DEVELOPMENT & BUILDING SERVICE CENTER ONE STOP SHOP 600 SECOND ST. N.W.

ATTENTION:

505-924-3900

Records Withdrawal Form	
Project No. <u>G//- D6/</u>	ate: 3-21-2005
Project Title: Cooks / Leokay	
a. File b. Mylars c. d. Other	Redlines/Comments
Requested by: VIZGIL GIL Name and Company	Phone No.: <u>249-614</u>
Comments:	
Anticipated Return Date:	
I hereby accept full responsibility for the security of the receipt acknowledgement is completed. Records/plan Building Services Center on or before the indicted ant	s will be returned to the Development and
Delivery Picked Up By:	
Name: Mes 14 Print	rganization: Mesa Rev.
Signed: D	ate:
Office Use On	aly
Return Acknowledged:	
Received By: M. Print	Date: 6/17/05

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City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

February 3, 2003

Ron Bohannan, PE Tierra West LLC 8509 Jefferson NE Albuquerque, NM 87113

Re: Coors/Redlands Subdivision Drainage Report

Engineer Stamp date 12-24-02 (G11/D61)

Dear Mr. Bohannan,

Based on information provided in your submittals dated 12-24-02 and 1-06-03, the above referenced report is approved for Site Development Plan for Subdivision action by the DRB. It also provides a rough masterplan for the development of these properties.

If you have any questions, you can contact me at 924-3986.

Sincerely,

Bradley L. Bingham, PE

Sr. Engineer, Planning Dept.

Development and Building Services

file

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/11/2002)

•	2-600361	2
6	-11/156/)
	G-11	

PROJECT TITLE:	Coors/Redlands	ZONE MAP/DRG	. FILE #:	G-11
DRB: 1000651	EPC #: 02 EPC - 00312SDP	WORK ORDER#		
LEGAL DESCRIPTION:	Tract A 29 A Town of Atrisco Grant Northeast Unit			
CITY ADDRESS:	Coors Boulevard and Pheasant Avenue NW		· · · · · · · · · · · · · · · · · · ·	
ENGINEERING FIRM:	Tierra West, LLC	CONTACT:	Ronald R. Bohani	nan, PE
ADDRESS:	8509 Jefferson NE	PHONE:	(505) 858-3100	
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113	
OWNER:	Ken Johns	CONTACT:	Ken Johns	
ADDRESS:	1311 Tijeras Avenue NW	PHONE:	(505) 224-9000	
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87102	1
A DOLUTEOT.	Lee Comoleky Architect P.C	CONTACT:	Lee Gamelsky	
ARCHITECT:	Lee Gamelsky Architect, P.C.	PHONE:	(505) 842-8865	·
ADDRESS:	2412 Miles Road SE	ZIP CODE:	87106	<u> </u>
CITY, STATE:	Albuquerque, NM		07 100	
SURVEYOR:	Precision Surveys	CONTACT:	Larry Medrano	- <u></u>
ADDRESS:	8414-D Jefferson NE	PHONE:	856-5700	
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113	
		CONTACT		
CONTRACTOR:		CONTACT:		
ADDRESS:		PHONE:	-	· · · · · · · · · · · · · · · · · · ·
CITY, STATE:		ZIP CODE:		· · · · · · · · · · · · · · · · · · ·
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DATE SUBMITTED:	12/24/2002	BY: Ronald Bohannan	PE	

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a dranage submittal. The particular nature, location and scope of the proposed development defines the degree of drainage detail. One or more of the following levels of sumbittal may be required based on the following:

- 1. Conceptual Grading and Drainage Plans: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
- 2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/11/2002)

G-11/D6/	
G-11	

PROJECT TITLE: Coors/Redlands		ZONE MAP/DI	ZONE MAP/DRG. FILE #: G-11				
DRB: 1000651 EPC #: 02 EPC - 0		00312SDP WORK ORDE	R #:				
LEGAL DESCRIPTION:	Tract A 29 A Town of Atrisco Grant No	ortheast Unit					
CITY ADDRESS:	Coors Boulevard and Pheasant Avenu	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·				
ENGINEERING FIRM:	Tierra West, LLC	CONTACT:	Ronald R. Boha	annan PF			
ADDRESS:	8509 Jefferson NE	PHONE:	(505) 858-3100				
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113				
OWNER:	Ken Johns	CONTACT:	Ken Johns				
ADDRESS:	1311 Tijeras Avenue NW	PHONE:	(505) 224-9000	<u> </u>			
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87102				
ARCHITECT:	Lee Gamelsky Architect, P.C.	CONTACT:	Lee Gamelsky	1			
ADDRESS:	2412 Miles Road SE	PHONE:	(505) 842-8865	· · · · · · · · · · · · · · · · · · ·			
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87106				
SURVEYOR:	Precision Surveys	CONTACT:	Larry Medrano				
ADDRESS:	8414-D Jefferson NE	PHONE:	856-5700				
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113	· · · · · · · · · · · · · · · · · · ·	·		
CONTRACTOR:		CONTACT:					
ADDRESS:		PHONE:					
CITY, STATE:		ZIP CODE:					
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WAS // X DATE	7/03 BM177AC/	1151	国©区区1V DEC 2 4 2002 RQŁOGY SEC				
Reque scope followir		Plats shall be accompanied by a dra etail. One or more of the following le		•			

- 1. Conceptual Grading and Drainage Plans: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
- 2. Drainage Plans: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
- 3. Drainage Report: Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.

DRAINAGE REPORT FOR

Tract A 29 A Town of Atrisco Grant

Coors/Redlands

Prepared by:

Tierra West, LLC 8509 Jefferson NE Albuquerque, New Mexico 87113

> Prepared for: Mr. Ken Johns 1311 Tijeras Avenue NW Albuquerque, NM 87106

> > December, 2002

I certify that this report was prepared under my supervision, and I am a registered professional engineer in the State of New Mexico in good standing.

Job No 200036R

7868

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Location	
Existing Drainage Conditions	
FIRM Map and Soil Conditions	
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Flood Insurance Rate Map	6
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On Site Drainage Plan	
SECTION II - RUNOFF CALCULATIONS	
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MAP POCKET A	· ·
Master Grading and Drainage Plan	
MAP POCKET B	
Master Utility Plan	
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MAP POCKET C	
Basin Map	
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Section I Report

Location

The Coors and Redlands Plaza is located on the southeast corner of Coors and Redlands just south of the existing City of Albuquerque well site. The site is the proposed location of a new multiple business development and is shown on the attached Zone Atlas Map G-11. The site contains approximatel 3.4095 agres. The legal description is Tract A-29-A Town of Atrisco Grant Northeast Unit. The purpose of the report is to provide the drainage analysis and management plan for approval of the Site Plan for Subdivision.

Existing Drainage Conditions

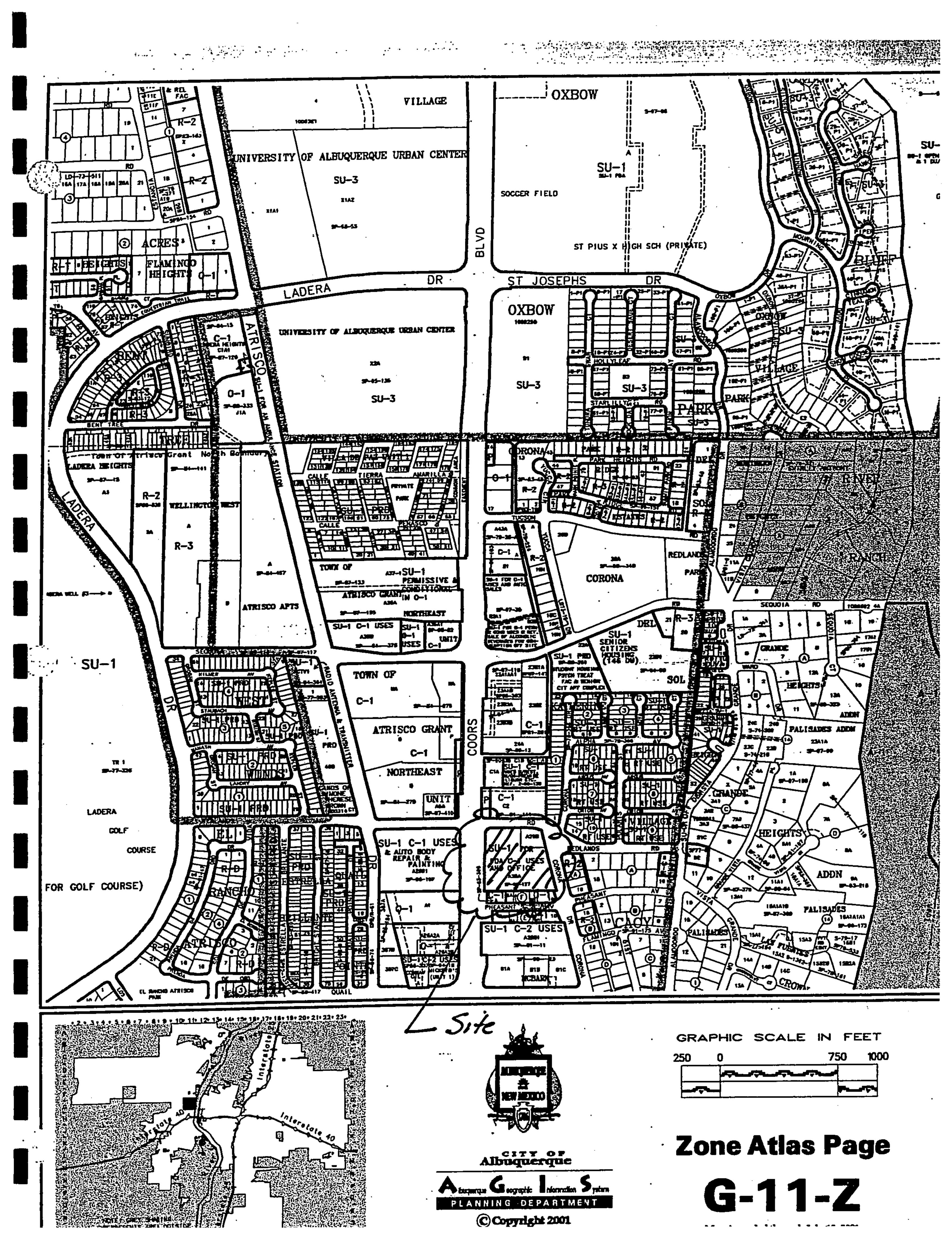
The site is currently undeveloped. The area surrounding the site was part of SAD 198 under City Project 2532. The SAD did not include the entire parcel, but only a portion. The remaining portion was to drain south. The SAD installed the storm drain system in Redlands to handle the developed flow conditions. This project will direct the flow towards Redlands and Corona for compliance with that plan and limit the flow to the approved discharge rates.

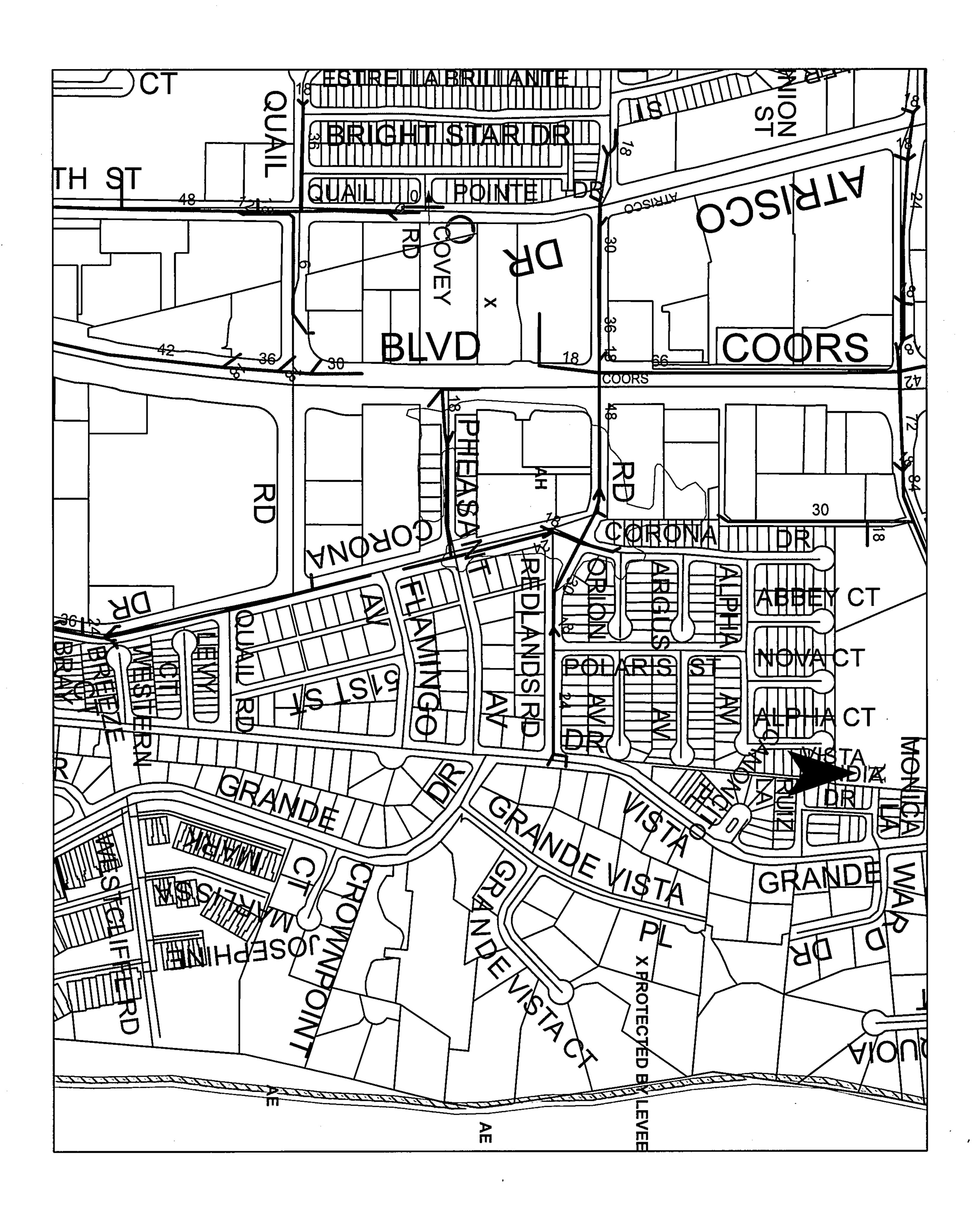
There are no offsite flows entering the site! Redlands to the north of the site intercepts any flows from the north from entering the site, while Corona directs flows to the north. The site south contains all of the flow on their site.

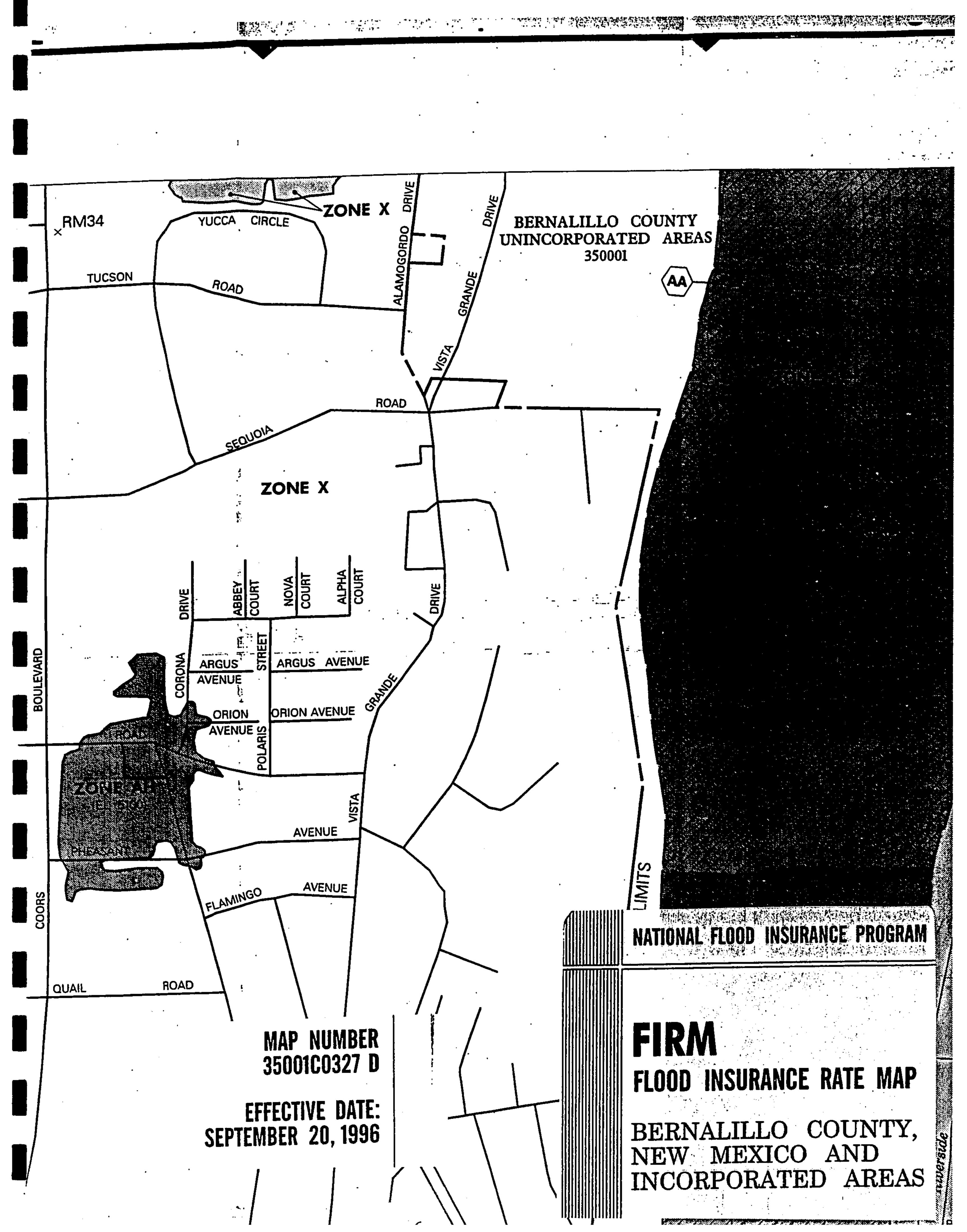
FIRM Map and Soil Conditions

The site is located on FIRM Map 35001C0327 D as shown on the attached excerpt. The map shows that the site lies within a an floodplain with a base flood elevation of 5100. The finished floor elevation of the building is proposed to be 5101.50, which is greater than one-foot above the existing floodplain.

The site contains one soil from the Soil Conservation Service Soil Survey of Bernalillo County. The Madurez-Wink association is located on the East and West Mesas and has slow runoff and a moderate hazard of soil blowing.







Criteria

The site was analyzed using the procedures from the Development Process Manual Volume 2, Chapter 22. The Weighted E method was used for estimating the volume and flow rate of runoff from each basin to the developed basin. The rational method was used to compute that portion of the site that contributed to the SAD 198 flows.

On Site Drainage Plan

The proposed drainage management plan is to collect all of the flows in the central drive and then divert the flows to Redlands. At Redlands the flows will be collected by the existing droplets in the street. The site was divided into 4 basins as shown on the calculations. Basin 2 is the street, all the remaining basins are commercial tracts. Basin 5 is the COA well site, that sheet flows north. The street will be allowed to drain to Redlands.

The site was part of SAD which did not cover the entire site. A limitation matching the capacity in the SAD will limit the flows to 2.67 cfs. per acre. The 100-year flows for basins 1, 3, and 4 will be 2.67 cfs., 2.13 cfs., and 3.31 cfs. respectively. The street will collect all the flows and discharge all of the flows to Redlands. The street has capacity for the combined flows. Each site will limit the flow to the street per the calculated amount.

Summary

The project will limit the flow to the center street to account for the SAD 198 limitations on the storm drainage. The flows will be limited to the flows listed in the drainage calculation sheet. All infrastructure will be installed with the listed development and as such, no infrastructure list is needed.

Section II Runoff Calculations

RUNOFF CALCULATIONS

The site is @ Zone 1

LAN D TREATMENT

Proposed
B = 10 %
D = 90 %

Existing B = 100%

Joesn't match
proposed %

proposed %

pext page.

EXCESS PRECIPITATION, E (INCHES)

100-Year	10-Year	
$\frac{100 - 1 \text{ cm}}{E_a} = 0.44$	$E_a = 0.08$	
$E_b = 0.67$	$E_b = 0.22$	
$E_c = 0.99$	$E_{c}=0.44$	
$E_d = 1.97$	$E_{\mathbf{d}} = 1.24$	

PEAK DISCHARGE (CFS/ACRE)

100-Year	10-Year
$Q_a = 1.29$	$Q_a = 0.24$
$Q_b = 2.03$	$Q_b = 0.76$
$Q_c = 2.87$	$Q_c = 1.49$
$Q_d = 4.37$	$Q_d = 2.89$

he Site is (2) Zone 1			RU	NOFF CAL	CULATIO	NS			
							· · · · · · · · · · · · · · · · · · ·			
AND TREA										
roposed								······································		
3 = 20%	1 = 100%							·		<u></u>
) = 80% //				_				<u> </u>		
DEPTH (INC	CHES) @ 10	00-YEAR ST	ORM	<u></u>	DEPTH (INC	HES) @ 10	-YEAR STORM			
P60 = 1.87					$P60 = 1.87 \times 10^{-1}$	0.667 = 1.2	47			
P360 = 2.20				1	$P360 = 2.20 \times$	< 0.67 = 1.4	67			
P1440 = 2.66										
							•			
Zone 1										
Land Trea	tement							,		
From Table	A-8 Soil T	reatment	Α	В	C	D				•
Weighted 6	E 100 yr.		0.44	0.67	0.99	1.97				
Wieghted I	Ξ 10 yr.		0.08	0.22	0.44	1.24				······································
			<u></u>							
Peak Disc		<u> </u>		<u> </u>	<u> </u>					ι
From Tabl	e A-9					4 4 -				
100 Yr			1.29	2.03	2.87	4.37			<u>'</u>	
10 Yr	<u> </u>		0.24	0.76	1.49	2.89			,	·
					 					
Volume U	ndevelope			400 1/-	40 \	1/-1 400	37-140	·	·	·
Desir A	Soil Treati	ment Type	Acreage	100 Yr	10 Yr	Vol 100	Vol 10	· · · · · · · · · · · · · · · · · · ·		
Basin A		<u>A</u>	3.4104	0.4400	0.0800	0.1250	0.1364			
Basin B		<u> </u>	0.0000	0.4400	0.0800	0.0000	0.0000			_ _
Basin C	<u> </u>		.0.000	0.4400	0.9800	0.0000	0.0000		·	
Volume F	eveloped					 	 			·
V Oldino L	Total	Acre "A"	Acre "B"	Acre "C"	Acre "D"	`	Weigh E 100	E 10	V 100 Yr	V 10 Yr
Basin 1	0.99	0.0000	2.7900	0.0000	4.1800		10.2060	5.8556	0.8420	
Basin 2	0.38	0.0000	3.2200	0.0000	4.8300		30.7171	17.6253	0.0420	0.4831 0.5581
Basin 3	0.8	0.0000	0.0000	0.0000	0.9413		2.3180	1.4590	0.1545	0.0973
Basin 4	1.24	0.0000	0.9993	0.0000	4.0000		6.8948	4.1773	0.7125	0.0973
Basin 5	0.39	0.0000	2.4000	0.0000	3.5900	 	22.2572	12.7682	0.7234	0.4317
				,					\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<u> </u>
Peak Dis	charge									
	Total	Acre "A"	Acre "B"	Acre "C"	Acre "D"			 	Q 100 Yr	Q 10 Y
Basin 1	0.99	0.0000	0.1980	0.0000	0.7920			 	3.8630	2.4394
Basin 2	0.38	0.0000	0.0760	0.0000	0.3040				1.4828	0.9363
Basin 3	0.8	0.0000	0.1600	0.0000					3.1216	1.9712
Basin 4	1.24	0.0000	0.2480	0.0000	 				4.8385	3.0554
Basin 5	0.39	0.0000	: 0.0780	0.0000	0.3120		\ 		1.5218	0.9610

. .

COMPUTING THE ALLOWABLE FLOW FOR THE SAD

Q = CIA Rational Formula

C = 0.93 100 year

1 = 4.70 inch per hr.

A = 2.18 acres = 9.828 cfs.

Q = CIA (0.93) (4.70) (2.18) = 9.828 cfs. total allowed for the site

Total 13.3059 of the site with streets

Subtract out street flow from Basin 2

Basin 2

9.5828 - 1.4828 (roadway) = 8.1 allowable

8.1/3.0304 acre - 2.67 cfs. / acre

Flows per Basin:

Basin 1 2.67 cfs.

Basin 2 1.48 cfs.

Basin 3 2.13 cfs.

Basin 4 3.31 cfs.

SIDEWALK CULVERT CAPACITY

Check the capacity of the sidewalk culvert to limit flow.

$$Q = CLH 3/2$$

King & Brater (5-10)

$$L = Q = Q = Q(.7013)$$

CH 3/2 = 1.4259

$$C = 2.60$$

$$H = .67$$

Opening for Sidewalk Culvert

Basin 1

$$Q = 2.67$$

$$L = 1.87 \, ft.$$

Basin 2

$$Q = 2.13$$

$$L = 1.49 \text{ ft.}$$

Basin 3

$$Q = 3.31$$

$$L = 2.3 \text{ ft.}$$

•

Street Capacity Calculations

Common Street 30' F-F Street Section with 4" curb

Slope= 0.57

For water depths less than 0.0625 feet

Y= Water depth

Area = $16*Y^2$

P= SQRT(1025*Y^2) + Y

n = 0.017

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.0100	0.00	0.33	0.00	0.00	0.01	1.89	0.02	3.33	0.0424
0.0175	0.00	0.58	0.01	0.01	0.03	2.74	0.05	3.66	0.0822
0.0250	0.01	0.83	0.01	0.03	0.07	3.48	0.09	3.88	0.1252
0.0325	0.02	1.07	0.02	0.07	0.14	4.15	0.13	4.05	0.1708
0.0400	0.03	1.32	0.02	0.12	0.24	4.76	0.19	4.20	0.2182
0.0475	0.04	1.57	0.02	0.19	0.39	5.34	0.25	4.32	0.2673
0.0550	0.05	1.82	0.03	0.29	0.57	5.89	0.32	4.42	0.3178
0.0625	0.06	2.06	0.03	0.40	0.80	6.41	0.40	4.52	0.3695

For water depths greater than 0.0625 ft but less than 0.333 ft

Y1= Y-0.0625

A2= A1 + 2*Y1 + 25*Y1^2

P2= P1 + SQRT(2501*Y1^2)

Depth	(ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.0	630	0.06	2.09	0.03	0.41	0.82	6.43	0.40	4.51	0.3718
0.0	900	0.14	3.47	0.04	1.04	2.08	7.64	0.69	4.49	0.5276
0.13	200	0.26	5.00	0.05	2.39	4.79	9.20	1.10	4.68	0.7367
0.1	500	0.43	6.53	0.07	4.61	9.22	10.75	1.61	4.89	0.9650
0.19	968	0.78	8.91	0.09	10.19	20.38	13.03	2.56	5.18	1.3455
0.2	100	0.90	9.59	0.09	12.30	24.60	13.65	2.87	5.25	1.4569
0.24	100	1.21	11.12	0.11	18.08	36.16	15.00	3.60	5.40	1.7158
0.30		2.08	14.67	0.14	37.42	74.84	17.96	5.56	5.69	2.3411
0.33		2.43	15.86	0.15	46.00	92.00	18.91	6.30	5.77	2.5581

.56 5.18 1.3455 — Smeet Comments
.87 5.25 1.4569

For water depths greater than 0.333 ft but less than 0.513 ft

Y2= Y - 0.333

A3= A2 + Y2*16 + 25 Y2^2

P3= P2 + SQRT (2501 Y2^2)

<u> </u>									
Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	<u>Fr</u>	D2 (ft)
0.3400	2.55	16.21	0.16	48.91	97.82	19.21	6.53	5.81	2.6268
0.3700	3.06	17.71	0.17	62.61	125.21	20.47	7.57	5.93	2.9232
0.4050	3.71	19.46	0.19	81.25	162.51	21.88	8.86	6.06	3.2730
0.4200	4.01	20.21	0.20	90.17	180.34	22.46	9.43	6.11	3.4242
0.4300	4.22	20.71	0.20	96.43	192.86	22.85	9.83	6.14	3.5255
0.4496	4.64	21.69	0.21	109.45	218.90	23.60	10.61	6.20	3.7250
0.4800	5.32	23.21	0.23	131.69	263.38	24.73	11.87	6.29	4.0368
0.5130	6.12	24.86	0.25	158.75	317.50	25.93	13.30	6.38	4.3788

MAP POCKET A MASTER GRADING AND DRAINAGE PLAN

8509 Jefferson NE Albuquerque, NM 87113 (505) 858-3100 fax (505) 858-1118 twllc@tierrawestllc.com 1-800-245-3102

January 3, 2003

Mr. Bradley L. Bingham, P.E., Senior Engineer CITY OF ALBUQUERQUE P.O. Box 1293 Albuquerque, NM 87103

RE: Coors & Redlands

Dear Brad:

Thank you for taking time to visit with me concerning the above referenced Drainage Plan. Attached is Table 2 (Design Flows) and Map 4 from the SAD 198 Drainage Study to be included with our submittal.

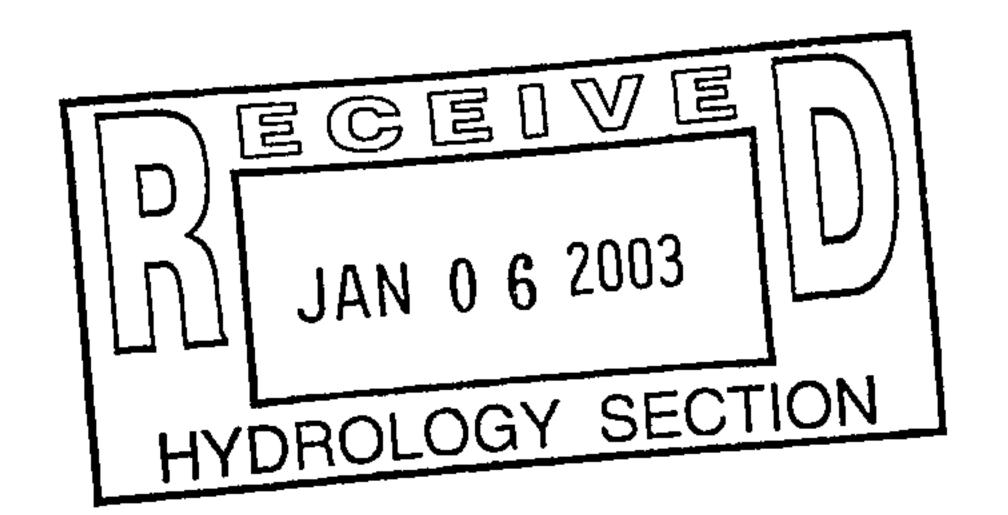
If you have any questions or need additional information regarding this matter, please do not hesitate to contact me.

Sincerely,

Ronald R. Bohannan, P.E.

Enclosure/s

JN: 200036R RRB/ba



2000:200036R Brad Bingham 010303

MAP POCKET B MASTER UTILITY PLAN

MAP POCKET C BASIN MAP