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File FP-1995-084

Date 9/04/99

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

DOCUMENTS SPECIFIC TO THIS DEVELOPMENT FILE:

X		South Rim Transportation Capacity Payment (TCP) – 1/25/95	X	X	Letter to Michael Drollinger from Landesign
X	X	Letter from Glen Vancil to Lowe Development Corp.	X		Certification of review – Udell S. Williams – 8/10/95
X	X	Ordinance No. 2853 - **	X	X	Letter from Monty Stroup to City of G.J. – 8/22/95
X	X	Development Improvements Agreement - **	X	X	Letter from Thomas Logue to Jody Kliska - 7/6/95
X	X	Disbursement Agreement - **	X		E-mail from Jody Kliska to Jan Koehn & Michael Drollinger – 7/6/95
X	X	Amendment, and First & Second Supplement to the Declaration of Covenants, Conditions and Restrictions of South Rim Subdivision - **	X	X	Letter from Phil Hart to Jody Kliska – 6/20/95
X	X	City Council Minutes – 7/5/95, 7/19/95 - **	X	X	Letter from Jody Kliska to Tom Logue – 6/12/95
X	X	Memo from Michael Drollinger to Rhonda Edwards – 12/1/95	X		Letter from Gregory Robson to Skip Behrhorst – 6/5/95
X	X	Letter to Michael Drollinger from Philip Hart – 11/2/95	X		Posting of Public Notice Signs – 5/26/95
X	X	Letter from Kathy Portner from David Behrhorst – 11/29/95	X		Warranty Deeds

X		Notes to file – unsigned, undated	X		Letter from Glen Vancil, TCI to David Berhorst – 5/26/95
X	X	Letters re: exemption of the $500.00 Transportation Capacity Payment for Fil. #3	X		15' Sewer Easement in South Rim – Filing #4
X	x	Letter from David Behrhorst to James Shanks re: Transportation Capacity Payment - 12/5/95	X		Department of State Certificate
X		Easements, Deeds and Agreements	X		Release and Indemnity Agreement
X	X	Letter from Jody Kliska to Tom Logue, Landesign - 8/25/95	X		Analysis of Irrigation System for South Rim on the Redlands
X	X	Planning Commission Minutes - ** - 6/6/95	X		Easement Deed and Agreement
X	X	Map of South Rim – Filing # 3	X	X	Development Application
X	X	Letter from Thomas Logue to Planning Commission – 5/1/95	X		Subsurface Soils Exploration South Rim Sub.
X	X	Location Map	X		Street Plan & Profile
X		Tax Certificate of Taxes Due	X		Sewer & Water Plan & Profile
X		Owners and Encumbrances Report - Chicago Title Insurance	X		Sewer Lift Station and Manhole D6
X	X	Sewer System Design Report for South Rim - Filing 3 & 4	X		Forcemain Plan & Profile
X	X	Stormwater Management Plan for South Rim on the Redlands – Filings 3 & 4	X		Grading & Drainage
X	X	Final Drainage Report for South Rim - Filings 3 & 4	X		Grading & Drainage Details
X	X	Covenants, Conditions, and Restrictions of South Rim Subdivision	X		Erosion Control Notes
			X		Storm Sewer Plan
			X		Irrigation Plan
			X		Utility Composite
			X		Standard City Water and Sewer Details
			X		Standard City Street Details

SUBMITTAL CHECKLIST

MAJOR SUBDIVISION: FINAL

Location: South Rim Drive Project Name: South Rim Filing #3

Date Received 5-1-95

Receipt # 2316

File # FP-95-84

DESCRIPTION	SSID REFERENCE	● City Community Development	● City Dev. Eng.	● City Utility Eng.	● City Property Agent	● City Parks/Recreation	● City Fire Department	● City Attorney	● City G.J.P.C. (8 sets)	O City Downtown Dev. Auth.	● City Police	O County Planning	O County Building Department	● County Surveyor	O Walker Field	● School Dist. #51	● Irrigation District - Redlands	● Drainage District - [illegible]	● Water District - Ute	O Sewer District	● U.S. West	● Public Service	O GVRP	O CDOT	O Corps of Engineers	O Colorado Geologic Survey	● U.S. Postal Service	● Persigo WWTF	● TCI Cable			TOTAL REQ'D.
● Application Fee $720 + $15/acre + PW	VII-1	1																														2
● Submittal Checklist*	VII-3	1																														2
● 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			18
● 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			26
● 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			26
● Evidence of Title	VII-2	1			1			1																								3
O Appraisal of Raw Land	VII-1	1			1	1																										
● Names and Addresses*	VII-2	1																														2
● Legal Description*	VII-2	1			1																											3
O Deeds	VII-1	1			1			1																								
O Easements	VII-2	1	1	1	1			1													1	1	1						1			
O Avigation Easement	VII-1	1			1			1							1																	
O ROW	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																														2
● Improvements Agreement/Guarantee*	VII-2	1	1	1				1																								4
O CDOT Access Permit	VII-3	1	1																													
O 404 Permit	VII-3	1	1																													
O Floodplain Permit*	VII-4	1	1																													
● General Project Report	X-7	1	1	1	1	1	1	1	8	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1			26
● Composite Plan	IX-10	1	2	1	1																											
● 11"x17" Reduction Composite Plan	IX-10	1				1	1	1	8	1	1	1	1				1	1	1	1	1	1	1	1	1	1		1	1			
● Final Plat	IX-15	1	2	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			
O 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														
O Road Cross-sections	IX-27	1	2																													
O Detail Sheet	IX-12	1	2																													
O Landscape Plan	IX-20	2	1	1					8																							3
● Geotechnical Report	X-8	1	1																							1						
O Phase I & II Environmental Report	X-10,11	1	1																													3
● 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													
O Traffic Impact Study	X-15	1	2																					1								
O Site Plan	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.

DEVELOPMENT APPLICATION

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

Receipt _____
Date _____
Rec'd By _____

File No. _____

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

PETITION	PHASE	SIZE	LOCATION	ZONE	LAND USE
■ Subdivision Plat/Plan	☐ Minor ■ Major ☐ Resub				
☐ Rezone				From: To:	
■ Planned Development	☐ ODP ☐ Prelim ■ Final				
☐ Conditional Use					
☐ Zone of Annex					
☐ Variance					
☐ Special Use					
☐ Vacation					☐ Right-of Way ☐ Easement
☐ Revocable Permit					

■ PROPERTY OWNER	☒ DEVELOPER	☒ REPRESENTATIVE
LOWE DEVELOPMENT CORP David G. Bertrost, V.P.	See Property Owner	Tom Logue, LANDesign, LLC.
Name	Name	Name
1280 Ute, Suite 32		200 N. 6th Street
Address	Address	Address
ASPEN, CO. 81611		Grand Junction, CO. 81501
City/State/Zip	City/State/Zip	City/State/Zip
925-4497		245-4099
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.

X Thomas A. Logue — 5-1-95
Signature of Person Completing Application — Date

X David G Bertrost — 5/1/95
Signature of Property Owner(s) - attach additional sheets if necessary — Date

First American Title Company

330 GRAND AVENUE
GRAND JUNCTION, COLORADO 81501
303 / 241-8555 • FAX 303/241-0934

TO: KATHY PORTNER
PLANNING DEPARTMENT
CITY OF GRAND JUNCTION
250 NORTH 5th. STREET
GRAND JUNCTION, CO. 81501

DATE: October 6, 1995

ORDER NO.:

SELLER/BUYER:

ADDRESS:

TAX PARCEL:

CLOSING DATE:

Thank You for Choosing First American Title Company

PLEASE FIND ATTACHED:

[ ] TITLE COMMITMENT
[ ] TAX CERTIFICATE
[ ] OWNER'S TITLE POLICY
[ ] LENDER'S TITLE POLICY
[ ] ENDORSEMENT/UPDATE
[ ] GUARANTEE _____
[ ] PRELIMINARY SETTLEMENT STATEMENTS
[ ] SETTLEMENT DOCUMENT COPIES
[ ] EXECUTED NEW LOAN DOCUMENTS
[ ] ORIGINAL PROMISSORY NOTE
IN THE AMOUNT OF $ _____
[ ] EXECUTED ASSUMPTION LOAN DOCUMENTS

SPECIAL INSTRUCTIONS:

ATTACHED PLEASE FIND FIFTEEN LETTERS IN REGARDS TO THE EXEMPTION OF THE $500.00 TRANSPORTATION CAPACITY PAYMENT FOR SOUTH RIM FILING NO. THREE.

PLEASE CALL IF ANY QUESTIONS.
THANK YOU.

PLEASE DIRECT ANY INQUIRIES TO:

JONI JACKSON 10-6-95
NAME DATE

THE ABOVE DOCUMENTATION WAS RECEIVED BY:

Ronnie Edwards 10-6-95
NAME DATE

CHARGES:

COPIES OF THE ENCLOSED DOCUMENTS HAVE BEEN DELIVERED TO:

SOUTH RIM
on the Redlands

Date SEPTEMBER 6, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 10 Block 1 Filing No. 3 Address: 2332 FALCON POINT COURT

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

Kathy,
Please refund the TCP payed on this lot by Monument Homes
(Dennis Grommon) Thanks.
#121340 Lowe/Mon

SOUTH RIM
on the Redlands

Date SEPTEMBER 11, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 7 Block 2 Filing No. 3 Address: 2358 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

Lowe/Garnatz
#121230

SOUTH RIM
on the Redlands

Date SEPTEMBER 26, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot (s) has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 10 Block 3 Filing No. 3 Address: 2359 South Rim Drive
~~LOT 12 BLOCK 1 FILING NO. 3 ADDRESS: 539 RIM DRIVE~~

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#12221 - Harbert

SOUTH RIM
on the Redlands

Date SEPTEMBER 26, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

~~Lot 10 Block 3 Filing No. 3 Address: 2359 South Rim Drive~~
LOT 12 BLOCK 1 FILING NO. 3 ADDRESS: 539 RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#12122l- Herbert

SOUTH RIM
on the Redlands

Date 9-26-95

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 13 Block 1 Filing No. 3 Address: 541 RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#12184 Lowe/Sas

SOUTH RIM
on the Redlands

Date SEPTEMBER 26, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 6 Block 1 Filing No. 3 Address: 2324 FALCON POINT COURT

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#121253 - Lowe/Frankel

SOUTH RIM
on the Redlands

Date SEPTEMBER 26, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 7 Block 1 Filing No. 3 Address: 2326 FALCON POINT COURT

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#121220
Maynard

SOUTH RIM
on the Redlands

Date SEPTEMBER 27, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 9 Block 2 Filing No. 3 Address: 536 RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#12234
(Peterson)

SOUTH RIM
on the Redlands

Date SEPTEMBER 29, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 4 Block 3 Filing No. 3 Address: 2347 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#121317 (Peak)

SOUTH RIM
on the Redlands

Date SEPTEMBER 29, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 10 Block 2 Filing No. 3 Address: 2334 S. Falcon Point Court

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#121401-wall

SOUTH RIM
on the Redlands

Date 9-29-95

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 11 Block 1 Filing No. 3 Address: 537 RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#12134 - Songster

SOUTH RIM
on the Redlands

Date 9-29-95

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 11 Block 2 Filing No. 3 Address: 2336 S. FALCON POINT COURT

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

12/13/93 #393 Arnhold

SOUTH RIM
on the Redlands

Date 9-29-95

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 3 Block 3 Filing No. 3 Address: 2345 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#121283 Bain

SOUTH RIM
on the Redlands

Date OCTOBER 3, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 2 Block 2 Filing No. 3 Address: 2346 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

11/21422 Jnsw

SOUTH RIM
on the Redlands

Date OCTOBER 3, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 14 Block 1 Filing No. 3 Address: 543 RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

#121420 Hart

First American Title Company

330 GRAND AVENUE
GRAND JUNCTION, COLORADO 81501-2448
970/241-8555 • FAX 970/241-0934

TO:

KATHY PORTNER
PLANNING DEPARTMENT
CITY OF GRAND JUNCTION
250 North 5th. Street
Grand Junction, Co. 81501

DATE: OCTOBER 25, 1995

ORDER NO.: 121447

SELLER/BUYER: LOWE/DUCRAY

ADDRESS: 2348 South Rim Drive

TAX PARCEL:

CLOSING DATE: OCTOBER 19, 1995

Thank You for Choosing First American Title Company

PLEASE FIND ATTACHED:

[ ] TITLE COMMITMENT

[ ] TAX CERTIFICATE

[ ] OWNER'S TITLE POLICY

[ ] LENDER'S TITLE POLICY

[ ] ENDORSEMENT/UPDATE

[ ] GUARANTEE _____

[ ] PRELIMINARY SETTLEMENT STATEMENTS

[ ] SETTLEMENT DOCUMENT COPIES

[ ] EXECUTED NEW LOAN DOCUMENTS

[ ] ORIGINAL PROMISSORY NOTE
IN THE AMOUNT OF $ _____

[ ] EXECUTED ASSUMPTION LOAN DOCUMENTS

SPECIAL INSTRUCTIONS:

XX EXEMPTION FOR THE TRANSPORTATION CAPACITY PAYMENT.

PLEASE DIRECT ANY INQUIRIES TO:

JONI JACKSON 10-25-95
NAME DATE

THE ABOVE DOCUMENTATION WAS RECEIVED BY:

_____
NAME DATE

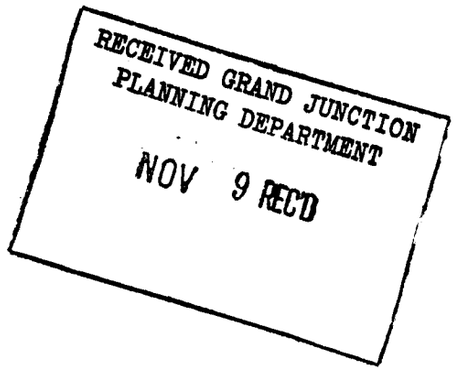
CHARGES:

COPIES OF THE ENCLOSED DOCUMENTS HAVE BEEN DELIVERED TO:

REV. 7/95

SOUTH RIM
on the Redlands

Date NOVEMBER 3, 1995



Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 8 Block 3 Filing No. 3 Address: 2355 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

Krauland #121741

SOUTH RIM
on the Redlands

Date 12-22-95

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 9 Block 3 Filing No. 3 Address: 2357 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

SOUTH RIM
on the Redlands

Date JANUARY 4, 1996

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 1 Block 2 Filing No. 3 Address: 2342 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

SOUTH RIM
on the Redlands

Date NOVEMBER 29, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 1 Block 3 Filing No. 3 Address: 2341 SOUTH RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

SOUTH RIM
on the Redlands

Michael
I found some more in the deep, dark recesses of my desk.
KP

Date OCTOBER 31, 1995

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot has been conveyed to a third party and is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot 14 Block 2 Filing No. 3 Address: 530 RIM DRIVE

No cash payment will be required at the time of building permit issuance in the future.

Sincerely,

David G. Beluhorst
Lowe Development Corporation

cc: First American Title Company

RECEIVED GRAND JUNCTION
PLANNING DEPARTMENT
NOV 7 RECD

Bennett #21634

Peter Matteroli
716 Victor Dr.
City 81506-1874

A&W Ent.
PO Box 3741
City 81502

Michael Bennett
2328 1/2 E Rd.
City 81503-1410

Ernest McKeever
2419 Hawthorne Ave.
City 81506-4130

Monument Homes
759 Horizon Dr.
City 81506

James Fitzgerald
2931 Pheasant Run St.
City 81506-6049

Boyd Bair
537 Kirbt Dr.
City 81504

Merritt Construction
405 W. Mayfield
City 81503

Skelton Construction
706 Ivy Pl.
City 81506

Melvin Niemeyer
2326 1/2 South Rim Dr.
City 81503

John Nelson
414 Ridgeway Ct.
City 81503

Dick Olsen
3510 Ponderosa Way
City 81506

Paul Jones
2328 South Rim Rd.
City 81503

Patricia Paiz
475 Appaloosa Ln.
City 81504

John Nepp
2313 E 1/2 Rd.
City 81503-4406

Robert Spencer
2066 Rimshadow Ct.
City 81503

E. Williams
2312 Hacienda St.
City 81503-1405

Meyer Sussman
2330 E Rd.
City 81503-1410

Stanley Krasnodebski
4467 Galley Ct.
Boulder, CO 80301-3106

Lucia Cipolla
2325 E 1/2 Rd.
City 81503-4406

Peggy Bottom
2320 South Rim Dr.
City 81503

Michael Chrisco
611 E. Indian Creek Rd.
City 81506-6073

Royce Elliott
2324 E 1/2 Rd.
City 81503-4405

Laurel Ennis
2322 South Rim Dr.
City 81503

Timothy Prinster
706 Centauri Dr.
City 81506-1842

Troy Topper
2323 E 1/2 Rd.
City 81503-4406

Joseph Steinkirchner
2322 1/2 South Rim Dr.
City 81503

Scott Smith
3026 N. Moorland Cr.
City 81504

Lori Curtis
2328 E Rd.
City 81503-1410

Jerry Burau
2324 South Rim Dr.
City 81503

Native American Council Inc.
3026 F Rd.
City 81504-4264

Grisby Homes Inc.
747 Rood Ave.
City 81501-3400

John Smith
2323 1/2 South Rim Dr.
City 81503

Joseph Ouellette
2325 South Rim Dr.
City 81503

David Behrhorst
Lowe Development Corp.
1280 Ute, Suite 32
Aspen, CO 81611

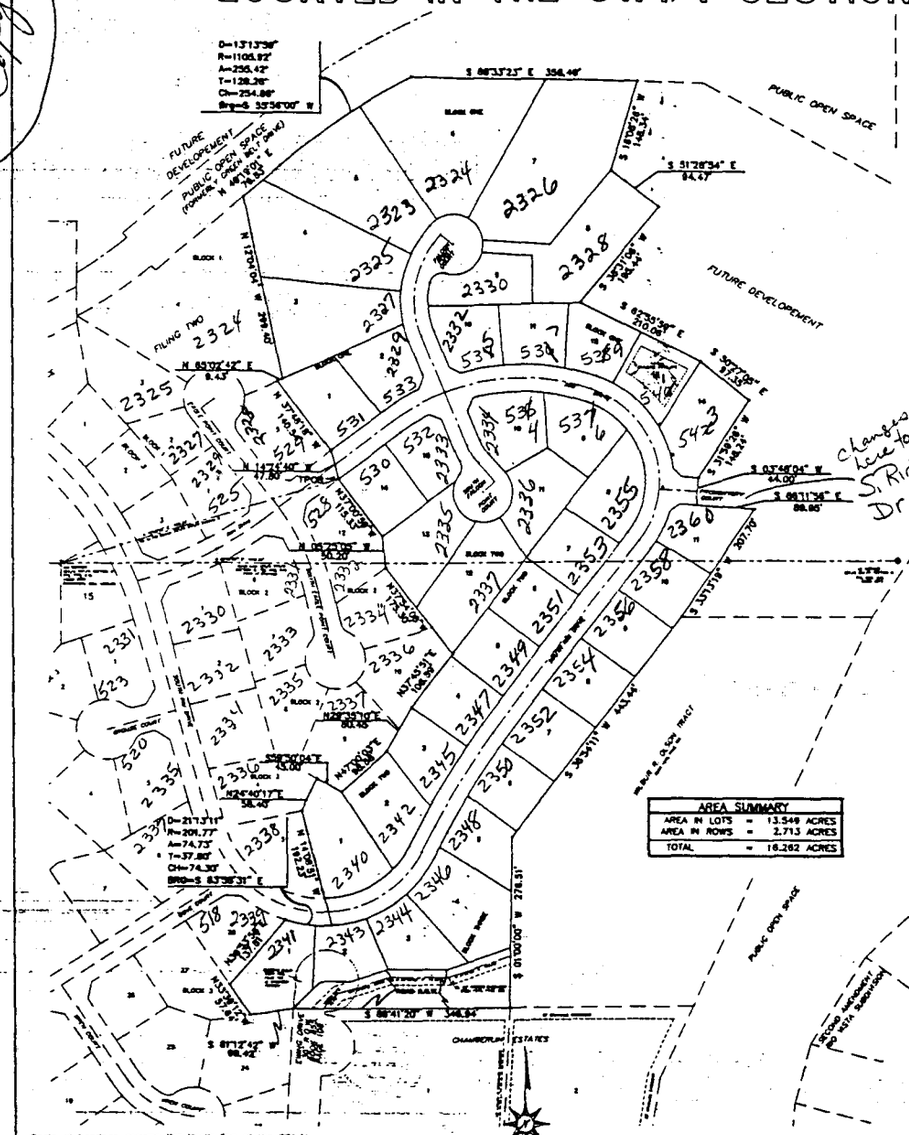
Tom Logue
Landesign
200 N 6th Street
Grand Junction, CO 81501

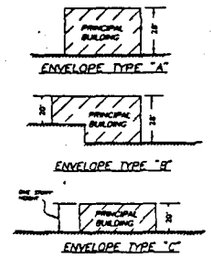
City of Grand Junction
Community Development Dept.
250 N 5th Street
Grand Junction, CO 81501

SOUTH RIM FILING NO. THREE

LOCATED IN THE SW1/4 SECTION 8, T1S, R1W, U.M.

File Copy





NOTE:
1. MAXIMUM BUILDING HEIGHT MEASURED FROM FINISHED FLOOR TO TOP OF HIGHEST ROOF LINE RIDGE, EXCLUDING CHIMNEYS, CUPOLAS, FLUES, AND VENT PIPES, OR SIMILAR ROOF PENETRATIONS.
2. ALL HEIGHT RESTRICTION ENVELOPES ARE TYPE "A", TYPICALLY, EXCEPT AS SHOWN.

BUILDING SETBACK TABLE

Front Yard = 25 Feet, Except at Corner Lots = 20 Feet
Side Yard = 10 Feet
Rear Yard = 20 Feet
EXCEPT the following Platted Building Envelopes, as shown:
Lots 1, 3, 4, 5, 6, 7, 8, 9, and Lot 14, Block One
Lots 8 and Lot 11, Block Two
Lots 1, 2, 3, and Lot 4, Block Three

AREA SUMMARY

AREA IN LOTS	=	13.548 ACRES
AREA IN ROWS	=	2.713 ACRES
TOTAL	=	16.262 ACRES

Basis of bearings assume the North line of the SE1/4 SW1/4 of Section 8 to bear N 88°47'07" E, 1319.34 feet, as shown on the recorded Plat of South Rim Filing No. One, in Plat Book 14, Pages 196-198.
Both monuments on this line are Mesa County Survey Markers.

Note: Property corners located during this survey that were within 0.25± feet of the calculated point were accepted as being "in position".

LEGEND

- MESA COUNTY OR BLM SURVEY MARKER
- CALCULATED POSITION (NOT SET)
- SET ALUMINUM CAP ON No. 5 REBAR, PLS 16835 IN CONCRETE
- (R) RECORD MEASUREMENT
- FOUND REBAR, AS NOTED
- INDICATES PC & PT OF ARCS

SET ALUMINUM CAP ON No. 5 REBAR, PLS 16835 AT ALL LOT CORNERS

DEDICATION

KNOW ALL MEN BY THESE PRESENTS:

That Lowe Development Corporation, a California Corporation, is the owner of that real property located in part of the Southwest Quarter of Section 8, Township 1 South, Range 1 West of the Ute Meridian, Mesa County, Colorado, being more particularly described as follows: (Being a portion of that property as described in Original Warranty Deed Book 1538, Pages 87 through 90.)

Commencing at the Mesa County Brass Cap at the Northwest Corner of the Southeast Quarter of the Southwest Quarter (SE1/4 SW1/4) of Section 8, Township 1 South, Range 1 West of the Ute Meridian, Mesa County, Colorado, whence the Mesa County Brass Cap at the Northeast Corner of the Southeast Quarter of the Southwest Quarter (SE1/4 SW1/4) of Section 8 bears North 89 degrees 47 minutes 07 seconds East (N 89°47'07" E), 1319.34 feet for a basis of bearings with all bearings contained herein relative thereto;

Thence North 72 degrees 45 minutes 36 seconds East (N 72°45'36" E), a distance of 458.34 feet to a point located on the Northernmost corner of Lot 12, Block 2, South Rim Filing No. Two, being on the southerly right-of-way line of Palm Drive, and being the TRUE POINT OF BEGINNING; thence crossing said right-of-way North 14 degrees 24 minutes 40 seconds West (N14°24'40"W), a distance of 47.80 feet; thence North 37 degrees 48 minutes 18 seconds West (N 37°48'18" W), a distance of 140.54 feet; thence North 63 degrees 02 minutes 42 seconds East (N 63°02'42" E), a distance of 9.43 feet; thence North 12 degrees 04 minutes 04 seconds West (N 12°04'04" W), a distance of 299.40 feet to a point on the southerly line of a PUBLIC OPEN SPACE tract, as recorded in Book 2132, Pages 955-958 (formerly Green Belt Drive right-of-way); thence along said southerly line the following two courses: North 48 degrees 19 minutes 01 seconds East (N 48°19'01" East), a distance of 76.83 feet; thence along the arc of a non-tangent curve to the right having a central angle of 13 degrees 13 minutes 38 seconds (13°13'38"), a radius of 1105.92 feet, an arc length of 255.42 feet, and a chord that bears North 35 degrees 36 minutes 00 seconds E (N 35°36'00" E), a distance of 254.88 feet; thence leaving said southerly line South 88 degrees 33 minutes 23 seconds East (S 88°33'23" E), a distance of 356.49 feet; thence South 16 degrees 08 minutes 28 seconds West (S 16°08'28" W), a distance of 148.34 feet; thence South 51 degrees 28 minutes 34 seconds East (S 51°28'34" E), a distance of 94.47 feet; thence South 38 degrees 31 minutes 06 seconds West (S 38°31'06" W), a distance of 195.44 feet; thence South 82 degrees 55 minutes 59 seconds East (S 82°55'59" E), a distance of 210.08 feet; thence South 50 degrees 27 minutes 02 seconds East (S 50°27'02" E), a distance of 97.35 feet; thence South 31 degrees 59 minutes 26 seconds West (S 31°59'26" W), a distance of 148.24 feet; thence South 03 degrees 46 minutes 04 seconds West (S 03°46'04" W), a distance of 44.00 feet; thence South 86 degrees 11 minutes 36 seconds East (S 86°11'36" E), a distance of 88.85 feet; thence South 33 degrees 33 minutes 23 seconds East (S 33°33'23" E), a distance of 207.70 feet; thence South 38 degrees 54 minutes 11 seconds West (S 38°54'11" W), a distance of 443.44 feet; thence South 01 degrees 00 minutes 00 seconds West (S 01°00'00" W), a distance of 278.51 feet; thence South 89 degrees 19 minutes 20 seconds West (S 89°19'20" W), a distance of 348.84 feet; thence South 81 degrees 12 minutes 42 seconds West (S 81°12'42" W), a distance of 88.42 feet; thence North 33 degrees 33 minutes 23 seconds West (N 33°33'23" W), a distance of 57.84 feet; thence North 38 degrees 53 minutes 58 seconds West (N 38°53'58" W), a distance of 137.81 feet; thence along the arc of a curve to the left having a central angle of 21 degrees 13 minutes 11 seconds (21°13'11"), a radius of 201.77 feet, an arc length of 74.73 feet, and a chord that bears South 63 degrees 58 minutes 31 seconds East (S 63°58'31" E), a distance of 74.30 feet; thence North 14 degrees 08 minutes 51 seconds West (N 14°08'51" W), a distance of 192.23 feet; thence North 24 degrees 40 minutes 17 seconds East (N 24°40'17" E), a distance of 38.40 feet; thence South 56 degrees 50 minutes 04 seconds East (S 56°50'04" E), a distance of 45.00 feet; thence North 47 degrees 00 minutes 03 seconds East (N 47°00'03" E), a distance of 98.88 feet; thence North 29 degrees 35 minutes 10 seconds East (N 29°35'10" E), a distance of 80.45 feet; thence North 37 degrees 45 minutes 51 seconds East (N 37°45'51" E), a distance of 108.89 feet; thence North 37 degrees 54 minutes 08 seconds West (N 37°54'08" W), a distance of 175.30 feet; thence North 05 degrees 25 minutes 05 seconds West (N 05°25'05" W), a distance of 50.70 feet; thence North 37 degrees 00 minutes 59 seconds West (N 37°00'59" W), a distance of 115.33 feet to the TRUE POINT OF BEGINNING.
Said tract containing 16.262 acres of land, more or less.

That said owner does hereby dedicate and set apart real property as shown and labeled on the accompanying plat, which is a part of a Planned Common Interest Community known as SOUTH RIM PLANNED UNIT DEVELOPMENT, subject to those certain restrictions as recorded in the "Covenants, Conditions, and Restrictions" as recorded in Book 2553, Pages 317 through 414 of the Official Records of Mesa County, Colorado.

All Streets and Rights-of-way to the City of Grand Junction for the use of the public forever;

All sign, landscaping, and multipurpose 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, and to the South Rim Homeowners Association, Inc. for the purpose of Signage and Landscaping purposes;

All Multipurpose 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;

All Utility Easements to the City of Grand Junction for the use of 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, and telephone lines.

All Irrigation Easements as set forth on this plat to the South Rim Homeowners Association, Inc., as perpetual easements for the installation, operation, maintenance and repair of private irrigation systems;

All Drainage Easements hereby platted to the South Rim Homeowners Association, Inc., as perpetual easements for the conveyance of runoff water which originates within the area hereby platted or from upstream areas, through natural or man-made facilities above or below ground;

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

IN WITNESS WHEREOF, said owners have caused their names to be hereunto subscribed this 2nd day of August, A.D. 1995.

David D. Behrhorst

Lowe Development Corporation, a California Corporation
David G. Behrhorst, Vice President

STATE OF COLORADO }
COUNTY OF MESA } ss

The foregoing instrument was acknowledged before me by David G. Behrhorst, Vice President this 2nd day of August, A.D., 1995.
Witness my hand and official seal:

Notary Public

My Commission Expires 11/26/97

NOTARY PUBLIC STATE OF COLORADO

CLERK AND RECORDER'S CERTIFICATE

STATE OF COLORADO }
COUNTY OF MESA } ss

I hereby certify that this instrument was filed in my office at 11:52 o'clock A M., this 22 day of Aug., A.D., 1995, and was duly recorded in Plat Book No. 14 Page No. 380,381,382

Clerk and Recorder

CITY OF GRAND JUNCTION APPROVAL

This plat of South Rim Filing No. Three, a subdivision of a part of the City of Grand Junction, County of Mesa, State of Colorado, is approved and accepted this 1st day of August A.D. 1995.

City Manager

President of City Council

SURVEYOR'S CERTIFICATION

I, DENNIS W. JOHNSON, DO HEREBY CERTIFY THAT THE ACCOMPANYING PLAT OF SOUTH RIM FILING NO. THREE, A SUBDIVISION OF A PART OF THE CITY OF GRAND JUNCTION, COLORADO HAS BEEN PREPARED UNDER MY DIRECT SUPERVISION AND REPRESENTS A FIELD SURVEY OF SAME. THIS PLAT CONFORMS TO THE REQUIREMENTS FOR SUBDIVISION PLATS SPECIFIED IN THE CITY OF GRAND JUNCTION DEVELOPMENT CODE AND THE APPLICABLE LAWS OF THE STATE OF COLORADO.

Date certified August 19, 1995

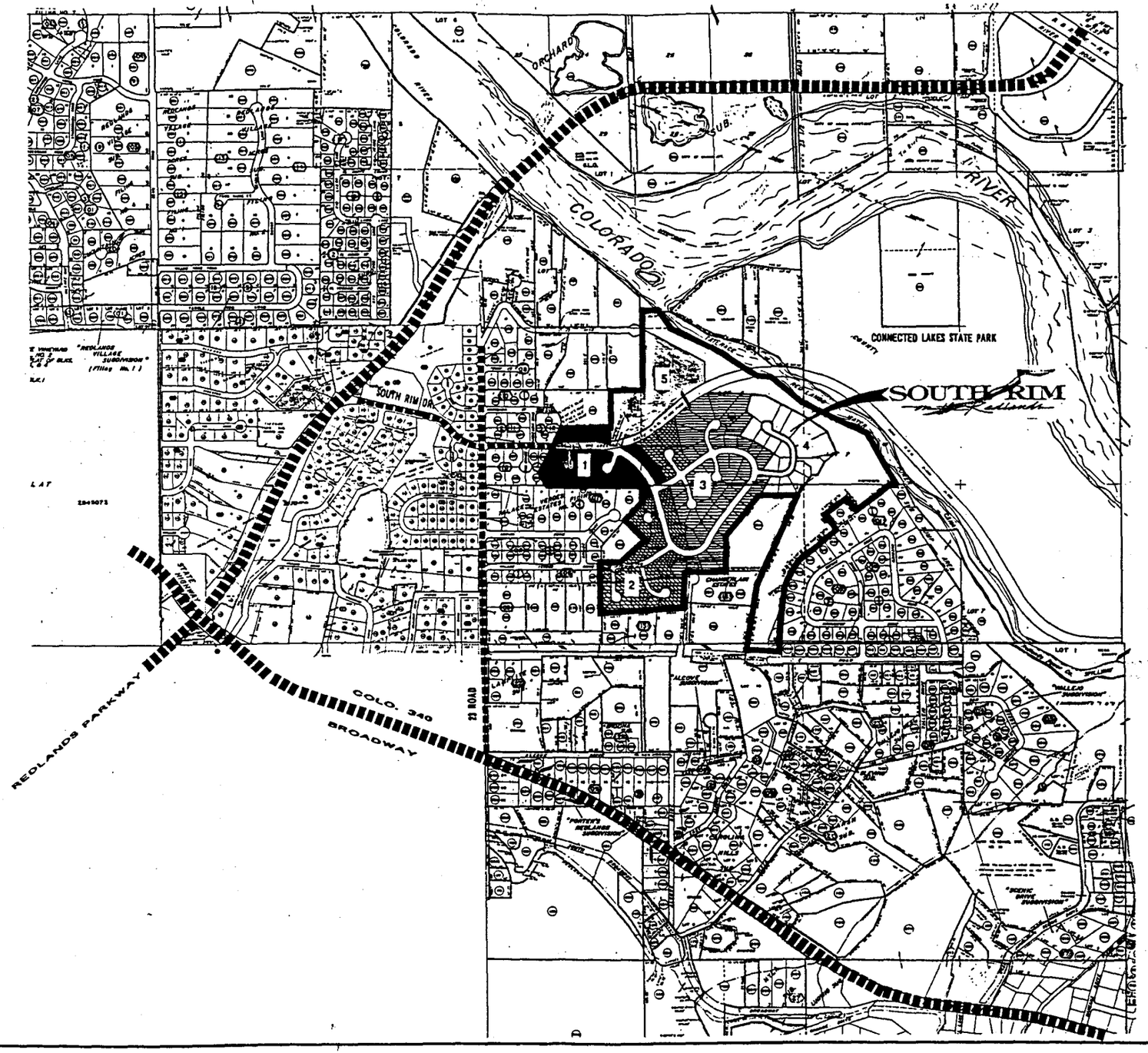
DENNIS W. JOHNSON 16835 PLS

DENNIS W. JOHNSON, PLS
COLORADO REGISTERED LAND SURVEYOR
PLS NO. 16835

SOUTH RIM FILING NO. THREE
SW1/4 SECTION 8
T1S, R1W, UTE MERIDIAN
MESA COUNTY, COLORADO

Professional Surveying Services
P.O. BOX 4508, Grand Jct., CO 81502
970-241-3841

SUR. BY: DWJ/LB	DRAWN BY: KW
JOB NO. 94119	SHEET 1 OF 1

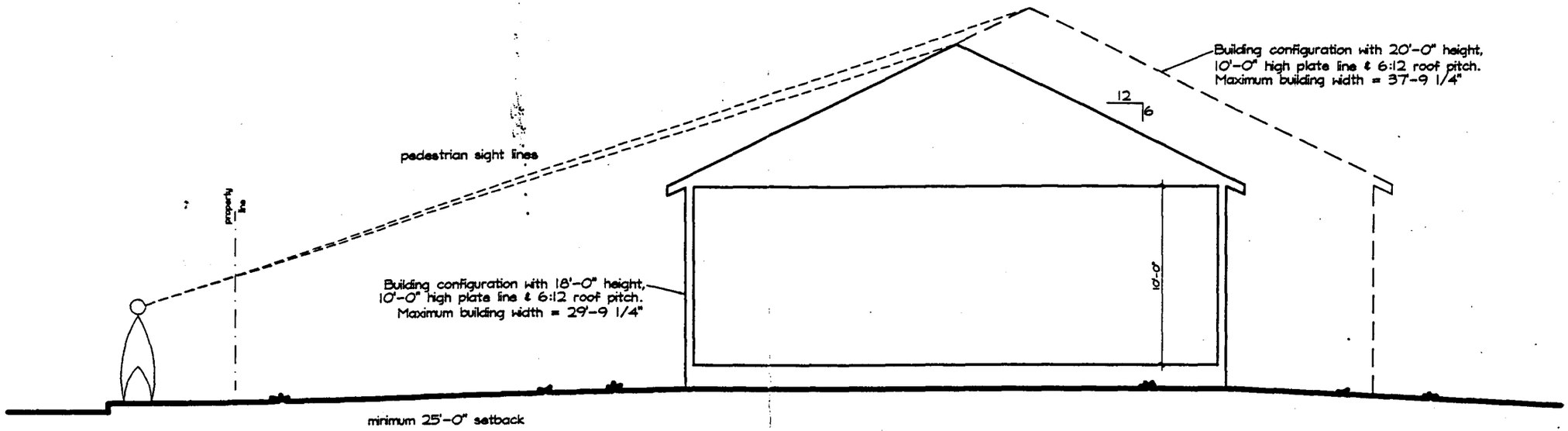


0' 400 800 1200

LOCATION MAP

T&L THOMAS A. LOGUE
LAND DEVELOPMENT CONSULTANT

PROJECT NO. C:\T&L\RVM\93-103	SHEET	OF
DATE: AUGUST, 1993	1	5



Typical Building Section

South Rim Subdivision

Gregory S. Robson
Architecture & Planning

Suite 26
2721 North 12th Street, Grand Junction, CO 81506
(303) 245-0294 fax: (303) 245-1726

FINAL DRAINAGE REPORT

FOR

SOUTH RIM ON THE REDLANDS FILINGS 3 and 4

May, 1995

Prepared for:
LOWE DEVELOPMENT CO.
c/o David "Skip" Behrorst
1235 Riverside Drive
Aspen, CO (970) 925-4497

Prepared by:
LANDesign LTD.
200 N. 6th. Street, Grand Junction, CO 81501

Prepared by: MDS
Monty D. Stroup

" I hereby certify that this report for the final drainage design of South Rim on the Redlands, Filings No. 3 and 4 was prepared under my direct supervision."

Reviewed by: Philip M. Hart
Philip M. Hart, PE
State of Colorado, #19346

I. Location and Description of Property

A. Property Location:

South Rim on the Redlands is located in the City of Grand Junction, County of Mesa, State of Colorado, more particularly being located in the SW 1/4 of Section 8, T.1 S., R.1 W. of the Ute Meridian, (Tax I.D. ##945-08-083, 087 and 091).

Existing streets within the area of the project include e3 Road to the west and South Rim Drive (aka Greenbelt Drive) which runs west to east and is to be used as primary access to the site.

The South Rim development is bounded to the northeast by the Tailrace Redlands Power Canal and to the northwest by undeveloped lands. To the west lies Vista Villa Subdivision and Palace Verdes Estates, best described as medium density residential developments. To the south lies Haas Subdivision and Chamberlain Estates, undeveloped pasture lands. To the southeast lies Rio Vista Subdivision a medium density residential development.

B. Description of Property:

The overall South Rim Development contains approximately 91.5 acres including 38.9 acres of area designated for open-space. The third phase of development, South Rim Filing Three contains approximately 16.. 6 acres planned for 40 single family residential lots and is located in the northeast portion of the South Rim development. South Rim Filing No. 4 (Future Development) is located along the east boundary of the South Rim development and is adjacent to Filing No. 3. Filing No. 4 is not being platted at this time however due to the site topography and it's proximity to Filing No. 3 it is analyzed and included is this study.

Ground cover on upland areas includes native grasses and isolated pockets of trees and brush. Lowland areas, gullies and washes are host to a variety of ground covers including thick brush, dense willows, native grasses and trees.

The site soils are classified as (Hc) Hinman clay loam, 0 to o percent slopes and falls within the hydrological soil group "C".

Soils along gullies and washes are classified as (Rr) Rough broken land, Mesa, Chipeta and Persayo soils materials and falls within the hydrological soils group "D" (Reference 4, Exhibit t .0).

Irrigation facilities shall include a pressurized under ground system supplied by an existing storage pond located northeast of and adjacent to Filing One.

II. Drainage Basins and Sub-Basins

A. Major Basin Description:

The project site is bounded to the northeast by the Tailrace Redlands Power canal flowing from the southeast to the northwest.

The canal serves to convey return irrigation water and storm water runoff from areas southeast of the site.

As defined in the detailed drainage study entitled "Flood Hazard Information, Colorado River and Tributaries" (Reference e, Exhibit 1.0) South Rim Filing One is not within the 100 and 500 year floodplains.

The entire South Rim Development is bisected by a ridgeline running southwest to northeast, dividing the site in half. For purposes of this phase of development the limits of this study shall be confined to the area and associated basins northeast of the ridgeline.

B. Sub-Basin Description:

Historically the property drains in a sheetflow fashion from the southwest to the northeast at slopes of 3 to 4 percent towards a series of natural gullies. Drainage within the Gullies is ultimately conveyed and discharged to the Redlands Power Canal.

The subject property is located adjacent to the aforementioned ridgeline and is not affected by offsite stormwater runoff.

III. Drainage Design Criteria

A. Regulations:

The City of Grand Junction's (SWMM), (Reference 1) was used as the basis for analysis and facility design.

B. Development Criteria Reference and Constraints:

Drainage studies prepared for previous phases of this development are listed herein as References 8 and 9 and are on file with the City of Grand Junction's Department of Public Works.

The primary design constraints for the project site are the routing and conveyance of developed flows to and along the existing Gullies while mitigating the potential for erosion. The existing Gullies are relatively steep and are host to a variety of vegetation including but not limited to native grasses, trees and thick pockets of brush.

Due to the projects proximity to the Tailrace Redlands Power Canal and the Colorado River, developed flows will have a insignificant affect on the peak hydrograph for the regional basin and resultant flows in the canal. Therefore onsite detention requirements are considered mitigated. Historic flow rates are not calculated.

C. Hydrological Criteria:

Since the project is a single family residential development containing approximately 16.. 6 acres the "Rational Method" was used to calculate developed flow rates. The minor storm is not calculated as the major storm (the 100 year frequency rainfall event) was used to size all conveyance elements and structures.

Runoff Coefficients used in the computations are based on the most recent City of Grand Junction criteria as defined in Reference 1 and shown on Exhibit 3.0. Coefficients used in the calculations were assigned based on land use and hydrological soils groups "C".

The Intensity Duration Frequency Table (IDF) shown on Exhibit 4.0 was used for design and analysis.

Times of Concentration were calculated based on the Average Velocities For Overland Flow and the Overland Flow Graph as provided in Reference 1 and shown on Exhibit 5.0. Where applicable Tc values were calculated as shown of Exhibit 7.0.

D. Hydraulic Criteria:

Minimum standards for analysis and design of drainage facilities are based on the City of Grand Junction criteria (Reference 1).

The computer program "Flowmaster" (Reference 7) was used to aid in the determination of pipe capacities and minimum pipe slopes.

Information contained in Reference 5 was used to determine outlet treatment on storm sewers.

IV. Drainage Facility Design:

A. General Concept:

Based on the proposed land use plan, significant changes to the existing drainage patterns are not anticipated. The proposed roadway alignments and lot grading divides the site into 11 sub-basins labeled A1 thru A3, B1 thru B3, C1 and CC, D1 and DD, E1 and EE. Sub-basin AA is developed land within Filing No. two which contributes flow to Filing No. 3. The proposed drainage patterns shall continue to direct runoff from sub-basins to Gullies ultimately discharging to the Tailrace Redlands Power Canal.

Times of concentration and calculated flow rates at select design points are presented on Exhibits 7.0 and 8.0 respectively. Facility design including storm sewers, inlets, street capacities and minimum pipe slopes are presented on Exhibits 9.0 thru u0.0. Proposed drainage patterns, roadway alignments and drainage facilities are presented on the "Grading and Drainage Plan" sheets GD-1 and GD-- .

B. Specific Details:

Runoff from all offsite and onsite sub-basins is routed to the existing overland flow paths and Gullies and ultimately to the Redlands Power Canal.

Drainage improvements associated with the development of South Rim Filings No. Three and Four shall be limited to the installation of Storm Sewer Lines "A", "B1", "BB, "C" and "D" as shown on the Grading and Drainage Plan.

Sub-basins "A1 thru A3"

Line "A" shall be installed parallel to the common line of Lots s and 3, Block 3. It shall consist of single combination curb opening inlets in sump condition at design points 1 and d. A 11" diameter RCP pipe shall be installed crossing S. Rim Drive between the inlets and then transition to 11" PVC pipe for the remainder of it's run. A concrete outlet headwall and rip-rap protection are to be installed at the outlet end of the sewer. Discharge from this storm sewer shall continue easterly along Gully "A" to an existing City owned irrigation pond to the east of the project. The entire reach of Gully "A" is very well protected from erosion by thick vegetation including grass, brush and trees. Additional improvement to the reach from the outlet of the storm sewer to the existing pond is not necessary.

Sub-basins "B1 thru B3"

Line "B1" shall be installed parallel to the common line of Lots 9 and 10, Block 3. It shall consist of single combination curb opening inlets in sump condition at design points 3 and 4. A 11" diameter RCP pipe shall be installed crossing S. Rim Drive between the inlets and then transition to 11" PVC pipe for the remainder of it's run. A concrete baffled outlet structure and rip-rap protection are to be installed at the outlet end of the sewer. Discharge from this storm sewer shall continue easterly along Gully "B" to Line "BB" at design point 5. Line "BB" shall convey runoff under the irrigation pond access road directly to an existing City owned pond to the east of the project. The entire reach of Gully "B" is well protected from erosion by vegetation including grass, brush and trees. Additional improvement to the reach from the outlet of storm sewer "B1" to storm sewer "BB" is not necessary.

Sub-basins "C1 and CC"

Line "C" shall be installed parallel to the common line of Lots within future Filing No. 4 as shown on the Grading and Drainage Plan. It shall consist of single combination curb opening inlets in sump condition at design points 6 and 7. A 11" diameter RCP pipe shall be installed crossing Promontory Court between the inlets and then transition to PVC pipe for the remainder of it's run. A concrete outlet headwall and rip-rap protection are to be installed at the outlet end of the sewer. Discharge from this storm sewer shall continue easterly under ground to the main "outlet channel" from the irrigation ponds. The entire reach of the outlet channel well established and protected from erosion by thick vegetation including grass, brush and other plant life indigenous to wetlands. The plan calls for minimal disturbance to the channel overbanks in this area.

Sub-basin "D1"

Line "D" shall be installed along the common line of Lots 7 and 8, Block 1. It shall consist of a single combination curb opening inlet in sump condition at design point 8. A 11" diameter PVC pipe shall be installed from the inlet to its point of terminus. A concrete baffled outlet structure and rip-rap protection are to be installed at the outlet end of the sewer. A rip-rap check structure is to be constructed down stream of the outlet to augment sedimentation and erosion control. Discharge from this storm sewer shall continue northeast via Gully "D" to a large "low area" adjacent to the canal. Field inspection indicates that this "low area" is heavily vegetated with grass, brush, trees and other plant life indigenous to wetlands. Combined, the size, topography and ground cover associated with this area indicate that it will function as a natural impound area providing sediment control.

Sub-basins "DD, E1 and EE"

Runoff from these areas shall continue to be overland in nature across the rear yards residential lots following existing natural drainage patterns and gullies towards the canal.

Sub-basin "P1"

Area within this sub-basin was analyzed with the drainage reports for Filings No. One and Two (References 8 and 9). Runoff from this area flows away from this phase.

IV. Conclusion

This Final Drainage Report has been prepared to address site specific drainage concerns in accordance with the requirements of the City of Grand Junction, Colorado. The Appendix of this report includes criteria, exhibits, tables and design nomographs used in the analysis and design.

V. References

1. Stormwater Management Manual (SWMM), City of Grand Junction, Colorado, Department of Public Works, June 1994.

. . Flood Hazard Information, Colorado River and Tributaries, Grand Junction, Colorado, prepared for the City of Grand Junction and Mesa County, by The Department Of The Army, Sacramento District, Corps Of Engineers, Sacramento, California, November, 1976.

3. Flood Insurance Rate Map, Mesa County, Colorado, (Unincorporated Areas), Community Panel Number 080115 0480 C, Federal Emergency Management Agency, Map Revised July 15th, 1999.

4. Soil Survey, Grand Junction Area, Colorado, Series 1940, No. 19, U.S. Department of Agriculture, issued November, 1955.

5. Urban Storm Drainage Criteria Manual, Urban Drainage and Flood Control District, prepared by Wright-McLaughlin Engineers, March 1969, Revised May, 1984.

6. Concrete Pipe Design Manual, American Concrete Pipe Association, Fifth Printing (revised) June, 1980.

7. Flowmaster I, Version 3.16, Haestad Methods, Inc., Copyright 1990.

8. Final Drainage Report for South Rim of The Redlands, Filing No. One, Prepared by LANDesign LTD., December 10, 1993.

9. Final Drainage Report for South Rim of The Redlands, Filing No. Two, Prepared by LANDesign LTD., April 1, 1994.

APPENDIX

LEGEND

Overflow Limits

100 Year Flood

500 Year Flood

N

383+40 Distance in miles upstream from Lees Ferry along the Colorado River, or from mouth along the Gunnison River.

NOTES

Map based on April 1975 orthophoto map provided by the U.S. Bureau of Reclamation. Minor additions and adjustments made by Corps of Engineers.

Sheet number agrees with sheet number shown on Bureau of Reclamation maps.

Limits of overflow shown may vary from actual locations on the ground because of accuracy of available topography.

Areas outside the overflow limits shown may be subject to flooding from local runoff.

SCALE IN FEET
200 0 200 400 600
CONTOUR INTERVAL 2 FEET
MEAN SEA LEVEL DATUM

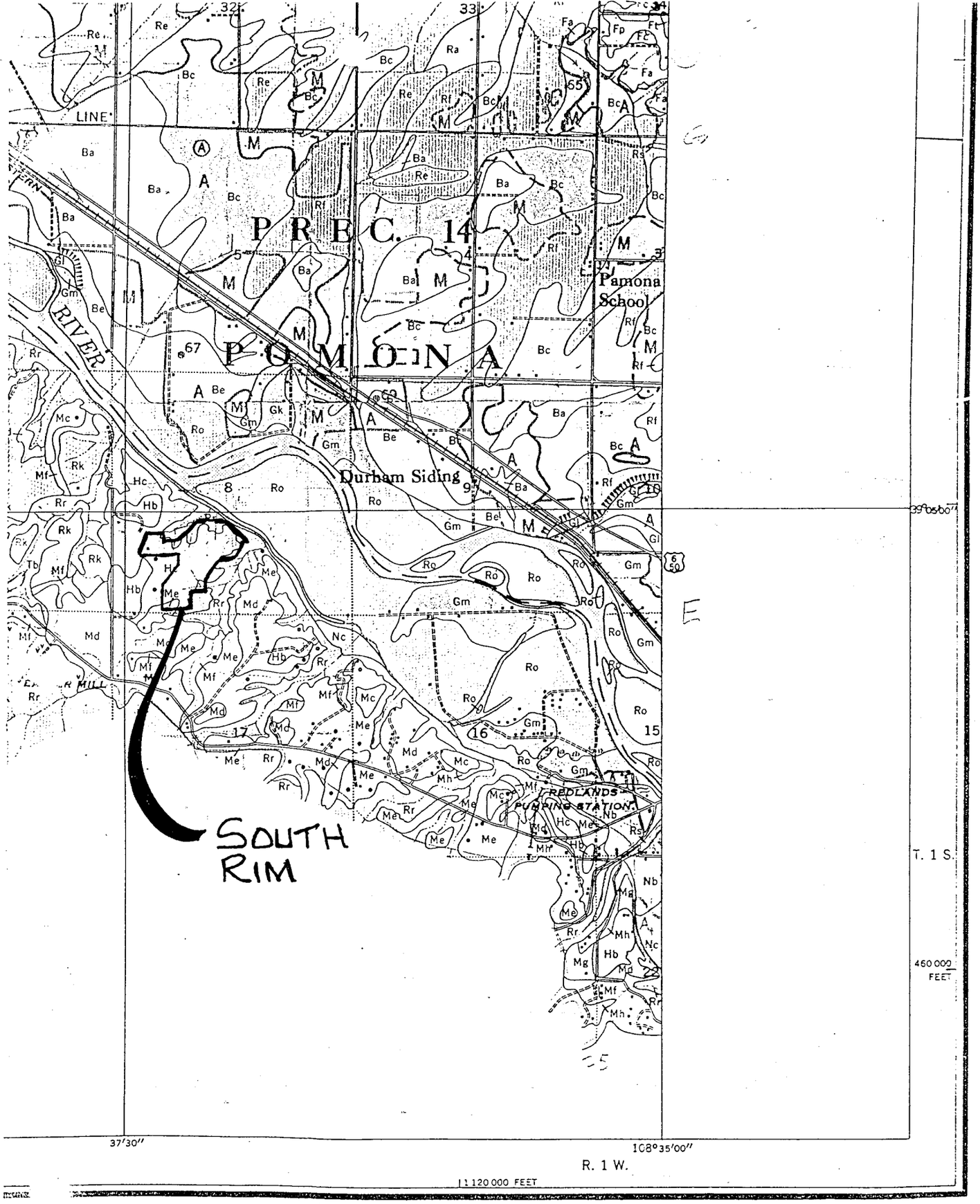
DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

FLOOD HAZARD INFORMATION
COLORADO RIVER AND TRIBUTARIES
GRAND JUNCTION, COLORADO

FLOODED AREAS
NOVEMBER 1976

SHEET 294 PLATE 8

EXHIBIT 1.0



NOTE:

See sheet No. 1 for Alphabetical Legend and Conventional Signs; sheet No. 3 for Color Grouping.

Map compilation by Division of Cartography, Soil Conservation Service, from controlled 1939 aerial mosaics.
Polyconic projection. 1927 North American datum.
10000 [illegible] Colorado [illegible] ral)
[illegible] system

EXHIBIT 2.0

LAND USE OR SURFACE CHARACTERISTICS	SCS HYDROLOGIC SOIL GROUP (SEE APPENDIX "C" FOR DESCRIPTIONS)											
	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
UNDEVELOPED AREAS Bare ground	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .40 - .48	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Cultivated/Agricultural	.08 - .18 .14 - .24	.13 - .23 .18 - .28	.16 - .26 .22 - .32	.11 - .19 .16 - .24	.15 - .23 .21 - .29	.21 - .29 .28 - .36	.14 - .22 .20 - .28	.19 - .27 .25 - .33	.26 - .34 .34 - .42	.18 - .26 .24 - .32	.23 - .31 .29 - .37	.31 - .39 .41 - .49
Pasture	.12 - .22 .15 - .25	.20 - .30 .25 - .35	.30 - .40 .37 - .47	.18 - .26 .23 - .31	.28 - .36 .34 - .42	.37 - .45 .45 - .53	.24 - .32 .30 - .38	.34 - .42 .42 - .50	.44 - .52 .52 - .60	.30 - .38 .37 - .45	.40 - .48 .50 - .58	.50 - .58 .62 - .70
Meadow	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .44 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Forest	.05 - .15 .08 - .18	.08 - .18 .11 - .21	.11 - .21 .14 - .24	.08 - .16 .10 - .18	.11 - .19 .14 - .22	.14 - .22 .18 - .26	.10 - .18 .12 - .20	.13 - .21 .16 - .24	.16 - .24 .20 - .28	.12 - .20 .15 - .23	.16 - .24 .20 - .28	.20 - .28 .25 - .33
RESIDENTIAL AREAS 1/8 acre per unit	.40 - .50 .48 - .58	.43 - .53 .52 - .62	.46 - .56 .55 - .65	.42 - .50 .50 - .58	.45 - .53 .54 - .62	.50 - .58 .59 - .67	.45 - .53 .53 - .61	.48 - .56 .57 - .65	.53 - .61 .64 - .72	.48 - .56 .56 - .64	.51 - .59 .60 - .68	.57 - .65 .69 - .77
1/4 acre per unit	.27 - .37 .35 - .45	.31 - .41 .39 - .49	.34 - .44 .42 - .52	.29 - .37 .38 - .46	.34 - .42 .42 - .50	.38 - .46 .47 - .55	.32 - .40 .41 - .49	.36 - .44 .45 - .53	.41 - .49 .52 - .60	.35 - .43 .43 - .51	.39 - .47 .47 - .55	.45 - .53 .57 - .65
1/3 acre per unit	.22 - .32 .31 - .41	.26 - .36 .35 - .45	.29 - .39 .38 - .48	.25 - .33 .33 - .41	.29 - .37 .38 - .46	.33 - .41 .42 - .50	.28 - .36 .36 - .44	.32 - .40 .41 - .49	.37 - .45 .48 - .56	.31 - .39 .39 - .47	.35 - .43 .43 - .51	.42 - .50 .53 - .61
1/2 acre per unit	.16 - .26 .25 - .35	.20 - .30 .29 - .39	.24 - .34 .32 - .42	.19 - .27 .28 - .36	.23 - .31 .32 - .40	.28 - .36 .36 - .44	.22 - .30 .31 - .39	.27 - .35 .35 - .43	.32 - .40 .42 - .50	.26 - .34 .34 - .42	.30 - .38 .38 - .46	.37 - .45 .48 - .56
1 acre per unit	.14 - .24 .22 - .32	.19 - .29 .26 - .36	.22 - .32 .29 - .39	.17 - .25 .24 - .32	.21 - .29 .28 - .36	.26 - .34 .34 - .42	.20 - .28 .28 - .36	.25 - .33 .32 - .40	.31 - .39 .40 - .48	.24 - .32 .31 - .39	.29 - .37 .35 - .43	.35 - .43 .46 - .54
MISC. SURFACES Pavement and roofs	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97	.93 .95	.94 .96	.95 .97
Traffic areas (soil and gravel)	.55 - .65 .65 - .70	.60 - .70 .70 - .75	.64 - .74 .74 - .79	.60 - .68 .68 - .76	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.64 - .72 .72 - .80	.67 - .75 .75 - .83	.69 - .77 .77 - .85	.72 - .80 .79 - .87	.75 - .83 .82 - .90	.77 - .85 .84 - .92
Green landscaping (lawns, parks)	.10 - .20 .14 - .24	.16 - .26 .22 - .32	.25 - .35 .30 - .40	.14 - .22 .20 - .28	.22 - .30 .28 - .36	.30 - .38 .37 - .45	.20 - .28 .26 - .34	.28 - .36 .35 - .43	.36 - .44 .42 - .52	.24 - .32 .30 - .38	.30 - .38 .40 - .48	.40 - .48 .50 - .58
Non-green and gravel landscaping	.30 - .40 .34 - .44	.36 - .46 .42 - .52	.45 - .55 .50 - .60	.45 - .55 .50 - .60	.42 - .50 .48 - .56	.50 - .58 .57 - .65	.40 - .48 .46 - .54	.48 - .56 .55 - .63	.56 - .64 .64 - .72	.44 - .52 .50 - .58	.50 - .58 .60 - .68	.60 - .68 .70 - .78
Cemeteries, playgrounds	.20 - .30 .24 - .34	.26 - .36 .32 - .42	.35 - .45 .40 - .50	.35 - .45 .40 - .50	.32 - .40 .38 - .46	.40 - .48 .47 - .55	.30 - .38 .36 - .44	.38 - .44 .45 - .53	.46 - .54 .54 - .62	.34 - .42 .40 - .48	.40 - .48 .50 - .58	.50 - .58 .60 - .68

NOTES:
1. Values above and below pertain to the 2-year and 100-year storms, respectively.
2. The range of values provided allows for engineering judgement of site conditions such as basic shape, homogeneity of surface type, surface depression storage, and storm duration. In general, during shorter duration storms (Tc ≤ 10 minutes), infiltration capacity is higher, allowing use of a "C" value in the low range. Conversely, for longer duration storms (Tc) 30 minutes), use a ""C value in the higher range.
3. For residential development at less than 1/8 acre per unit or greater than 1 acre per unit, and also for commercial and industrial areas, use values under MISC SURFACES to estimate "C" value ranges for use.

RATIONAL METHOD RUNOFF COEFFICIENTS
(Modified from Table 4, UC-Davis, which appears to be a modification of work done by Rawls)

TABLE "B-1"

Exhibit 3.0

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

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

Source: Mesa County 1991

EXHIBIT 4.0

REPRODUCED FROM FIGURE 15.2, SCS 1972

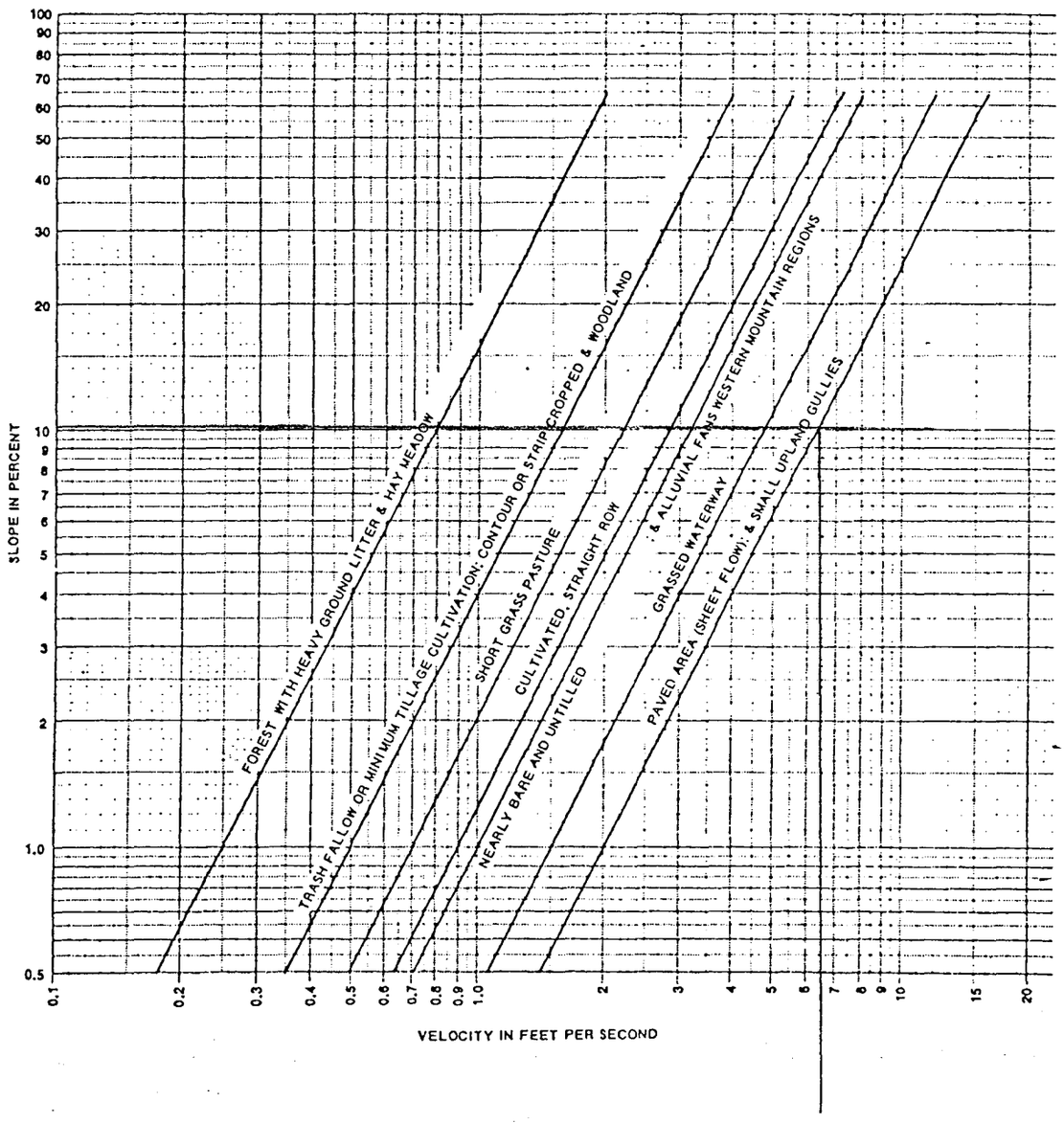


EXHIBIT 5.0

DETERMINATION OF "Ts"	FIGURE "E-3"

NOTE: THIS IS A REPRODUCTION OF TABLE I, APPENDIX A, "DESIGN CHARTS FOR OPEN CHANNEL FLOW", (HDS #3)

	Manning's *n* range [2]
I. Closed conduits:	
A. Concrete pipe	0.011–0.013
B. Corrugated-metal pipe or pipe-arch:	
1. 2⅔ by ½-in. corrugation (riveted pipe): [3]	
a. Plain or fully coated	0.024
b. Paved invert (range values are for 25 and 50 percent of circumference paved):	
(1) Flow full depth	0.021–0.018
(2) Flow 0.8 depth	0.021–0.016
(3) Flow 0.6 depth	0.019–0.013
2. 6 by 2-in. corrugation (field bolted)	0.03
C. Vitrified clay pipe	0.012–0.014
D. Cast-iron pipe, uncoated	0.013
E. Steel pipe	0.009–0.011
F. Brick	0.014–0.017
G. Monolithic concrete:	
1. Wood forms, rough	0.015–0.017
2. Wood forms, smooth	0.012–0.014
3. Steel forms	0.012–0.013
H. Cemented rubble masonry walls:	
1. Concrete floor and top	0.017–0.022
2. Natural floor	0.019–0.025
I. Laminated treated wood	0.015–0.017
J. Vitrified clay liner plates	0.015
II. Open channels, lined [4] (straight alinement): [5]	
A. Concrete, with surfaces as indicated:	
1. Formed, no finish	0.013–0.017
2. Trowel finish	0.012–0.014
3. Float finish	0.013–0.015
4. Float finish, some gravel on bottom	0.015–0.017
5. Gunite, good section	0.016–0.019
6. Gunite, wavy section	0.018–0.022
B. Concrete, bottom float finished, sides as indicated:	
1. Dressed stone in mortar	0.015–0.017
2. Random stone in mortar	0.017–0.020
3. Cement rubble masonry	0.020–0.025
4. Cement rubble masonry, plastered	0.016–0.020
5. Dry rubble (riprap)	0.020–0.030
C. Gravel bottom, sides as indicated:	
1. Formed concrete	0.017–0.020
2. Random stone in mortar	0.020–0.023
3. Dry rubble (riprap)	0.023–0.033
D. Brick	0.014–0.017
E. Asphalt:	
1. Smooth	0.013
2. Rough	0.016
F. Wood, planed, clean	0.011–0.013
G. Concrete-lined excavated rock:	
1. Good section	0.017–0.020
2. Irregular section	0.022–0.027
III. Open channels, excavated [4] (straight alinement, [5] natural lining):	
A. Earth, uniform section:	
1. Clean, recently completed	0.016–0.018
2. Clean, after weathering	0.018–0.020
3. With short grass, few weeds	0.022–0.027
4. In gravelly soil, uniform section, clean	0.022–0.025
B. Earth, fairly uniform section:	
1. No vegetation	0.022–0.025
2. Grass, some weeds	0.025–0.030
3. Dense weeds or aquatic plants in deep channels	0.030–0.035
4. Sides clean, gravel bottom	0.025–0.030
5. Sides clean, cobble bottom	0.030–0.040
C. Dragline excavated or dredged:	
1. No vegetation	0.028–0.033
2. Light brush on banks	0.035–0.050
D. Rock:	
1. Based on design section	0.035
2. Based on actual mean section:	
a. Smooth and uniform	0.035–0.040
b. Jagged and irregular	0.040–0.045
E. Channels not maintained, weeds and brush uncut:	
1. Dense weeds, high as flow depth	0.08–0.12
2. Clean bottom, brush on sides	0.05–0.08
3. Clean bottom, brush on sides, highest stage of flow	0.07–0.11
4. Dense brush, high stage	0.10–0.14

	Manning's *n* range [2]
IV. Highway channels and swales with maintained vegetation [6 7] (values shown are for velocities of 2 and 6 f.p.s.):	
A. Depth of flow up to 0.7 foot:	
1. Bermudagrass, Kentucky bluegrass, buffalograss:	
a. Mowed to 2 inches	0.07–0.045
b. Length 4–6 inches	0.09–0.05
2. Good stand, any grass:	
a. Length about 12 inches	0.18–0.09
b. Length about 24 inches	0.30–0.15
3. Fair stand, any grass:	
a. Length about 12 inches	0.14–0.08
b. Length about 24 inches	0.25–0.13
B. Depth of flow 0.7–1.5 feet:	
1. Bermudagrass, Kentucky bluegrass, buffalograss:	
a. Mowed to 2 inches	0.05–0.035
b. Length 4 to 6 inches	0.06–0.04
2. Good stand, any grass:	
a. Length about 12 inches	0.12–0.07
b. Length about 24 inches	0.20–0.10
3. Fair stand, any grass:	
a. Length about 12 inches	0.10–0.06
b. Length about 24 inches	0.17–0.09
V. Street and expressway gutters:	
A. Concrete gutter, troweled finish	0.012
B. Asphalt pavement:	
1. Smooth texture	0.013
2. Rough texture	0.016
C. Concrete gutter with asphalt pavement:	
1. Smooth	0.013
2. Rough	0.015
D. Concrete pavement:	
1. Float finish	0.014
2. Broom finish	0.016
E. For gutters with small slope, where sediment may accumulate, increase above values of *n* by	*0.002*
VI. Natural stream channels: [8]	
A. Minor streams [9] (surface width at flood stage less than 100 ft.):	
1. Fairly regular section:	
a. Some grass and weeds, little or no brush	0.030–0.035
b. Dense growth of weeds, depth of flow materially greater than weed height	0.035–0.05
c. Some weeds, light brush on banks	0.035–0.05
d. Some weeds, heavy brush on banks	0.05–0.07
e. Some weeds, dense willows on banks	0.06–0.08
f. For trees within channel, with branches submerged at high stage, increase all above values by	*0.01–0.02*
2. Irregular sections, with pools, slight channel meander; increase values given in 1a–e about	*0.01–0.02*
3. Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stage:	
a. Bottom of gravel, cobbles, and few boulders	0.04–0.05
b. Bottom of cobbles, with large boulders	0.05–0.07
B. Flood plains (adjacent to natural streams):	
1. Pasture, no brush:	
a. Short grass	0.030–0.035
b. High grass	0.035–0.05
2. Cultivated areas:	
a. No crop	0.03–0.04
b. Mature row crops	0.035–0.045
c. Mature field crops	0.04–0.05
3. Heavy weeds, scattered brush	0.05–0.07
4. Light brush and trees: [10]	
a. Winter	0.05–0.06
b. Summer	0.06–0.08
5. Medium to dense brush: [10]	
a. Winter	0.07–0.11
b. Summer	0.10–0.16
6. Dense willows, summer, not bent over by current	0.15–0.20
7. Cleared land with tree stumps, 100–150 per acre:	
a. No sprouts	0.04–0.05
b. With heavy growth of sprouts	0.06–0.08
8. Heavy stand of timber, a few down trees, little undergrowth:	
a. Flood depth below branches	0.10–0.12
b. Flood depth reaches branches	0.12–0.16
C. Major streams (surface width at flood stage more than 100 ft.): Roughness coefficient is usually less than for minor streams of similar description on account of less effective resistance offered by irregular banks or vegetation on banks. Values of *n* may be somewhat reduced. Follow recommendation in publication cited [9] if possible. The value of *n* for larger streams of most regular section, with no boulders or brush, may be in the range of	0.028–0.033

EXHIBIT 6.0

TYPICAL MANNING "n" VALUES | TABLE "F-1a"

TIME OF CONCENTRATION CALCULATIONS **(100 YEAR STORM EVENT)**

PROJECT: ERR
JOB # ERR
LANDesign LTD.

(OVERLAND FLOW)
DEVELOPED CONDITION

DATE:
27-Apr-95

SUB-BASIN DATA			INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME TIME (Tt)				INITIAL	Tc CHECK (URBANIZED BASINS)		FINAL	REMARKS
BASIN	C 100	AREA AC.	LENGTH FT.	SLOPE %	Ti MIN.	LENGTH FT.	SLOPE %	VEL F.P.S.	Tt MIN.	Tc MIN.	TOTAL LENGTH FT.	Tc = (L/180)+10 MIN.	Tc MIN.	
A1	0.53	2.12	255.0	3.37	10.93									OVERLAND SHEETFLOW RESIDENTIAL LOTS
						54.0	1.28	4.14	0.22	11.15	309.00	11.72	11.15	FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "A"
--	--	--	--	--	--	--	--	--	--	--	--	--	--	----
A2	0.53	3.98	140.0	5.00	7.10									OVERLAND SHEETFLOW RESIDENTIAL LOTS / FILING NO 2
						1008.0	1.07	3.78	4.44	11.54	1148.00	16.38	11.54	FLOW IN DOVE COURT & S. RIM DRIVE TO SUMP INLET / SEWER "A"
--	--	--	--	--	--	--	--	--	--	--	--	--	--	----
B1	0.53	1.71	150.0	2.92	8.79									OVERLAND SHEETFLOW RESIDENTIAL LOTS
						397.0	1.23	4.06	1.63	10.42	547.00	13.04	10.42	FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
--	--	--	--	--	--	--	--	--	--	--	--	--	--	----
B2	0.53	0.76	50.0	1.00	7.25									OVERLAND SHEETFLOW RESIDENTIAL LOTS
						397.0	1.23	4.06	1.63	8.88	447.00	12.48	8.88	FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
--	--	--	--	--	--	--	--	--	--	--	--	--	--	----
B3	0.53	2.53	210.0	13.67	6.22									OVERLAND SHEETFLOW RESIDENTIAL LOTS TO GULLIE "B"
						188.0	10.19	4.03	0.78	7.00	398.00	12.21	7.00	OPEN CHANNEL FLOW IN GULLIE "B" TO SUMP INLET / SEWER "B2"
--	--	--	--	--	--	--	--	--	--	--	--	--	--	----
C1	0.53	2.02	185.0	5.52	7.90									OVERLAND SHEETFLOW RESIDENTIAL LOTS
						310.0	1.03	3.71	1.39	9.29	495.00	12.75	9.29	FLOW IN PROMONTORY COURT TO SUMP INLET / SEWER "C"
--	--	--	--	--	--	--	--	--	--	--	--	--	--	----
C2	0.53	1.28	135.0	1.31	10.89									OVERLAND SHEETFLOW RESIDENTIAL LOTS
						486.0	0.70	3.06	2.65	13.54	621.00	13.45	13.54	FLOW IN PROMONTORY COURT TO SUMP INLET / SEWER "C"
--	--	--	--	--	--	--	--	--	--	--	--	--	--	----
D1	0.53	1.78	33.0	6.06	3.23									OVERLAND SHEETFLOW RESIDENTIAL LOTS
						573.0	1.98	5.15	1.85	5.09	606.00	13.37	5.09	FLOW IN RIM DR. & FALCON PT. CT TO SUMP INLET / SEWER "D"

FORMULAS

$$Ti = \frac{1.8(1.1-C)(L)^{1/2}}{S^{1/3}} \qquad Tt = \frac{(L)}{60\ \text{SEC/MIN.}\ (V\ \text{F.P.S.})}$$

EXHIBIT 7.0

STORM DRAINAGE SYSTEM DESIGN DATA

(100 YEAR STORM EVENT)
DEVELOPED CONDITION - CITY OF GRAND JUNCTION, COLORADO

DATE: 28-Apr-95

PROJECT: SOUTH RIM FILING NO. 3
JOB # 94119
LANDesign LTD.

													STREET		PIPE or CHANNEL			STREET		PIPE or CHANNEL		
LOCATION OR NODE	BASINS	LENGTH FEET	INLET TIME min.	FLOW STREET	TIME PIPE	Tc min.	COEFF. "C"	INTENSITY "I"	AREA "A" AC.	DIRECT RUNOFF C.F.S.	OTHER RUNOFF C.F.S.	SUM RUNOFF C.F.S.	SLOPE %	CAPACITY ALLOWED C.F.S.	SLOPE %	SIZE IN.	CAPACITY ALLOWED C.F.S.	DESIGN F.P.S.	VELOC. F.P.S.	DESIGN F.P.S.	VELOC. F.P.S.	REMARKS
1	A1					11.15	0.53	3.64	2.12	4.09		4.09	1.28	15.56	2 YEAR CAPACITY							FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "A"
2	A2					11.54	0.53	3.60	3.98	7.59		7.59	1.28	15.56	2 YEAR CAPACITY							FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "A"
" "	A1						0.53		2.12													FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "A"
	A2					11.54	0.53		3.98													FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "A"
						11.54	0.53	3.60	6.10	11.64		11.64										SUM OF FLOW IN STORM SEWER "A" TO GULLIE "A"
3	B1					10.42	0.53	3.74	1.71	3.39		3.39	1.23	15.25	2 YEAR CAPACITY							FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
4	B2					8.88	0.53	4.01	0.76	1.62		1.62	1.23	15.25	2 YEAR CAPACITY							FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
" "	B1					10.42	0.53		1.71													FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
	B2						0.53		0.76													FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
						10.42	0.53	3.74	2.47	4.90		4.90										SUM OF FLOW IN STORM SEWER "B1" TO GULLIE "B"
5	B1					10.42	0.53		1.71													FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
	B2						0.53		0.76													FLOW IN S. RIM DRIVE TO SUMP INLET / SEWER "B1"
	B3	264.0			0.28	0.28	0.53		2.53						8.39	12	13.42			15.75		FLOW IN STORM SEWER "B1"
		188.0			0.78	0.78									10.19	NA	NA			4.03		FLOW IN GULLIE "B" TO STORM SEWER "B2"
						11.48	0.53	3.60	5.00	9.54		9.54										SUM OF FLOW IN STORM SEWER "B2" TO EX. IRRIGATION POND
6	C1					9.29	0.53	3.94	2.02	4.22		4.22										FLOW IN PROMONTORY CRT. TO SUMP INLET / SEWER "C"
7	C2					13.54	0.53	3.38	1.28	2.29		2.29										FLOW IN PROMONTORY CRT. TO SUMP INLET / SEWER "C"
" "	C1						0.53		2.02													FLOW IN PROMONTORY CRT. TO SUMP INLET / SEWER "C"
	C2					13.54	0.53		1.28													FLOW IN PROMONTORY CRT. TO SUMP INLET / SEWER "C"
						13.54	0.53	3.38	3.30	5.91		5.91										SUM OF FLOW IN STORM SEWER "C" TO EX. OUTFALL CHANNEL
8	D1					5.09	0.53	4.92	1.78	4.64		4.64										SUM OF FLOW IN STORM SEWER "D" TO GULLIE "D"

EXHIBIT 8.0

STREET CARRING CAPACITY (2 YEAR)

PROJECT: SOUTH RIM FILING NO. 3
LOCATION: CITY OF GRAND JUNCTION, COLORADO
DATE: Apr-95

Street Information:					
	R.O.W. Width =	44.00	FT.	Flow Area =	3.76 SF.
	Flowline Width =	31.00	FT.		
	Classification =	URBAN			
	Mannings =	0.015			
	Max. Depth =	0.42	FT.	Above Gutter Flowline	
	Str/ X-Slope =	1.00	%		
	Gutter Slope =	8.33	%	Drive Over Curb, Gutter and Walk	
	Sidewalk Slope =	2.08	%	1/4" / FT.	
	Roadside Slope =	2.08	%	1/4" / FT.	

SLOPE OF STREET %	** REDUCTION FACTOR FOR SLOPE	ALLOWABLE CAPACITY C.F.S.	VELOCITY F.P.S.
0.50	1.00	9.72	2.59
0.99	1.00	13.68	3.64
1.00	1.00	13.75	3.66
1.03	1.00	13.96	3.71
1.23	1.00	15.25	4.06
1.28	1.00	15.56	4.14
1.50	1.00	16.84	4.48
1.85	1.00	18.70	4.97
1.88	1.00	18.85	5.01
2.56	1.00	22.00	5.85
2.71	1.00	22.64	6.02
2.80	1.00	23.01	6.12
2.97	1.00	23.70	6.30

Formula: $Qa = F \times (1.49/N) \times R^{2/3} \times S^{1/2} \times A$

F = Reduction Factor For Slope		
N = Mannings Coefficient =	0.0150	
R = Hydraulic Radius = A/WP =	0.2234	
A = Cross Sectional Area Sq.Ft. =		3.760
WP = Wetted Perimeter Ft. =	16.83	
S = Street Slope FT./FT.		

** APPLY REDUCTION FACTOR WHEN APPROACHING AN INTERSECTION.

EXHIBIT 9.0

STREET CARRING CAPACITY (100 YEAR)

PROJECT: SOUTH RIM FILING NO. 3
LOCATION: CITY OF GRAND JUNCTION, COLORADO
DATE: Apr-95

Street Information:				
	R.O.W. Width =	44.00	FT.	Flow Area = 15.49 SF.
	Flowline Width =	31.00	FT.	
	Classification =	URBAN		
	Mannings =	0.015		
	Max. Depth =	1.00	FT.	Above Gutter Flowline
	Str/ X-Slope =	1.00	%	
	Gutter Slope =	8.33	%	Drive Over Curb, Gutter and Walk
	Sidewalk Slope =	2.08	%	1/4" / FT.
	Roadside Slope =	2.08	%	1/4" / FT.

SLOPE OF STREET %	** REDUCTION FACTOR FOR SLOPE	ALLOWABLE CAPACITY C.F.S.	VELOCITY F.P.S.
0.50	1.00	86.34	5.57
0.99	1.00	121.50	7.84
1.00	1.00	122.11	7.88
1.03	1.00	123.93	8.00
1.23	1.00	135.43	8.74
1.28	1.00	138.15	8.92
1.50	1.00	149.55	9.65
1.85	1.00	166.09	10.72
1.88	1.00	167.43	10.81
2.56	1.00	195.37	12.61
2.71	1.00	201.02	12.98
2.80	1.00	204.33	13.19
2.97	1.00	210.44	13.59

Formula: $Qa = F \times (1.49/N) \times R^{2/3} \times S^{1/2} \times A$

F = Reduction Factor For Slope
N = Mannings Coefficient = 0.0150
R = Hydraulic Radius = A/WP = 0.7070
A = Cross Sectional Area Sq.Ft. = 15.490
WP = Wetted Perimeter Ft. = 21.91
S = Street Slope FT./FT.

** APPLY REDUCTION FACTOR WHEN APPROACHING AN INTERSECTION.

EXHIBIT 10.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "B1"

Comment: VELOCITY CALC. BASED ON AVG. SLOPE FOR Tc

Solve For Actual Depth

Given Input Data:

Diameter.....	1.00 ft
Slope.....	0.0839 ft/ft
Manning's n.....	0.010
Discharge.....	4.90 cfs

Computed Results:

Depth.....	0.42 ft
Velocity.....	15.75 fps
Flow Area.....	0.31 sf
Critical Depth....	0.91 ft
Critical Slope....	0.0098 ft/ft
Percent Full.....	41.81 %
Full Capacity.....	13.42 cfs
QMAX @.94D.....	14.43 cfs
Froude Number.....	4.94 (flow is Supercritical)

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

EXHIBIT 11.0

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: GULLIE "B"

Comment: GULLIE "B" FROM STORM SEWER "B1" TO "B2"

Solve For Depth

Given Input Data:

Bottom Width.....	2.00 ft
Left Side Slope..	1.00:1 (H:V)
Right Side Slope.	1.00:1 (H:V)
Manning's n.....	0.060 — WEEDS, BRUSH AND ROCKS
Channel Slope....	0.1019 ft/ft — 10.19%
Discharge.....	5.00 cfs — ASSUME 1.0 CFS/AC

Computed Results:

Depth.....	0.50 ft
Velocity.....	4.03 fps — USE FOR TC CALCS.
Flow Area.....	1.24 sf
Flow Top Width...	2.99 ft
Wetted Perimeter.	3.40 ft
Critical Depth...	0.53 ft
Critical Slope...	0.0827 ft/ft
Froude Number....	1.10 (flow is Supercritical)

EXHIBIT 12.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "A"

Comment: MINIMUM GRADE CALC. INLET #1 TO INLET #2

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	4.09 cfs

Computed Results:

Full Flow Channel Slope	0.0078 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	5.21 fps
Flow Area.....	0.79 sf
Critical Depth....	0.86 ft
Critical Slope....	0.0073 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	4.09 cfs
QMAX @.94D.....	4.40 cfs
Froude Number.....	FULL

EXHIBIT 13.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "A"

Comment: MINIMUM GRADE CALC. INLET #2 TO OUTLET

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	11.64 cfs

Computed Results:

Full Flow Channel Slope	0.0632 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	14.82 fps
Flow Area.....	0.79 sf
Critical Depth....	1.00 ft
Critical Slope....	0.0602 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	11.64 cfs
QMAX @.94D.....	12.52 cfs
Froude Number.....	FULL

EXHIBIT 14.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "B1"

Comment: MINIMUM GRADE CALC. INLET #1 TO INLET #2

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	3.39 cfs

Computed Results:

Full Flow Channel Slope	0.0054 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	4.32 fps
Flow Area.....	0.79 sf
Critical Depth....	0.79 ft
Critical Slope....	0.0058 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	3.39 cfs
QMAX @.94D.....	3.65 cfs
Froude Number.....	FULL

Exhibit 15.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "B1"

Comment: MINIMUM GRADE CALC. INLET #2 TO OUTLET

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	4.90 cfs

Computed Results:

Full Flow Channel Slope	0.0112 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	6.24 fps
Flow Area.....	0.79 sf
Critical Depth....	0.91 ft
Critical Slope....	0.0098 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	4.90 cfs
QMAX @.94D.....	5.27 cfs
Froude Number.....	FULL

EXHIBIT 16.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "B2"

Comment: MINIMUM GRADE CALC. INLET #1 TO OUTFALL

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	9.54 cfs

Computed Results:

Full Flow Channel Slope	0.0424 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	12.15 fps
Flow Area.....	0.79 sf
Critical Depth....	0.99 ft
Critical Slope....	0.0395 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	9.54 cfs
QMAX @.94D.....	10.26 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 3.16 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

EXHIBIT 17.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "C"

Comment: MINIMUM GRADE CALC. INLET #1 TO INLET #2

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	4.22 cfs

Computed Results:

Full Flow Channel Slope	0.0083 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	5.37 fps
Flow Area.....	0.79 sf
Critical Depth....	0.87 ft
Critical Slope....	0.0076 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	4.22 cfs
QMAX @.94D.....	4.54 cfs
Froude Number.....	FULL

EXHIBIT 18.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "C"

Comment: MINIMUM GRADE CALC. INLET #2 TO OUTLET

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	5.91 cfs

Computed Results:

Full Flow Channel Slope	0.0163 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	7.52 fps
Flow Area.....	0.79 sf
Critical Depth....	0.95 ft
Critical Slope....	0.0141 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	5.91 cfs
QMAX @.94D.....	6.36 cfs
Froude Number.....	FULL

Exhibit 19.0

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: STORM SEWER "D"

Comment: MINIMUM GRADE CALC. INLET # 1 TO OUTLET

Solve For Full Flow Slope

Given Input Data:

Diameter.....	1.00 ft
Manning's n.....	0.010
Discharge.....	4.64 cfs

Computed Results:

Full Flow Channel Slope	0.0100 ft/ft
Full Flow Depth.....	1.00 ft
Velocity.....	5.91 fps
Flow Area.....	0.79 sf
Critical Depth....	0.90 ft
Critical Slope....	0.0089 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	4.64 cfs
QMAX @.94D.....	4.99 cfs
Froude Number.....	FULL

Exhibit 20.0

STORMWATER MANAGEMENT PLAN

FOR

SOUTH RIM ON THE REDLANDS FILINGS 3 and 4

May, 1995

Prepared for:

LOWE DEVELOPMENT CO.
c/o David "Skip" Behrhorst
1280 Ute Avenue, Suite 32
Aspen, CO. 81611
303-925-4497

Prepared by:

LANDesign LTD.
200 N. 6th. Street, Grand Junction, CO. 81501
Grand Junction, Colorado 81501

Stormwater Management Plan For South Rim On The Redlands Filings 3 and 4.

Prepared by: _____
Monty D. Stroup

Reviewed and Approved by: _____
Philip M. Hart P.E.
State of Colorado, #19346

A. Site and Project Description

1. Site Location:

South Rim on the Redlands is located in the City of Grand Junction, County of Mesa, State of Colorado, more particularly being located in the SW 1/4 of Section 8, T.1 S., R.1 W. of the Ute Meridian, (Tax I.D. #2945-08-083, 087 and 091). The project is located at 39-04-53 Latitude and 108-37-09 Longitude.

Existing streets within the area of the project include 23 Road to the west and South Rim Drive which runs west to east and is to be used as primary access to the site.

The South Rim development is bounded to the northeast by the Tailrace Redlands Power Canal and to the northwest by undeveloped lands. To the west lies Vista Villa Subdivision and Palace Verdes Estates, best described as medium density residential developments. To the south lies Haas Subdivision and Chamberlain Estates, undeveloped pasture lands. To the southeast lies Rio Vista Subdivision a medium density residential development.

South Rim Filing Three is located east of and is contiguous with South Rim Filing No. Two which currently holds a "Certification CDPS General Permit, Stormwater Discharges Associated With Construction, Permit No. COR-030000, Facility No. COR-030921". South Rim Filing No. Four is to be located east of and contiguous with Filing No. Three as shown of Exhibit 1.0.

2. Description of Property:

The entire South Rim Development contains approximately 91.5 acres including 38.9 acres of area designated for open-space. The third and fourth phases of development, South Rim Filings Three and Four contain approximately 16.26 and 8.60 acres respectively. Filing No. Three is planned for 40 single family residential lots being a minimum of 10,000 square feet is size. Filing No. Four is planned for 15 single family residential lots being a minimum of 10,000 square feet is size.

3. Description of Proposed Construction Activity:

Activity shall include the construction of roadway, water, sanitary sewer, storm sewer, irrigation, dry utility infrastructures followed by the construction of 55 single family residential structures and associated landscaping.

4. Proposed Sequence of Major Construction Activities:

Phase I Clearing and grubbing of both Filings Three and Four. Disposal of construction debris to County approved facility.

Phase II Installation silt fence and Overlot (mass) grading of site to form individual site building pads per the "Grading and Drainage Plan".

Phase III Construction of roadways to proposed subgrade elevations including cut and fill activities as required.

Phase IV Utility infrastructures to be installed including storm sewers and culverts, swales and permanent erosion control features.

Phase V Curb, gutter and sidewalks installed for Filing No. Three.

Phase VI Construction of single or multiple building structures as sales and market conditions allow.

Phase VII Final landscaping of individual lots as required by the project Covenants, Conditions and Restrictions.

5. Estimate of Areas Subject to Clearing, Grubbing and Excavation:

South Rim on The Redlands Filings No. Three and Four contain a total of 24.86 acres.

6. Preconstruction and Postconstruction Runoff Coefficients:

As defined in the Final Drainage Report For South Rim Filing No. 3 and 4 (References 9 and 13) the historic runoff coefficients for the 2 year and 100 year storm events respectively are 0.36 and 0.43.

With the construction of proposed roadways and building structures coefficients are expected to increase to 0.44 and 0.53 respectively.

7. Soil Erosion Potential:

The site soils are classified as (Hc) Hinman clay loam, 0 to 6 percent slopes and falls within the hydrological soil group "C".

Soils along gullies and washes are classified as (Rr) Rough broken land, Mesa, Chipeta and Persayo soils materials and falls within the hydrological soils group "D" (Reference 4). The soils report for the development (Reference 10) characterizes the potential for erosion as significant in areas where drainage and vegetation are not carefully controlled.

8. Existing Vegetation:

Ground cover on upland areas includes native grasses and isolated pockets of trees and brush. Lowland areas, gullies and washes are host to a variety of ground covers

including thick brush, dense willows, native grasses and trees. The estimated ground cover for Filing No. Two is 60 to 80 percent.

9. Storage of Fuel Oils, Chemicals, Fertilizers or Other Potential Pollution Sources:

The storage of fuel oils, chemicals, fertilizers or other potential pollutants is prohibited without prior written notice to the owner by the contractor, subcontractor or other persons doing work on the site. In the event in becomes necessary to store such items, storage areas shall be designated. Storage areas shall be located above and away from drainages, waterways and other apparent conveyance elements. Appropriate measures shall be taken to protect such areas from spills or vandalism including but not limited to spill control berms and fencing.

10. Anticipated Non-Stormwater Components of Discharge:

Irrigation facilities include a pressurized under ground system supplied by a storage pond located northeast of and adjacent to Filing One. Offsite residual irrigation runoff is collected and routed underground to the storage pond upon entering the site.

11. Name and Location of Receiving Waters:

The project site is bounded to the northeast by the Tailrace Redlands Power canal flowing from the southeast to the northwest.

The canal serves to convey return irrigation water and storm water runoff from areas southeast of the site.

As defined in the detailed drainage study entitled "Flood Hazard Information, Colorado River and Tributaries" (Reference 2), South Rim Filings No. 3 and 4 are not within the 100 and 500 year floodplains.

B. Management During Construction

1. Anticipated Problems and Corrective (BMPs) Best Management Practices:

Structural Erosion Control Areas below the toe of fill slopes shall be isolated from fill areas by the installation of prefabricated silt fences as shown on the Grading and Drainage Plan and as detailed on the Erosion Control Plan. Straw bales shall be installed along side and rear yard swales at the locations shown on the plans. Bonterra "S2" Straw Erosion Control Blanket shall be installed on top of storm sewer trench backfill in the locations as shown on the Grading and Drainage Plan.

Non-Structural Erosion Control Disturbed areas not designated for immediate construction or permanent landscaping shall be temporarily re-vegetated. In the event

construction activity ceases for a period of 60 calendar days disturbed areas including cut and fill slopes shall be re-vegetated with a annual and perennial seed mixture as indicated on the Erosion Control Plan.

Dust Abatement The contractor shall be required to provide a consistent and reliable source of construction water. Watering to prevent dust shall be ongoing for the duration of the project. In the event high winds and heavy traffic loads create a situation where watering by itself is not sufficient the contractor is to apply an approved dust palliative other than or in addition to water.

Soil Tracking Access to Filings No. Three and Four shall be from South Rim Drive and Rim Drive which were constructed with Filing No. 2. Where construction traffic enters or exits unimproved areas onto asphalted public roadways a crushed rock construction staging pad shall be installed to minimize soil tracking.

Waste Disposal Construction debris shall be stockpiled in a central location. Debris shall be removed from the site and disposed of at appropriate locations secured by the contractor.

Sedimentation Control The contractor shall be responsible for inspecting the entire site on a weekly basis to ensure compliance and identify existing or potential sedimentation problems. The Final Drainage Reports For South Rim On The Redlands Filings No. 3 and 4 (Reference 13) identify two major drainageways which receive stormwater runoff from the site. Each of these natural drainages is heavily vegetated with dense pockets of brush, willows, trees and native grasses. Based on field investigations the mannings (N) value for each approaches 0.08. These drainages will provide an excellent sediment control and filtering effect and are to be maintained in their natural state.

C. Final Stabilization and Long Term Management

The project's Covenants Conditions and Restrictions (Reference 12) obligate each lot owner to fully landscape front yard within 60 days and the rear yard within 1 year from the issuance of a Certificate of Occupancy. Other areas including open-space are to be landscaped by the developer and maintained by the Homeowners Association.

Permanent structural BMP's include pipe outlet protection, Rip-Rap Plunge Pools over filter fabric and grassed swales as shown on the Grading and Drainage Plan.

D. Inspection and Maintenance

The Contractor shall be ultimately responsible for compliance and maintenance during construction. The owners representative and the contractor shall make weekly inspections of the site to assure compliance and implementation of the proposed BMPs.

E. Conclusion

The information contained herein is augmented by the information, calculations and requirements as presented in the Final Drainage Study For South Rim On The Redlands Filings No. 3 and 4 (Reference 13). A copy of this report shall accompany the General Permit application for Stormwater Discharges Associated With Construction Activity.

F. References

1. Mesa County Storm Drainage Criteria Manual, Final Draft, Mesa County, Colorado, March 1992.

2. Flood Hazard Information, Colorado River and Tributaries, Grand Junction, Colorado, prepared for the City of Grand Junction and Mesa County, by The Department Of The Army, Sacramento District, Corps Of Engineers, Sacramento, California, November, 1976.

3. Flood Insurance Rate Map, Mesa County, Colorado, (Unincorporated Areas), Community Panel Number 080115 0480 C, Federal Emergency Management Agency, Map Revised July 15th, 1992.

4. Soil Survey, Grand Junction Area, Colorado, Series 1940, No. 19, U.S. Department of Agriculture, issued November, 1955.

5. Urban Storm Drainage Criteria Manual, Urban Drainage and Flood Control District, prepared by Wright-McLaughlin Engineers, March 1969, Revised May, 1984.

6. Stormwater Management Manual (SWMM), City of Grand Junction, Colorado, Department of Public Works, June 1994.

7. Douglas County Storm Drainage Design and Technical Criteria, Addendum A, Erosion Control Criteria, prepared by HydroDynamics Incorporated, Parker, Colorado, October, 1992.

8. Final Drainage Report For South Rim On The Redlands, Filing No. One, prepared by Philip M. Hart, P.E., December 10, 1993.

9. Final Drainage Report For South Rim On The Redlands, Filing NO. Two, prepared by HART GROUP, PC, Engineers Designers Planners, A Division Of LANDesign, Grand Junction, Colorado, April 1, 1994.

10. Subsurface Soils Exploration, South Rim Subdivision, Grand Junction, Colorado, prepared by Lincoln-DeVore, Inc., Grand Junction, Colorado, August 3, 1993.

11. Colorado Department of Transportation, Erosion Control and Stormwater Quality Guide, Draft version, November 27, 1992.

12. Declaration Of Covenants, Conditions, And Restrictions Of South Rim Subdivision, Recorded in Book 2055, Pages 317 to 414 of the Mesa County Clerk and Recorders Office.

F. References

13. Final Drainage Report For South Rim On The Redlands, Filing No. 3 and 4, prepared by LANDesign LTD., Grand Junction, Colorado, May 1995.

APPENDIX

Exhibit "D"

SOUTH RIM FILING 3 AND 4

Seeding

Planting of temporary or permanent vegetation on all disturbed area.

I. Application

Disturbed areas not designated for immediate construction or permanent landscaping shall be temporarily re-vegetated. In the event construction activity ceases for a period of sixty (60) calendar days, disturbed areas including cut and fill slopes shall be re-vegetated with an annual and perennial seed mixture as indicated on the Erosion Control Plan.

II. Site Seed Mixture

15% Annual Rye Grass
25% Perennial Rye Grass
12% Nordan Crested Wheatgrass
12% Fairway Crested Wheatgrass
12% Blue Gramma
12% Red Fescue
12% Buffalo Grass

A minimum of 5 lbs/acre shall be used and planted using drill seeding methods and 10 lbs/acre when using a broadcast method.

III. Construction Guidelines

Seeding in areas that are unirrigated or that are not provided with sprinkling or watering systems, shall be restricted to the seasons described in Table S-1.

Table S-1
Seeding Seasons

ZONE	SPRING SEEDING	FALL SEEDING
Below 6000'	Spring thaw - June 15th	Sept. 1st - Consistent ground freeze
6000' - 7000'	Spring thaw - July 1st	Aug. 15th - Consistent ground freeze
7000' - 8000'	Spring thaw - July 15th	Aug. 1st - Consistent ground freeze
Above 8000'	Spring thaw (starts)	Consistent ground freeze (ends)

For the purpose of Table S-1 "spring thaw" is the earliest date when seed can be buried 1/2 inch into the soil through normal drill seeding methods. "Consistent ground freeze" is that latest date when seed can no longer be buried 1/2 into the soil through normal drill seeding methods. During permanent seeding, apply topsoil prior to applying seed.

When use of fertilizers and herbicides is required, apply according to the manufacturer's recommended rates.

All seeding operations shall be performed at right angles to the slope.

When needed to improve germination of seeds, apply mulching immediately after seeding. Use soil retention blankets on steep slopes (2:1 and steeper). Some locations with 3:1 slopes facing south or west or 20 feet or more high may also require soil retention blankets.

Seeded areas shall be inspected frequently. Areas with failures shall be repaired and reseeded within the planting season.

Mulching

Application of plant residues or other suitable material to the soil surface. Typical mulching material includes straw, hay, and wood cellulose fiber.

I. Application

Used to provide temporary protection for exposed soils against erosion where temporary or permanent seeding operations are not feasible, especially during adverse growing seasons.

Used as part of seeding practices to protect newly seeded areas.

Used to protect soil stockpiles.

II. Use Limitations

Use only on disturbed areas as a temporary cover.

Hydraulic mulching with wood cellulose fibers shall be limited to slopes steeper than 3:1 or where access is limited.

III. Construction Guidelines

Material

Hay shall consist of native grasses free of noxious weed seeds.

Straw shall consist of clean cereal grain.

Wood cellulose fiber shall consist of virgin wood cellulose processed into a uniform fibrous physical state.

Tackifiers (for anchoring) shall consist of a free flowing non-corrosive powder produced from the natural plant gum of Plantago Insularis (Desert Indianwheat). This material shall not contain any mineral filler, recycled cellulose fiber, clays, or other substances which may inhibit germination or growth of plants.

Spreading Procedure

Hay and straw mulch shall be spread at a rate of two tons per acre.

At a minimum, 50% of the mulch, by weight, shall be 10 inches or more than two inches.

Applied mulch shall reach a uniform distribution so that no more than 10% of the soil surface shall be exposed.

Hay and straw mulch shall be anchored to the soil surface using Tackifiers, blankets, or nets, or with a mulch crimping machine., Mechanical anchoring is preferred and recommended for slopes flatter than 3:1. When using blankets or nets, these may need to be anchored to the soil with staples, or as required by the manufacturer's specifications.

Wood cellulose fiber mulch shall be mixed with water (maximum 50 lbs. of wood cellulose per 100 gallons of water) and a tackifying agent. Application shall be at a rate of 1500 pounds per acre with a hydraulic seeder or mulcher.

Tackifiers (for anchoring) shall be applied in a slurry with water and wood fiber (100 lbs. of powder and 150 lbs. of fiber per 700 gallons of water). Application rate of the powder shall be 100 lbs. per acre.

Erosion Bale

A temporary sediment barrier consisting of a row of entrenched and anchored straw, or hay bales.

I. Application

Use as filters along the toe of fills.

Use as erosion checks in ditches.

Use for diversions and filters in unfinished drop inlets, culvert inlets, and outlets.

II. Use Limitations

Do not use if size of the drainage area is greater than 1/4 acre per 100 feet of barrier length.

Maximum slope length behind the barrier is 100 feet.

Maximum slope gradient behind the barrier is 50%.

In minor swales or ditch lines where the maximum contributing drainage area is no greater than one acre.

Where effectiveness is required for less than 3 months.

Under no circumstances should erosion bale barriers be constructed in active streams or in swales where there is the possibility of a washout.

Should be used only in areas of sheet flow or very low flow.

Not to be used where the control of sediment is critical or in high risk areas.

Not to be used where it cannot be entrenched as required and firmly anchored. Useful life of erosion bale barriers is relatively short; the barrier may have to be replaced one or more times during construction.

III. Construction Guidelines

All bales shall be either wire-bound or string-tied. Erosion bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales (in order to prevent deterioration of bindings).

The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked, the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

Each base shall be securely anchored by at least two 2"X2" stakes or #4 rebars driven toward the previously laid bale to force the bales together. Stakes or rebars shall be driven 12 inches minimum into the ground to securely anchor the bales.

The gaps between bales shall be filled by wedging with straw to prevent water from escaping between the bales. The main consideration is to obtain tight joints. Erosion bales will not filter sediment out of the water if the water is allowed to flow between, around, or under the bales. Loose straw or hay scattered over the area immediately uphill from an erosion bale barrier tends to increase barrier efficiency.

Since erosion bales deteriorate quickly, the inspection during construction shall be frequent and repair or replacement shall be made promptly as needed.

Erosion bales shall be removed when they have served their usefulness, but not before the upslope areas have been permanently stabilized.

Trenches where erosion bales were located shall be graded and stabilized.

Sheet Flow Applications

Bales shall be placed in a single row, lengthwise on the contour with ends of adjacent bales tightly abutting.

Channel Flow Applications

Bales shall be placed in a single row, lengthwise, oriented perpendicular to the contour, with ends of adjacent bales tightly abutting one another.

The barrier shall be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

Silt Fence

A temporary vertical barrier of filter fabric attached and supported by posts and entrenched to the ground.

I. Application

Used to intercept and detain small amounts of sediment from disturbed areas during construction operations to prevent sediment from leaving the site.

Used to decrease the velocity of sheet flows and low-to-moderate level channel flows.

Typically used along the toe of fills, in transition areas between cut and fills, adjacent to streams and along private property.

Also used around median and yard inlets as applicable, and behind curb and gutter to prevent silting of the pavement.

II. Use Limitations

Where the size of the drainage areas is no more than 1/4 acre per 100 feet of silt fence length; the maximum slope length behind the barrier is 100 feet; and the maximum gradient behind the barrier is 50% (2:1).

On steep slopes care should be given to placing alignment of fence perpendicular to the general direction of the flow.

Should not be used in areas where rocky soils will prevent keying in the filter fabric.

III. Construction Guidelines

Materials

The synthetic filter fabric shall conform to the requirements described in CDOT's Standard Specifications for Road and Bridge Construction.

The Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

If a burlap is used, it shall be purchased in a continuous roll and cut to the length of the barrier to avoid than use of joints and thus improve the strength and efficiency of the barrier.

Posts for silt fences shall be metal or hardwood with a minimum length of 42 inches. Pine wood shall not be used. Wood posts shall have a minimum diameter or cross section of 1.25 inches. Metal posts shall be "studded tee" or "U" type with minimum weight of 1.33 lbs/lin. ft., and they shall be protected against corrosion. Metal posts should also have projections for fastening wire to them.

Wire fence reinforcement for silt fences using standard strength filter cloth shall be a minimum of 42 inches in height, a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.

Installation

Silt fences must be located along a terrain contour and the area below the fence must be undisturbed or stabilized.

The posts shall be driven vertically into the ground to a minimum depth of 18 inches.

A trench shall be excavated approximately 6 inches wide and 6 inches deep along the line of posts and upslope from the barrier; the bottom one foot of the filter fabric shall be buried into this trench.

The trench shall be backfield and the soil compacted.

The filter materials shall be fastened securely to metal or wood posts using wire ties, or to the wood posts with 3/4 inches long #9 heavy duty staples. Filter material shall not be stapled to existing trees.

If a filter barrier is to be constructed across a ditch line or swale, the barrier shall be of sufficient length to eliminate end flow, and the plan configuration shall resemble an arc or horseshoe with the ends oriented upslope.

When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6-inch overlap, and securely sealed.

When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least 3/4 inch long, tie wires or hog rings. The wire shall extend into the trench a minimum of 2 inches and shall not extend more than 36 inches above the original ground surface.

When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of the above item applying.

Silt fences shall be periodically maintained to prevent sediment from passing over or under the fence. Sediments shall be removed from behind the silt fence when it accumulates to one-half the exposed fabric height.

Filter barriers shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

Sheet Flow Applications

The height of the silt fence shall be minimum 22 inches and shall not exceed 36 inches; higher fences may impound volumes of water sufficient to cause failure of the structure.

Posts shall be spaced a maximum of 10 feet apart. If an extra strength filter fabric without the wire support fence is used, maximum space shall not exceed 6 feet.

Channel Flow Applications

The height of the silt fence shall be a minimum of 15 inches and shall not exceed 18 inches.

Posts shall be spaced a maximum of 3 feet apart.

GENERAL PERMIT APPLICATION

STORMWATER DISCHARGES ASSOCIATED WITH:

CONSTRUCTION ACTIVITY

(Permit No. COR-030000)

FOR AGENCY USE ONLY									
Certification Number									
C	O	R	-	0	3				

Date Received	Fee Category
Year Month Day	

Please print or type. All items must be completed accurately and in their entirety or the application will be deemed incomplete and processing of the permit will not begin until all information is received. Please refer to the instructions for information about the required items. An original signature of the applicant is **required.**

1. **Name and address of the permit applicant:**

Name Lowe Development Corp., c/o/ David G. Behrhorst

Mailing Address 1280 Ute Ave., Ste. 32

City, State and Zip Code Aspen, CO 81611

Phone Number (970) 925-4497 Taxpayer (or Employer) ID 95-2788746

Who is applying? Owner [X] Developer [ ] Contractor [ ]

Entity Type: Private [X] Federal [ ] State [ ] County [ ] City [ ] Other: _____

Local Contact LANDesign, LLC

Title Project Engineers Phone Number (970) 245-4099

2. **Location of the construction site:**

Street Address South Rim Drive and Rim Drive

City, State and Zip Code Grand Junction, CO 81503

County Mesa Name of plan of development South Rim on the Redlands, Filing No. 3

Township, Range, section, 1/4 section SW 1/4, Section 8, T.1.S., R.1.W., Ute Meridian

Latitude and Longitude 39°04'53", 108°37'09"

3. **Briefly describe the nature of the construction activity:**

Overlot grading, street, utility, storm sewer, water and sanitary sewer construction associated with residential development.

4. **Anticipated construction schedule:**

Commencement date: June 15, 1995 Completion date: November 1, 1995

5. **Area of the construction site:** Total area 16.26 ac.

Area to undergo excavation or grading: 16.26 ac.

6. **The name of the receiving stream(s). (If discharge is to a ditch or storm sewer, also include the name of the ultimate receiving water):** Tailrace Redlands Power Canal to Colorado River

7. **Other environmental permits held for this construction activity (include permit number):**

None

8. **Stormwater Management Plan Certification:**

I certify under penalty of law that a complete Stormwater Management Plan, as described in Appendix A of this application, has been prepared for my facility. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations.

Signature of Applicant — Date Signed

Name (printed) — Title

9. **Signature of applicant:**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Signature of Applicant — Date Signed

David G. Behrhorst — Vice President

Name (printed) — Title

GENERAL PERMIT APPLICATION

STORMWATER DISCHARGES ASSOCIATED WITH:

CONSTRUCTION ACTIVITY

(Permit No. COR-030000)

FOR AGENCY USE ONLY									
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Who is applying? Owner [X] Developer [ ] Contractor [ ]

Entity Type: Private [X] Federal [ ] State [ ] County [ ] City [ ] Other: _____

Local Contact LANDesign, LLC

Title Project Engineers Phone Number (970) 245-4099

2. **Location of the construction site:**

Street Address South Rim Drive and Rim Drive

City, State and Zip Code Grand Junction, CO 81503

County Mesa Name of plan of development South Rim on the Redlands, Filing No. 4

Township, Range, section, 1/4 section SW 1/4, Section 8, T.1.S., R.1.W., Ute Meridian

Latitude and Longitude 39° 04'53", 108° 37'09"

3. **Briefly describe the nature of the construction activity:**

Overlot grading, street, utility, storm sewer, water and sanitary sewer construction associated with residential development.

4. **Anticipated construction schedule:**

Commencement date: June 15, 1995 Completion date: November 1, 1995

5. **Area of the construction site:** Total area 8.60 ac.

Area to undergo excavation or grading: 8.60 ac.

6. **The name of the receiving stream(s). (If discharge is to a ditch or storm sewer, also include the name of the ultimate receiving water):** Tailrace Redlands Power Canal to Colorado River

7. **Other environmental permits held for this construction activity (include permit number):**

None

8. **Stormwater Management Plan Certification:**

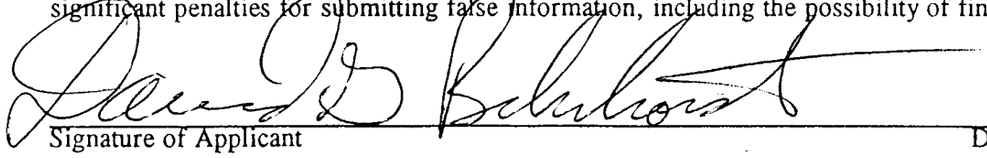
I certify under penalty of law that a complete Stormwater Management Plan, as described in Appendix A of this application, has been prepared for my facility. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the Stormwater Management Plan is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for falsely certifying the completion of said SWMP, including the possibility of fine and imprisonment for knowing violations.

Signature of Applicant Date Signed

Name (printed) Title

9. **Signature of applicant:**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.



Signature of Applicant Date Signed

David G. Behrhorst Vice President

Name (printed) Title

SEWER SYSTEM DESIGN REPORT

FOR

SOUTH RIM FILING 3 AND 4

May 18, 1995

Prepared for:
David G. Behrhorst

Prepared by:
HART GROUP, PC
ENGINEERS • DESIGNERS • PLANNERS
A LANDesign Partner
200 North 6th St.
Suite 102
Grand Junction, Colorado 81501

Prepared by: Brian C. Hart

Brian C. Hart E.I.

I certify that this study has been prepared by me or under my supervision.

Philip M. Hart P.E.

State of Colorado, #19346

TABLE OF CONTENTS

A. INTRODUCTION

This report involves the design of a lift station for a sewer system located in South Rim III and IV. The area and the population which will be served by the system will be discussed in this report, including the average daily flows and the peak hourly flows. The design flow range will be examined, including the minimum daily flow and the future conditions expected for the system. The pump and lift station designs will be outlined and discussed in relation to the standards the design needs to meet. The appropriate pump type, well dimensions, desired number of pumps, both emergency and operational flow, number of pump cycles under operational conditions, overall size of the well and the effects of buoyancy on the well will all be topics discussed in regard to the design of the system. The discharge line flow velocities and head loss rates for the required pipe size will be provided for the range of flows. The selection of an appropriate pump model will be discussed and the final pump selection will then be reviewed and the horsepower, operational range, impeller size, controls and power source will be outlined.

B. SEWAGE SERVICE AND GENERATION

The sewer system service involves 20 lots on South Rim III and another 16 future lots on South Rim IV which will accommodate single family homes. The area is rated for a density of 4 people per home, giving a service needed for 80 people to begin and 144 total people in the future. Using 105 gpcd for the average daily flow, South Rim III service will encompass 8400 gallons per day and the future average daily flow will be 15,120 gallons per day. The peak hour estimates for the system are calculated by using 300 gpcd. The initial peak hourly flow will be 1000 gallons per hour and the future peak hourly flow will be 1800 gallons per hour.

C. SEWAGE PUMPING AND LIFT STATIONS

1. Design Flow Range

The minimum daily flow is defined as one-third of the average daily flow and is determined to be 2800 gallons per day for South Rim III and 5040 gallons per day for future conditions. This flow is the minimum flow that the lift station will be required to handle.

It should be noted here that the pump and lift station located for this area of South Rim III and IV is temporary. This is due to additional development in the immediate area that will need to be added to the sewer system in the future. At that time the lift station will be relocated and redesigned to fit the needs of the additional development.

2. Well Design

After consulting with James H. Martinsen of Falcon Supply, he determined that a pump manufactured by Smith and Loveless, from Lenexa, Kansas model number 4B2B would meet the criteria. Please refer to the information included in the Appendix regarding the comments from Mr. Martinsen. This pump has a capacity of delivering 80 gpm and will have a depth of 13 feet 2 inches, and bottom dimension of seven feet in diameter. Mr. Martinsen did not mention any physical restraints that would effect the pump.

It is desired to have a minimum of two pumps for the lift station, and that each pump should be designed for a capacity of at least 100% of the peak hourly flow. It was determined that a third standby pump is not needed.

The emergency volume for the lift station was found to be 952 gallons, which was determined by calculating the inside dimensions of the pump up to a surface level meeting the bottom of the manway. The lag volume at the bottom of the well was calculated as 42.25 gallons. There is no back-up power source which has been mentioned. The pump can be connected to a phone line sent to the city for 24-hour monitoring.

Using a volume created by the minimum daily flow for a cycle of 30 minutes and the inside dimensions of the pump, the operational volume for the pump was found to be 58.3 gallons initially and 105 gallons for future conditions. This would give the pump a running time of approximately forty-five seconds to one minute and twenty seconds, with the two available pumps alternating each cycle. Aeration or other methods of preventing stagnation are not included in the design.

The size of the well is as follows; Depth is 13 feet 2 inches, bottom of the well will be seven feet in diameter, emergency volume is 952 gallons and operating volume is calculated as 58.3 to 105 gallons. The pump has a capacity of delivering 80 gallons per minute and has a 5 horsepower motor for each pump. The maximum speed of the motor is given as 1170 RPM and the maximum static suction lift will be fifteen feet.

The ground water table located at the South Rim III filing is lower than the depth of the pump, therefore effects of buoyancy on the well will not be discussed.

3. Discharge Line

The velocity for an eight inch pipe with a pump rating of 80 gpm was determined as 0.51 fps. It should be noted here that the velocity of the flow for an eight inch pipe is much lower than the minimum of 2 fps. Because the pump at the lift station is temporary and future developments after South Rim III and IV are expected, an eight inch pipe is needed to meet future needs in the area.

The length of pipe to consider head loss is 737.5 feet. The elevation difference from the lift station to the manhole receiving the flow is 30.3 feet. The head loss in the pipe due to friction is estimated as 0.52 feet and the velocity head loss is considered to be negligible. This gives the total dynamic head to be approximately 31 feet.

4. Pump Selection

As a minimum for the lift station, there will be two pumps included in the design of the system and for each 30 minute cycle the pumps will alternate every other cycle. The net positive suction head required is 12 feet 3 inches. Again, the running time for

an 80 gpm pump delivering the operational flow will be approximately forty-five seconds to one minute twenty seconds. There is a head-capacity curve located in the appendix given by Mr. Martinsen in his comments.

Each motor will have a rating of least 5 horsepower, a minimum efficiency rating of 41 percent and a maximum static suction lift of 15 feet. Impeller model number S4L22, which is described on the head-capacity curve located in the appendix, will be used in the design. The control equipment will be mounted in a NEMA Type 1 steel enclosure. The motor driving the pumps will be a three-stage motor and will be supplied with a power source that coincides with that motor type. More information regarding to the specific controls and power supplies can be found in the material provided by Mr. Martinsen in the appendix.

APPENDIX

FALCON SUPPLY COMPANY, INC.

P.O. Box 469 • Niwot, Colorado 80544-0469
(303) 499-7131 • FAX (303) 652-3460

May 5, 1995

Landesign
200 N. Sixth Ave.
Grand Junction, CO 81501
Attn: Mr. Tom Logue

Subject: South Rim Pump Station, Grand Junction, Colorado

Dear Tom:

Enclosed please find engineering information on the sewage pump station we spoke about for South Rim.

Please review this and let me know how I can be of service to you.

Best Regards,

James H. Martinsen
FALCON SUPPLY CO., INC.

JHM/sw
Enclosure

Southern
5-5-95
Tom Logue
Landesign

20 Lots

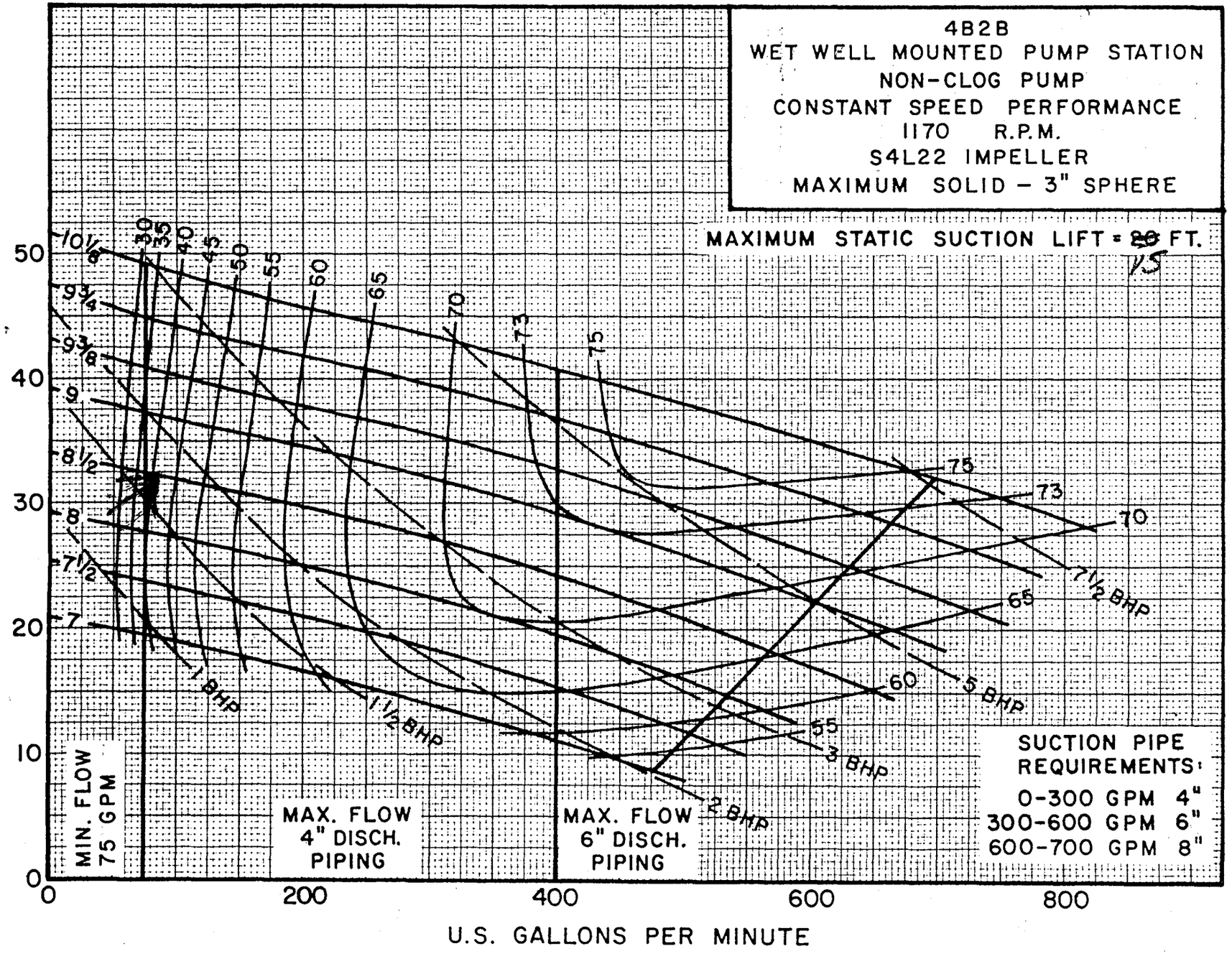
Use 80 GPM as this is 2 FPS in a 4" F.M.

Static Head = 28'
Station Loss 0.5'

Friction Head at 80gpm -
.813 x 7.30 C' x .54 (correct to PVC F.M) = 3.2

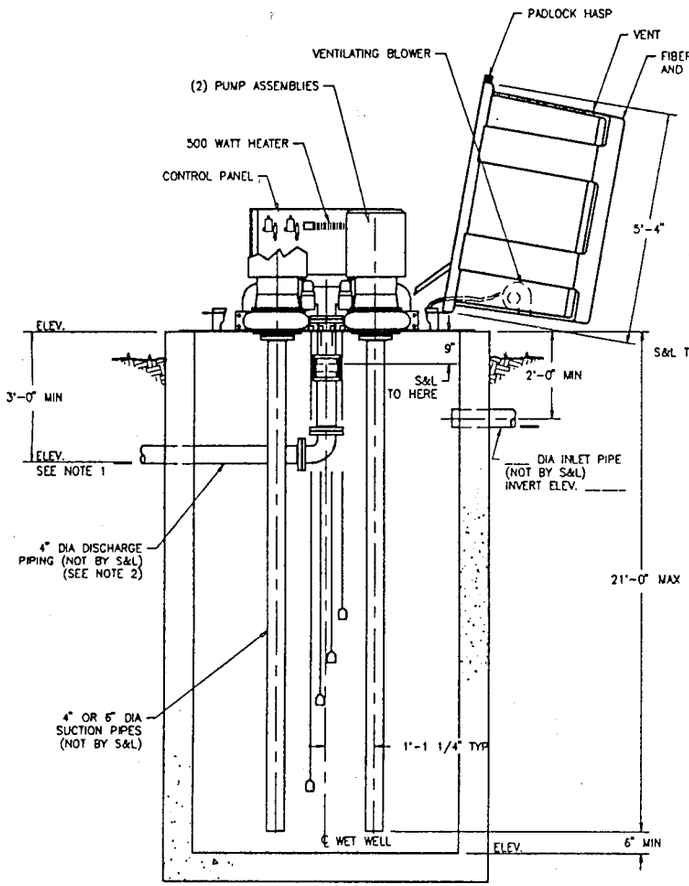
TDH at 80gpm = 32'

Use SL Model 4BCB, 1170 RPM
5 HP

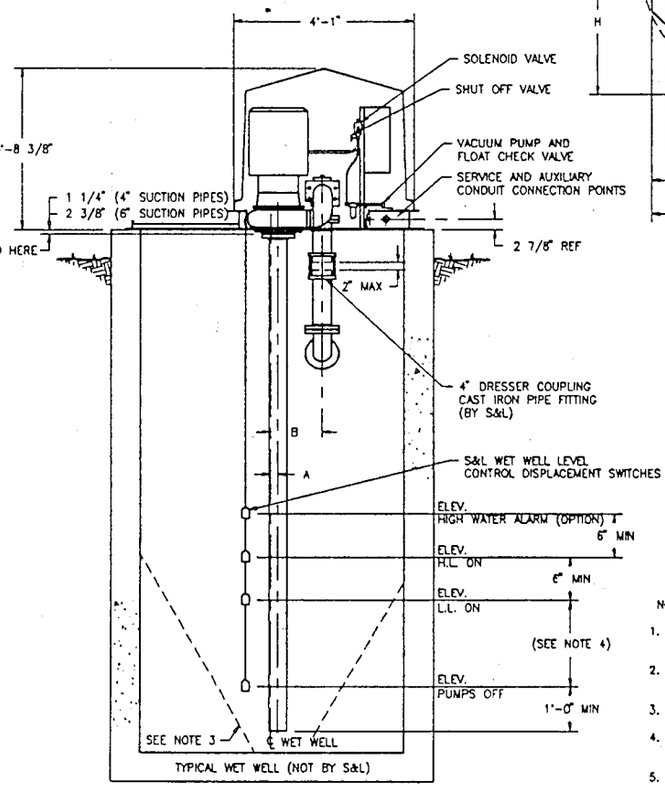

4B2B
WET WELL MOUNTED PUMP STATION
NON-CLOG PUMP
CONSTANT SPEED PERFORMANCE
1170 R.P.M.
S4L22 IMPELLER
MAXIMUM SOLID – 3" SPHERE
MAXIMUM STATIC SUCTION LIFT = 15 FT.
10 1/8
9 3/4
9 3/8
9
8 1/2
8
7 1/2
7
30
35
40
45
50
55
60
65
70
73
75
1 BHP
1 1/2 BHP
2 BHP
3 BHP
5 BHP
7 1/2 BHP
MIN. FLOW 75 GPM
MAX. FLOW 4" DISCH. PIPING
MAX. FLOW 6" DISCH. PIPING
SUCTION PIPE REQUIREMENTS:
0-300 GPM 4"
300-600 GPM 6"
600-700 GPM 8"
0
10
20
30
40
50
200
400
600
800
U.S. GALLONS PER MINUTE

WET WELL DIAMETER	DIM A	DIM B	DIM C	DIM D	DIM E	DIM F	MANWAY G	DIM H	DIM J
4'-0"	4"	1'-3 13/16"	2'-9"	5'-6"	2'-3 7/8"	2'-8 3/8"	1'-2" x 2'-0"	2'-4"	3'-6"
5'-0"	8"	1'-7 13/16"	2'-10"	5'-8"	2'-9 3/8"	3'-1 7/8"	2'-0 1/2" x 2'-4"	2'-10"	3'-11 1/2"
6'-0"	2"	1'-1 13/16"	3'-4"	6'-8"	2'-3 3/8"	2'-7 7/8"	2'-0 1/2" x 2'-4"	3'-4"	3'-5 1/2"

SUCTION PIPE SIZE	DIM K
4"	1 1/4"
6"	2 3/8"

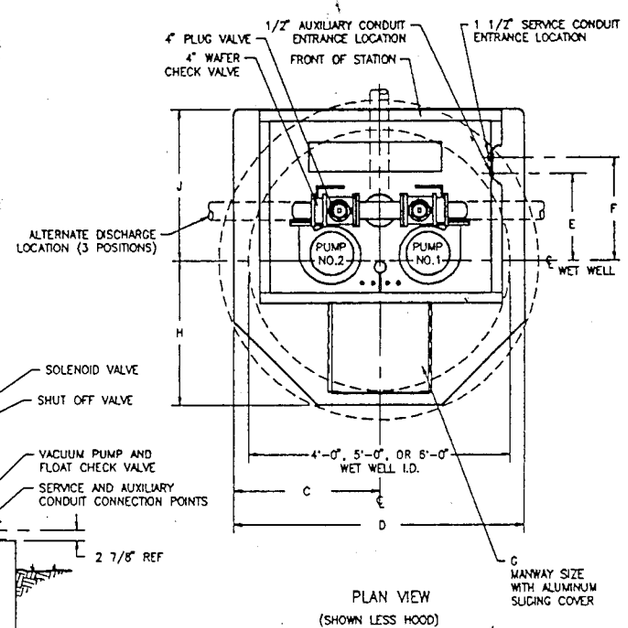


SECTIONAL ELEVATION



TYPICAL WET WELL (NOT BY S&L)

CROSS SECTION



PLAN VIEW
(SHOWN LESS HOOD)

NOTES:

1. IF END OF DISCHARGE LINE IS BELOW ELEVATION OF DISCHARGE LINE AT POINT OF LEAVING WET WELL, CONSULT FACTORY.
2. IF DISCHARGE LINE IS LESS THAN 200 FEET IN LENGTH, A CHECK VALVE MAY BE REQUIRED – CONSULT FACTORY.
3. PROVIDE 60° SLOPE IN WET WELL AS REQUIRED.
4. VOLUME IN GALLONS BETWEEN L.L. ON AND L.L. OFF SHOULD EQUAL PUMPING RATE IN GPM.
5. PUMP MOTORS – 20 HP MAXIMUM.
6. MAXIMUM CAPACITY – 400 GPM.
7. COPYRIGHT (c) 1991, SMITH & LOVELESS INC.

87C315

LET	ECN NO	DATE	BY APPVD
B	N93-64	12/93	ALEX / RFO
A	N93-3	1/93	ALEX / RD

ORIGINAL ISSUE N92-46

DRAWN BY: ALEX — DATE: 10/01/91
CHECKED BY: RD — DATE: 3/92
APPROVED BY: SBN — DATE: 7/92
SCALE: NTS — CODE: 9

ALLOWABLE TOLERANCES: FRACTIONS –; DECIMALS –; ANGLES –

FOR
WET WELL MOUNTED PUMP STATION
MODEL S 4" PIPING
4B2B/4B2D/4C2B/4C2D PUMPS

SIZE — U/M EA — WT.
FILE NAME \A\SALES\87C315 — PLOT SCALE 1=24.000
SERIAL NO
DWG NO 87C315 — REV B

Smith & Loveless, Inc.

SHEET 1 OF 1

SPECIFICATIONS
WET WELL MOUNTED PUMP STATION WITH DUPLEX NON-CLOG PUMPS

Water & Wastewater
Wet Well Mounted
Pump Station

GENERAL

The contractor shall furnish and install one factory-built, automatic pumping station as manufactured by Smith & Loveless®, Inc., Lenexa, Kansas. The station shall be complete with all needed equipment, factory-installed on a welded steel base with fiberglass cover.

The principal items of equipment shall include two vertical, close-coupled, motor driven, vacuum-primed, non-clog pumps; valves; internal piping; central control panel with circuit breakers; motor starters and automatic pumping level controls; heater; ventilating blower; priming pumps and appurtenances; and all internal wiring.

OPERATING CONDITIONS

Each pump shall be capable of delivering 80 GPM of raw water or wastewater against a total dynamic head of 32 feet. The minimum acceptable pump efficiency at this condition shall be 41 %. Due to the energy conservation requirements, the minimum efficiency will be enforced. The maximum allowable speed shall be 1170 RPM. The minimum rated horsepower of each pump motor shall be 1.5. The maximum static suction lift shall be 15'.

All openings and passages shall be large enough to permit the passage of a sphere 3" in diameter. The anticipated operating head range is from _____ feet minimum to _____ feet maximum. The pump motors shall not be overloaded beyond their nameplate rating, at the design conditions, nor at any head in the operating range.

CONSTRUCTION

The station shall be constructed in one complete, factory-built assembly. It shall be sized to rest on the top of the well as detailed in the construction drawings. The supporting floor plate shall be minimum 3/8" thick steel with reinforcing, as required, to prevent deflection and ensure an absolutely rigid support.

The pump station shall be enclosed by a hinged fiberglass cover. The cover shall have a suitable drip-lip around the edge and shall be provided with a hasp and staple connection to the floor plate to allow the pump chamber to be locked with a padlock.

The cover shall have a latch mechanism to keep the cover open under load. Adjustable ventilating louvers shall be provided on each end of the fiberglass cover which are capable of being closed during cold weather operation.

A 1/4" thick sliding aluminum manway cover, located exterior to the fiberglass pump chamber, shall be provided, complete with padlocking provisions. The manway shall be an integral part of the station floor plate and provide access to the wet well.

A stanchion with lifting arm shall be provided to lift each pump. The lifting arm shall have a hook over the center of the motor to support a hoist (provided by others) for removal of the motors, impellers and pumps from the station.

The pump volutes and discharge piping shall be mounted in relation to the floor plate as detailed in the construction drawings.

WELDING

All steel structural members shall be joined by electric arc welding with welds of adequate section for the joint involved.

PROTECTION AGAINST CORROSION

All Structural steel surfaces shall be factory blasted with steel grit to remove rust, mill scale, weld slag, etc. All weld spatter and surface roughness shall be removed by grinding. Surface preparation shall comply with SSPC-SP6 specifications. Immediately following cleaning, a single 6-mil dry film thickness of Versapox® epoxy resin shall be factory applied. This coating shall be as formulated by Smith & Loveless for abrasion and corrosion resistance.

Stainless steel, aluminum and other corrosion resistant surfaces shall not be coated. Carbon steel surfaces not otherwise protected shall be coated with a suitable non-hardening rust preventative compound. Auxiliary components, such as the electrical enclosure, ventilating blower and vacuum pumps, shall be furnished with the original manufacturer's coating.

Finish coating shall be accomplished prior to shipment of the station from the factory and shall comply fully with the intent of these specifications. A touch-up kit shall be provided by the pump station manufacturer for repair of any mars or scratches occurring during shipping and installation. This kit shall contain detailed instructions for use and shall be the same material as the original coating.

A grounding type convenience outlet shall be provided on the side of the cabinet for operation of 115 volt AC devices.

Thermal magnetic air circuit breakers shall be provided for branch disconnect service and short circuit protection of all motor control and auxiliary circuits.

Magnetic across-the-line starters with under-voltage release and overload coils for each phase shall be provided for each pump motor to give positive protection. Each single phase auxiliary motor shall be equipped with an over-current protection device in addition to the branch circuit breaker, or shall be impedance protected. All switches shall be labeled and a coded wiring diagram shall be provided.

To control the operation of the pumps with variations of liquid level in the wet well, a minimum of three (3) mercury displacement switches shall be provided. A 30' cord shall be provided with each switch. The cord shall have a corrosion resistant vinyl jacket and be multi-stranded in order to prevent fatigue.

An automatic alternator with manual switch shall be provided to change the sequence of operation of the pumps every eight hours. Alternating the pumps at less than eight-hour intervals will not be acceptable.

Provisions shall also be made for the pumps to operate in parallel should the level in the wet well continue to rise above the starting level for the low level pump.

HIGH WET WELL LEVEL ALARM [X] (Optional Item - *Check If Required*)

An adjustable mercury displacement switch shall be provided to sense a high water level condition. The switch shall hang into the wet well and shall activate a contact to indicate the high water condition.

VACUUM PRIMING SYSTEM

A vacuum priming system shall be furnished to prime the main pumps. The system shall be as shown on the vacuum priming schematic and shall include two vacuum pumps, providing 100 percent standby. Vacuum pumps shall have corrosion-resistant internal components. The vacuum priming system shall be complete with vacuum control solenoid valves, prime level sensing probes, float-operated check valves to protect the vacuum pumps, and all necessary shut-off valves as shown on the piping schematic. The float-operated check valves shall have a transparent body for visual inspection.

The priming system shall automatically provide positive lubrication of the mechanical seal each time a main pump is primed. To prevent excessive stoppage due to grease accumulation, no passageway in the priming system through which the pumped liquid must pass shall be smaller than the equivalent of a 2-1/2" opening.

ENVIRONMENTAL EQUIPMENT

A ventilating blower shall be provided, capable of delivering 250 cfm at 0.1" static water pressure, in order to remove the heat generated by continuous motor operation. The ventilating blower shall be turned on and off automatically by a pre-set thermostat. A louvered opening shall cover the discharge. An electric heater controlled by a pre-set thermostat shall be furnished. The heater shall be rigidly mounted in the station to prevent removal.

MAIN PIPING

The pump suction shall be drilled and tapped for a 125 pound American Standard flange for ready connection of the suction riser. The discharge line from each pump shall be fitted with a clapper-type check valve and eccentric plug valve. Size, location, and quantity of check valves and plug valves shall be as shown on the construction drawing. The check valve shall be of the spring-loaded type with external lever arm and an easily replaced resilient seat for added assurance against vacuum leaks. Check valves shall have stainless steel shaft with replaceable bronze shaft bushings and shall be sealed with an adjustable Teflon seal. An operating wrench shall be provided for the plug valves.

Protrusions through the floor plate shall be gas-tight where necessary to effect sealing between the equipment chamber and the wet well. Bolted and sealed joints shall be provided at the volutes or suction pipes in order to prevent corrosive, noxious fumes from entering the station. The pump station manufacturer shall extend the suction and discharge connections below the floor plate at the factory so that field connections can be made without disturbing the gas-tight seals.

The manufacturer of the pump station shall provide a compression-type sleeve coupling for installation in the common discharge pipe.

FACTORY TESTS

All components of the pump station shall be given an operational test at the pump station manufacturer's facility to check for excessive vibration, leaks in the piping or seals and correct operation of the automatic control and vacuum priming systems and all auxiliary equipment. Installed pumps shall take suction from a deep wet well, simulating actual service conditions. The control panel shall undergo both a dry logic test and a full operational test with all systems operating.

Factory test instrumentation must include flow measuring with indicator; compound suction gauge; bourdon tube type discharge pressure gauge; electrical meters to measure amperes, volts, kilowatts and power factor; speed indicator and a vibrometer capable of measuring both amplitude and frequency.

SPARE PARTS

A complete replacement pump shaft seal assembly shall be furnished with each pump station. The spare seal shall be packed in a suitable container and shall include complete installation instructions. A spare volute and seal gasket shall be provided.

INSTALLATION AND OPERATING INSTRUCTIONS

Installation of the pump chamber shall be done in accordance with the written instructions provided by the manufacturer.

Operation and maintenance manuals shall be furnished, which will include parts lists of components and complete service procedures and troubleshooting guide.

START-UP

The Manufacturer shall provide the services of a factory-trained representative for a maximum period of one day on-site to perform initial start-up of the pump station and to instruct the owner's operating personnel in the operation and maintenance of the equipment.

GUARANTEE

The manufacturer of the station shall guarantee for one year from date of start-up, not to exceed eighteen months from date of shipment, that the structure and all equipment he provides will be free from defects in material and workmanship. Warranties and guarantees of the suppliers of various components in lieu of a single source responsibility by the Manufacturer will not be accepted. The Manufacturer shall assume prime responsibility for the guarantee of the station and all components.

In the event a component fails to perform as specified or is proven defective in service during the guarantee period, the Manufacturer shall repair or replace, at his discretion, such defective part. He shall further provide, without cost, such labor as may be required to replace, repair or modify major components such as the steel structure, main pumps, main pump motors and main piping manifold. After start-up service has been performed, the labor to replace accessory items, such as the blower, priming pumps, alternator, etc., shall be the responsibility of others.

The repair or replacement of those items normally consumed in service, such as seals, grease, light bulbs, etc., shall be considered as part of routine maintenance and upkeep.

It is not intended that the Manufacturer assume responsibility for contingent liabilities or consequential damages of any nature resulting from defects in design, material, workmanship or delays in delivery, replacement or otherwise.

MANUFACTURED EQUIPMENT

OPTION 1 (Standardization) *[delete this line from final spec text]*

The specifications and drawings detail Smith & Loveless equipment and represent the minimum standard of quality for both equipment and materials of construction. The contractor shall prepare his bid on the basis of the particular equipment and materials specified for the purpose of determining the low bid.

The owner has standardized on the named equipment in order to optimize their operation, maintenance, and safety programs, provide for interchangeability of costly equipment items, reduce stocking levels required for necessary spare parts and provide increased flexibility in the utilization of their pumping stations. Equipment substitutions, since incompatible with the district's standardizations program, will not be considered.

OPTION 2 & 3 (Base Bid with Bid Submittal) (Pick Option 2 or 3) *[delete this line from final spec]*

(2) CONTRACTORS SUBMITTAL WITH BID *[delete this line from final spec]*

The specifications and drawings detail Smith & Loveless equipment and represent the minimum standard of quality for both equipment and materials of construction. The contractor shall prepare his bid on the basis of this equipment for the purpose of determining the low bid without consideration of a possible substitute. Substitution of other makes, may be considered if the equipment proposed for substitution is superior or equal in quality and efficiency to the standards of quality named in the specifications and this is demonstrated to the satisfaction of the engineer. Contractors wishing to offer a deduct for substitute equipment shall include the following submittal information with their proposal.

(3) MANUFACTURERS' SUBMITTAL PRIOR TO BID *[delete line from final spec]*

The specifications and drawings detail Smith & Loveless equipment and represent the minimum standard of quality for both equipment and materials of construction. The contractor shall prepare his bid on the basis of this equipment for the purpose of determining the low bid without consideration of a possible substitute. Substitution of other makes may be considered if the equipment proposed for substitution is superior or equal in quality and efficiency to the standards of quality named in the specifications and this shall have been demonstrated to the satisfaction of the engineer. Approval for the substitution shall be by written addendum only, and if approved, may be bid as a substitute in the appropriate space on the bid form, in addition to the mandatory base bid. To receive consideration, three (3) sets of detailed submittal on the proposed substitution shall be in the engineer's hands at least 21 working days prior to the opening of bids.

BID SUBMITTAL

This submittal shall include all necessary information for the proper determination of the acceptability of the proposed substitution and shall not necessarily be limited to the following:

A. Complete description of the equipment, system, process, or function, including a list of system components and features, drawings, catalog information and cuts, manufacturer's specifications, including materials description.

B. Performance data and curves, and horsepower requirements.

C. Outside utility requirements, such as water, power, air, etc.

D. Functional description of any internal instrumentation and control supplied, including list of parameters monitored, controlled, or alarmed.

E. Addresses and phone numbers of nearest service centers and a listing of the manufacturers or manufacturer's representatives services available at these locations, including addresses and phone numbers of the nearest parts warehouses capable of providing full parts replacement and/or repair services.

F. A list of five installations in the states where similar equipment by the manufacturer is currently in similar service; include contact name, telephone number, mailing address of the municipality or installation, engineer, owner, and installation contractor; if five installations do not exist, the list shall include all that do exist, if any.

G. Detailed information on site, architectural, structural, mechanical, plumbing, electrical, control, and all other changes or modifications to the design and construction work necessary to adapt the equipment or systems to the arrangement shown and/or functions described on the drawings and in the Technical Specifications. This shall include plan view and section sketches illustrating any additional space requirements necessary to provide the minimum adequate clear space within and around the equipment for operation and maintenance, as shown on the drawings and specified.

H. All differences between the specifications and the proposed substitute equipment shall be clearly stated in writing under a heading of "differences".

I. Other specific submittal requirements listed in the detailed equipment and material specifications.

EVALUATION

Approval of the substitution to bid as an alternate shall in no way relieve the contractor from submitting the specified shop drawings for approval or complying fully with all provisions of the specifications and drawings.

If substituted equipment is accepted, the contractor shall, at his own expense, make any changes in the structures, piping, electrical, etc. necessary to accommodate the equipment. If engineering is required due to substitution of alternate equipment, the contractor shall pay for all engineering charges.

To receive final consideration, copies of the manufacturers' quotations for the equipment may be required to document the savings to the satisfaction of the engineer. It is the intent that the owner shall receive the full benefit of the savings in cost of equipment. The contractor's bid price shall be reduced by an amount equal to the savings. In all technical and other evaluations, the decision of the engineer is final.

TYPICAL BID FORM
[add to bid form]

The bid shall be based on the named equipment. Alternate/substitute equipment may be offered as a deduct, provided all conditions of the "manufactured equipment" section are met.

Alternate/substitute manufacturer_____.

Deduct $_____.

ENGINEERING DATA

Smith & Loveless, Inc.
14040 W. Santa Fe Trail Dr.
Lenexa, Kansas 66215

Operator Assist Alarm - A momentary contact, manually operated switch shall be mounted on the face of the station control panel and shall actuate an alarm signal when operated. This switch shall function as an emergency operator assist alarm and provide for testing of the alarm system.

ALARM SYSTEMS - ALARM DEVICES

Alarm Light 120 VAC - A vapor-proof light fixture with 50 watt lamp for outdoor pole mounting.

With red globe and guard.
With green globe and guard.
With amber globe and guard.
With clear globe and guard.

Alarm Horn 120 VAC - A vibratone type horn mounted on a weather tight box suitable for pole mounting.

Alarm Bell 120 VAC - A vibratory type bell mounted on a weather tight box suitable for pole mounting.

Horn or Bell Silence Switch - An on-off switch mounted in a weather tight box suitable for pole mounting.

An on-off switch mounted in the station control panel.

Note: The on-off must be manually reset after the fault is cleared to place the alarm circuit in the ready condition.

Horn or Bell Silence Switch With Automatic Reset Relay - A push to silence pushbutton with control relay to automatically reset the alarm circuit to the ready condition after the fault is cleared.

Mounted in the station control panel.

Mounted in a separate NEMA 1 enclosure.

Mounted in a separate weather proof enclosure.

Mounted in a separate NEMA 1 enclosure with red fault indicating panel mounted light.

Push To Test - Push to test feature added to the silence pushbutton to indicate the alarm devices and system is in normal operating condition.

Remote Telemetering – Provide A Breaker For City Furnished Telemetry

Remote Alarm Panel - An alarm panel to show faulty conditions shall be provided for installation at a remote location.

The panel shall operate from a 115 volt AC power supply at the remote point. The panel shall include rectifiers and necessary devices to supply filtered direct current to conform to telephone system requirements.

The fault sensors to be used with this panel shall be of the normally closed type and shall open to indicate an alarm condition. The system shall be fail-safe so that an open in the telephone line shall indicate a failure.

The panel shall indicate an alarm condition by a red light as a visual indication and a horn as an audible signal. A silencing switch shall be provided to turn off the horn.

Mounted in a NEMA 1, compact, sheet steel cabinet with hinged door. The switches indicating light and horn shall be mounted on the door.

(10) ALARM SYSTEM ACCESSORIES

12 Volt DC Battery Charger - Storage batteries and charger shall be supplied to furnish power for alarm conditions in cases of power failure.

The storage batteries (2 - 3 cell, 6 volt) shall be maintenance-free lead-calcium battery concealed in high impact, heat resistant, and permanently sealed containers.

The battery charger shall be solid-state capable of restoring battery to full charge within 12 hours after a discharge not exceeding 1.5 hours. Brown out protection is standard and will activate the unit when A.C. line voltage drops below 85 volts.

Alarm Light 12 Volts DC - A vapor-proof light fixture with 50 watt lamp for outdoor pole mounting.

With red globe and guard.
With green globe and guard.
With amber globe and guard.
With clear globe and guard.

Alarm Horn 12 Volts DC - A vibratone type horn mounted on a weathertight box suitable for pole mounting.

Horn Silence Switch - An on-off switch mounted in a weathertight box suitable for pole mounting.

(14) RUNNING TIME METER

A running time meter shall be supplied for each pump to show the number of hours of operation. The meter shall be enclosed in a dust and moisture-proof molded plastic case. The flush mounted dial shall register in hours and tenths of hours up to 9999.9 hours before repeating. The meter shall be suitable for operation from a 115 volt, 60 cycle supply.

(15) ELECTRIC HEATER

A 1300/1500 watt, dual range, electric heater with automatic circulating fan, thermostat control and an on-off switch is to be provided. The heater is to be operated by connection to the convenience receptacle located on the control panel.

(17) LARGER SUCTION LINES

Larger Suction Lines for Duplex Pump Stations - Refer to general product specification for description.

(18) SIDE DISCHARGE

The common discharge pipe and the discharge outlet shall be _____ inch, Class 150, cast iron pipe projecting through the side wall of the station, with a plain end just outside the pump chamber.

(19) PRESSURE GAUGE ON PUMP DISCHARGE

A pressure gauge with a brass stop valve and manual air relief fittings shall be installed at the discharge of each pump.

(20) TOOL BOX

A metal tool box complete with the following tools shall be provided. This complement of tools shall include all tools necessary to replace the pump mechanical seal.

1. 9/16" x 1/2" box end wrench
2. 3/4" x 5/8" open end wrench
3. 15/16" x 1" open end wrench
4. 1-1/8" socket
5. 8" T-handle 11"x 1/2" drive
6. 1/2" x 5-1/2" drive extension
7. 6" pipe wrench
8. #3 rawhide mallet
9. Ratchet type hoist
10. Motor lifting bar
11. Lint free cloth
12. Multi-purpose grease

Req'd. for 230V) 3 wire outdoor use

(21) TRANSFORMER

A ~~(2)~~ (3) KVA insulating type transformer shall be provided to supply power for lights, controls and auxiliary devices. The transformer shall have 240/480 volt primary, 120/240 volt secondary, Class F insulation, with temperature rise not to exceed 115 C above a 40 C ambient. The core and coil assembly shall be given a double dip and bake. The coil shall be protected by a metal housing to prevent damage.

(22) WET WELL LEVEL GAUGE

A low pressure diaphragm gauge with a 2-1/2" dial calibrated 0"- 100" of water shall be connected to the air bubbler system to indicate the sewage level in the wet well.

(23) TWO-SPEED PUMP OPERATION - DUPLEX PUMP STATION

Motors - The pump motors shall be vertical, solid shaft, two-speed, two-winding, variable torque, protected drip-proof, induction type, suitable for 3 phase, 60 cycle, _____ volt electric current. The motors shall have normal starting torque and low starting current characteristics. The motors shall not be overloaded at the design condition, nor beyond the nameplate rating plus the standard NEMA 1.15 service factor at any head in the operating range.

Operating Conditions - Each pump shall be capable of delivering _____GPM against a total dynamic head of _____ ft. at _____ RPM, and a secondary condition of _____ GPM against a total dynamic head of _____ ft. at _____ RPM, of raw sewage.

The minimum rated horsepower of each pump motor shall be at a maximum allowable speed of _____ RPM.

All openings and passages shall be large enough to permit the passage of a sphere 3" in diameter and any trash or stringy material which can pass through a 4" house collection system.

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(43) TIME DELAY RELAY TO PREVENT SIMULTANEOUS STARTING

Adjustable time delay relays shall be provided to prevent simultaneous starting of the pump motors after power failure.

(45) INSULATED HOOD

The wet well mounted pup station shall be enclosed by a hinged, insulated, fiberglass cover, complete with drip lip, cutouts for ventilation system and hasp to allow the pump station to be locked with a padlock. The insulation shall be minimum 1" urethane.

(48) PHASE CONVERTER PILOT RELAYS

Terminals and/or pilot relays shall be provided in the lift station control panel to facilitate connection to an external phase converter unit.

NOTE: *Consulting engineer should designate the type/manufacturer of phase converter.*

(52) PRIME ALARM

A 5-minute time delay relay shall be connected to each vacuum pump. Contacts shall be provided to automatically shut down the operating vacuum pump, allow starting of the next pump in the operating sequence and signal an alarm on excessive vacuum pump operating time.

Contacts shall be provided for transmitting a (local) (remote) (local and remote) alarm signal.

(55) LEVEL-1 SOLID STATE TWO-PUMP CONTROLLER

The control equipment shall be mounted in a NEMA Type 1 steel enclosure with dead fron*t control and a hinged access cover. The circuit breakers, starter reset buttons, and control switches shall be operable without opening the access cover, for deadfront operation.

A GFI type convenience outlet shall be provided on the side of the cabinet for operation of 120 volt AC devices.

Provide 2 spare Check Valves

Thermal magnetic air circuit breakers shall be provided for branch disconnect service and short circuit protection of all motor control and auxiliary circuits.

Magnetic across-the-line starters with under-voltage release and overload coils for each phase shall be provided for each pump motor to give positive protection. Each single-phase auxiliary motor shall be equipped with an over-current protection device in addition to the branch circuit breaker, or shall be impedance protected. All switches shall be labeled and a coded wiring diagram shall be provided.

A low pressure bubbler air line shall provide a pneumatic signal to the solid state pump controller, to control the operation of the pumps with variations of liquid level in the wet well.

A low pressure bubbler system shall be provided with two air compressors, a bubbler tube and a ported, panel mounted test valve to simulate rising and falling liquid level in the wet well. This shall provide the operator the means to check the correct starting and stopping levels for the pumps and that the alarm system is functioning.

The two air compressors shall be of the close-coupled, oil-less type. Each compressor shall have a minimum capacity of 0.2 cubic feet of free air per minute at 10 PSI. It shall incorporate a single-phase, 60 cycle, 120 volt, drip-proof, brushless type electric motor. A motor-driven timer shall be provided to automatically alternate the compressors every five minutes. Wiring and piping of the air compressors shall be arranged so that one compressor may be removed without removing the other compressor from service.

The solid state pump controller shall incorporate a Smith & Loveless, Inc. microprocessor capable of controlling the operation of the two pumping units. There shall be no moving parts located in the wet well that affect operation of the controller. Grease, sludge or biological growth shall not affect the accuracy or reliability.

A backup displacement switch system shall be provided to operate the pumps and signal an alarm should failure of the Level-I Controller occur. This standby system shall be activated automatically and provide ON-OFF control for both pumps. Systems that do not provide 100% standby will not be acceptable.

HART GROUP, PC.
ENGINEERS • DESIGNERS • PLANNERS

A **LANDesign** PARTNER
200 NORTH 6TH STREET, SUITE 102, GRAND JUNCTION, COLORADO 81501
(303) 244-9180 • FAX (303) 245-3076

Details and Calculations

Project: SOUTH RIM III & IV
Date: 5/18/95

CALCULATIONS

SOUTH RIM III ONLY (20 LOTS)(4 PERSONS PER LOT) = 80 PEOPLE

- AVERAGE DAILY FLOW 80(105) = 8400 GAL/DAY

- MINIMUM DAILY FLOW

1/3 (8400) = 2800 GAL/DAY

- EMERGENCY HOURLY FLOW

(80 PEOPLE)(300 gpcd) = 24,000 GAL/DAY = 1000 GAL/HR

- 30 MINUTE CYCLE VOLUME

VOLUME = (2800 GAL/DAY)(DAY/24 HR) = 116.7 GAL/HR

30 MIN CYCLE: 116.7/2 = 58.3 GAL/30 MIN

= 7.8 ft^3/30 MIN

- D (DEPTH FROM TOP OF LAG VOLUME TO TOP OF 30 MIN VOLUME)

NEED 7.8 ft^3 VOLUME

AVERAGE DIAMETER ON BOTTOM (1.75+5)/2 = 3.375'

APPROXIMATE AREA: $\pi(3.375)^2/4$ = 8.95 ft^2

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Details and Calculations

Project: SOUTH RIM III & IV
Date: 5/18/95

- WHEN D= 10.5" VOLUME = 9.66 ft^3
  D= 9" VOLUME = 7.4 ft^3

USE D = 10" FOR 30 MIN VOLUME

SOUTH RIM III & IV (36 LOTS)(4) = 144 PERSONS

- AVERAGE DAILY FLOW 144(105) = 15120 GAL/DAY

- MINIMUM DAILY FLOW

  1/3 (15120) = 5040 GAL/DAY

- EMERGENCY HOURLY FLOW

  (144 PEOPLE)(300 gpcd) = 43,200 GAL/DAY = 1800 GAL/HR

- 30 MINUTE CYCLE VOLUME

  VOLUME = (5040 GAL/DAY)(DAY/24HR) = 210 GAL/HR

  30 MINUTE CYCLE: 210/2 = 105 GAL/30 MIN

  = 14.04 ft^3/30 MIN

- D (DEPTH FROM TOP OF L46 VOLUME TO TOP OF 30 MIN VOLUME)

  NEED 14.04 ft^3 VOLUME

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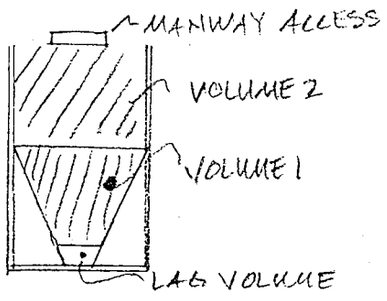
Details and Calculations

Project: SOUTH RIM III & IV
Date: 5/18/15

APPROXIMATE AREA ON BOTTOM = $8.95 ft^2$

- WHEN D = 1'4" VOLUME = $14.1 ft^3$ USE D = 1'4"

EMERGENCY VOLUME



VOLUME 1 :

BOTTOM AREA ~ $8.95 ft^2$

TOP AREA; $\pi (5')^2/4 = 19.63 ft^2$

AVERAGE AREA = $\frac{8.95 + 19.63}{2} = 14.29 ft^2$

$VOL_1 = (3.75')(14.29 ft^2) = 53.58 ft^3 = 400.9$ GAL

VOLUME 2: $3.75\ \pi (5')^2/4 = 73.63 ft^3 = 550.8$ GAL

≈ 952 GALLONS

LAG VOLUME

AVERAGE BOTTOM DIAM: $\frac{1 + 3.5}{2} = 2.25$ AREA = $\frac{\pi (2.25)^2}{4} = 3.97 ft^2$

AVERAGE TOP DIAM: $\frac{1.75 + 5}{2} = 3.375$ AREA = $\frac{\pi (3.375)^2}{4} = 8.95 ft^2$

AVERAGE AREA $3.97 + 8.95/2 = 6.46 ft^2$

LAG VOLUME = $(0.875'\text{HEIGHT})(6.46 ft^2) = 5.65 ft^3$

= 42.25 GALLONS

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(303) 244-9180 • FAX (303) 245-3076

Details and Calculations

Project: SOUTH RIM III & IV
Date: 5/18/95

TOTAL DYNAMIC HEAD

ELEVATION DIFFERENCE $4640-(4621.70-12.0') = 30.3'$

PIPE LENGTH UNDER CONSIDERATION = 737.5'

FRICTION HEAD LOSS $= 0.07\left(\frac{737.5}{100}\right) = 0.516'$

VELOCITY HEAD $= 0.0155\,V^2$ = NEGLIGIBLE

$TDH = 30.3 + 0.516 = 31'$

PIPE VELOCITY

PIPE DIAMETER: 8"

$A_{PIPE} = \frac{\pi d^2}{4} = \frac{\pi (8/12)^2}{4} = 0.349\,ft^2$

PUMPING RATE = 80 gpm = $0.17824\,ft^3/sec$

$Q = VA \quad V = Q/A = \frac{0.178\,ft^3/sec}{0.349\,ft^2} = 0.51\,fps$

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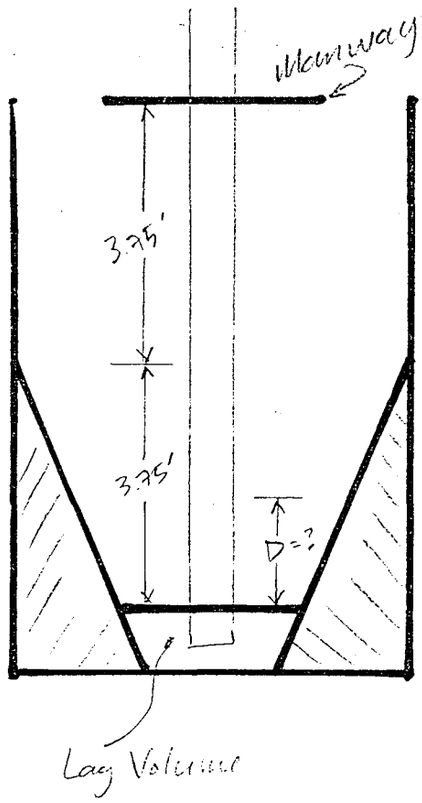
(303) 244-9180 • FAX (303) 245-3076

Details and Calculations

Project: SOUTH RIM III & IV
Date: 5/18/95

Emergency Volume.
= 952 gal



Lag Volume = 42.25 gal.

D = depth of operational volume, measured from lag volume surface.

For South Rim III & IV 136 lots

Operating Volume
= 105 gal

D = 1'4"

For South Rim III only

Operating Volume
= 58.3 gal

D = 10"

REVIEW COMMENTS

FILE #FP-95-84 **TITLE HEADING:** Final Plat - South Rim, Filing #3

LOCATION: East end of South Rim Drive

PETITIONER: David Behrhorst

PETITIONER'S ADDRESS/TELEPHONE: Lowe Development Corp.
1280 Ute, Suite 32
Aspen, CO 81611
925-4497

PETITIONER'S REPRESENTATIVE: Tom Logue

STAFF REPRESENTATIVE: Michael Drollinger

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

GRAND JUNCTION FIRE DEPARTMENT **5/4/95**
Hank Masterson **244-1414**

1. Developer must loop the 8" water line before completion of Filing 4, as required for Mesa County Planning approval in January 1994.
2. For Filing 3 the hydrants shown are acceptable. The hydrant shown on South Falcon Point Court at Lot 10 will not be necessary. The hydrant at the corner of Falcon Point Court and South Rim Drive is within 250' of all lots on South Falcon Point Court.

REDLANDS WATER & POWER **5/5/95**
Gregg Strong **243-2173**

1. The South Rim Association owns 29 shares of Redlands Water & Power Company irrigation water. This is put through headgate #133.0 and South Rim Association cannot divert more than their 29 shares at that headgate at any time.
2. 29 shares is equal to 116 G.P.M.

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

1. No open space fees are due for this site. A pre-annexation agreement addressed this issue.
2. As a reminder to the developer there are still areas that need to be cleared prior to our modifying the Connected Lakes trailhead.

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

This development, primarily due to the generous use of cul-de-sacs and limited access, poses no problem for the Police Department.

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

Mail delivery is centralized.

CITY ATTORNEY **5/13/95**
Dan Wilson **244-1505**

1. See attached reduction of plat for corrections to plat.
2. Time to require developer to adequately sign the west entrance to the River Trail; at present the entrance is effectively hidden.
3. Proof of formation of Homeowner's Association required before platting.
4. Title appears in the name of Destination Properties, Inc. yet applicant is Lowe Development. Need evidence that Lowe Development has an interest in the property.
5. See question on 6/19/78 conditions imposed by Mesa County: evidence that has been released?
6. Are 29 shares (see page 23 of CCR's) of water sufficient for irrigation?

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

PLAT

1. Need dedication for sign, landscaping and multi-purpose easement.
2. Where is the portion of the plat which includes Promontory Court? It's shown on street plans and drainage plans. If it's not to be constructed now, it needs to be deleted from these plans. Are we doing Filings 3 & 4 or just 3?

STREET PLANS

1. No pavement structural section is shown, no typical section is shown. Needs to be included.
2. Street name and other traffic control signs are not shown on the plans and need to be.
3. No horizontal curve data is provided on the plans. Please include.
4. No approval block is included on plan sheets.

GRADING AND DRAINAGE PLANS

1. No profiles of storm sewer lines are provided, nor are lengths and elevations. Please also provide distance and bearings or other means of locating storm sewer lines.
2. No type or size of storm drain inlets is shown on this plan or on the street plans.
3. No manholes are shown where storm sewer lines make an abrupt change in direction. These will be required.
4. The plan refers to a detail sheet, but one is not evident. Need details for headwalls, outlet erosion control structures.

5. Plan shows drainage discharge across private property. Drainage easements are required.

SEWER

A sewer system design report is required for the lift station. Please see the report standard in the SSID Manual.

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

1. The tie bearing from the NW COR SE1/4 SW1/4 to the P.O.B. should read N72°45'56"E to coincide with the description.
2. On the outer perimeter of the subdivision the bearing of N31°59'26"E should read S31°54'26"W to coincide with the description.
3. The Basis of Bearings should probably be labeled on the North line of the SE1/4 SW1/4 (sheet 1 of 3).
4. In the Description of Bearing (N55°54'05"W) should read (N55°54'05"E).
5. In the legend, nothing is shown to represent what type of monument was set at lot corners.
6. The length of 184.36' on the northwesterly line of Lot 8, Block 1 seems to be in error.
7. In the dedication, irrigation easements are addressed but not shown on the plat.

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

No objections.

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

1. All water lines are 8" CL 150 C-900. Fire hydrants require valves at the main.
2. A fire hydrant is needed for the end of Promontory Court.
3. Policies and fees in effect at the time of application will apply.

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

SEWER: City

1. Show water lines crossings in profile.
2. Locations of manholes need to be identified either by coordinates, bearings, or offsets from property lines.
3. Stationing should start at the most down stream end (lift station) and increase upstream.
4. Minimum cover not met at MH M2.
5. Is the developer putting in a temporary lift station until the City comes through with permanent lift station?
6. More information is needed on lift station if it is to be supplied by developer. 4" force main not adequate. City will pay for material costs to upgrade main to 8".
7. Easements will be required across the land that will eventually become Filing 5 in order to access sewers.
8. Inside of MH D6 should be coated.

WATER: Ute

1. Note on Sheet SW2: waterlines should be C-900 rather than CL.150 P.V.C.
2. Sheet SW2: Angle point needed coming off of T in intersection of South Rim Drive and Promontory Court.

COMMUNITY DEVELOPMENT DEPARTMENT **5/17/95**
Michael Drollinger **244-1439**

See attached comments.

LATE COMMENTS

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

See attached comments.

TO DATE, COMMENTS HAVE NOT BEEN RECEIVED FROM:
Mesa County Surveyor
Mesa County School District #51
U.S. West
Persigo WWTF

RESPONSE TO REVIEW COMMENTS

May 24, 1995

Title: SOUTH RIM, FILING 3, Final Plat

File No: FP-95-84

Location: East end of South Rim Drive

GENERAL NOTE: Included with the submitted development application for Filing 3, were construction plans for improvements to Filing 4. Filing 4 will be submitted to the City for public review under a separate application in the future.

The following agency comments were informational in nature, or do not require a response:

POLICE DEPARTMENT
U.S. POSTAL SERVICE
PUBLIC SERVICE COMPANY
REDLANDS WATER AND POWER

RESPONSE TO FIRE DEPARTMENT:

1. See South Rim, Filing 5 response.
2. The hydrant shown on South Falcon Point Court at Lot 10 has been eliminated.

RESPONSE TO PARKS & RECREATION:

The areas of Public Open Space requested to be cleared by Parks and Recreation, as part of the pre-annexation agreement, have been cleaned by the applicant. During a phone conservation with Mr. Hobbs, of the department, they will conduct a follow-up review of the clean up work.

RESPONSE TO CITY ATTORNEY:

1. Modifications have been made to the Final Plat as requested.

2. The applicant has with mombers of the River Front Commission to discuss new signage at the west entrance to the River Trail and is waiting their recommendations.

3. Proof of the Homeowner's Association formation has been transmitted to the Community Development Department.

4. A Release and Indemnity Agreement was attached at the end of the submitted Title Insurance document. An additional copy has been transmitted to the Community Development Department.

5. A copy of the final plat for The Bluffs West Estates, Filing One, has been transmitted to the Community Development Department. The plat indicates the dedication of a Public Site along Kansas Avenue to Mesa County, presumably for a fire station site.

6. A copy of an *Analysis of Irrigation System for South Rim* has been transmitted to the Development Department which shows adequate irrigation water delivery.

RESPONSE TO DEVELOPMENT ENGINEER:
PLAT
A dedication statement has been added to the Final Plat for the sign, landscaping and multi-purpose easement.

STREET PLANS
Requested modifications have been added to the Street Plans and Detail Sheets.

GRADING AND DRAINAGE PLANS
Requested additional information has been added to the Grading and Drainage Plans and Detail Sheets.

A copy of a proposed Drainage Easement Agreement between two adjoining property owners and the South Rim Homeowner's Association has been transmitted to the Community Development Department for review. The original documents will follow after City review.

SEWER
A Sewer System Design Report for the lift station has been transmitted to the Community Development Department.

RESPONSE TO PROPERTY AGENT:
Requested modifications have been added to the Final Plat.

RESPONSE TO UTE WATER:
Requested modifications have been added to the Sewer and Water Plans.

RESPONSE TO CITY UTILITY ENGINEER:
1. Requested modifications have been made to the Water and Sewer Plan and Detail Sheets.

2. The lift station will be constructed in accordance with the pre-annexation agreement.

3. A Sewer System Design Report for the lift station has been transmitted to the

Community Development Department. The 4 inch force main has been increased to an 8 inch main with the understanding that the City will absorb the cost differential.

4. A copy of a deed granting a utility easement to the City across Filing 4, has been transmitted to the Community Development Department for review. The original deed will be provided after the City's review.

RESPONSE TO COMMUNITY DEVELOPMENT:

1. The Final Plat has been modified to provide a dedicated public right-of-way to the Olson property. The petitioner would like to ask the City to bear in mind that public right-of-way dedication of adequate width to accommodate a Local Street, to the Olson property was not a condition of the City acceptance of the Preliminary Plan for South Rim. Further, Olson granted the existing ingress/egress easement to themselves prior to the transfer of a part of their property to the petitioner for the benefit of the remaining adjoining property.

2. The petitioner asks that the Vacation Request be sent to the City Council for their action.

STAFF REVIEW

FILE: #FP-95-84
DATE: May 17, 1995
STAFF: Michael Drollinger
REQUEST: Final Plan/Plat - South Rim Filing #3
LOCATION: E end of South Rim Drive
ZONING: PR-3.5

STAFF COMMENTS:

1. Petitioner needs to contact Mr. Olsen and have him supply letter to our Department which states that he recognizes the development limitations of his property given the 25 ft. access easement which is proposed as the only access to his property.

2. Staff recommends that alternative access be supplied to Mr. Olsen's property in one of two ways:
    a. create a stub street between proposed Lots 6&7 which would provide future access to the Olsen property (PREFERRED OPTION)

    b. extend Ewing Drive to the Olsen tract by dedicating a 44 ft. ROW behind Lots 2,3&4 (remaining outside of the steep slope area)

3. Petitioner will require a ROW vacation for the Ewing Drive cul-de-sac prior to platting. The application should be amended to include the ROW vacation request which will require a City Council hearing subsequent to the Planning Commission hearing.

STAFF REVIEW

FILE: #FP 95-84

DATE: May 30, 1995

REQUEST: Final Major Subdivision Plan/Plat Filing #3
ROW Vacation (Ewing Drive)
SOUTH RIM SUBDIVISION

LOCATION: East End of South Rim Drive (Redlands)

APPLICANT: David G. Behrhorst
Lowe Development Corp.
1280 Ute Street; Suite 32
Aspen CO 81611

EXISTING LAND USE: Vacant

PROPOSED LAND USE: Single Family Residential

SURROUNDING LAND USE:

NORTH:	Open Space (River Trail)
SOUTH:	Single Family Residential
EAST:	Single Family Residential
WEST:	Single Family Residential (South Rim Filing #2)

EXISTING ZONING: PR-3.5

PROPOSED ZONING: No change

SURROUNDING ZONING:

NORTH:	PR-3.5
SOUTH:	R-2
EAST:	R-2
WEST:	PR-3.5

RELATIONSHIP TO COMPREHENSIVE PLAN:

No comprehensive plan exists for this area

STAFF ANALYSIS:

The site is located east of the Redlands Parkway at the east end of South Rim (formerly Greenbelt) Drive and consists of approximately 16.3 acres. The property is zoned PR-3.5. The petitioner is requesting Final Plat/Plan approval for Filing #3 consisting of 39 single family lots. The proposal is generally consistent with the preliminary plan approval, however, the applicant is asking that the height limit for this Filing be increased from 18 feet to 20 feet to permit greater flexibility in home design.

The platting of this filing will also require a ROW vacation for an unbuilt portion of Ewing Drive on the south end of the parcel. Adequate ROW for a turn-around on Ewing Drive will remain.

The Wilbur Olsen tract to the east of this filing presently has access via a 25 foot access easement from the cul-de-sac on Ewing Drive. Staff is concerned that future development of the Olsen parcel may be limited by the existing access. Provisions for improved access to the Olsen tract can be made at this time via one of the following mechanisms:

1. Dedication of land to Mr. Olsen from Ewing Drive east to the Olsen tract (minimum width to accommodate a public street at some future time).

2. Dedication of a minimum 44 foot ROW to the City from Ewing Drive east to the Olsen property which would allow for the construction of a public street by the developer at such time that the Olsen tract may be developed.

An attempt is being made by staff to contact Mr. Olsen regarding this matter.

Should the Planning Commission consider this item favorably, staff recommends approval with the following condition:

1. The 15 ft. sewer easement requested by the Utility Engineer should be increased to 20 feet.

STAFF RECOMMENDATION:

Staff recommends approval of the Final Plan and ROW vacation for Filing #3.

SUGGESTED PLANNING COMMISSION MOTION:

Mr. Chairman, on item #95-84, a request for final plat/plan approval and ROW vacation for Filing

#3, I move that the final plat/plan be approved subject to staff conditions and that we forward the ROW vacation to City Council with the recommendation of approval.

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STAFF REVIEW (City Council)

FILE: #FP 95-84

DATE: June 15, 1995

REQUEST: Right-of-Way (ROW) Vacation (portion of Ewing Drive)
SOUTH RIM SUBDIVISION FILING #3

LOCATION: North End of Ewing Drive (Redlands)

STAFF: Michael T. Drollinger

APPLICANT: David G. Behrhorst
Lowe Development Corp.
1280 Ute Street; Suite 32
Aspen CO 81611

STAFF ANALYSIS:

South Rim Filing #3 is located east of the Redlands Parkway at the east end of South Rim (formerly Greenbelt) Drive and consists of approximately 16.3 acres (see attached location maps). The property is zoned PR-3.5. The petitioner recently received Final Plat/Plan approval for Filing #3 consisting of 40 single family lots. The platting of this filing will also require a ROW vacation for an unbuilt portion of Ewing Drive on the south end of the parcel. The ROW vacation request is consistent with the preliminary plan which the City accepted as part of the annexation agreement for this subdivision. With this vacation adequate ROW for a turn-around on Ewing Drive (a narrow, gravel County road) will remain.

STAFF RECOMMENDATION:

Staff recommends approval of the ROW vacation of the cul-de-sac area of Ewing Drive on the South Rim property.

PLANNING COMMISSION RECOMMENDATION:

At their June 6, 1995 meeting, the Planning Commission recommended approval of the ROW vacation.

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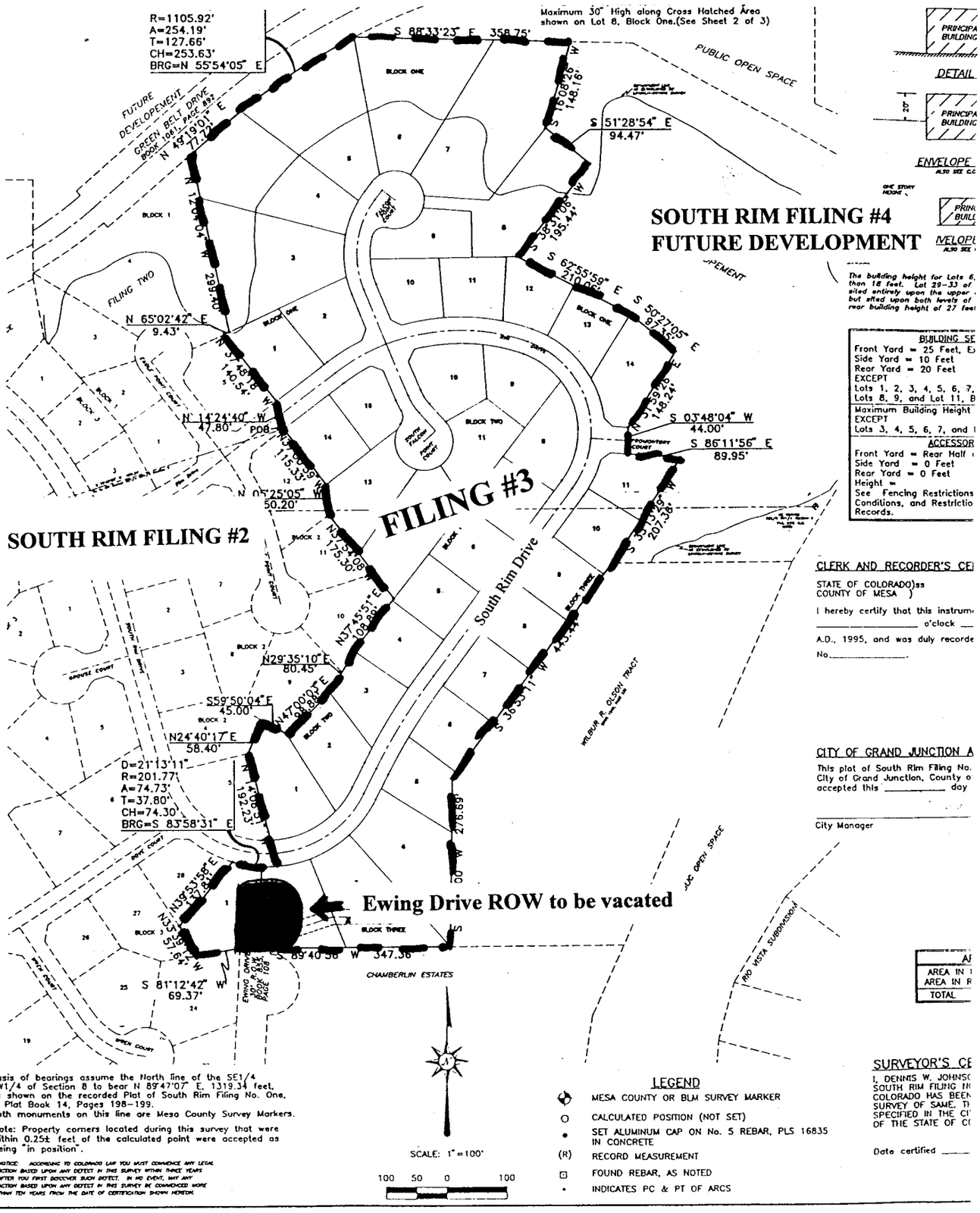
NOTE: Numbers indicate Filing numbers

LOCATION MAP
SOUTH RIM FILING #3



Basis of bearings assume the North line of the SE1/4 SW1/4 of Section 8 to bear N 89°47'07" E, 1319.34 feet, as shown on the recorded Plat of South Rim Filing No. One, in Plat Book 14, Pages 198-199.
Both monuments on this line are Mesa County Survey Markers.

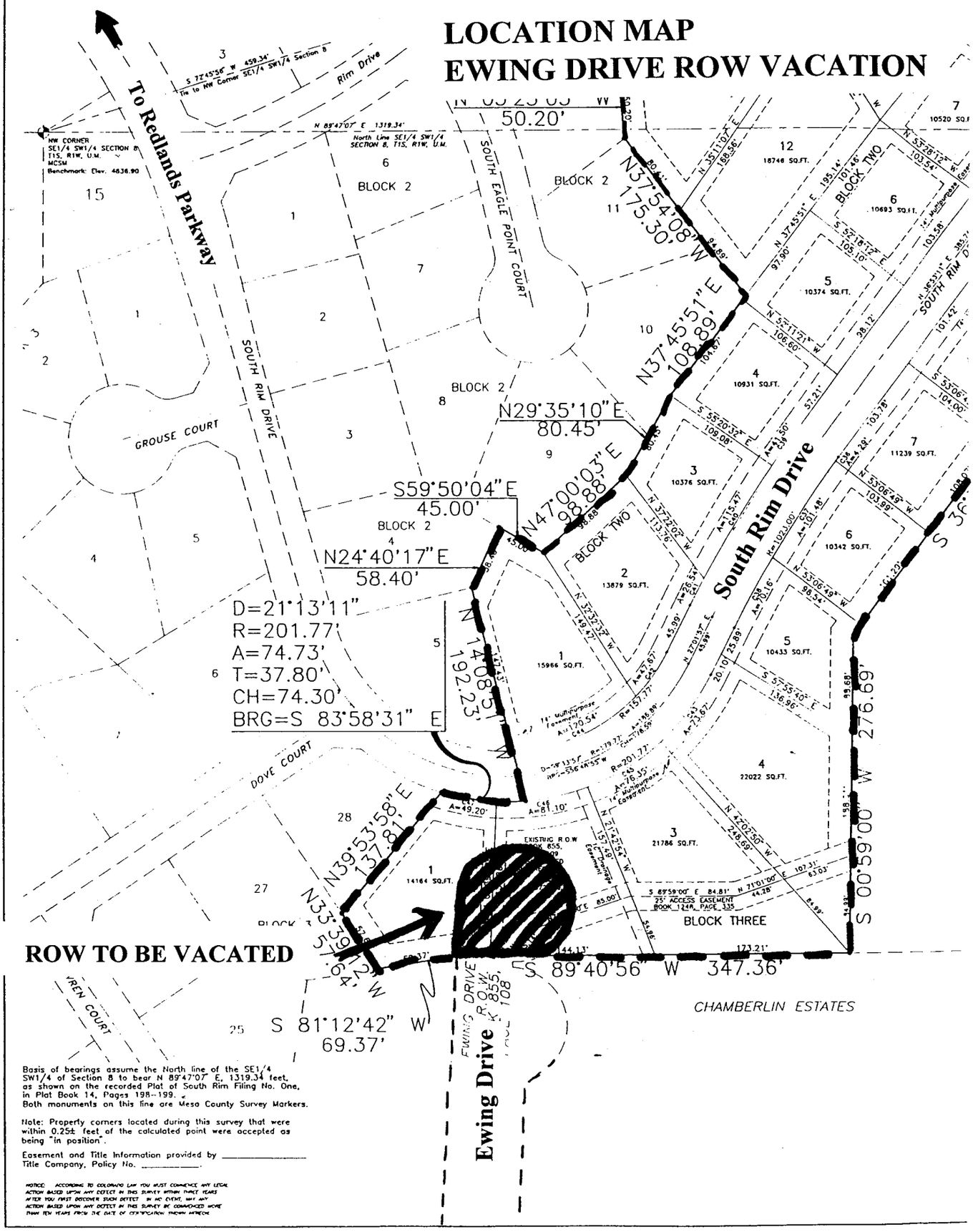
Note: Property corners located during this survey that were within 0.25± feet of the calculated point were accepted as being "in position".

NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF CERTIFICATION SHOWN HEREON.

LEGEND

- MESA COUNTY OR BLM SURVEY MARKER
- O CALCULATED POSITION (NOT SET)
- • SET ALUMINUM CAP ON No. 5 REBAR, PLS 16835 IN CONCRETE
- (R) RECORD MEASUREMENT
- ⊡ FOUND REBAR, AS NOTED
- • INDICATES PC & PT OF ARCS

LOCATION MAP
EWING DRIVE ROW VACATION



ROW TO BE VACATED

Basis of bearings assume the North line of the SE1/4 SW1/4 of Section 8 to bear N 89°47'07" E, 1319.34 feet, as shown on the recorded Plat of South Rim Filing No. One, in Plat Book 14, Pages 198--199.
Both monuments on this line are Mesa County Survey Markers.

Note: Property corners located during this survey that were within 0.25± feet of the calculated point were accepted as being "in position".

Easement and Title Information provided by _____ Title Company, Policy No. _____.

NOTICE: ACCORDING TO COLORADO LAW YOU MUST COMMENCE ANY LEGAL ACTION BASED UPON ANY DEFECT IN THIS SURVEY WITHIN THREE YEARS AFTER YOU FIRST DISCOVER SUCH DEFECT. IN NO EVENT, MAY ANY ACTION BASED UPON ANY DEFECT IN THIS SURVEY BE COMMENCED MORE THAN TEN YEARS FROM THE DATE OF CERTIFICATION SHOWN HEREON.

CITY OF GRAND JUNCTION, COLORADO

Ordinance No. _____

VACATING A PORTION OF THE RIGHT OF WAY OF EWING DRIVE
LOCATED IN THE SOUTHWEST QUARTER OF SECTION 8,
TOWNSHIP 1 SOUTH, RANGE 1 WEST OF THE UTE MERIDIAN
[North of E Road and approximately 1/4 mile east of 23 Road]

Recitals.

The Developer has made this right-of-way vacation request in conjunction with its major subdivision request for South Rim Filing #3, a proposed 40 lot subdivision on 16.3 acres located at the east end of South Rim Drive. The section of right-of-way proposed to be vacated is an unbuilt portion of Ewing Drive. Adequate right-of-way will remain to construct a turn-around on Ewing Drive, at a future time, if the need arises.

The Grand Junction Planning Commission, at its May 6, 1995 hearing, recommended approval of this right-of-way vacation.

No parcel or lot will be left without adequate access if the vacation request is approved.

NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GRAND JUNCTION:

1. THAT THE ROAD RIGHT-OF-WAY DESCRIBED BELOW IS HEREBY VACATED:

BEGINNING at the Northeast corner of Lot 24, Block 3, of South Rim Filing No. Two, with all bearings contained herein relative to the Plat of South Rim Filing No. Two as recorded in Plat Book 14, Pages 241 through 243; thence North 07 degrees 46 minutes 00 seconds East (N 07°46'00" E), a distance of 35.34 feet along the West boundary of Ewing Drive as recorded in Book 855 at page 108 of the Mesa County Records; thence along a cul-de-sac following a curve to the right an arc length of 223.14 feet, said curve having a delta angle of 255 degrees 42 minutes 07 seconds (255 °42'07"), a radius of 50.00 feet, and a long chord that bears South 64 degrees 01 minute 04 seconds (S 64°01'04" E), a distance of 78.96 feet; thence south 89 degrees 41 minutes 20 seconds West (S 89°41'20" W), a distance of 75.76 feet to the POINT OF BEGINNING.

Said parcel containing 8,115 square feet as described.

INTRODUCED for FIRST READING and PUBLICATION this __ day of July, 1995.

PASSED on SECOND READING this __ day of _____, 1995.

ATTEST:

City Clerk

President of Council

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EWING DRIVE VACATION

Vacation of a portion of a right of way for Ewing Drive located in the Southwest quarter of Section 8, Township 1 South, Range 1 West of the Ute Meridian, being more particularly described as follows;

BEGINNING at the Northeast corner of Lot 24, Block 3, of South Rim Filing No. Two, with all bearings contained herein relative to the Plat of South Rim Filing No. Two as recorded in Plat Book 14, Pages 241 through 243; thence North 07 degrees 46 minutes 00 seconds East (N 07°46'00" E), a distance of 35.34 feet along the West boundary of Ewing Drive as recorded in Book 855 at page 108 of the Mesa County Records; thence along a cul-de-sac following a curve to the right an arc length of 223.14 feet, said curve having a delta angle of 255 degrees 42 minutes 07 seconds (255°42'07"), a radius of 50.00 feet, and a long chord that bears South 64 degrees 01 minute 04 seconds East (S 64°01'04" E), a distance of 78.96 feet; thence South 89 degrees 41 minutes 20 seconds West (S 89°41'20" W), a distance of 75.76 feet to the POINT OF BEGINNING.

Said parcel containing 8,115 square feet as described.

Dennis W. Johnson PLS
Professional Surveying Services
P.O. Box 4506
Grand Junction, CO 81502

LANDesign

LETTER OF TRANSMITTAL

200 NORTH 6TH ST. • GRAND JUNCTION, CO 81501
(970) 245-4099 • FAX: (970) 245-3076

TO City of Grand Junction
Community Development

DATE 6/19/95	JOB NO.
ATTENTION Michael Drollinger	
RE:	
So CTA Rim #3	

WE ARE SENDING YOU [X] Attached via Hand Develop. the following items:

☐ Pjt. Submittal ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Legal Description for Erwing Dr. Vacation

THESE ARE TRANSMITTED as checked below:

☐ For Approval

☐ For your use

☐ As requested ☐ PRINTS RETURNED AFTER LOAN TO US

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19 _____

REMARKS _____

COPY TO _____

SIGNED: Tom

IF ENCLOSURES ARE NOT NOTED, KINDLY NOTIFY US AT ONCE.

REV. 3/95

LANDesign
PLANNING • ENGINEERING • SURVEYING

May 1, 1995

Planning Commission
City of Grand Junction
250 5th. Street
Grand Junction, CO 81501

RE: SOUTH RIM, FILING THREE, FINAL PLAT & PLAN

Dear Members:

Accompanying is the Final Plat and Plan Application for South Rim, Filing No. Three located on the Redlands. This filing consists of 39 single family building sites on 16.3 acres resulting in a density of 2.4 dwelling units per acre in a PD 3.5 zone.

The overall development proposal and the first filing for South Rim was originally accepted by Mesa County. Since that time the entire property has been annexed by the City of Grand Junction and the first two filings are fully developed. The overall development proposal calls for the ultimate development of 122 single family building sites and 92 condominium units on the 91.5 acre site. The resulting density is 1.3 dwelling units per acre. Approximately 42.5% or 38.9 acres of the total site area has been dedicated as open space, some of which is part of the new Connected Lakes state park. (14.6 acres) and 23.9 acres which was recently dedicated to the City as Public Open Space.

As was the case with Filings one and two, all street improvements will be constructed in accordance with the City's current standards. Sanitary sewer service will be provided by the City of Grand Junction. The Ute Water Conservancy District will provide domestic water to South Rim. The continuation of the existing central pressurized irrigation system, will also be part of the Filing Three improvements and will provided pressurized irrigation water to each of the building sites within the proposal.

Lowe Development Corporation, the applicant, and myself will be present at the scheduled public meeting to discuss this application and answer any question which may arise.

Respectfully,

Thomas A. Logue

Thomas A. Logue

xc: David G. Behrhorst, Lowe Development Corporation

200 NORTH 6TH ST. • GRAND JUNCTION, CO 81501 • FAX (970) 245-3076 • (970) 245-4099

15 ' SEWER EASEMENT IN SOUTH RIM FILING 4

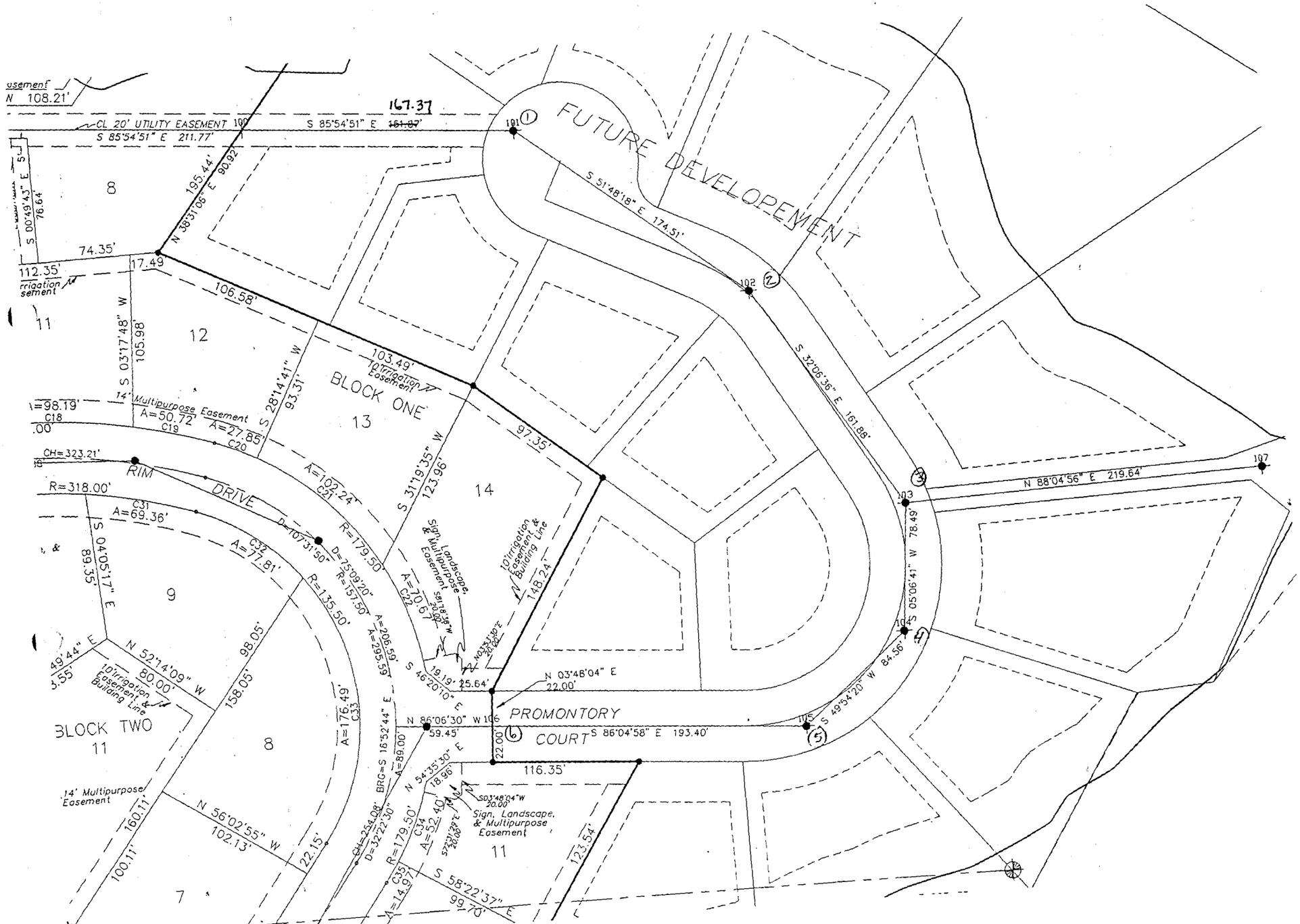
A 15 foot easement (7.5 feet on each side of the centerline), for the installation and maintenance of a sewer line located in the Southwest Quarter (SW1/4) of Section 8, Township 1 South, Range 1 West of the Ute Meridian, being more particularly described as follows;

Commencing at the Southeast corner of Lot 8, Block One of South Rim Filing No. 3, and assuming all bearings contained herein relative to the recorded Plat of South Rim Filing No. 3; thence N 38°31'06" E a distance 90.92 feet along the East line of Lot 8 to a point on the centerline of said easement and the TRUE POINT OF BEGINNING; thence following along the centerline of said easement the following courses; South 85 degrees 54 minutes 51 seconds East (S 85°54'51" E), a distance of 167.37 feet to Angle point #1; thence South 51 degrees 48 minutes 18 seconds East (S 51°48'18" E), a distance of 174.51 feet to Angle point #2; thence South 32 degrees 06 minutes 36 seconds East (S 32°06'36" E), a distance of 161.88 feet to Angle point #3; thence South 05 degrees 06 minutes 41 seconds West (S 05°06'41" W), a distance of 78.49 feet to Angle point #4; thence South 49 degrees 54 minutes 20 seconds West (S 49°54'20" W), a distance of 84.56 feet to Angle point #5; thence North 86 degrees 04 minutes 59 seconds West (N 86°04'59" W), a distance of 193.40 feet to terminate at a point on the centerline of Promontory Court whence the Southeast corner of Lot 14, Block One of South Rim Filing No. 3 bears N 03°48'04" E a distance of 22.00 feet.

AND: A 15' easement for a sewer outfall line, 7.5 feet on each side of the centerline being described as follows; Beginning at the above described Angle point #3, with all bearings relative to the recorded plat of South Rim Filing No. 3; thence North 88 degrees 04 minutes 56 seconds East (N 88°04'56" E), a distance of 229.64 feet to the point of termination.

Prepared by: Dennis W. Johnson, PLS
200 N. 6th St. #102
Grand Junction, CO 81501
970-241-3841

94119sew.lgl
5/23/95


usement
N 108.21'
167.37
CL 20' UTILITY EASEMENT 100
S 85°54'51" E 211.77'
S 85°54'51" E 181.87'
101
1
FUTURE DEVELOPEMENT
S 51°48'18" E 174.51'
102
2
8
S 00°49'43" E 76.64'
195.44'
N 38°31'08" E 90.92
74.35'
112.35'
17.49
106.58'
11
12
S 03°17'48" W 105.98'
103.49'
10' Irrigation Easement
BLOCK ONE
13
S 28°14'41" W 93.31'
14' Multipurpose Easement
A=50.72'
C19
A=27.85'
C20
A=98.19'
C18
CH=323.21'
RIM DRIVE
R=318.00'
A=102.24'
C21
R=179.50'
S 31°19'35" W 123.96'
97.35'
14
S 32°06'36" E 161.88'
3
103
N 88°04'56" E 219.64'
107
C31
A=69.36'
D=10°31'50"
C32
A=71.81'
R=135.50'
D=75°09'20"
R=157.50'
A=206.59'
A=295.59'
Sign, Landscape, & Multipurpose Easement
S81°18'38"W 20.00'
A=70.67
C22
10' Irrigation Easement & Building Line
148.24'
S 04°05'17" E 89.35'
9
S 46°20'10" E 19.19'
25.64'
N 03°46'04" E 22.00'
104
4
S 05°06'41" W 78.49'
N 52°14'09" W 80.00'
98.05'
158.05'
10' Irrigation Easement Building Line
PROMONTORY
COURT
N 86°06'30" W 106
59.45'
S 86°04'58" E 193.40'
105
5
S 49°54'20" W 84.56'
6
22.00'
BLOCK TWO
11
8
A=176.49'
C33
A=89.00'
CH=254.08'
BRG=S 16°52'44" E
D=32°22'30"
116.35'
N 54°35'30" E 18.96'
S03°48'04"W 20.00'
Sign, Landscape, & Multipurpose Easement
14' Multipurpose Easement
160.11'
N 56°02'55" W 102.13'
22.15'
100.11'
R=179.50'
C34
A=52.40'
S73°13'22"E 20.00'
11
123.54'
7
C35
A=14.97'
S 58°22'37" E 99.70'

We're taking television into tomorrow.

TCI Cablevision of Western Colorado, Inc.

May 26, 1995

South Rim, Fil. 3 & 5
Lowe Development Corp.
% Community Development Department
250 North 5th Street
Grand Junction, CO 81501

Ref. No. TCICON.070

Dear Mr. David G. Berhorst;

We are in receipt of the plat map for your new subdivision, **South Rim, Fil. 3 & 5**, We will be working with the other utilities to provide service to this subdivision in a timely manner.

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

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

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

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

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

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

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

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

Sincerely,

Glen Vancil

Glen Vancil,
Construction Supervisor 245-8777

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

MICHAEL D.

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

June 12, 1995

Mr. Tom Logue
Landesign
200 N. 6th Street #2
Grand Junction, CO 81501

RE: South Rim Filing 3 Subdivision

Dear Tom,

The final plan and plat for the South Rim Filing 3 Subdivision was approved by the City of Grand Junction Planning Commission on June 6, 1995.

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

Prior to submittal of four sets of construction drawings for approval, the following items are still outstanding and must be resolved:

1. Street Plans - Show placement of end of road markers where street construction ends on Promontory Court.

2. Grading and Drainage - Include a profile of storm sewers and show invert elevations, rim elevations of manholes. Also provide distance and bearing, coordinates or other means of locating storm sewer lines. Please indicate the type and size of storm drain inlets (i.e. single grate with curb opening).

3. The drainage easements provided with the response to staff comments are currently under review and must be recorded prior to commencing construction.

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

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

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

Sincerely,

Jody Kliska
City Development Engineer

CONSTRUCTION PHASE SUBMITTAL CHART

Location: SOUTH RIM DR. Project Name: SOUTH RIM FILING 3

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

NOTES:

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

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

City of Grand Junction
Construction Approval & Progress

Project Name: SOUTH RIM FILING 3
Location: SOUTH RIM DR.
Developer: LOWE DEVELOPMENT CORP.
Engineer: LANDESIGN

A Licensed Professional Engineer is required to oversee construction of public improvements.

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

Improvements Agreement in Place: _____

Construction Meeting: _____

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

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

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

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

Submittal Requirements for Final Acceptance of Improvements

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

X As-Built Drawings (Reference SSID IX-5,6,7,8,9)
- Sealed by a Professional Engineer
- Two Blue-line copies
- One Mylar Copy
- One 3 1/2" Floppy Disk with drawing files

X Report (Reference SSID X-2,3,4)
- Testing Location Map
- Inspection Diaries
- Testing Reports

__ Certification of Detention/Retention Basin
(Reference SSID IX-6)
- Sealed by a Professional Engineer

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

June 20, 1995

Jody Kliska, P.E., Development Engineer
City of Grand Junction
250 North 5th. Street
Grand Junction, CO 81501

RE: PRE-CONSTRUCTION NOTICE, SOUTH RIM, FILING 3

Dear Jody:

1. Four copies of signed and sealed construction plans have been transmitted to your office under separate cover.

2. Site construction will begin immediately upon your authorization.

3. Contractors, Testing and Consultant List

Name	Activity	Phone
LANDesign, LLC., Phil Hart P.E.	Project manager & Quality Assurance Engineer	245-4099
Western Colorado Testing	Roadway Material Testing	241-7700
Lincoln Devore Testing	Utility Trench Testing	242-8968
Elam Construction	Roadway Improvements	242-5370
EDEX Construction	Utility & Storm Sewer	242-9265

4. A Subdivision Improvements Agreement is attached. Development will be guaranteed by not recording the final plat. It is understood that this guarantee can be replaced with a dispersement agreement acceptable to the city at a later date.

5. The only outstanding item remaining is providing you with the original off-site drainage easement agreements. Both land owner's have given us a verbal authorization. Signed agreements will be provided within one weeks time.

6. Consider this a formal request for scheduling the required pre-construction meeting as soon as possible. We will adjust our schedules to meet yours.

The developer is most anxious to begin construction. If you have any questions or required any additional information, do not hesitate to contact our office.

We would like to take this opportunity and thank you in advance for your timely response.

Respectfully,

Phil Hart, P.E.

LANDesign
PLANNING • ENGINEERING • SURVEYING

July 6, 1995

Jody Kliska
City of Grand Junction
Grand Junction, CO 81501

RE: South Rim, Filing No. 3

Dear Jody,

Attached is an alternative plan dated July 6, 1995 for Storm Sewer Improvements and approximate detention pond volume at South Rim, Filing No. Three.

Consider this plan an alternative to the previous submitted storm sewer plans. Final detailed construction plans will be provided only in the event that drainage easements can not be obtained across the Olsen property in Gully A and B..

Storm water improvements will not begin until the sanitary sewer domestic water improvements are completed. Assuming that we can begin construction immediately, we expect that storm water improvements to begin about the first of September.

We would like to thank you for your timely response.

Respectfully,

Thomas A. Logue

Thomas A. Logue
Project Manager

CC: David G. Behrhorst

200 NORTH 6TH ST. • GRAND JUNCTION, CO 81501 • FAX (970) 245-3076 • (970) 245-4099

LANDesign, Ltd.
200 North 6th Street · Suite102 · Grand Junction · Colorado 81501 · 303-245-4099

DATE: 8-21-95

TO: michael Drollinger
City of Grand Junction

RE: South Rim Filing No. 3

LANDesign Limited Agrees to provide an electronic disk for the referenced project subject to the following conditions.

Therefore, the recipient agrees as follow:

1. Due to the potential that the information set forth on the electronic media (hereafter referred to as "Disk") can be modified unintentionally or otherwise; LANDesign Limited shall reserve the right to remove all indices of its ownership, professional partnership name, and /or involvement form each electronic medium (and its contents) not in its possession.

2. The recipient recognizes that use of such Disk will be at their sole risk and without any liability risk or legal exposure to LANDesign Limited. Furthermore, recipient shall, to the fullest extent permitted by, law, defend, indemnify and hold harmless LANDesign Limited from all claims, damages, losses, and expenses including attorney fees arising out of or resulting from the sue of such Disk or data contained on such Disk.

3. The use of this Disk is restricted to the original site and project for which it was prepared. Disk or material prepared from said disk shall not be used for other projects, or be transferred to any other party for use on other projects. Reuse for reproduction of the disk, data, or documents prepared from, by, or with this Disk (in whole or in part) for any other purpose for which the material was not strictly intended, is prohibited. Possession of this Disk , or documents is prima facie evidence of the acceptance of these restrictions.

4. Recipient recognized that information stored on electronic media including, but not limited to, computer disk prepared by LANDesign Limited may not be 100% compatible with their own computer system due to differences in computer hardware and software. Therefore, recipient agrees that LANDesign Limited shall not be held liable for the completeness or accuracy of any materials or documents prepared from such Disk or data contained on such Disk.

5. Recipient recognizes that designs, plans, and data stored on electronic media, including, but not limited to computer disk may be subject to undetectable alteration and /or uncontrollable deterioration. Recipient therefore agrees that LANDesign Limited shall not be held liable for the completeness, accuracy, deviations of actual construction or any drawing errors contained on electronic media.

Recipient Signature

LANDesign
PLANNING • ENGINEERING • SURVEYING

August 22, 1995

City of Grand Junction
Community Development
250 North Fifth Street
Grand Junction, Colorado 81501

Attn: Mr. Mike Drollinger

Re: South Rim Filing No. 3.

Dear Mike;

As a part of the requirements of approval for this portion of the South Rim project, the developer has met with the River Front Commission to coordinate the installation of an appropriate marker sign to identify access to the west entrance of the River Trail. It is our understanding that the developer is committed to resolution of the issue and is currently awaiting recommendations by the River Front Commission.

Sincerely

Monty D. Stroup

cc: Skip Behrhorst

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FILE

August 25, 1995

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

Mr. Tom Logue
c/o Landesign
200 N. 6th Street
Grand Junction, CO 81501

RE: SOUTH RIM FILING 3

Dear Mr. Logue:

It has come to my attention that the headwall outlet structures for the storm drainage system have been deleted from the approved plans for South Rim Subdivision, Filing 3. This deletion occurred without my knowledge or approval and must be remedied immediately.

The plans which were reviewed and approved by me required the construction of the headwalls and erosion control as shown therein. These items were designed as a result of the final drainage report prepared by your office and are an integral part of the storm drainage design. As such, they must be constructed.

Changes to the approved construction plans must be made with notification and consent of the City of Grand Junction as discussed at the pre-construction meeting for this filing; you did not and do not have our consent to delete these structures from the plans. The structures are necessary to reduce erosion damage, improve hydraulic flow characteristics and to prevent buoyant and hydrostatic forces from damaging the pipe. The last item is especially important as the proposed pipe material is plastic rather than concrete.

Failure to construct the drainage system as depicted in the drawings dated June 19, 1995 and approved by me on June 26, 1995 may result in the balance of the public improvements not being accepted by the City. As well, your failure to properly secure and construct the drainage works will result in future filings of this subdivision not receiving favorable consideration from the City.

Examination of the recorded disbursement and improvements agreements show that the item for outlet structures was deleted from the submittal received August 18, 1995 and recorded on August 22, 1995. When the plans were reviewed the outlet works was estimated to cost $4,800.00 which sum was included with the draft improvements agreement. The recorded agreement and guarantee does not include those items nor are they guaranteed. Such must occur immediately. You may either amend the original improvements agreement and guarantee to include the cost or a separate agreement and guarantee may be posted to secure construction of the deleted works. The improvements agreement and guarantee must be in place and delivered to me by 5:00 p.m., September 1, 1995 to forestall the initiation of legal proceedings.

Please be advised that if the required agreements are not in place by that time I will refer this matter to the City Attorney for review and possible prosecution of SSID and Development Code violations in addition to the sanctions noted above.

As you can tell from this letter this is a serious matter and your immediate and complete attention is required.

Sincerely,

Jody Kliska, P.E.
City Development Engineer

cc: David Behrhorst, Lowe Development
Jeff Parker, Norwest Bank
Michael Drollinger, City Community Development
Mick Cohran, City Inspection

LANDesign PLANNING

10 are not exempt
-Want the last Plat to go for filing #3-

September 19, 1995

Ms. Katherine Porter
City of Grand Junction
Planning Department
250 North 5th Street
Grand Junction, CO 81501

RE: South Rim Subdivision - TCP payments

Dear Katherine,

This letter is to confirm our conversation and agreement regarding the TCP payments exemption on the above mentioned development.

The TCP payments are exempt for all of the lots in Filing No. One and Two. The total lots are 67 of which 10 are excepted from the count because building permits were issued prior to July 3, 1994, the effective date of the ordinance. This leaves a net exemption of 57 lots for Filing No. One and Two.

Based on the $46,211.43 offsite improvements outlined in Tom Logue's letter to Jody Kliska, January 25, 1995, a total of 92 South Rim lots are exempt from TCP payment.

The available exempted lots for Filing No. Three are 35 (92-57=35). We will communicate to you in writing (see attached letter) when a lot has been conveyed to a third party buyer. You will then make a permanent record on the Filing No. Three plat for these TCP exemptions for the first 35 lots closed. You also agree to refund $330.29 to Monument Homes for the TCP fee previously paid for Lot 10, Blk 1, Filing No. 3.

If this meets with your approval, please sign and date below. We will begin notifying you of the Filing Three lot closings.

Sincerely,

Philip M. Hart

Philip M. Hart, PE
President

25 available exempted lots

Read and accepted: _____
Katherine Portner, City of Grand Junction

cc: David G. Behrhorst, Lowe Developement Corp.
Dennis Granum, Monument Homes

200 NORTH 6TH ST. • GRAND JUNCTION, CO 81501 • FAX (970) 245-3076 • (970) 245-4099

SOUTH RIM
on the Redlands

Date _____

Kathy Portner
Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

RE: Transportation Capacity Payment Exemption
South Rim Subdivision

Dear Ms. Portner:

The following South Rim Subdivision single family lot is exempt from the City of Grand Junction Transportation Capacity Payment.

Lot ___ Block ____ Filing No. ____ Address: _____

No cash payment should be required at the time of building permit issuance in the future.

Sincerely,

D G Behrhorst

David G. Behrhorst
Lowe Development Corporation

cc: First American Title Company

LANDesign

Minor Change request? VEYING

September 19, 1995

ON

Ms. Katherine Portner
City of Grand Junction
Planning Department
250 North 5th Street
Grand Junction, CO 81501

Re: South Rim Setbacks Encroachments

Dear Katherine,

This letter is to confirm our conversation regarding the desired setback requirements on South Rim Filing 1, 2, and 3. There has been some confusion regarding the setbacks and their application to decks due to City standards versus PD developments.

It is the desire of the developer to allow six foot encroachment beyond the rear or sideyard setbacks of the lots for elevated open and uncovered 2nd story balcony decks, but in no case closer than four feet to any property line. We would also desire approval of encroachment of uncovered and open decks, patios, and porches on the ground level of each side and/or rear yard setback.

In the future, we will be placing this stipulation on the future filings. We will also be submitting to the Planning Comission a request for open and uncovered porchs, decks and patio extensions, ground level, beyond six feet of the rear and sideyard setbacks for Filing 1, 2, and 3.

Sincerely,

Philip M. Hart

Philip M. Hart, PE
President

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LANDesign
PLANNING • ENGINEERING • SURVEYING

November 2, 1995

Mr. Michael Drollanger, Planning Department
City of Grand Junction
250 North 5th Street
Grand Junction, CO 81501

RE: South Rim TCP's

Dear Michael,

After the conversation with your department and Jim Shanks, Director of Public Works regarding the above mentioned TCP's on this project, it is our understanding that the off site improvements made by Lowe Development Corporation, in conjunction with this project, will credit toward TCP payments per lot. The improvement costs are as follows:

South Rim Drive Improvements	$46,211.43 (Actual)
Bike Path in Filing 4	$20,000.00 - 23,000.00(Estimate)
Total Improvements	$66,211.43 - 69,211.43

The total lots to be developed in this project are as follows:

Filing 1	22 lots
Filing 2	45 lots
Filing 3	40 lots
Filing 4	15 lots
Filing 5 (Future)	15 lots
Total Lots	137 lots
Total TCP's	($500/Lot x 137 Lots = $68,500)

It is the desire of the developer to credit Filing 1, 2, 3, & 4 towards all TCP requirements based on the above off-site improvements. Filing 5 TCP credits will be finalized when the final costs of the Bike Path in Filing 4 are available and submitted to you in writing. If this letter meets with your approval and understanding, please acknowledge and date below and retain one copy for your records.

Sincerely,

Philip M. Hart

Philip M. Hart, PE
President

Read and Accepted: James Shanks 11/13/95
City of Grand Junction Date

pc: James Shanks, Director of Public Works
David G. Behrhorst, Lowe Development Corporation

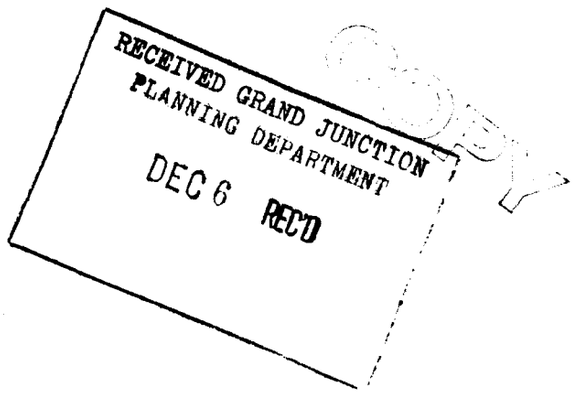
200 NORTH 6TH ST. • GRAND JUNCTION, CO 81501 • FAX (970) 245-3076 • (970) 245-4099

MEMO

To:	Rhonda Edwards
From:	Michael T. Drollinger
Date:	December 1, 1995
Subject:	South Rim Filing #3

This memo is to certify that all lots in South Rim Filing #3 do NOT have to pay a TCP. All lots which have paid a TCP to date are due a refund. I have attached a copy of the document signed by Jim Shanks documenting the South Rim TCP credits.

SOUTH RIM
on the Redlands



December 5th, 1995

Mr. James Shanks
Director of Public Works, City of Grand Junction
250 North 5th Street
Grand Junction, CO 81501

Re: South Rim Subdivision - Transportation Capacity Payment (TCP)

Dear Jim,

The purpose of this letter is to memorialize, in writing, our mutual understanding and agreement regarding the exemption of all Transportation Capacity Payments (TCP) for South Rim Subdivision.

Lowe Development Corporation, developer of South Rim, has expended funds for "offsite" improvements for public benefit by extending South Rim Drive to 23 Road for a cost of $46,211.43 (see Exhibit A) and linking an 8 foot wide concrete bike path from Promontory Court to the existing asphalt path at Bluffs Parkway for a cost of $28,489.28 (see Exhibit B). Dividing $500 per single family lot TCP payments into the total offsite improvements of $74,700.71 develops a credit of 149 lots. The total number of lots being developed at South Rim is 137 single family lots.

By this letter, it is mutually agreed that each individual lot owner at South Rim Subdivision, present and future, will be exempt from any required TCP prior to building permit issuance for singe family house construction by the City of Grand Junction.

Please execute both copies of this letter and return one to me for our records. Thank you.

Sincerely,

David G. Behrhorst, Vice President
Lowe Development Corporation

Read and Accepted:

_____ _____

James Shank, Director of Public Works
City of Grand Junction

Date

cc: Jody Kliska, Development Engineer
Michael Drollanger, Planning Department
Richard Livingston, Esq.
Phil Hart, Land Design

LOWE DEVELOPMENT CORPORATION 1280 UTE AVE., SUITE 32, ASPEN CO 81611
(970)925-4497

FP-95-84

January 31, 1996

David G. Berhorst
Lowe Development Corp.
1280 Ute, Suite 32
Aspen, CO 81611

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

Subject: South Rim Filing 3 Subdivision

Dear Mr. Berhorst:

A final inspection of the streets and drainage facilities in South Rim Filing 3 Subdivision was conducted on December 20, 1995. As a result of this inspection, a list of remaining items was given to Monty Stroup of Landesign for completion. These items were reinspected on January 11, 1996 and found to be satisfactorily completed, with the exception of grouting the three storm sewer manholes.

"As Built" record drawings and required test results for the streets and drainage facilities were received on January 4, 1996. These have been reviewed and found to be acceptable.

In light of the above, the streets, sewer and drainage improvements are eligible to be accepted for future maintenance by the City of Grand Junction one year after the date of substantial completion. The date of substantional completion is December 20, 1995.

The grouting of the three storm sewer manholes needs to be completed this spring. Please notify me if your contractor is unable to complete this work by April 15, 1996.

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

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

Sincerely,

Jody Kliska
City Development Engineer

Sincerely,

Trenton Prall
Utility Engineer

cc: Doug Cline
Walt Hoyt
Kathy Portner
Monty Stroup, Landesign