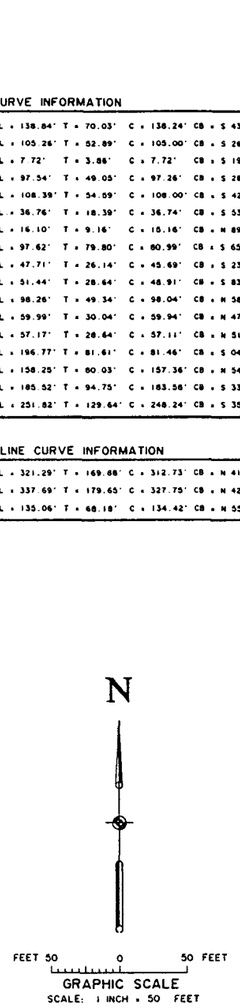
FINAL PLAT OF THE KNOLLS SUBDIVISION, FILING I, LOCATED IN THE SW 1/4 OF THE NE 1/4 OF SECTION 1, T.1 S., R.1 W., U.M., MESA COUNTY, COLORADO

CURVE INFORMATION

(B)	Δ = 18° 29' 58"	R = 430.00'	L = 138.84'	T = 70.03'	C = 138.24'	CB = S 43° 00' 14" E
(C)	Δ = 14° 01' 31"	R = 430.00'	L = 105.26'	T = 52.89'	C = 105.00'	CB = S 26° 44' 29" E
(D)	Δ = 01° 01' 44"	R = 430.00'	L = 7.72'	T = 3.86'	C = 7.72'	CB = S 19° 12' 51" E
(E)	Δ = 15° 08' 16"	R = 370.00'	L = 97.54'	T = 49.05'	C = 97.26'	CB = S 26° 15' 07" E
(F)	Δ = 16° 47' 05"	R = 370.00'	L = 108.39'	T = 54.59'	C = 108.00'	CB = S 42° 11' 48" E
(G)	Δ = 05° 41' 31"	R = 370.00'	L = 36.76'	T = 18.39'	C = 36.74'	CB = S 53° 26' 06" E
(H)	Δ = 68° 19' 06"	R = 13.50'	L = 16.10'	T = 9.16'	C = 15.16'	CB = N 89° 33' 35" E
(K)	Δ = 119° 00' 15"	R = 47.00'	L = 97.62'	T = 79.80'	C = 80.59'	CB = S 65° 05' 51" E
(L)	Δ = 58° 09' 36"	R = 47.00'	L = 47.71'	T = 26.14'	C = 45.69'	CB = S 23° 29' 05" W
(M)	Δ = 62° 42' 49"	R = 47.00'	L = 51.44'	T = 28.64'	C = 48.91'	CB = S 83° 55' 17" W
(N)	Δ = 13° 05' 33"	R = 430.00'	L = 98.26'	T = 49.34'	C = 98.04'	CB = N 58° 10' 32" W
(O)	Δ = 07° 59' 36"	R = 430.00'	L = 59.99'	T = 30.04'	C = 59.94'	CB = N 47° 37' 57" W
(P)	Δ = 08° 51' 09"	R = 370.00'	L = 57.17'	T = 28.64'	C = 57.11'	CB = N 51° 51' 17" W
(Q)	Δ = 239° 52' 40"	R = 47.00'	L = 196.77'	T = 81.61'	C = 81.46'	CB = S 04° 39' 38" E
(R)	Δ = 21° 05' 09"	R = 430.00'	L = 158.25'	T = 80.03'	C = 157.36'	CB = N 54° 10' 44" W
(S)	Δ = 28° 45' 43"	R = 370.00'	L = 185.52'	T = 94.75'	C = 183.58'	CB = S 33° 03' 51" E
(T)	Δ = 33° 33' 14"	R = 430.00'	L = 251.82'	T = 129.64'	C = 248.24'	CB = S 35° 28' 36" E

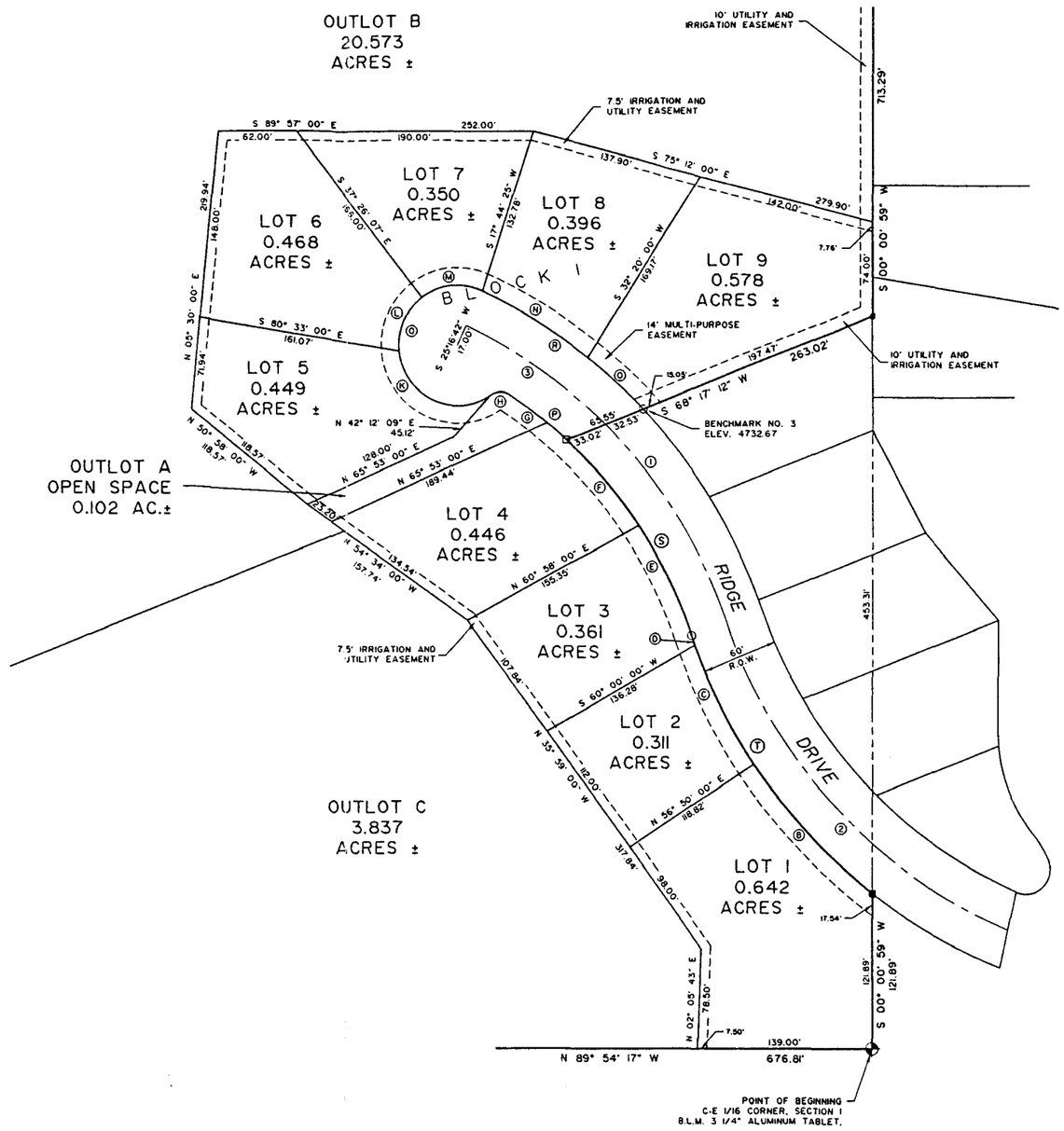
CENTERLINE CURVE INFORMATION

(1)	Δ = 46° 01' 19"	R = 400.00'	L = 321.29'	T = 169.88'	C = 312.73'	CB = N 41° 42' 37" W
(2)	Δ = 48° 22' 45"	R = 400.00'	L = 337.69'	T = 179.65'	C = 327.75'	CB = N 42° 53' 05" W
(3)	Δ = 19° 20' 45"	R = 400.00'	L = 135.06'	T = 68.18'	C = 134.42'	CB = N 55° 02' 86" W



LEGEND

- ● SET THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP MARKED BANNER, INC., 19597
- ○ FOUND THIS SURVEY, 5/8" REBAR WITH CAP MARKED L.S. 9960
- ⊡ FOUND THIS SURVEY, 5/8" REBAR WITH CAP, (ILLEGIBLE)
- ■ FOUND THIS SURVEY, 5/8" REBAR WITH CAP, MARKED LS 16443
- △ FOUND THIS SURVEY, BARE 5/8" REBAR
- ◆ FOUND IN PLACE, MONUMENT AS DESCRIBED



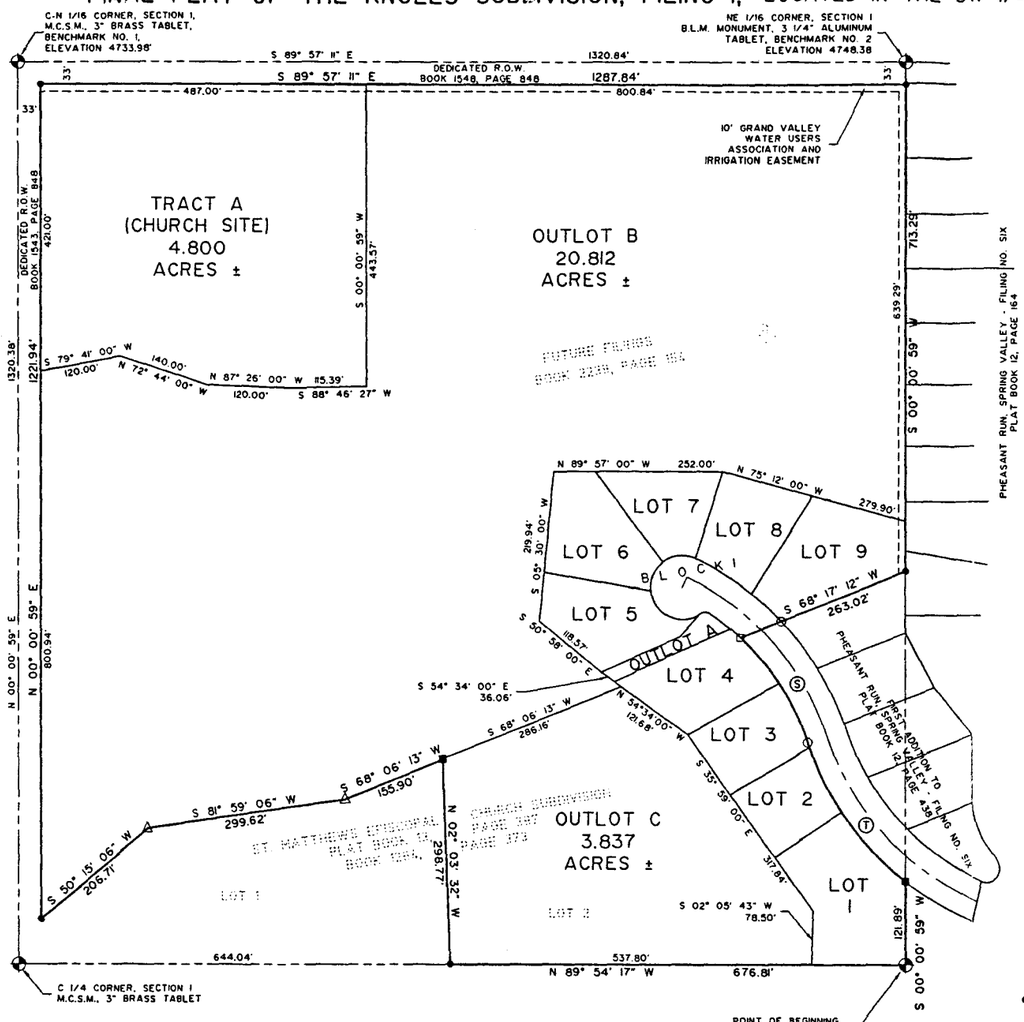
COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR
DEANE E. FICKLIN
19697

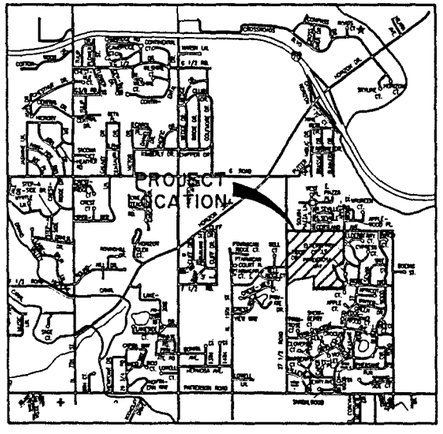
SEPT. 30, 1996

FINAL PLAT OF THE KNOLLS SUBDIVISION, FILING I			
LOCATED IN THE SW 1/4 OF THE NE 1/4 OF SECTION 1, T.1 S., R.1 W., UTE MERIDIAN, MESA COUNTY, COLORADO			
BANNER ASSOCIATES, INC. GRAND JUNCTION, COLORADO			
SCALE: 1" = 50'	JOB NO: 8343-02	DATE: 9-30-96	SHEET NO: 2 of 2

DCA:P\8343\PLAT Mon Sep 30 14:50:43 1996 BANNER ASSOCIATES, INC.

FINAL PLAT OF THE KNOLLS SUBDIVISION, FILING I, LOCATED IN THE SW 1/4 OF THE NE 1/4 OF SECTION I, T.I S., R.I W., U.M., MESA COUNTY, COLORADO





VICINITY MAP

AREA SUMMARY

LOTS	4.002 AC.±	11.8%
ROADS	0.291 AC.±	0.9%
OUTLOT A (OPEN SPACE)	0.102 AC.±	0.3%
TRACT A	4.800 AC.±	14.2%
OUTLOT B	20.812 AC.±	61.5%
OUTLOT C	3.837 AC.±	11.3%
TOTAL	33.844 AC.±	100%

CURVE INFORMATION

(5) Δ = 28° 43' 43" R = 370.00' L = 185.52' T = 94.75' C = 183.58' CB = S 33° 03' 51" E

(7) Δ = 33° 33' 14" R = 430.00' L = 251.82' T = 129.64' C = 248.24' CB = S 35° 28' 36" E

LEGEND

- SET THIS SURVEY, 5/8" REBAR WITH 1 1/2" DIAMETER ALUMINUM CAP MARKED BANNER, INC., 19597
- FOUND THIS SURVEY, 5/8" REBAR WITH CAP MARKED L.S. 9960
- FOUND THIS SURVEY, 5/8" REBAR WITH CAP, ILLEGIBLE)
- FOUND THIS SURVEY, 5/8" REBAR WITH CAP, MARKED LS 16413
- FOUND THIS SURVEY, BARE 5/8" REBAR
- FOUND IN PLACE, MONUMENT AS DESCRIBED

N

FEET 100 0 100 FEET

GRAPHIC SCALE

SCALE: 1 INCH = 100 FEET

CITY APPROVAL

The Final Plat of The Knolls Subdivision, Filing I, is approved and accepted this _____ day of _____ A.D., 1996.

City Manager

President of the City of Grand Junction City Council

COUNTY CLERK AND RECORDER'S CERTIFICATE

State of Colorado)
) ss
County of Mesa)

I hereby certify that The Knolls Subdivision, Filing I, located in the SW 1/4 of the NE 1/4 of Section I, T.I S., R.I W., Ute Meridian was filed for record in the office of the County Clerk and Recorder of Mesa County at _____ M., on the _____ day of _____ A.D. 1996 in Book No.:_____ Page No.:_____ Reception No.:_____

Mesa County Clerk and Recorder

Deputy

$ Fee

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-N 1/16 corner and NE 1/16 corner, both of Section I, Township I South, Range I West, Ute Meridian is assumed to have a bearing of S 89° 57' 11" E, as recorded on St. Matthews Episcopal Church Subdivision, Plat Book 13, Page 397, with all other bearings hereon relative thereto.
3. BASIS OF BENCHMARKS: City of Grand Junction Benchmark, elevation 4727.92 feet, Mesa County Survey Marker at the intersection of 27 1/2 Road and G Road.
4. 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.

SURVEYOR'S CERTIFICATE

I, Dean E. Fichtl, a Professional Land Surveyor, licensed under the laws of the State of Colorado, do hereby certify that the Final Plat of Knolls Subdivision, Filing I located in the SW 1/4 of the NE 1/4 of Section I, T.I S., R.I W., Ute Meridian, shown hereon has been prepared under my direct supervision and accurately represents a survey conducted under my direct supervision. This survey complies with applicable requirements of the Zoning and Development Code of the City of Grand Junction and applicable laws and regulations of the State of Colorado to the best of my knowledge and belief.

IN WITNESS WHEREOF, I hereunto affix my hand and official seal this 30TH day of SEPT. A.D., 1996.

Dean E. Fichtl
P.L.S. No. 19597

COLORADO REGISTERED DEAN E. FICHTL 19597 PROFESSIONAL LAND SURVEYOR

CERTIFICATE OF OWNERSHIP AND DEDICATION

KNOW ALL MEN BY THESE PRESENTS that O.P. Development Company, LLC being the owner in fee simple of that property as described in the instrument recorded in Book 2239, at Page 154, and that St. Matthews Parish, a Colorado non-profit Corporation being the owner in fee simple of that property as described in the instrument recorded in Book 1264, at Page 373, all in the records of the office of the Mesa County Clerk and Recorder upon which The Knolls Subdivision, Filing I is located, which is in a portion of the SW 1/4 of teh NE 1/4 of Section I, Township I South, Range I West, Ute Meridian, and Lot 2, St. Matthews Episcopal Church Subdivision, all in the County of Mesa, State of Colorado does hereby Plat said real property under the name and style of The Knolls Subdivision, Filing I, in accordance with the Plat shown hereon.

DESCRIPTION OF THE KNOLLS SUBDIVISION, FILING I

A tract of land located in the SW 1/4 of the NE 1/4 of Section I, Township I South, Range I West of the Ute Meridian, County of Mesa, State of Colorado more fully described as follows:

Beginning at the southeasterly corner of The Knolls Subdivision, Filing I, being a Bureau of Land Management Monument for the C-E 1/16 Corner of Section I, T.I S., R.I W., U.M.;

1. Thence N 89° 54' 17" W, 676.81 feet;
2. Thence N 02° 03' 32" W, 298.77 feet;
3. Thence S 68° 06' 13" W, 155.90 feet;
4. Thence S 81° 59' 06" W, 299.62 feet;
5. Thence S 50° 15' 06" W, 206.71 feet;
6. Thence N 00° 00' 59" E, 1221.94 feet;
7. Thence S 89° 57' 11" E, 1287.84 feet;
8. Thence S 00° 00' 59" W, 713.29 feet;
9. Thence S 68° 17' 12" W, 263.02 feet;
10. Thence southeasterly 185.52 feet along the arc of a circular curve to the right with a radius of 370.00 feet, a delta of 28° 43' 43", and a chord bearing S 33° 03' 51" E, 183.58 feet;
11. Thence southeasterly 251.82 feet along the arc of a circular curve to the left with a radius of 430.00 feet, a delta of 33° 33' 14", and a chord bearing S 35° 28' 36" E, 248.24 feet;
12. Thence S 00° 00' 59" W, 121.89 feet to the Point of Beginning.

The Knolls Subdivision, as described above contains 33.844 acres more or less.

That said owners do hereby dedicate and set apart real property as shown and labeled on the plat shown hereon as follows:

1. All streets and right-of-way to the City of Grand Junction for the use of the public forever.
2. To the owners of the lots, their successors and assigns forever, the real property labeled as Outlot A, Open Space as perpetual easement for pedestrian ingress and egress, drainage and the use of public utilities for the installation, operation, maintenance and repair of utilities and appurtenances.
3. All multi-purpose easements to the City of Grand Junction for the use of the Public utilities as perpetual easements for the installation, operation, maintenance and repair of utilities and appurtenances thereto including but not limited to electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, water lines, telephone lines, and also for the installation and maintenance of traffic control facilities, street lighting, street trees and grade structures.
4. All utility easements to the City of Grand Junction for the use of the public utilities as perpetual easement for the installation, operation, maintenance and repair of utilities and appurtenances thereto including, but not limited to electric lines, cable TV lines, natural gas pipelines, sanitary sewer lines, water lines, telephone lines.
5. All irrigation easements to the Homeowners Association and to the owners of the lots and tracts hereby platted as perpetual easements for the installation, operation, maintenance and repair of private irrigation systems.
6. All GVWUA easements to the City of Grand Junction for the use of the public and to the Grand Valley Water Users Association, its successors and assigns, for the installation and maintenance of GVWUA irrigation facilities.

All easement 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 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 for overburden said easements by erecting or placing any improvements thereon which may prevent reasonable ingress and egress to and from the easement.

The undersigned certifies that no lending institution holds any encumbrance on the property shown hereon.

IN WITNESS WHEREOF, I hereunto set my hand this _____ day of _____ A.D., 1996.

O.P. DEVELOPEMENT COMPANY, LLC

Robert C. Knapple, Managing Director

ACKNOWLEDGEMENT OF OWNERSHIP

State of Colorado)
) ss
County of Mesa)

On this _____ day of _____ A.D., 1996, 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

ST. MATTHEWS PARISH, a Colorado non-profit Corporation

Reverend E.S. Wright, Rector

Byron Crocker, Senior Warden

ACKNOWLEDGEMENT OF OWNERSHIP

State of Colorado)
) ss
County of Mesa)

On this _____ day of _____ A.D., 1996, before me the undersigned officers, personally appeared Reverend E.S. Wright as Rector and Byron Crocker as Senior Warden of St. Matthews Parish, a Colorado non-profit Corporation and acknowledged that they 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

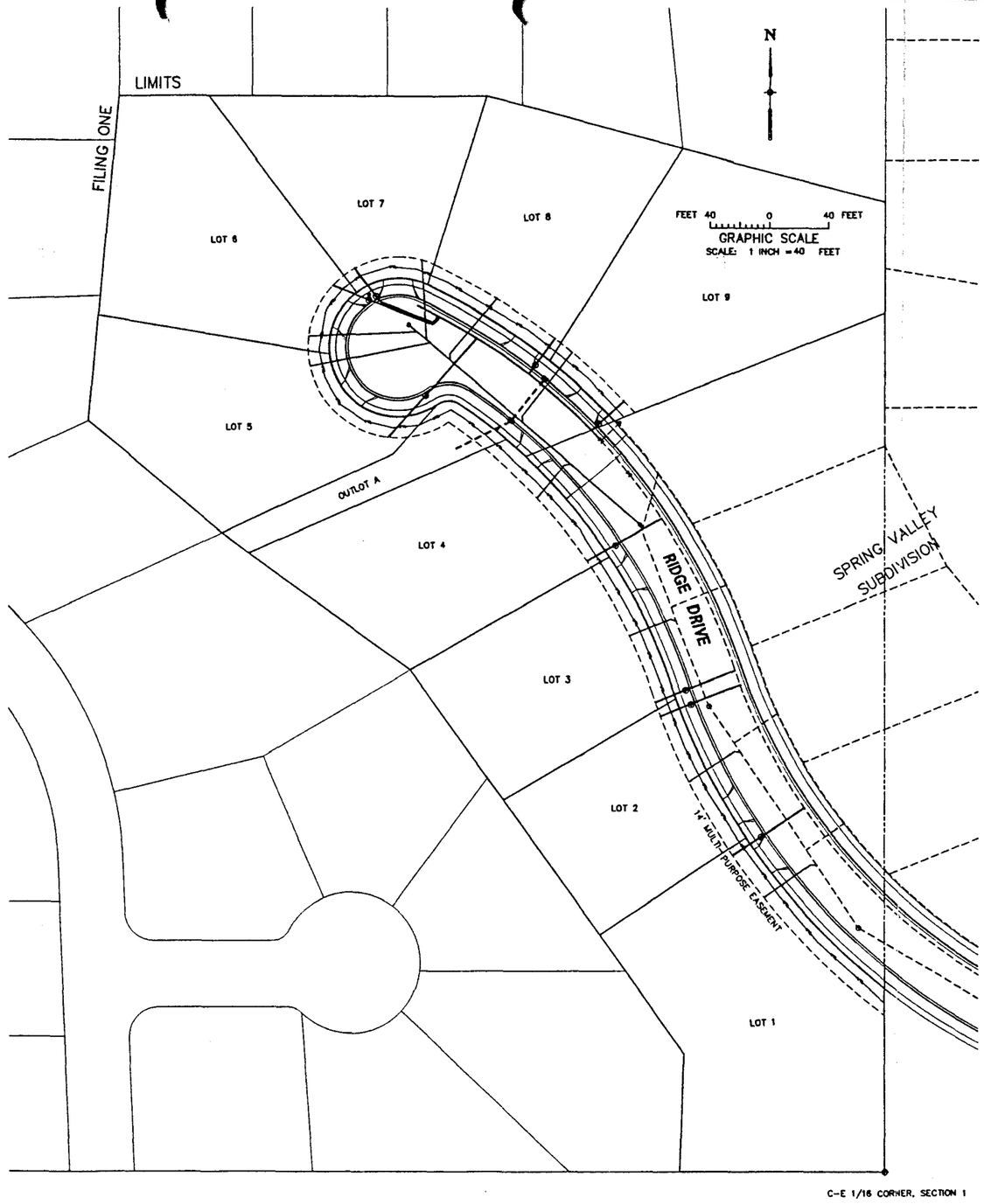
FINAL PLAT OF THE KNOLLS SUBDIVISION, FILING I

LOCATED IN THE SW 1/4 OF THE NE 1/4 OF SECTION I, T.I S., R.I W., UTE MERIDIAN, MESA COUNTY, COLORADO

BANNER ASSOCIATES, INC.
GRAND JUNCTION, COLORADO

SCALE:	JOB NO:	DATE:	SHEET NO:
1" = 100'	8343-02	9-30-96	1 of 2

C:\DCAD\8343\PLAT Mon Sep 30 14:37:29 1996 BANNER ASSOCIATES, INC.



GENERAL NOTES:

1. CONSTRUCTION, INSPECTION, AND TESTING FOR INSTALLATION OF SANITARY SEWER WILL BE IN ACCORDANCE WITH THE "SPECIFICATIONS FOR CONSTRUCTION OF SANITARY SEWER SYSTEMS" AS DEVELOPED BY THE CITY OF GRAND JUNCTION.
2. CONSTRUCTION, INSPECTION, AND TESTING FOR INSTALLATION OF DOMESTIC WATER WILL BE IN ACCORDANCE WITH THE "SPECIFICATIONS FOR WATERLINE CONSTRUCTION" AS DEVELOPED BY THE UTE WATER CONSERVANCY DISTRICT.
3. SANITARY SEWER LINES TO BE CONSTRUCTED WITH SDR-35 PVC (ASTM 3034) SERVICE LINE CONNECTIONS TO THE NEW SEWER MAIN SHALL BE ACCOMPLISHED WITH FULL BODY WYES OR TEES. TAPPING SADDLES WILL BE ALLOWED ONLY WHERE CONNECTING SERVICES TO EXISTING SEWER MAIN.
4. DOMESTIC WATER MAIN TO BE CONSTRUCTED WITH 6"ø PVC (AWWA C-900, CLASS 150) WATER SERVICE LINES TO BE 1"ø SOFT TEMPER COPPER PIPE.
5. THE CONTRACTOR SHALL HAVE ONE SIGNED COPY OF THE PLANS AND A COPY OF THE CITY OF GRAND JUNCTION STANDARDS AND SPECIFICATIONS AND A COPY OF UTE WATER CONSERVANCY DISTRICT STANDARDS AND SPECIFICATIONS ON THE JOB SITE AT ALL TIMES.
6. CONTRACTOR IS RESPONSIBLE FOR INSTALLING WATER METER PITS AND YOKES. UTE WATER CONSERVANCY DISTRICT WILL SUPPLY THE PITS AND YOKES. WATER SERVICES WILL BE EXTENDED TO THE MULTIPURPOSE EASEMENT LINE, AND MARKED WITH A METAL OR WOOD POST PAINTED BLUE. METER PITS TO BE LOCATED 2 FEET BACK OF CURB.
7. ALL SEWER SERVICE LINES SHALL BE EXTENDED TO THE MULTIPURPOSE EASEMENT LINE AND MARKED WITH A METAL OR WOOD POST PAINTED GREEN.
8. THE CITY OF GRAND JUNCTION AND UTE WATER CONSERVANCY DISTRICT SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF ANY CONSTRUCTION ACTIVITIES.
9. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE NECESSARY UNDERGROUND UTILITY PERMITS PERMITS REQUIRED FOR WORK WITHIN THE EXISTING RIDGE DRIVE RIGHT-OF-WAY.
10. FINAL LAYOUT, ROUTING, AND LOCATION OF TRANSFORMERS OR PEDESTALS TO BE DETERMINED BY INDIVIDUAL UTILITY COMPANIES.

PUBLIC FACILITIES

CITY OF GRAND JUNCTION (SANITARY SEWER AND STORM SEWER)

UTE WATER CONSERVANCY DISTRICT (DOMESTIC WATER)

PUBLIC SERVICE COMPANY OF COLORADO (GAS AND ELECTRIC)

US WEST COMMUNICATIONS (TELEPHONE)

TCI-UNITED ARTISITS CABLE OF WESTERN COLORADO (CABLE TV)

LEGEND

- EXISTING WATER MAIN, FIRE HYDRANT, VALVE
- EXISTING SEWER MAIN,SERVICES, MANHOLE
- PROPOSED STORM SEWER, INLET
- PROPOSED 6"ø C-900 PVC, CLASS 150 WATERMAIN, SERVICES, METER PITS
- PROPOSED 8"ø SDR-35 PVC (ASTM 3034) SEWER MAIN, 4"ø SDR-35 PVC SERVICES, MANHOLE
- PROPOSED STREET LIGHT
- UTIL — COMMON UTILITIES TRENCH (ELEC, GAS, TV, PHONE)

C:\DCAD\PLTEST\COMP Tue Oct 1 10:47:52 1996

DRAWN BY: DJH	REVIEWED ____ DATE: ____ FOR ____	AMERICAN CONSULTING ENGINEERS COUNCIL of COLORADO	BANNER	REVISION	DATE	DESCRIPTION	BY	CHD	O.P. DEVELOPMENT CO., L.L.C. GRAND JUNCTION, COLORADO	SCALE: Horiz: 1" = 40' Vert:	Project No: 8343
CHECKED BY: DEC	REVIEWED ____ DATE: ____ FOR BANNER ASSOCIATES, INC.	BANNER ASSOCIATES, INC. • CONSULTING ENGINEERS & SURVEYORS 2777 CROSSROADS BOULEVARD • GRAND JUNCTION, CO 81506 • (970) 243-2242 605 E. MAIN • SUITE 6 • ASPEN, CO 81611 • (970) 925-5857							COMPOSITE PLAN THE KNOLLS SUBDIVISION	DATE: 9-30-96	SHEET NO: 4 OF 11

File Close-out Summary

File #: PDR-96-217

Name: The Knolls - revised preliminary plan, final plat for filing #1; special use permit & rezone

Staff: Bill Nebeker

Action: revised preliminary withdrawn by applicant; filing #1 approved; special use permit for residential portion of site approved (SUP for church not approved at this time because no development proposal was submitted), rezoning requests withdrawn

Comments: revised revised preliminary submitted and approved (file # RSF-1997-033)

File Turned In: 04-07-97