CITY OF ALBUQUERQUE

August 22, 2005

Mr. Ronald R. Bohannan, PE
TIERRA WEST, LLC
8509 Jefferson St. NE
Albuquerque, NM 87113

RE: VISTA PACIFIC SUBDIVISION, PHASE 2 (K-11/D69)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 08/04/2004
Engineers Certification dated 08/22/2005

Dear Ron:

Based upon the information provided in your Engineer's Certification Submittal dated 08/22/2005, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

If you have any questions, you can contact me at 924-3982

Sincerely,

Arlene V. Portillo
Plan Checker, Planning Dept.- Hydrology
Development and Building Services

C: Marilyn Maldonado, COA# 695082
File

P.O. Box 1293
Albuquerque
New Mexico 87103
www.cabq.gov

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Vista Pacifica Phase 2 ZONE MAP/DRG. FILE #: K-11 / D69

DRB #: 1003280 EPC #: WORK ORDER #: 695082

LEGAL DESCRIPTION: Tract 168, Town of Atrisco Grant, Unit 6

CITY ADDRESS: SW Corner of Corregidor Drive & Gonzales Road

ENGINEERING FIRM:	Tierra West, LLC	CONTACT:	Ron Bohannan
ADDRESS:	8509 Jefferson NE	PHONE:	(505) 858-3100
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113
OWNER:	AMC Development	CONTACT:	Jeff Jesionowski
ADDRESS:	4407 Lomas Blvd. NE	PHONE:	505-255-0249
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87110
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Surv-Tek	CONTACT:	Russ Hugg
ADDRESS:	9834 Valley View Dr. NW, Suite 100	PHONE:	505-897-3366
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87114
CONTRACTOR:	Sundance Mechanical	CONTACT:	Carlos Speiss
ADDRESS:	4400 Alameda Blvd NE, Suite E	PHONE:	505-345-2694
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113

CHECK TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- ____ DRAINAGE PLAN RESUBMITTAL
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- X ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEERS CERTIFICATION (TCL)
- ____ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- X SIA / FINANACIAL GUARANTEE RELEASE
- ____ PRELIMINARY PLAT APPROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM.)
- ____ CERTIFICATE OF OCCUPANCY (TEMP.)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ SO-19

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

RECEIVED
AUG 19 2005
HYDROLOGY SECTION

DATE SUBMITTED: 8/22/2005 BY: Ronald R. Bohannan, PE

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage 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.

CITY OF ALBUQUERQUE

September 22, 2004

Ronald Bohannan, P.E.
Tierra West, LLC
8509 Jefferson NE
Albuquerque, NM 87113

Re: Vista Pacifica 2, Grading and Drainage Plan
Engineer's Stamp dated 8-04-04 (K11-D69)

Dear Mr. Bohannan,

Based upon the information provided in your submittal received 8-05-04, the above referenced grading plan is approved as amended. This is the plan that must be certified and submitted for release of financial guarantee.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. If you have any questions regarding this permit please feel free to call the DMD Storm Drainage Design section at 768-3654 (Charles Caruso).

If you have any questions, you can contact me at 924-3981.

Sincerely,

Kristal D. Metro
Engineering Associate, Planning Dept.
Development and Building Services

C: Charles Caruso, DMD Storm Drainage Design
file

P.O. Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: Vista Pacifica 2 ~~Lot 168, Town of Atrisco, Grant Unit 6~~ ZONE MAP/DRG. FILE #: K-11/D69

DRB #: 1003280 EPC #: WORK ORDER #:

LEGAL DESCRIPTION: Lot 168 Town of Atrisco, Grant Unit 6

CITY ADDRESS: Southwest corner of Gonzales Road & Corregidor Drive

ENGINEERING FIRM:	Tierra West, LLC	CONTACT:	Ronald R. Bohannan, P.E.
ADDRESS:	8509 Jefferson NE	PHONE:	(505) 858-3100
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87113
OWNER:	AMC Development Services	CONTACT:	Jeff Jesionowski
ADDRESS:	400 Gold SW, Suite 750	PHONE:	(505) 338-2285
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87102
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Surv -Tek	CONTACT:	Russ Hugg
ADDRESS:	5643 Paradise Blvd. NW	PHONE:	(505) 897-3366
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87114
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

- ___ DRAINAGE REPORT
- ___ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
- X DRAINAGE PLAN RESUBMITTAL
- ___ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEERS CERTIFICATION (TCL)
- ___ ENGINEERS CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANACIAL GUARANTEE RELEASE
- ___ PRELIMINARY PLAT APPROVAL
- ___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
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- ___ FOUNDATION PERMIT APPROVAL
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- ___ CERTIFICATE OF OCCUPANCY (PERM.)
- ___ CERTIFICATE OF OCCUPANCY (TEMP.)
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ SO-19

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- ___ NO
- ___ COPY PROVIDED

RECEIVED
AUG 0 5 2004
HYDROLOGY SECTION

DATE SUBMITTED: 8/5/2004 BY: Ronald R. Bohannan, P.E.

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage 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:

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Flow conveyed down

White Reserve Ave
Vierra Ave
Red Mesa Ave
} to Corregidor Dr.

then down Corregidor to
exist drop inlet

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

June 24, 2004

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

Re: Vista Pacifica 2 Drainage Report

Engineer Stamp date 5-28-04 (K11/D69)

Dear Mr. Bohannan,

Based on information provided in your submittal dated 5-28-04, the above referenced report is approved for Preliminary Plat action by the DRB. Once that board has approved the plan, please submit a mylar copy of the grading plan for my signature in order to obtain a Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit. Refer to the attachment that is provided with this letter for details. If you have any questions please feel free to call the Public Works Hydrology section at 768-3654 (Charles Caruso) or 768-3645 (Brian Wolfe).

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

Sincerely,

Bradley L. Bingham, PE
Principal Engineer, Planning Dept
Development and Building Services

C: Chuck Caruso, CoA
file

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 01/28/2003rd)

PROJECT TITLE: Lot 168, Town of Atrisco, Grant Unit 6 — ZONE MAP/DRG. FILE #: K-11/D069

DRB #: _____ EPC #: _____ — WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 168 Town of Atrisco, Grant Unit 6

CITY ADDRESS: Southwest corner of Gonzales Road & Corregidor Drive

ENGINEERING FIRM:	TIERRA WEST, LLC	CONTACT:	RONALD R. BOHANNAN, P.E.
ADDRESS:	8509 JEFFERSON NE	PHONE:	(505) 858-3100
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87113
OWNER:	AMC Development Services	CONTACT:	Jeff Jesionowski
ADDRESS:	400 Gold SW, Suite 750	PHONE:	505) 858-2285
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87102
ARCHITECT:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	
SURVEYOR:	Surv-Tek	CONTACT:	Russ Hugg
ADDRESS:	5643 Paradise Blvd. NW	PHONE:	897-3366
CITY, STATE:	Albuquerque, NM	ZIP CODE:	87114
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

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- ___ DRAINAGE PLAN 1st SUBMITTAL, ***REQUIRES TCL or equal***
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- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEERS CERTIFICATION (TCL)
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- ___ OTHER

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- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM.)
- ___ CERTIFICATE OF OCCUPANCY (TEMP.)
- X GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ___ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY) **Drainage Approval**

RECEIVED
MAY 28 2004
HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- X NO
- ___ COPY PROVIDED

DATE SUBMITTED: 5/28/2004 BY: Ronald R. Bohannan, P.E.

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DRAINAGE REPORT
FOR

LOT 168
TOWN OF ATRISCO, GRANT UNIT 6

VISTA PACIFICA PHASE 2

Prepared by:

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

Prepared for:
AMC Development Services

May 2004

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.

Ronald R. Bohannan
PE NO. 7868

Job No 240025

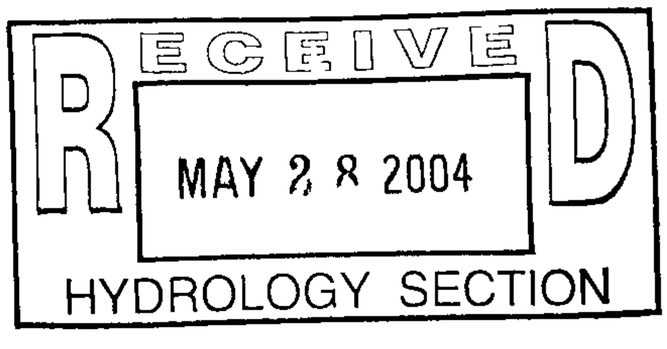


TABLE OF CONTENTS

Section I

Report

Prelude

This report is being prepared at the request of AMC Development Services, who is developing the second phase of Vista Pacifica, a new 36 lot of single family subdivision, entitled Vista Pacifica Phase 2.

Location

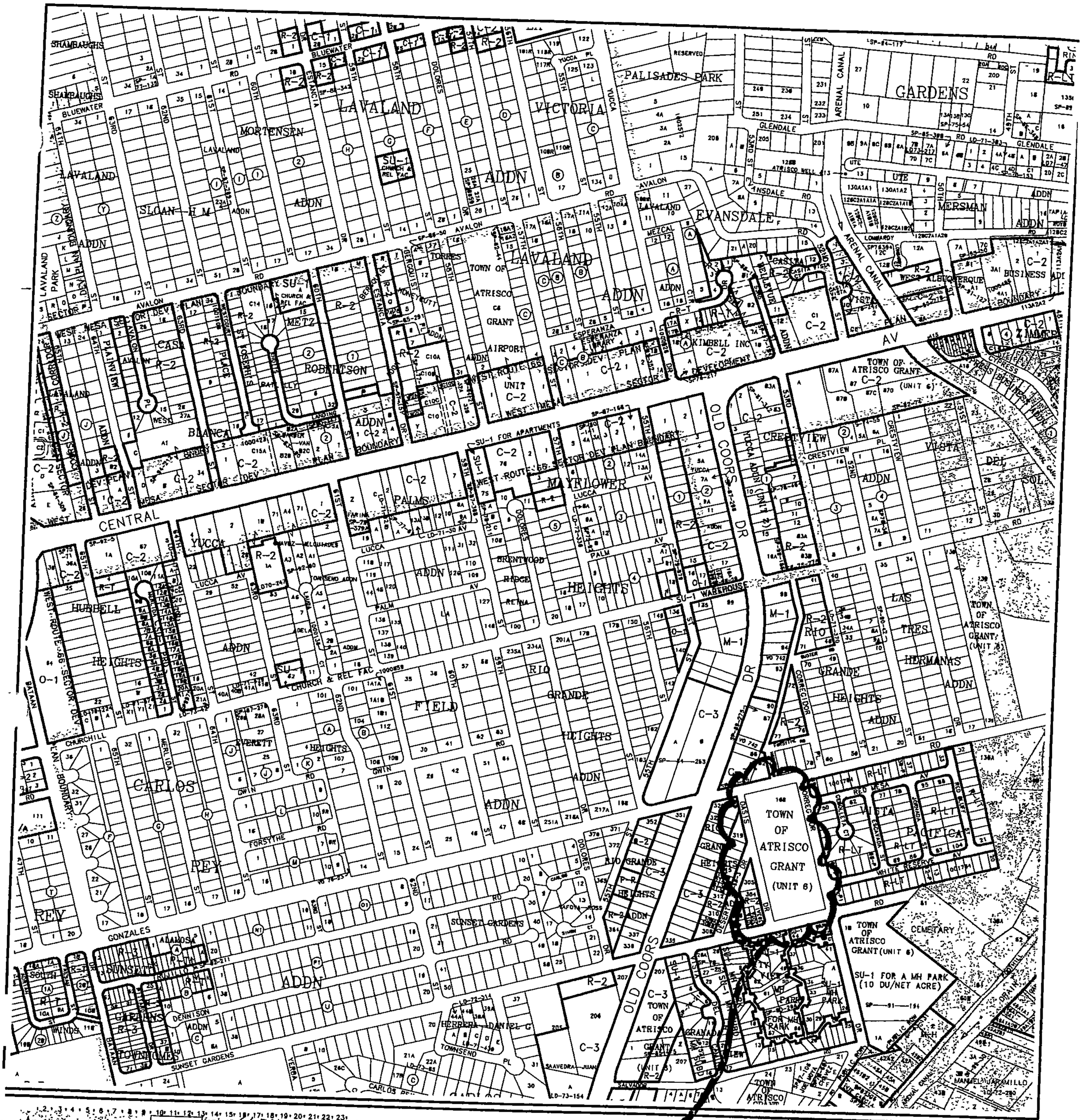
The subject site is located on the west side of Albuquerque near South Coors. Specifically, the site is located at the southwest corner of Gonzales Road and Corregidor Drive. The site is highlighted and shown on the enclosed Zone Atlas page number K-11. The site will be built in one phase and contains 4.59 acres, more or less.

Purpose

The purpose of this drainage report is to present a grading and drainage solution for the proposed subdivision. We are requesting preliminary plat approval, SIA infrastructure, and grading permit approval at this time.

Existing Drainage Conditions

The site is currently undeveloped and lies adjacent to the Gonzales Road Pond installed by the City. The Pond is situated north of the site and takes the flow from the site and discharges the pipe in a pressure siphon system to the Rio Grande River. The undeveloped flow drains naturally east toward Corregidor Drive. We intercept a small portion of the flows west of Oasis Drive. To the east lies Vista Pacifica Phase I, which drains to a storm sewer in Corregidor Drive; this area south drains south and does not impact the site.



GRAPHIC SCALE IN FEET

250 0 750 1000

CITY OF Albuquerque

A Albuquerque G Geographic I Information S System

PLANNING DEPARTMENT

Zone Atlas Page

K-11-Z

Map Amended through July 09, 2003

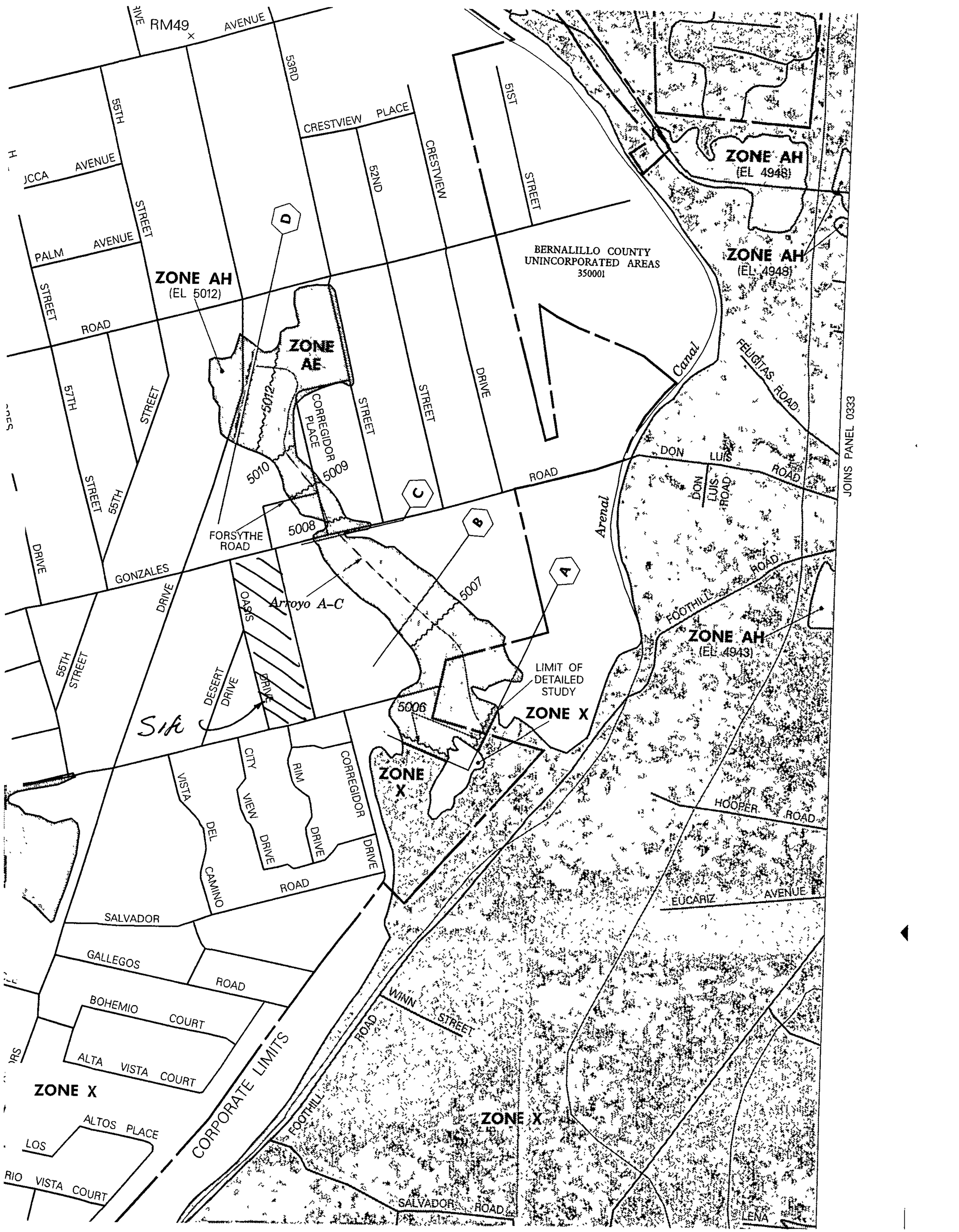
Gonzales Road drains west to the northeast corner of the site and then further east to the bluff. The two streets north (52nd Street and Crestview Drive) drain south to Gonzales Road that consists of a temporary pavement section and is not improved.

The City designed the Gonzales Pond and sized the facility to handle the developed flows from the site and surrounding streets. An existing 54-inch storm drain traverses Corregidor Road and drains through a flap gate into the pond. The pond is drained east down Gonzales Road to Crestview Drive north. Conversations with BHI indicated the water surface elevation is between 4998.9 and 5000.95. They are resolving the difference based upon previous studies. All of the finish pads are greater than these elevations in the event the pond does not drain. The outfall has a siphon at the MRGCD drain which creates a very sensitive outfall subject to high maintenance potential if sediment and debris can enter the system. Therefore, all developed flow for the project and the two streets flow either to the pond or north to an alternate drainage collection system.

Flood Plain and Soil Condition

The site is located on FIRM Map. 35001C0329 D as shown on the attached excerpt. The map shows that the site does not lie within any 100-year flood plains. The map has been changed but has not been reissued by FEMA. This site lies west of the old flood plain in either case. The new flood plain map limits the flood plain to the Gonzales Pond.

The site contains two soil types: Madurez Wink (MWA) and Tijeras (TgB) as indicated on the Soil Map (sheet #42) from the Soil Conservation Service Survey of Bernalillo County. The Tijeras is gentle sloping old alluvial fan material with moderate runoff and soil erosion. The Madurez Wink series is a sandy loam with slow runoff and moderate to severe soil erosion. (See attached soil map for site location).


RM49
AVENUE
53RD
55TH
CRESTVIEW PLACE
51ST
CRESTVIEW
52ND
STREET
JCCA AVENUE
PALM AVENUE
ZONE AH
(EL 5012)
ZONE AH
(EL 4948)
ZONE AH
(EL 4948)
BERNALILLO COUNTY
UNINCORPORATED AREAS
350001
ROAD
ZONE AE
CORREGIDOR PLACE
5010
5009
5008
5007
5006
FORSYTHE ROAD
GONZALES
DRIVE
OASIS
Arroyo A-C
DESERT DRIVE
Canal
FELIGITAS ROAD
DON LUIS ROAD
Arenal
FOOTHILL ROAD
LIMIT OF DETAILED STUDY
ZONE X
ZONE X
ZONE X
ZONE X
HOOPER ROAD
EUCARIZ AVENUE
WINN STREET
SALVADOR ROAD
LENA
CITY VIEW
RIM
CORREGIDOR
VISTA DEL CAMINO
SALVADOR
GALLEGOS ROAD
BOHEMIO COURT
ALTA VISTA COURT
ALTOS PLACE
LOS
RIO VISTA COURT
CORPORATE LIMITS
JOINS PANEL 0333
A
B
C
D

(Joins sheet 20)

Soil Map

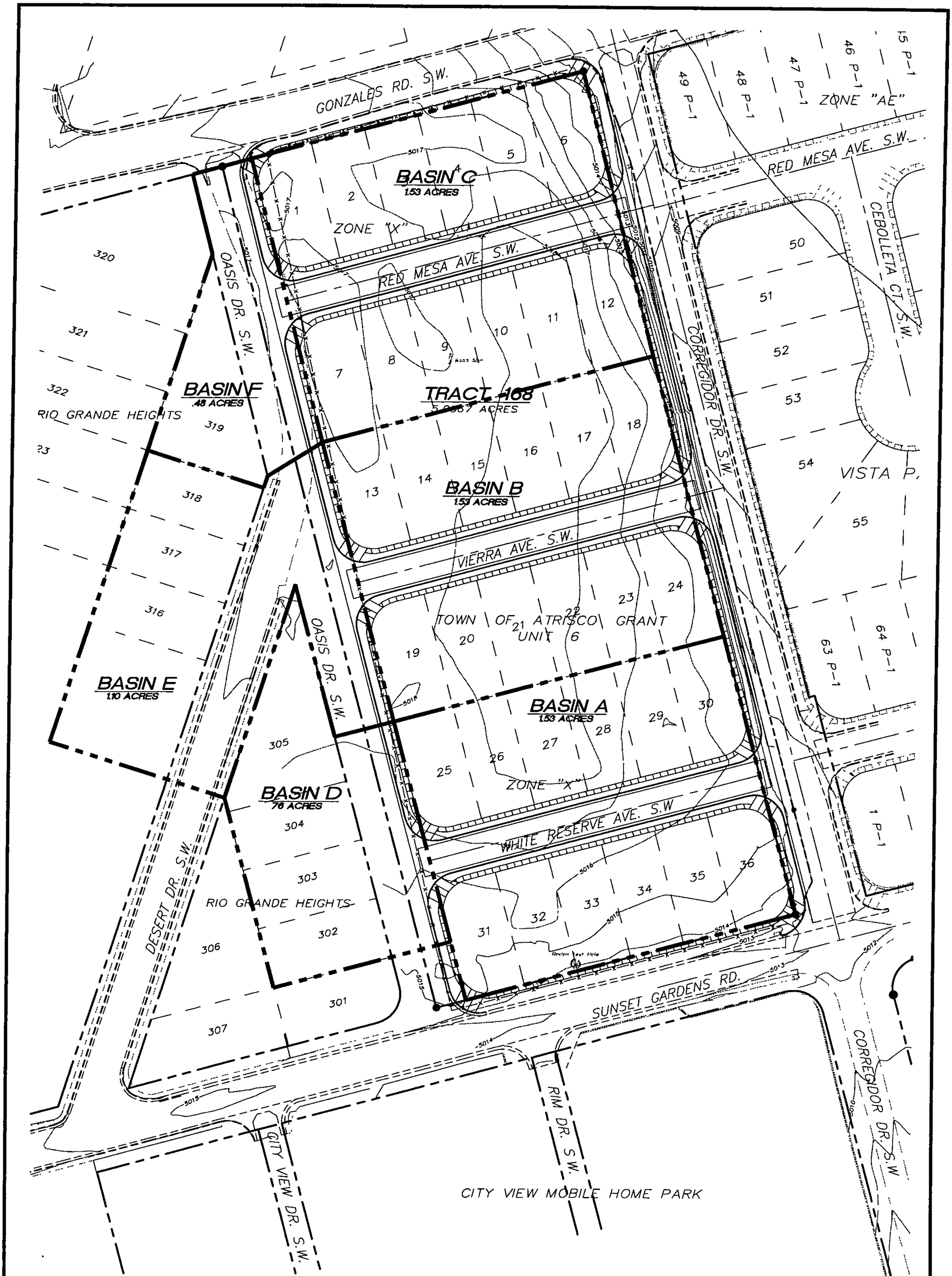
(Joins sheet 40)

Proposed Drainage Management Plan

The entire site will be graded and all of the surface improvements will be built out in their entirety. The enclosed grading plan (in the map pocket) shows the grades for the entire project.

The development was divided into six basins to analyze the proposed conditions. Basins A, B, and C are on site for Vista Pacifica Phase 2. Basins C, D, and E are planned basins west of the site and contribute to the amount of discharge which will drain east to Corregidor Drive. These basins are designated as off-site basins. Basin A, B and C discharge a total of 16.47 cfs, the off-site basins, D, E, and F contribute 8.96 cfs for a total discharge of 25.43 cfs.

The flows are conveyed down White Reserve Avenue, Vierra Avenue, and Red Mesa Avenue to Corregidor Drive. These streets have capacity to convey the developed flows with a 4" curb. The flows are then conveyed down Corregidor to an existing Single "C" drop inlet, then carried, via storm sewer, to an existing 54" RCP. This 54" RCP drains to Gonzales Pond. The amount of discharge the Single "C" drop inlet can carry is 24.69 cfs. The actual amount of discharge from the six basins was 25.43 cfs, not significantly greater and the existing inlet is adequate. A 50% clogging factor was used in the grate which, if reduced, accepts the slightly larger flow. Corregidor Drive can support the flow from the basins with the existing 8" curb.



PROPOSED BASIN MAP

Infrastructure List

Shown in Appendix A is the proposed list for the project.

Calculations

The weighted E method from the "City of Albuquerque Development Process Manual Volume 11 – Design Criteria, 1997 Revision" was used to calculate the runoff and volume for the site.

Summary

The site will discharge 25.43 cfs, flowing from White Reserve Avenue, Vierra Avenue, and Red Mesa Avenue to Corregidor Drive via 4" curbs. The flow is then conveyed down Corregidor to an existing Single "C" drop inlet and then carried, via storm sewer, to an existing 54" RCP. This 54" RCP drains to Gonzales Pond.

Section II

Runoff Calculations

Weighted E Method

Developed On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
A	66,360	1.52	0%	0	20%	0.30	20%	0.30	60%	0.91	1.514	0.192	5.49	0.876	0.111	3.33
B	66,360	1.52	0%	0	20%	0.30	20%	0.30	60%	0.91	1.514	0.192	5.49	0.876	0.111	3.33
C	66,360	1.52	0%	0	20%	0.30	20%	0.30	60%	0.91	1.514	0.192	5.49	0.876	0.111	3.33

Developed Off-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
D	33,427	0.77	17%	0.130454	0%	0.00	28%	0.21	45%	0.35	1.239	0.079	2.29	0.695	0.044	1.35
E	48,255	1.11	0%	0	0%	0.00	19%	0.21	81%	0.90	1.784	0.165	4.53	1.088	0.100	2.91
F	21,285	0.49	0%	0	0%	0.00	0%	0.00	100%	0.49	1.970	0.080	2.14	1.240	0.050	1.41

Equations:

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Excess Precipitation, E (inches)		
Zone 1	100-Year	10 - Year
E_a	0.44	0.08
E_b	0.67	0.22
E_c	0.99	0.44
E_d	1.97	1.24

Peak Discharge (cfs/acre)		
Zone 1	100-Year	10 - Year
Q_a	1.29	0.24
Q_b	2.03	0.76
Q_c	2.87	1.49
Q_d	4.37	2.89

Weighted E Method

Undeveloped On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
A	66,360	1.52	100%	1.52	0%	0.00	0%	0	0%	0.00	0.440	0.056	1.97	0.080	0.010	0.37
B	66,360	1.52	100%	1.52	0%	0.00	0%	0	0%	0.00	0.440	0.056	1.97	0.080	0.010	0.37
C	66,360	1.52	100%	1.52	0%	0.00	0%	0	0%	0.00	0.440	0.056	1.97	0.080	0.010	0.37
Total	199,080	4.57										0.168	5.90		0.030	1.10

Undeveloped Off-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A		Treatment B		Treatment C		Treatment D		100-Year			10-Year		
			%	(acres)	%	(acres)	%	(acres)	%	(acres)	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs	Weighted E (ac-ft)	Volume (ac-ft)	Flow cfs
D	35,000	0.80	0%	0.00	0%	0.00	65%	0.5222681	35%	0.28	1.333	0.089	2.73	0.720	0.048	1.59
E	51,675	1.19	0%	0.00	20%	0.24	0%	0	80%	0.95	1.710	0.169	4.63	1.036	0.102	2.92
F	24,625	0.57	0%	0.00	0%	0.00	0%	0	100%	0.57	1.970	0.093	2.47	1.240	0.058	1.63
Total	111,300	2.56										0.351	9.83		0.209	6.15

Equations:

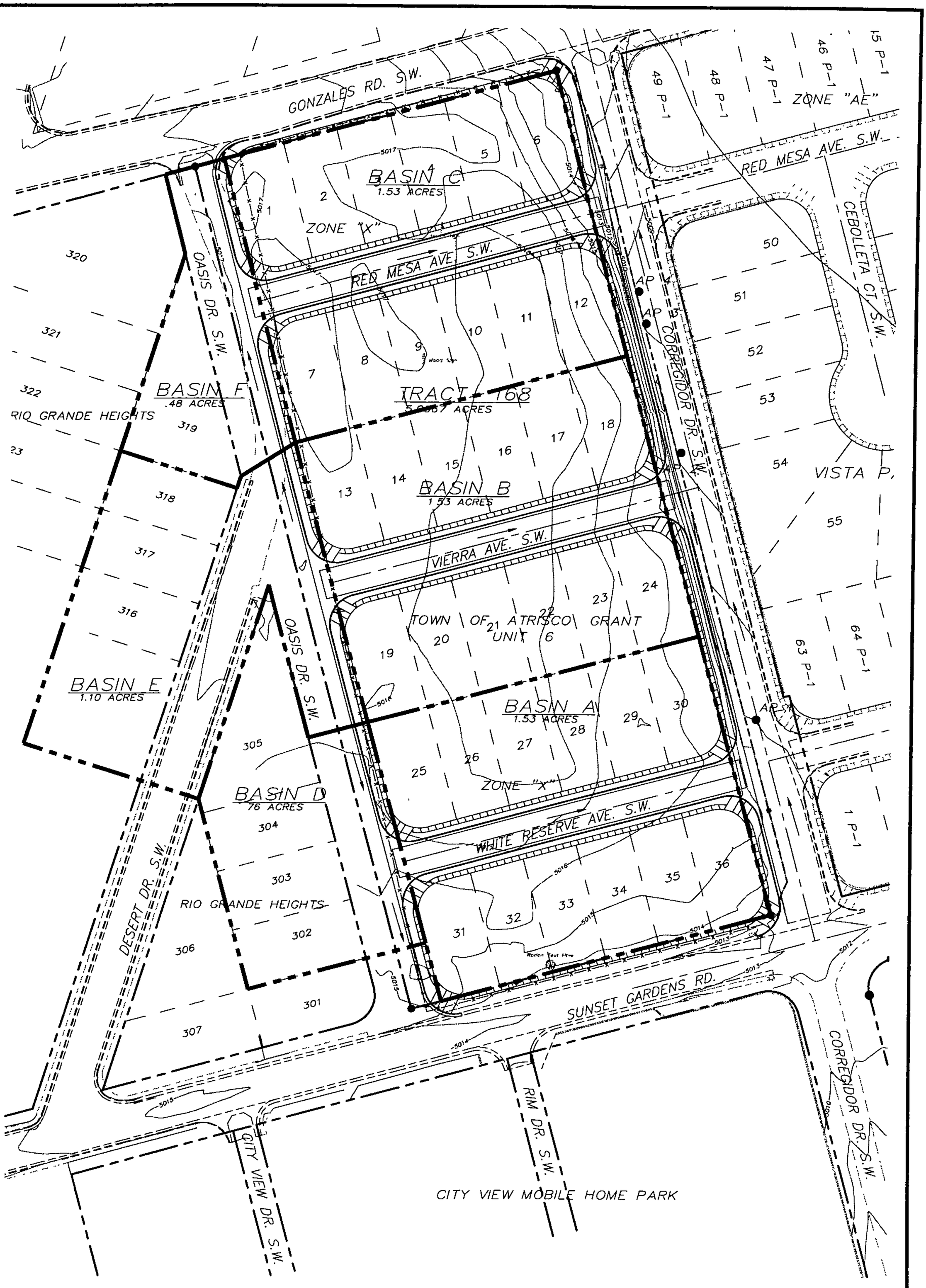
Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted D * Total Area

Flow = Qa * Aa + Qb * Ab + Qc * Ac + Qd * Ad

Excess Precipitation, E (inches)		
Zone 1	100-Year	10 - Year
E_a	0.44	0.08
E_b	0.67	0.22
E_c	0.99	0.44
E_d	1.97	1.24

Peak Discharge (cfs/acre)		
Zone 1	100-Year	10 - Year
Q_a	1.29	0.24
Q_b	2.03	0.76
Q_c	2.87	1.49
Q_d	4.37	2.89



STREET ANALYSIS POINT MAP

Street Capacity Calculations

White Reserve Avenue

28' F-F Street Section with 4" curb

Slope= 0.017 **Q = 7.78 cfs**

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)
0.01	0.0016	0.33	0.00	0.00	0.00	0.33	0.00	0.58	0.00455
0.02	0.0064	0.66	0.01	0.00	0.01	0.52	0.01	0.65	0.01082
0.025	0.01	0.83	0.01	0.01	0.01	0.60	0.02	0.67	0.01429
0.035	0.0196	1.16	0.02	0.01	0.03	0.75	0.03	0.71	0.0217
0.045	0.0324	1.49	0.02	0.03	0.06	0.89	0.04	0.74	0.02964
0.052	0.043264	1.72	0.03	0.04	0.08	0.98	0.05	0.76	0.03545
0.06	0.0576	1.98	0.03	0.06	0.12	1.08	0.06	0.78	0.04231
0.0625	0.0625	2.06	0.03	0.07	0.14	1.11	0.07	0.78	0.0445

For water depths greater than 0.0625 ft but less than 0.3025 ft

Y1= Y-0.0625
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.063	0.063506	2.09	0.03	0.07	0.14	1.11	0.07	0.78	0.04476
0.1	0.172656	3.98	0.04	0.24	0.49	1.41	0.14	0.78	0.07171
0.13	0.311406	5.51	0.06	0.52	1.05	1.68	0.22	0.82	0.09929
0.16	0.495156	7.04	0.07	0.96	1.92	1.94	0.31	0.86	0.12952
0.2	0.810156	9.08	0.09	1.84	3.69	2.28	0.46	0.90	0.17269
0.207	0.873506	9.43	0.09	2.04	4.07	2.33	0.48	0.90	0.18051
0.2612	**1.446942**	**12.20**	**0.12**	**3.98**	**7.96**	**2.75**	**0.72**	**0.95**	**0.24339**
0.3025	1.9825	14.31	0.14	6.05	12.10	3.05	0.92	0.98	0.29361

For water depths greater than 0.3025 ft but less than 0.333 ft

Y2= Y - 0.3025
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.303	1.9895	14.31	0.14	6.09	12.17	3.06	0.93	0.98	0.29468
0.3039	2.0021	14.31	0.14	6.15	12.30	3.07	0.93	0.98	0.29662
0.3062	2.0343	14.31	0.14	6.32	12.63	3.10	0.95	0.99	0.30158
0.31	2.0875	14.31	0.15	6.59	13.18	3.16	0.98	1.00	0.30979
0.3125	2.1225	14.32	0.15	6.78	13.55	3.19	1.00	1.01	0.31519
0.32	2.2275	14.32	0.16	7.34	14.68	3.30	1.05	1.03	0.33144
0.3317	2.3913	14.34	0.17	8.26	16.52	3.45	1.15	1.06	0.35689
0.333	2.4095	14.34	0.17	8.36	16.73	3.47	1.16	1.06	0.35972

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

Y3= Y - 0.333
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.335	2.4376	14.44	0.17	8.49	16.97	3.48	1.17	1.06	0.36193
0.3601	2.80726	15.69	0.18	10.16	20.32	3.62	1.30	1.06	0.39029
0.38	3.122725	16.69	0.19	11.64	23.29	3.73	1.42	1.07	0.41354
0.4196	3.809389	18.67	0.20	15.05	30.10	3.95	1.66	1.07	0.46157
0.4603	4.596832	20.70	0.22	19.21	38.42	4.18	1.92	1.09	0.51301
0.504	5.534525	22.89	0.24	24.48	48.96	4.42	2.23	1.10	0.57024
0.513	5.7395	23.34	0.25	25.68	51.35	4.47	2.30	1.10	0.58225

Street Capacity Calculations

Vierra Avenue

28' F-F Street Section with 4" curb

Slope= 0.0315 **Q = 10.02 cfs**

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)
0.01	0.0016	0.33	0.00	0.00	0.00	0.44	0.00	0.78	0.00715
0.02	0.0064	0.66	0.01	0.00	0.01	0.71	0.01	0.88	0.01679
0.025	0.01	0.83	0.01	0.01	0.02	0.82	0.02	0.91	0.02209
0.035	0.0196	1.16	0.02	0.02	0.04	1.02	0.04	0.96	0.03336
0.045	0.0324	1.49	0.02	0.04	0.08	1.21	0.05	1.01	0.04536
0.052	0.043264	1.72	0.03	0.06	0.12	1.33	0.07	1.03	0.05412
0.06	0.0576	1.98	0.03	0.08	0.17	1.47	0.09	1.06	0.06445
0.0625	0.0625	2.06	0.03	0.09	0.19	1.51	0.09	1.06	0.06774

For water depths greater than 0.0625 ft but less than 0.3025 ft

Y1= Y-0.0625

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

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

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.063	0.063506	2.09	0.03	0.10	0.19	1.51	0.10	1.06	0.06814
0.1	0.172656	3.98	0.04	0.33	0.66	1.92	0.19	1.07	0.10911
0.13	0.311406	5.51	0.06	0.71	1.42	2.29	0.30	1.12	0.15043
0.16	0.495156	7.04	0.07	1.31	2.62	2.64	0.42	1.16	0.19547
0.2	0.810156	9.08	0.09	2.51	5.02	3.10	0.62	1.22	0.25952
0.207	0.873506	9.43	0.09	2.77	5.55	3.18	0.66	1.23	0.27111
0.2612	**1.446942**	**12.20**	**0.12**	**5.42**	**10.84**	**3.75**	**0.98**	**1.29**	**0.36399**
0.3025	1.9825	14.31	0.14	8.24	16.47	4.15	1.26	1.33	0.43797

For water depths greater than 0.3025 ft but less than 0.333 ft

Y2= Y - 0.3025

A3= A2 + Y2*14

P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.303	1.9895	14.31	0.14	8.28	16.57	4.16	1.26	1.33	0.43952
0.3039	2.0021	14.31	0.14	8.37	16.74	4.18	1.27	1.34	0.44231
0.3062	2.0343	14.31	0.14	8.60	17.19	4.23	1.29	1.35	0.44946
0.31	2.0875	14.31	0.15	8.97	17.95	4.30	1.33	1.36	0.46127
0.3125	2.1225	14.32	0.15	9.22	18.45	4.35	1.36	1.37	0.46905
0.32	2.2275	14.32	0.16	9.99	19.99	4.49	1.44	1.40	0.49243
0.3317	2.3913	14.34	0.17	11.24	22.48	4.70	1.56	1.44	0.52903
0.333	2.4095	14.34	0.17	11.38	22.77	4.72	1.57	1.44	0.53311

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

Y3= Y - 0.333

A4= A3 + 14 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.335	2.4376	14.44	0.17	11.55	23.11	4.74	1.59	1.44	0.53638
0.3601	2.80726	15.69	0.18	13.83	27.66	4.93	1.77	1.45	0.57829
0.38	3.122725	16.69	0.19	15.85	31.70	5.08	1.93	1.45	0.6126
0.4196	3.809389	18.67	0.20	20.48	40.97	5.38	2.26	1.46	0.68331
0.4603	4.596832	20.70	0.22	26.15	52.30	5.69	2.62	1.48	0.75888
0.504	5.534525	22.89	0.24	33.33	66.65	6.02	3.03	1.49	0.84279
0.513	5.7395	23.34	0.25	34.95	69.90	6.09	3.12	1.50	0.86038

Street Capacity Calculations

Red Mesa Avenue

28' F-F Street Section with 4" curb

Slope= 0.0287 **Q = 7.63 cfs**

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)
0.01	0.0016	0.33	0.00	0.00	0.00	0.42	0.00	0.75	0.00669
0.02	0.0064	0.66	0.01	0.00	0.01	0.67	0.01	0.84	0.01575
0.025	0.01	0.83	0.01	0.01	0.02	0.78	0.02	0.87	0.02072
0.035	0.0196	1.16	0.02	0.02	0.04	0.98	0.03	0.92	0.03132
0.045	0.0324	1.49	0.02	0.04	0.07	1.16	0.05	0.96	0.04262
0.052	0.043264	1.72	0.03	0.06	0.11	1.27	0.07	0.98	0.05087
0.06	0.0576	1.98	0.03	0.08	0.16	1.40	0.08	1.01	0.06059
0.0625	0.0625	2.06	0.03	0.09	0.18	1.44	0.09	1.01	0.06369

For water depths greater than 0.0625 ft but less than 0.3025 ft

Y1= Y-0.0625
A2= A1 + 2*Y1 + 25*Y1^2
P2= P1 + SQRT(2501*Y1^2)+Y1

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.063	0.063506	2.09	0.03	0.09	0.18	1.44	0.09	1.01	0.06407
0.1	0.172656	3.98	0.04	0.32	0.63	1.83	0.18	1.02	0.1026
0.13	0.311406	5.51	0.06	0.68	1.36	2.18	0.28	1.07	0.14154
0.16	0.495156	7.04	0.07	1.25	2.50	2.52	0.40	1.11	0.18402
0.2	0.810156	9.08	0.09	2.40	4.79	2.96	0.59	1.17	0.24446
0.207	0.873506	9.43	0.09	2.65	5.29	3.03	0.63	1.17	0.2554
0.2612	**1.446942**	**12.20**	**0.12**	**5.17**	**10.35**	**3.57**	**0.93**	**1.23**	**0.3431**
0.3025	1.9825	14.31	0.14	7.86	15.72	3.97	1.20	1.27	0.41298

For water depths greater than 0.3025 ft but less than 0.333 ft

Y2= Y - 0.3025
A3= A2 + Y2*14
P3= P2 + Y2

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.303	1.9895	14.31	0.14	7.91	15.82	3.97	1.20	1.27	0.41445
0.3039	2.0021	14.31	0.14	7.99	15.98	3.99	1.21	1.28	0.41709
0.3062	2.0343	14.31	0.14	8.21	16.41	4.03	1.24	1.28	0.42386
0.31	2.0875	14.31	0.15	8.56	17.13	4.10	1.27	1.30	0.43506
0.3125	2.1225	14.32	0.15	8.80	17.61	4.15	1.30	1.31	0.44243
0.32	2.2275	14.32	0.16	9.54	19.08	4.28	1.37	1.33	0.46459
0.3317	2.3913	14.34	0.17	10.73	21.46	4.49	1.49	1.37	0.49927
0.333	2.4095	14.34	0.17	10.87	21.73	4.51	1.50	1.38	0.50313

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

Y3= Y - 0.333
A4= A3 + 14 * Y3 + 25 * Y3^2
P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.335	2.4376	14.44	0.17	11.03	22.05	4.52	1.52	1.38	0.50622
0.3601	2.80726	15.69	0.18	13.20	26.40	4.70	1.69	1.38	0.54579
0.38	3.122725	16.69	0.19	15.13	30.26	4.84	1.84	1.39	0.57819
0.4196	3.809389	18.67	0.20	19.55	39.11	5.13	2.15	1.40	0.64499
0.4603	4.596832	20.70	0.22	24.96	49.92	5.43	2.50	1.41	0.71639
0.504	5.534525	22.89	0.24	31.81	63.62	5.75	2.90	1.43	0.79569
0.513	5.7395	23.34	0.25	33.36	66.72	5.81	2.98	1.43	0.81233

Street Capacity Calculations

Corregidor - AP #1

32' F-F Street Section with 8" curb

Slope= 0.009

Q = 8.76 cfs

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*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)
0.01	0.0008	0.1703	0.0047	0.0002	0.0004	0.2326	0.0023	0.4099	0.0027
0.02	0.0032	0.3406	0.0094	0.0012	0.0024	0.3692	0.0074	0.4601	0.0064
0.04	0.0128	0.6812	0.0188	0.0075	0.0150	0.5861	0.0234	0.5164	0.0154
0.06	0.0288	1.0219	0.0282	0.0221	0.0442	0.7680	0.0461	0.5525	0.0257
0.08	0.0512	1.3625	0.0376	0.0476	0.0953	0.9304	0.0744	0.5797	0.0368
0.1	0.0800	1.7031	0.0470	0.0864	0.1727	1.0796	0.1080	0.6016	0.0487
0.12	0.1152	2.0437	0.0564	0.1404	0.2809	1.2191	0.1463	0.6202	0.0612
0.125	0.1250	2.1289	0.0587	0.1566	0.3132	1.2527	0.1566	0.6244	0.0643

For water depths greater than 0.125 ft but less than 0.405 ft

Y1= Y-0.125

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)
0.13	0.1356	2.3840	0.0569	0.1664	0.3327	1.2266	0.1595	0.5995	0.0630
0.16	0.2256	3.9143	0.0576	0.2792	0.5584	1.2374	0.1980	0.5452	0.0670
0.2	0.4156	5.9547	0.0698	0.5843	1.1686	1.4058	0.2812	0.5540	0.0859
0.24	0.6856	7.9951	0.0858	1.1057	2.2113	1.6126	0.3870	0.5801	0.1106
0.28	1.0356	10.0355	0.1032	1.8895	3.7789	1.8245	0.5108	0.6076	0.1384
0.32	1.4656	12.0759	0.1214	2.9793	5.9586	2.0328	0.6505	0.6333	0.1682
0.3464	1.7932	13.4225	0.1336	3.8863	7.7726	2.1672	0.7507	0.6489	0.1888
0.39	**2.4106**	**15.6466**	**0.1541**	**5.7451**	**11.4901**	**2.3832**	**0.9295**	**0.6725**	**0.2241**
0.405	2.6450	16.4117	0.1612	6.4958	12.9916	2.4559	0.9946	0.6801	0.2365

For water depths greater than 0.405 ft but less than 0.667 ft

Y2= Y - 0.405

A3= A2 + Y2*16

P3= P2 + Y2

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.41	2.7250	16.4167	0.1660	6.8251	13.6503	2.5046	1.0269	0.6893	0.2442
0.44	3.2050	16.4467	0.1949	8.9334	17.8669	2.7873	1.2264	0.7405	0.2906
0.47	3.6850	16.4767	0.2236	11.2592	22.5184	3.0554	1.4360	0.7854	0.3375
0.5	4.1650	16.5067	0 2523	13.7914	27.5829	3.3113	1.6556	0.8252	0.3848
0.55	4.9650	16.5567	0.2999	18.4462	36.8924	3.7153	2.0434	0.8828	0.4647
0.5945	5.6770	16.6012	0.3420	23.0213	46.0426	4.0552	2.4108	0.9268	0.5368
0.63	6.2450	16.6367	0.3754	26.9484	53.8969	4.3152	2.7186	0.9581	0.5949
0.667	6.8370	16.6737	0.4100	31.2929	62.5858	4.5770	3.0529	0.9876	0.6560

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 16 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	7.3922	18.3240	0.4034	33.4685	66.9369	4.5275	3.1693	0.9536	0.6568
0.73	7.9442	19.8243	0.4007	35.8078	71.6157	4.5074	3.2904	0.9297	0.6618
0.75	8.3372	20.8245	0.4004	37.5558	75.1116	4.5046	3.3784	0.9166	0.6671
0.77	8.7502	21.8247	0.4009	39.4540	78.9079	4.5089	3.4719	0.9055	0.6736
0.8	9.4072	23.3250	0.4033	42.5839	85.1678	4.5267	3.6214	0.8919	0.6854
0.82	9.8702	24.3252	0.4058	44.8606	89.7212	4.5450	3.7269	0.8845	0.6946
0.85	10.6022	25.8255	0.4105	48.5646	97.1292	4.5806	3.8935	0.8756	0.7101

Street Capacity Calculations

Corregidor - AP #2

32' F-F Street Section with 8" curb

Slope= 0.009

Q = 20.21 cfs

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*Y^2) + Y

= 0.017

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.01	0.0008	0.1703	0.0047	0.0002	0.0004	0.2326	0.0023	0.4099	0.0027
0.02	0.0032	0.3406	0.0094	0.0012	0.0024	0.3692	0.0074	0.4601	0.0064
0.04	0.0128	0.6812	0.0188	0.0075	0.0150	0.5861	0.0234	0.5164	0.0154
0.06	0.0288	1.0219	0.0282	0.0221	0.0442	0.7680	0.0461	0.5525	0.0257
0.08	0.0512	1.3625	0.0376	0.0476	0.0953	0.9304	0.0744	0.5797	0.0368
0.1	0.0800	1.7031	0.0470	0.0864	0.1727	1.0796	0.1080	0.6016	0.0487
0.12	0.1152	2.0437	0.0564	0.1404	0.2809	1.2191	0.1463	0.6202	0.0612
0.125	0.1250	2.1289	0.0587	0.1566	0.3132	1.2527	0.1566	0.6244	0.0643

For water depths greater than 0.125 ft but less than 0.405 ft

Y1= Y-0.125

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)
0.13	0.1356	2.3840	0.0569	0.1664	0.3327	1.2266	0.1595	0.5995	0.0630
0.16	0.2256	3.9143	0.0576	0.2792	0.5584	1.2374	0.1980	0.5452	0.0670
0.2	0.4156	5.9547	0.0698	0.5843	1.1686	1.4058	0.2812	0.5540	0.0859
0.24	0.6856	7.9951	0.0858	1.1057	2.2113	1.6126	0.3870	0.5801	0.1106
0.28	1.0356	10.0355	0.1032	1.8895	3.7789	1.8245	0.5108	0.6076	0.1384
0.32	1.4656	12.0759	0.1214	2.9793	5.9586	2.0328	0.6505	0.6333	0.1682
0.3464	1.7932	13.4225	0.1336	3.8863	7.7726	2.1672	0.7507	0.6489	0.1888
0.39	2.4106	15.6466	0.1541	5.7451	11.4901	2.3832	0.9295	0.6725	0.2241
0.405	2.6450	16.4117	0.1612	6.4958	12.9916	2.4559	0.9946	0.6801	0.2365

For water depths greater than 0.405 ft but less than 0.667 ft

Y2= Y - 0.405

A3= A2 + Y2*16

P3= P2 + Y2

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.41	2.7250	16.4167	0.1660	6.8251	13.6503	2.5046	1.0269	0.6893	0.2442
0.44	3.2050	16.4467	0.1949	8.9334	17.8669	2.7873	1.2264	0.7405	0.2906
0.47	**3.6850**	**16.4767**	**0.2236**	**11.2592**	**22.5184**	**3.0554**	**1.4360**	**0.7854**	**0.3375**
0.5	4.1650	16.5067	0.2523	13.7914	27.5829	3.3113	1.6556	0.8252	0.3848
0.55	4.9650	16.5567	0.2999	18.4462	36.8924	3.7153	2.0434	0.8828	0.4647
0.5945	5.6770	16.6012	0.3420	23.0213	46.0426	4.0552	2.4108	0.9268	0.5368
0.63	6.2450	16.6367	0.3754	26.9484	53.8969	4.3152	2.7186	0.9581	0.5949
0.667	6.8370	16.6737	0.4100	31.2929	62.5858	4.5770	3.0529	0.9876	0.6560

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 16 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	7.3922	18.3240	0.4034	33.4685	66.9369	4.5275	3.1693	0.9536	0.6568
0.73	7.9442	19.8243	0.4007	35.8078	71.6157	4.5074	3.2904	0.9297	0.6618
0.75	8.3372	20.8245	0.4004	37.5558	75.1116	4.5046	3.3784	0.9166	0.6671
0.77	8.7502	21.8247	0.4009	39.4540	78.9079	4.5089	3.4719	0.9055	0.6736
0.8	9.4072	23.3250	0.4033	42.5839	85.1678	4.5267	3.6214	0.8919	0.6854
0.82	9.8702	24.3252	0.4058	44.8606	89.7212	4.5450	3.7269	0.8845	0.6946
0.85	10.6022	25.8255	0.4105	48.5646	97.1292	4.5806	3.8935	0.8756	0.7101

Street Capacity Calculations

Corregidor - AP #3

32' F-F Street Section with 8" curb

Slope= 0.009

Q = 20.92 cfs

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*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)
0.01	0.0008	0.1703	0.0047	0.0002	0.0004	0.2326	0.0023	0.4099	0.0027
0.02	0.0032	0.3406	0.0094	0.0012	0.0024	0.3692	0.0074	0.4601	0.0064
0.04	0.0128	0.6812	0.0188	0.0075	0.0150	0.5861	0.0234	0.5164	0.0154
0.06	0.0288	1.0219	0.0282	0.0221	0.0442	0.7680	0.0461	0.5525	0.0257
0.08	0.0512	1.3625	0.0376	0.0476	0.0953	0.9304	0.0744	0.5797	0.0368
0.1	0.0800	1.7031	0.0470	0.0864	0.1727	1.0796	0.1080	0.6016	0.0487
0.12	0.1152	2.0437	0.0564	0.1404	0.2809	1.2191	0.1463	0.6202	0.0612
0.125	0.1250	2.1289	0.0587	0.1566	0.3132	1.2527	0.1566	0.6244	0.0643

For water depths greater than 0.125 ft but less than 0.405 ft

Y1= Y-0.125

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)
0.13	0.1356	2.3840	0.0569	0.1664	0.3327	1.2266	0.1595	0.5995	0.0630
0.16	0.2256	3.9143	0.0576	0.2792	0.5584	1.2374	0.1980	0.5452	0.0670
0.2	0.4156	5.9547	0.0698	0.5843	1.1686	1.4058	0.2812	0.5540	0.0859
0.24	0.6856	7.9951	0.0858	1.1057	2.2113	1.6126	0.3870	0.5801	0.1106
0.28	1.0356	10.0355	0.1032	1.8895	3.7789	1.8245	0.5108	0.6076	0.1384
0.32	1.4656	12.0759	0.1214	2.9793	5.9586	2.0328	0.6505	0.6333	0.1682
0.3464	1.7932	13.4225	0.1336	3.8863	7.7726	2.1672	0.7507	0.6489	0.1888
0.39	2.4106	15.6466	0.1541	5.7451	11.4901	2.3832	0.9295	0.6725	0.2241
0.405	2.6450	16.4117	0.1612	6.4958	12.9916	2.4559	0.9946	0.6801	0.2365

For water depths greater than 0.405 ft but less than 0.667 ft

Y2= Y - 0.405

A3= A2 + Y2*16

P3= P2 + Y2

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.41	2.7250	16.4167	0.1660	6.8251	13.6503	2.5046	1.0269	0.6893	0.2442
0.44	3.2050	16.4467	0.1949	8.9334	17.8669	2.7873	1.2264	0.7405	0.2906
0.47	**3.6850**	**16.4767**	**0.2236**	**11.2592**	**22.5184**	**3.0554**	**1.4360**	**0.7854**	**0.3375**
0.5	4.1650	16.5067	0.2523	13.7914	27.5829	3.3113	1.6556	0.8252	0.3848
0.55	4.9650	16.5567	0.2999	18.4462	36.8924	3.7153	2.0434	0.8828	0.4647
0.5945	5.6770	16.6012	0.3420	23.0213	46.0426	4.0552	2.4108	0.9268	0.5368
0.63	6.2450	16.6367	0.3754	26.9484	53.8969	4.3152	2.7186	0.9581	0.5949
0.667	6.8370	16.6737	0.4100	31.2929	62.5858	4.5770	3.0529	0.9876	0.6560

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 16 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	7.3922	18.3240	0.4034	33.4685	66.9369	4.5275	3.1693	0.9536	0.6568
0.73	7.9442	19.8243	0.4007	35.8078	71.6157	4.5074	3.2904	0.9297	0.6618
0.75	8.3372	20.8245	0.4004	37.5558	75.1116	4.5046	3.3784	0.9166	0.6671
0.77	8.7502	21.8247	0.4009	39.4540	78.9079	4.5089	3.4719	0.9055	0.6736
0.8	9.4072	23.3250	0.4033	42.5839	85.1678	4.5267	3.6214	0.8919	0.6854
0.82	9.8702	24.3252	0.4058	44.8606	89.7212	4.5450	3.7269	0.8845	0.6946
0.85	10.6022	25.8255	0.4105	48.5646	97.1292	4.5806	3.8935	0.8756	0.7101

Street Capacity Calculations

Corregidor - AP #4

32' F-F Street Section with 8" curb

Slope= 0.009

Q = 30.64 cfs

For water depths less than 0.125 feet

Y= Water depth

Area = 8*Y^2

P= SQRT(257*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)
0.01	0.0008	0.1703	0.0047	0.0002	0.0004	0.2326	0.0023	0.4099	0.0027
0.02	0.0032	0.3406	0.0094	0.0012	0.0024	0.3692	0.0074	0.4601	0.0064
0.04	0.0128	0.6812	0.0188	0.0075	0.0150	0.5861	0.0234	0.5164	0.0154
0.06	0.0288	1.0219	0.0282	0.0221	0.0442	0.7680	0.0461	0.5525	0.0257
0.08	0.0512	1.3625	0.0376	0.0476	0.0953	0.9304	0.0744	0.5797	0.0368
0.1	0.0800	1.7031	0.0470	0.0864	0.1727	1.0796	0.1080	0.6016	0.0487
0.12	0.1152	2.0437	0.0564	0.1404	0.2809	1.2191	0.1463	0.6202	0.0612
0.125	0.1250	2.1289	0.0587	0.1566	0.3132	1.2527	0.1566	0.6244	0.0643

For water depths greater than 0.125 ft but less than 0.405 ft

Y1= Y-0.125

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)
0.13	0.1356	2.3840	0.0569	0.1664	0.3327	1.2266	0.1595	0.5995	0.0630
0.16	0.2256	3.9143	0.0576	0.2792	0.5584	1.2374	0.1980	0.5452	0.0670
0.2	0.4156	5.9547	0.0698	0.5843	1.1686	1.4058	0.2812	0.5540	0.0859
0.24	0.6856	7.9951	0.0858	1.1057	2.2113	1.6126	0.3870	0.5801	0.1106
0.28	1.0356	10.0355	0.1032	1.8895	3.7789	1.8245	0.5108	0.6076	0.1384
0.32	1.4656	12.0759	0.1214	2.9793	5.9586	2.0328	0.6505	0.6333	0.1682
0.3464	1.7932	13.4225	0.1336	3.8863	7.7726	2.1672	0.7507	0.6489	0.1888
0.39	2.4106	15.6466	0.1541	5.7451	11.4901	2.3832	0.9295	0.6725	0.2241
0.405	2.6450	16.4117	0.1612	6.4958	12.9916	2.4559	0.9946	0.6801	0.2365

For water depths greater than 0.405 ft but less than 0.667 ft

Y2= Y - 0.405

A3= A2 + Y2*16

P3= P2 + Y2

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.41	2.7250	16.4167	0.1660	6.8251	13.6503	2.5046	1.0269	0.6893	0.2442
0.44	3.2050	16.4467	0.1949	8.9334	17.8669	2.7873	1.2264	0.7405	0.2906
0.47	3.6850	16.4767	0.2236	11.2592	22.5184	3.0554	1.4360	0.7854	0.3375
0.5	4.1650	16.5067	0.2523	13.7914	27.5829	3.3113	1.6556	0.8252	0.3848
0.55	**4.9650**	**16.5567**	**0.2999**	**18.4462**	**36.8924**	**3.7153**	**2.0434**	**0.8828**	**0.4647**
0.5945	5.6770	16.6012	0.3420	23.0213	46.0426	4.0552	2.4108	0.9268	0.5368
0.63	6.2450	16.6367	0.3754	26.9484	53.8969	4.3152	2.7186	0.9581	0.5949
0.667	6.8370	16.6737	0.4100	31.2929	62.5858	4.5770	3.0529	0.9876	0.6560

For water depths greater than 0.667 ft but less than 0.847 ft

Y3= Y - 0.667

A4= A3 + 16 * Y3 + 25 * Y3^2

P4= P3 + SQRT(2501 * Y3^2)

Depth (ft)	Area (ft^2	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.7	7.3922	18.3240	0.4034	33.4685	66.9369	4.5275	3.1693	0.9536	0.6568
0.73	7.9442	19.8243	0.4007	35.8078	71.6157	4.5074	3.2904	0.9297	0.6618
0.75	8.3372	20.8245	0.4004	37.5558	75.1116	4.5046	3.3784	0.9166	0.6671
0.77	8.7502	21.8247	0.4009	39.4540	78.9079	4.5089	3.4719	0.9055	0.6736
0.8	9.4072	23.3250	0.4033	42.5839	85.1678	4.5267	3.6214	0.8919	0.6854
0.82	9.8702	24.3252	0.4058	44.8606	89.7212	4.5450	3.7269	0.8845	0.6946
0.85	10.6022	25.8255	0.4105	48.5646	97.1292	4.5806	3.8935	0.8756	0.7101

Single 'C" Drop Inlet
EFFECTIVE AREA

Area at the grate:

L = 38.375" - 7(2@ middle bars)
= 34.875"
= 2.906'

W = 25.5" - 13(2@ middle bars)
= 19"
= 1.583'

Area = 1.583' x 2.906'
= 4.601 ft^2

Effective Area: = 4.601- 4.601 (0.5 clogging factor)
= 2.30 ft^2 at the grate

Orifice Equation
Q = CA sqrt(2gH)
Q = 0.6*4.601*sqrt(2*32.2*0.67)
Q = 18.13 cfs

Area at the throat:

L = 47.375@
= 3.95'

H = 10:@ - 42@
= 63@
= 0.5208'

Area = 3.95' x 0.5208'
= 2.06 ft^2 at the throat

Weir Equation
Q = CLH^(3/2)
Q = 2.95 * 3.95 * 0.67^(3/2)
Q = 6.39 cfs

Total Capacity

Q = 18.13grate + 6.39throat
Q = 24.69 cfs

Flow required = 25.43 cfs > 24.69 cfs; Computed flow not significantly greater, therefore Single C inlet has capacity

Pipe Capacity

Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
1	24	2	3.14	0.500	32.08	25.43	8.09

Manning's Equation:

Q = 1.49/n * A * R^(2/3) * S^(1/2)

A = Area
R = D/4
S = Slope
n = 0.013

Appendix A

Infrastructure List

[redacted] Current DRC Project Number:_____

FIGURE 12

Date Submitted:_____
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.:_____
DRB Application No.:_____

INFRASTRUCTURE LIST

EXHIBIT "A"
TO SUBDIVISION IMPROVEMENTS AGREEMENT
DEVELOPMENT REVIEW BOARD (D.R.B.) REQUIRED INFRASTRUCTURE LIST

Vista Pacifica Subdivision Phase 2
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Tract 168, Town of Atrisco Grant Unit 6
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This Listing is not necessarily a complete listing. During the SIA process and/or in the review of the construction drawings, if the DRC Chair determines that appurtenant items and/or unforeseen items have not been included in the infrastructure listing, the DRC Chair may include those items in the listing and related financial guarantee. Likewise, if the DRC Chair determines that appurtenant or non-essential items can be deleted from the listing, those items may be deleted as well as the related portions of the financial guarantees. All such revisions require approval by the DRC Chair, the User Department and agent/owner. If such approvals are obtained, these revisions to the listing will be incorporated administratively. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility will be required as a condition of project acceptance and close out by the City.

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
		16' F-E	Residential Paving Curb and Gutter 4' Sidewalk (West Side Only)	Corregidor Drive	Sunset Gardens Rd.	Gonzales Rd.	/	/	/
		16' F-E	Residential Paving Curb and Gutter 4' Sidewalk (East Side Only)	Oasis Drive	Sunset GardensRd.	Gonzales Rd.	/	/	/
		28' F-F	Residential Paving Curb and Gutter 4' Sidewalk (Both Sides)*	Red Mesa Avenue	Corregidor Drive	Oasis Drive	/	/	/
		28' F-F	Residential Paving Curb and Gutter 4' Sidewalk (Both Sides)*	Vierra Avenue	Corregidor Drive	Oasis Drive	/	/	/
		28' F-F	Residential Paving Curb and Gutter 4' Sidewalk (Both Sides)*	White Reserve Avenue	Corregidor Drive	Oasis Drive	/	/	/
		8"	SAS Graviity Line	Red Mesa Avenue	Corregidor Drive	Oasis Drive	/	/	/
		8"	SAS Graviity Line	Vierra Avenue	Corregidor Drive	Oasis Drive	/	/	/
		8"	SAS Graviity Line	White Reserve Avenue	Corregidor Drive	Oasis Drive	/	/	/
		8"	Water PVC Line	Red Mesa Avenue	Corregidor Drive	Oasis Drive	/	/	/

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
		8"	Water PVC Line	Vierra Avenue	Corregidor Drive	Oasis Drive	/	/	/
		8"	Water PVC Line	White Reserve Avenue	Corregidor Drive	Oasis Drive	/	/	/
							/	/	/
							/	/	/
							/	/	/
							/	/	/
							/	/	/
							/	/	/

NAME OF PLAT AND/OR SITE PLAN__Vista Pacifica Unit 2_____

NOTES

1 *All internal sidewalk deferred.

2

3

AGENT / OWNER

Ronald R. Bohannan

NAME (print)

FIRM

5/28/04

SIGNATURE - date

MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: _____

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

DRB CHAIR - date

PARKS & GENERAL SERVICES - date

TRANSPORTATION DEVELOPMENT - date

AMAFCA - date

UTILITY DEVELOPMENT - date

_____ - date

CITY ENGINEER - date

_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

Map Pocket

Grading and Drainage Plan