City of Albuquerque
P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

January 30, 2003

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

Re: Santa Fe Village Subdivision Drainage Report
Engineer's Stamp dated 12-17-02 (F10/D6A)

Dear Mr. Bohannan,

Based upon the information provided in your submittal dated 12-19-02, the above referenced report is approved for Preliminary Plat action by the DRB.

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

C: file

DRAINAGE REPORT

for

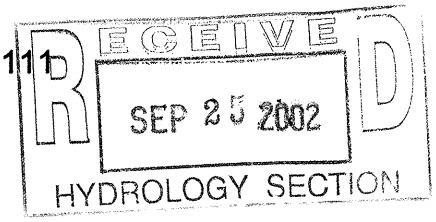
Santa Fe Village

Prepared by

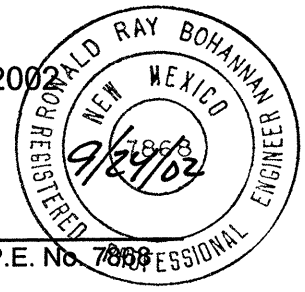
Tierra West, LLC
8509 Jefferson NE
Albuquerque, New Mexico 87113

Prepared for

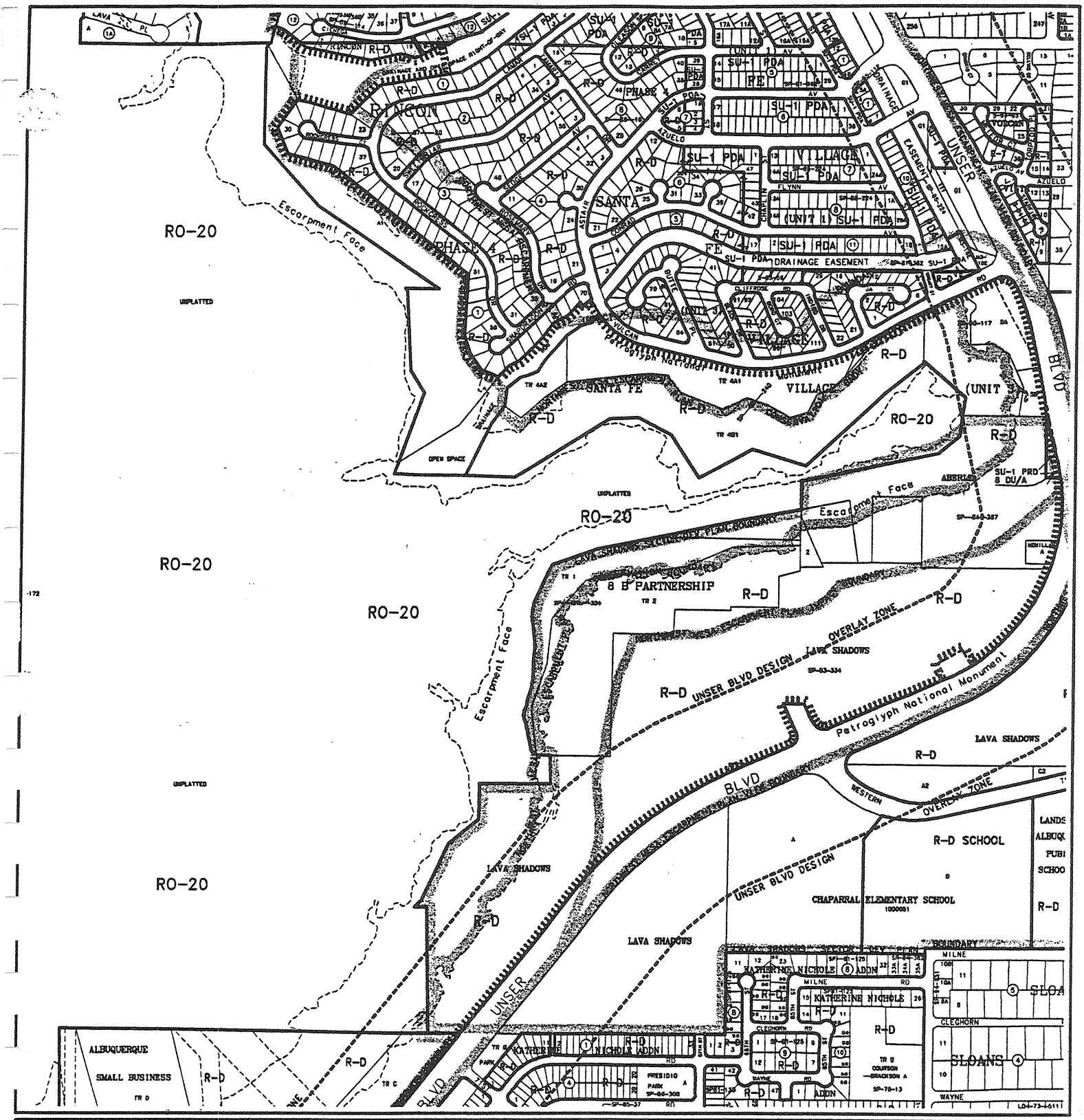
Grant Gist
8509 Canyon Run NE
Albuquerque, New Mexico 87111

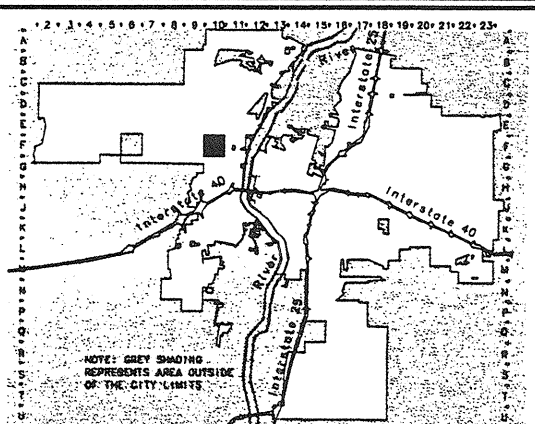


September 2002



Ronald R. Bohannan P.E. No. 7868





CITY OF Albuquerque

Albuquerque Geographic Information System

PLANNING DEPARTMENT

GRAPHIC SCALE IN FEET

250 0 750 1000

Zone Atlas Page

F-10-Z

Map Amended through July 28, 2000

Location

The proposed residential project is on the west side of the City of Albuquerque located north of Vulcan Boulevard and east of Bogart Street and contains 0.51 acres. The site is shown and highlighted on the attached Zone Atlas Map F-10 and is identified as Tract 6A and 6B of Santa Fe Village. The purpose of this report is to provide the drainage analysis and management plan for this site.

Existing Drainage Conditions

This site is currently undeveloped. There is one existing basin on the site with an existing runoff flow of 1.04 cfs. Currently this basin sheet flows north and east to the San Antonio Diversion Channel. There are no off-site flows entering the site. All upland flows are diverted by the nearby streets into the drainage channels. The channel has a concrete rundown on the west and an earth swale with basaltic or riprap sides.

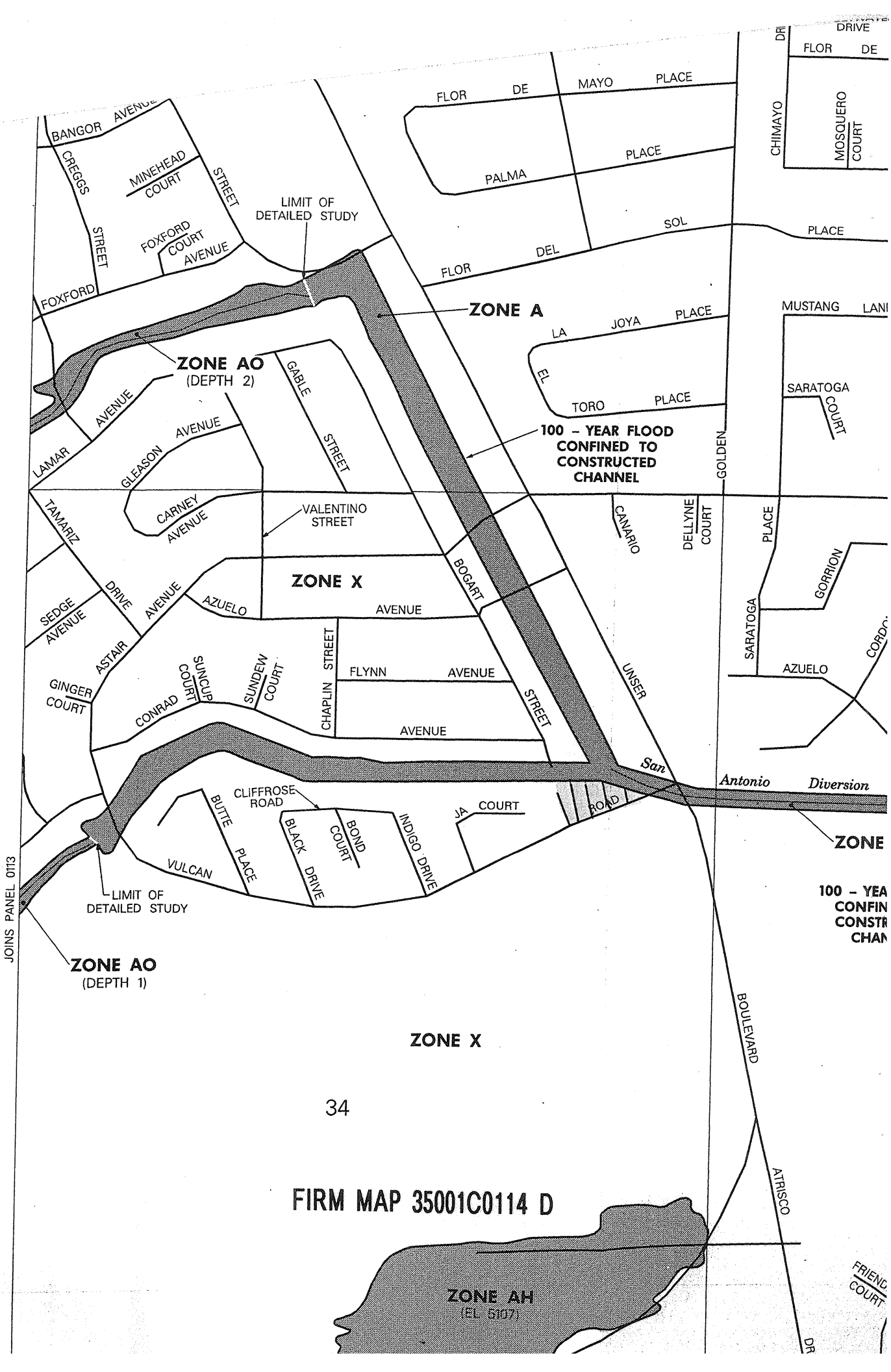
FEMA Map and Soil Conditions

The site is located on FIRM Map 35001C0114 D as shown on the attached excerpt. The map shows that the site does not lie within any 100-year flood plains.

The site contains two different soil types from the Soil Conservation Service Survey of Bernalillo County. One soil is a Bluepoint-Kokan association; it has slow runoff and the hazard of water erosion is moderate or severe. The other nearby soil is a Kokan-Rock outcrop association. This soil occurs at the edge of the basalt mesa breaks on the West Mesa. It has a slight hazard of water erosion and rapid runoff.

On-Site Drainage Management Plan

There are six proposed basins on the site. Basin 1 has a runoff flow of 0.77 cfs and consists the roof drainage and driveways for the lots fronting Bogart Street. Basin 1 will drain to



FIRM MAP 35001C0114 D

Bogart Street. The runoff in Bogart Street will drain north to an existing drop inlet located in the street. Basin 2 drains to Vulcan Street with a developed flow of 0.88 cfs and consists of the lots fronting on that street. The runoff in Vulcan Road will drain east down the street to an existing drop inlet located at the corner of Vulcan and Unser. Basin 3 and 4 consist of the rear yards for two of the condos. Basin 4 has a flow of 0.03 cfs and drains north to blocks turned in the wall. The flow will enter Basin 3, which has a flow rate of 0.06 cfs, and the combined flows will drain north through the perimeter wall to the concrete channel adjacent to the site. This is a combined flow of 0.09 cfs. Basin 5, with a flow rate of 0.05 cfs, will also drain north to the adjacent concrete channel. Basin 6, with a flow rate of 0.01 cfs, will continue its natural drainage pattern and drain north of the San Antonio Diversion Channel.

The total developed flow from the site is 1.83 cfs, while the historic flow from the site is 1.04 cfs. The proposed flow is approximately 0.79 cfs greater than the historic flow. The flow in the Diversion Channel is being increased by such a small degree as will not be injurious to the downstream capacity. Therefore, we are recommending free discharge from the site.

Summary

There are six proposed basins and no upland flows entering the site. Basins 1 and 2 will free discharge to Vulcan Boulevard and Bogart Street, and Basins 3, 4, 5, and 6 will drain to the adjacent channels.

Weighted E Method

Developed On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs
1	8,592	0.20	0%	0	20%	0.04	0%	0.00	80%	0.16	1.710	0.028	0.77	1.036	0.017	0.49
2	9,873	0.23	0%	0	20%	0.05	0%	0.00	80%	0.18	1.710	0.032	0.88	1.036	0.020	0.56
3	1,308	0.03	0%	0	100%	0.03	0%	0.00	0%	0.00	0.670	0.002	0.06	0.220	0.001	0.02
4	537	0.01	0%	0	100%	0.01	0%	0.00	0%	0.00	0.670	0.001	0.03	0.220	0.000	0.01
5	1,158	0.03	0%	0	100%	0.03	0%	0.00	0%	0.00	0.670	0.001	0.05	0.220	0.000	0.02
6	857	0.02	0%	0	100%	0.02	0%	0.00	0%	0.00	0.670	0.001	0.04	0.220	0.000	0.01
Total	22,324	0.51		0		0.17		0.00		0.34		0.065	1.83		0.038	1.11

Undeveloped On-Site Basins

Basin	Area (sf)	Area (acres)	Treatment A %	Treatment A (acres)	Treatment B %	Treatment B (acres)	Treatment C %	Treatment C (acres)	Treatment D %	Treatment D (acres)	100-Year, 6-Hr Weighted E	100-Year, 6-Hr Volume (ac-ft)	100-Year, 6-Hr Flow cfs	10-Year, 6-Hr Weighted E	10-Year, 6-Hr Volume (ac-ft)	10-Year, 6-Hr Flow cfs
1	22,324	0.51	0%	0	100%	0.51	0%	0.00	0%	0.00	0.670	0.029	1.04	0.220	0.009	0.39

Equations for Weighted E Method:

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

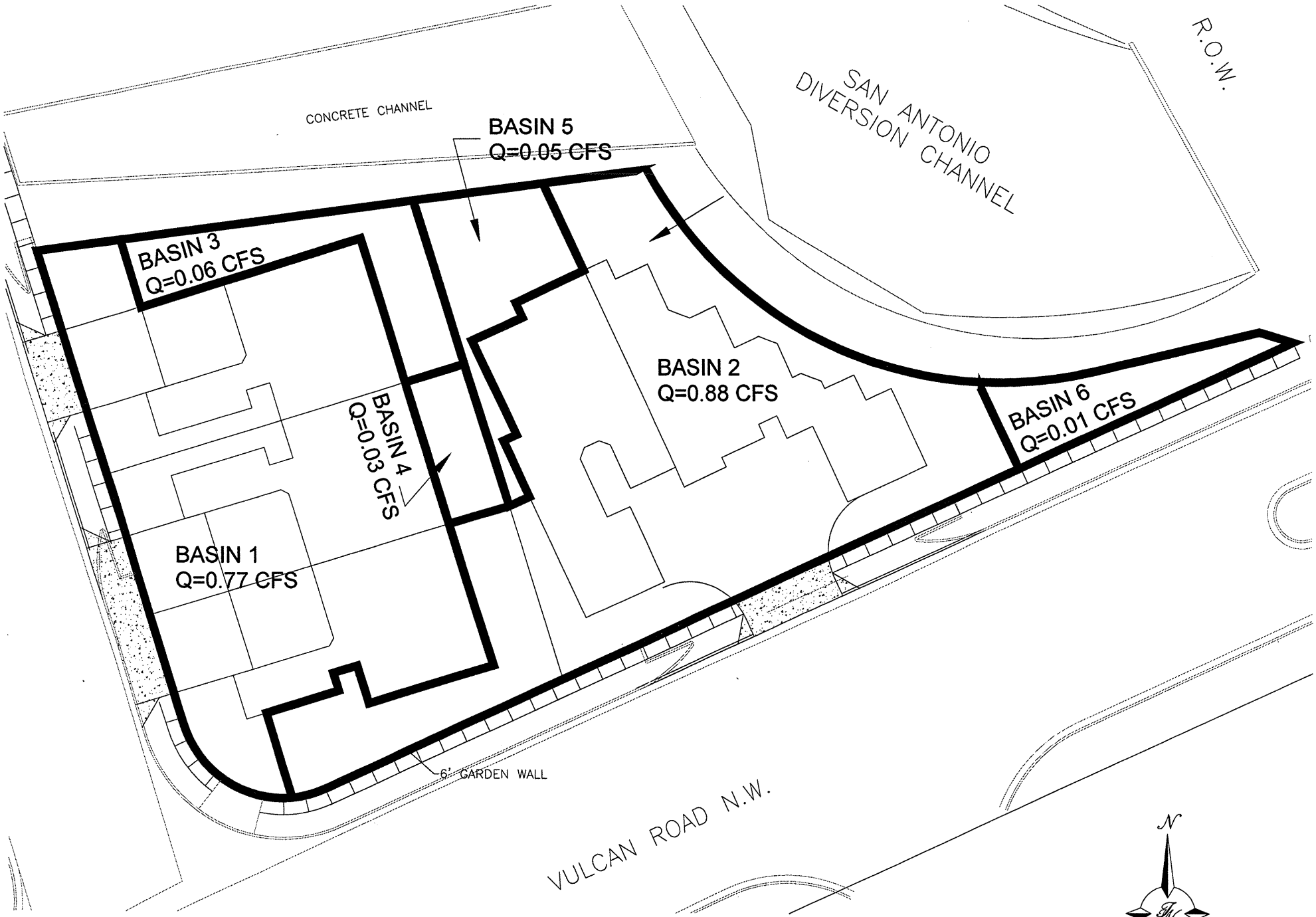
Volume = Weighted D * Total Area

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

Volume (10-day) = V_{360} + Ad * (P_{10days} - P_{360})/ 12 in/ft

Excess Precipitation, E (inches)			
Zone 1	100-Year	10 - Year	2 - Year
E_a	0.44	0.08	0.00
E_b	0.67	0.22	0.01
E_c	0.99	0.44	0.12
E_d	1.97	1.24	0.72

Peak Discharge (cfs/acre)			
Zone 1	100-Year	10 - Year	2 - Year
Q_a	1.29	0.24	0
Q_b	2.03	0.76	0.03
Q_c	2.87	1.49	0.47
Q_d	4.37	2.89	1.69



BASIN EXHIBIT

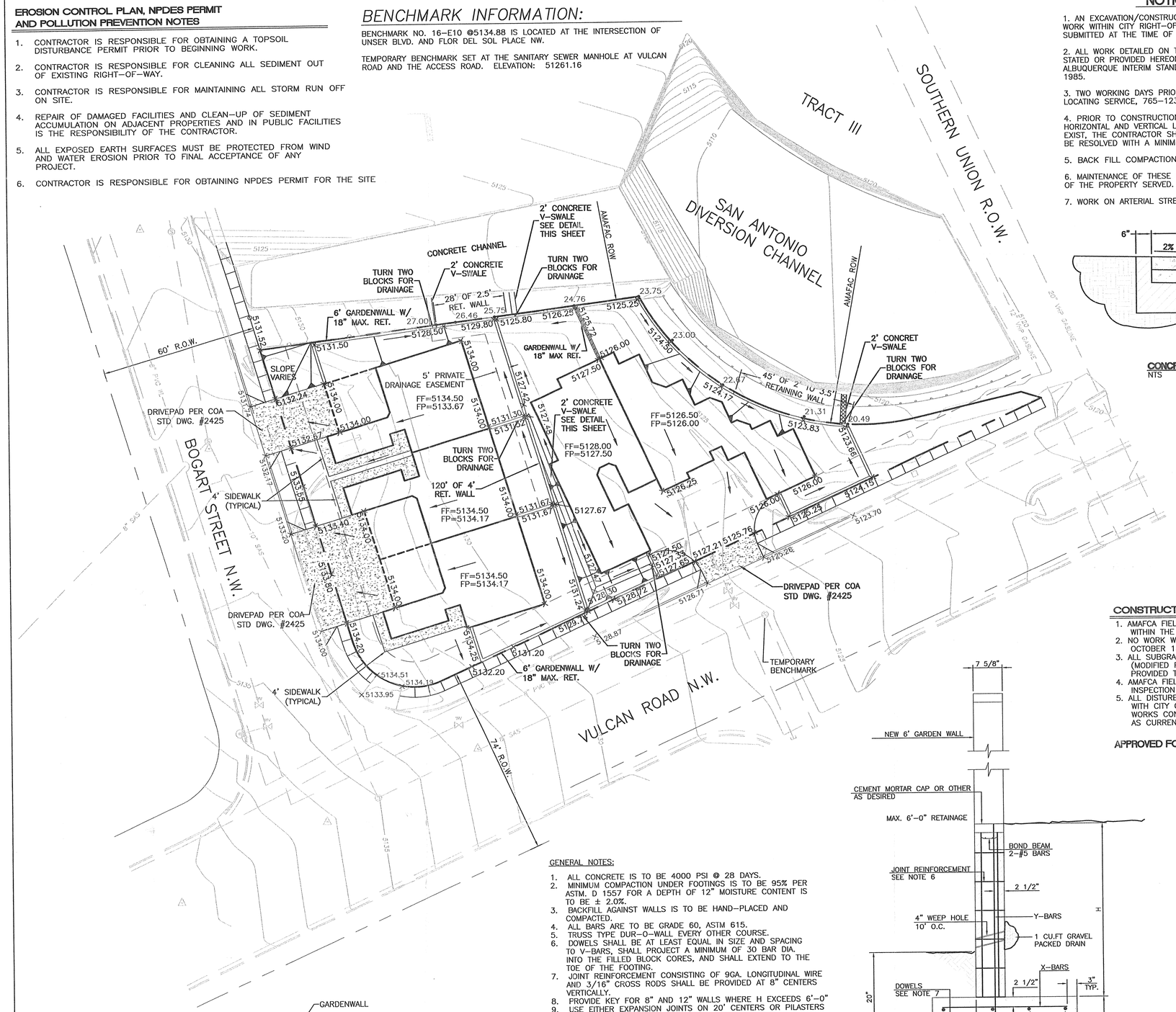
EROSION CONTROL PLAN, NPDES PERMIT AND POLLUTION PREVENTION NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT OUT OF EXISTING RIGHT-OF-WAY.
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL STORM RUN OFF ON SITE.
4. REPAIR OF DAMAGED FACILITIES AND CLEAN-UP OF SEDIMENT ACCUMULATION ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL ACCEPTANCE OF ANY PROJECT.
6. CONTRACTOR IS RESPONSIBLE FOR OBTAINING NPDES PERMIT FOR THE SITE

BENCHMARK INFORMATION:

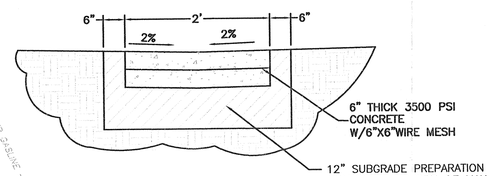
BENCHMARK NO. 16-E10 @5134.88 IS LOCATED AT THE INTERSECTION OF UNSER BLVD. AND FLOR DEL SOL PLACE NW.

TEMPORARY BENCHMARK SET AT THE SANITARY SEWER MANHOLE AT VULCAN ROAD AND THE ACCESS ROAD. ELEVATION: 51261.16

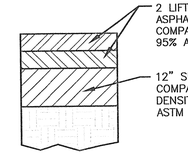


NOTICE TO CONTRACTORS

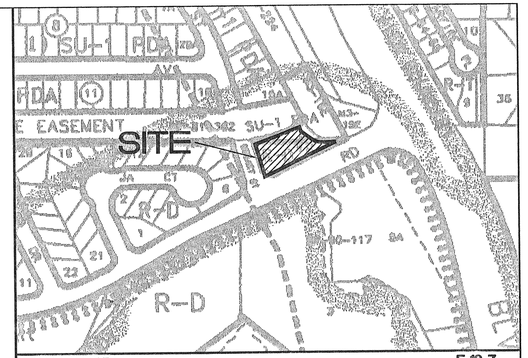
1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1985.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACK FILL COMPACTION SHALL BE ACCORDING TO RESIDENTIAL STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.



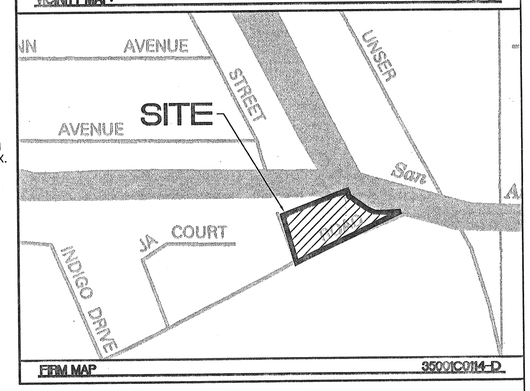
CONCRETE SWALE DETAIL
NTS



DRIVE PAD SECTION
NTS



VICINITY MAP: F-10-Z



FIRM MAP 35001C0114-D

LEGAL DESCRIPTION:
TRACTS 6A & 6B BEING TRACT 6 OF SANTA FE VILLAGE

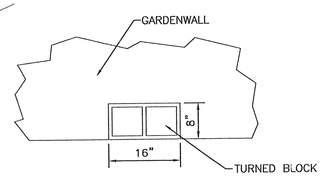
CONSTRUCTION WITHIN AMAFCA R.O.W.

1. AMAFCA FIELD ENGINEER SHALL BE NOTIFIED 48-HOURS PRIOR TO ANY WORK WITHIN THE AMAFCA R/W. TEL: 884-2215 JERRY LOVATO.
2. NO WORK WILL BE PERFORMED IN THE AMAFCA R/W BETWEEN APRIL 15 AND OCTOBER 15 WITHOUT WRITTEN PERMISSION FROM AMAFCA.
3. ALL SUBGRADE, BACKFILL AND EMBANKMENT SHALL BE COMPACTED TO 95% (MODIFIED PROCTOR) WITHIN THE AMAFCA R/W. TESTING REPORTS SHALL BE PROVIDED TO AMAFCA FIELD ENGINEER.
4. AMAFCA FIELD ENGINEER WILL BE NOTIFIED 48-HOURS PRIOR TO FINAL INSPECTION OF ANY FACILITIES WITHIN THE AMAFCA R/W.
5. ALL DISTURBED GROUND AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SECTION 1012 NATIVE GRASS SEEDING, AS CURRENTLY UPDATED.

APPROVED FOR CONSTRUCTION _____
(FOR AMAFCA) (DATE)

LEGEND

	DESCRIPTION
	EXISTING CURB & GUTTER
	PROPOSED CURB & GUTTER
	BOUNDARY LINE
	EXISTING BOUNDARY LINE
	EASEMENT
	PROPOSED SIDEWALK
	EXISTING SIDEWALK
	EXISTING WALL
	EXISTING CONTOUR
	EXISTING INDEX CONTOUR
5011	PROPOSED CONTOUR
5010	PROPOSED INDEX CONTOUR
	FLOW ARROW
5048.25	EXISTING SPOT ELEVATION
5048.25	PROPOSED SPOT ELEVATION
	DROP INLET
	SIDEWALK CULVERT



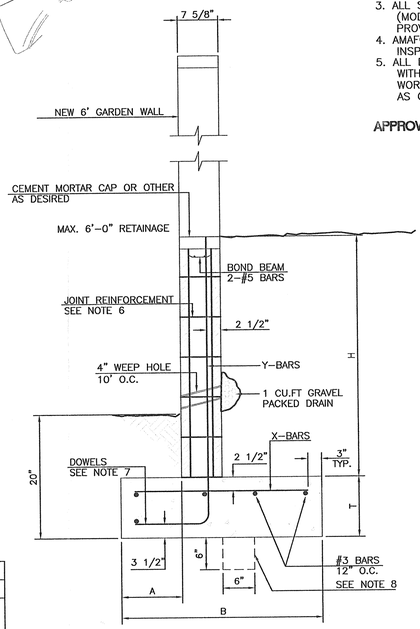
DETAIL OF WALL
NTS

GENERAL NOTES:

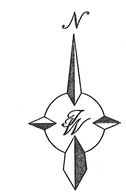
1. ALL CONCRETE IS TO BE 4000 PSI @ 28 DAYS.
2. MINIMUM COMPACTION UNDER FOOTINGS IS TO BE 95% PER ASTM. D 1557 FOR A DEPTH OF 12" MOISTURE CONTENT IS TO BE ± 2.0%.
3. BACKFILL AGAINST WALLS IS TO BE HAND-PLACED AND COMPACTED.
4. ALL BARS ARE TO BE GRADE 60, ASTM 615.
5. TRUSS TYPE DUR-O-WALL EVERY OTHER COURSE.
6. DOWELS SHALL BE AT LEAST EQUAL IN SIZE AND SPACING TO V-BARS, SHALL PROJECT A MINIMUM OF 30 BAR DIA. INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
7. JOINT REINFORCEMENT CONSISTING OF 9GA. LONGITUDINAL WIRE AND 3/16" CROSS RODS SHALL BE PROVIDED AT 8" CENTERS VERTICALLY.
8. PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'-0"
9. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.

8 INCH REINFORCED CONCRETE MASONRY WALL

H	A	B	T	V-BARS	X-BARS
ft.-in.	in.	ft.-in.	in.		
1'-4"	6"	1'-11"	9"	#3 @32" O.C.	#3 @27" O.C.
2'-0"	6"	1'-11"	9"	#3 @32" O.C.	#3 @27" O.C.
2'-8"	6"	1'-11"	9"	#3 @32" O.C.	#3 @27" O.C.
3'-4"	8"	2'-4"	9"	#3 @32" O.C.	#3 @27" O.C.
4'-0"	10"	2'-9"	9"	#4 @32" O.C.	#3 @27" O.C.



RETAINING WALL DETAIL
NOT TO SCALE



GRAPHIC SCALE
20 10 0 10 20
SCALE: 1"=20'

RECEIVED
DEC 19 2002
HYDROLOGY SECTION

ENGINEER'S SEAL
RONALD R. BOHANNAN P.E. #7868

SANTA FE VILLAGE
GRADING PLAN

TIERRA WEST, LLC
8509 JEFFERSON NE
ALBUQUERQUE, NEW MEXICO 87113
(505)858-3100

DRAWN BY BJF
DATE 12/10/02
95052GR2.DWG
SHEET # -
JOB # 950052

CITY OF
Albuquerque

Martin J. Chávez, Mayor

September 12, 1996

Ronald R. Bohannan, P.E.
Tierra West Development
4421 McLeod Rd. NE, Suite D
Albuquerque, New Mexico 87109

RE: GRADING AND DRAINAGE PLAN FOR TRACT 6 OF SANTA FE VILLAGE (F10/D6A) SUBMITTED FOR SITE DEVELOPMENT FOR SUBDIVISION APPROVAL AND GRADING PERMIT APPROVAL, ENGINEER'S STAMP DATED 8/15/96.

Dear Mr. Bohannan:

Based on the information provided in the submittal of August 20, 1996, the above referenced plan is approved for Site Development for Subdivision and for Grading Permit release.

Please be advised that the Engineer's Certification for this site is required prior to release of the Certificate of Occupancy.

If you should have any questions, or if I may be of further assistance to you, please call me at 768-2666.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
File

CITY OF
Albuquerque

Martin J. Chávez, Mayor

June 4, 1996

Ronald R. Bohannan, P.E.
Tierra West Development
4600 Montgomery Blvd. NE, Suite 3
Albuquerque, New Mexico 87109

RE: GRADING AND DRAINAGE PLAN FOR TRACT 6 OF SANTA FE VILLAGE (F10/D6A) SUBMITTED FOR SITE DEVELOPMENT FOR SUBDIVISION APPROVAL AND GRADING PERMIT APPROVAL, ENGINEER'S STAMP DATED 5/14/96.

Dear Mr. Bohannan:

Based on the information provided in the submittal of May 15, 1996, the above referenced plan is approved for Site Development for Subdivision and for Grading Permit release.

Please be advised that the concrete rundown channel into the San Antonio arroyo must be constructed under Work Order. Work order plans must be approved prior to Building Permit release. This drainage structure must be certified with the grading and drainage prior to release of the Certificate of Occupancy.

If you should have any questions, or if I may be of further assistance to you, please call me at 768-2666.

Sincerely,

Susan Calongne

Susan M. Calongne, P.E.
City/County Floodplain Administrator

c: Andrew Garcia, City Hydrology
File

TABLE OF CONTENTS

DRAINAGE REPORT

for

Santa Fe Village

Prepared by

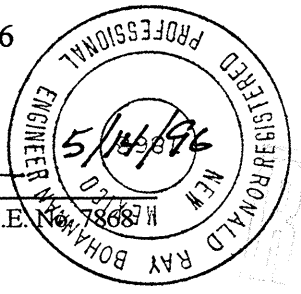
Tierra West Development Management Sevices
4421 McLeod Road NE, Suite D
Albuquerque, New Mexico 87109

Prepared for

Grant E. Gist and Tom Muchmore
Santa Fe Village Inc.
9943 E. Island Circle
Scottsdale, Arizona 85258

May 1996

Ronald R. Bohannan P.E. No. 7868



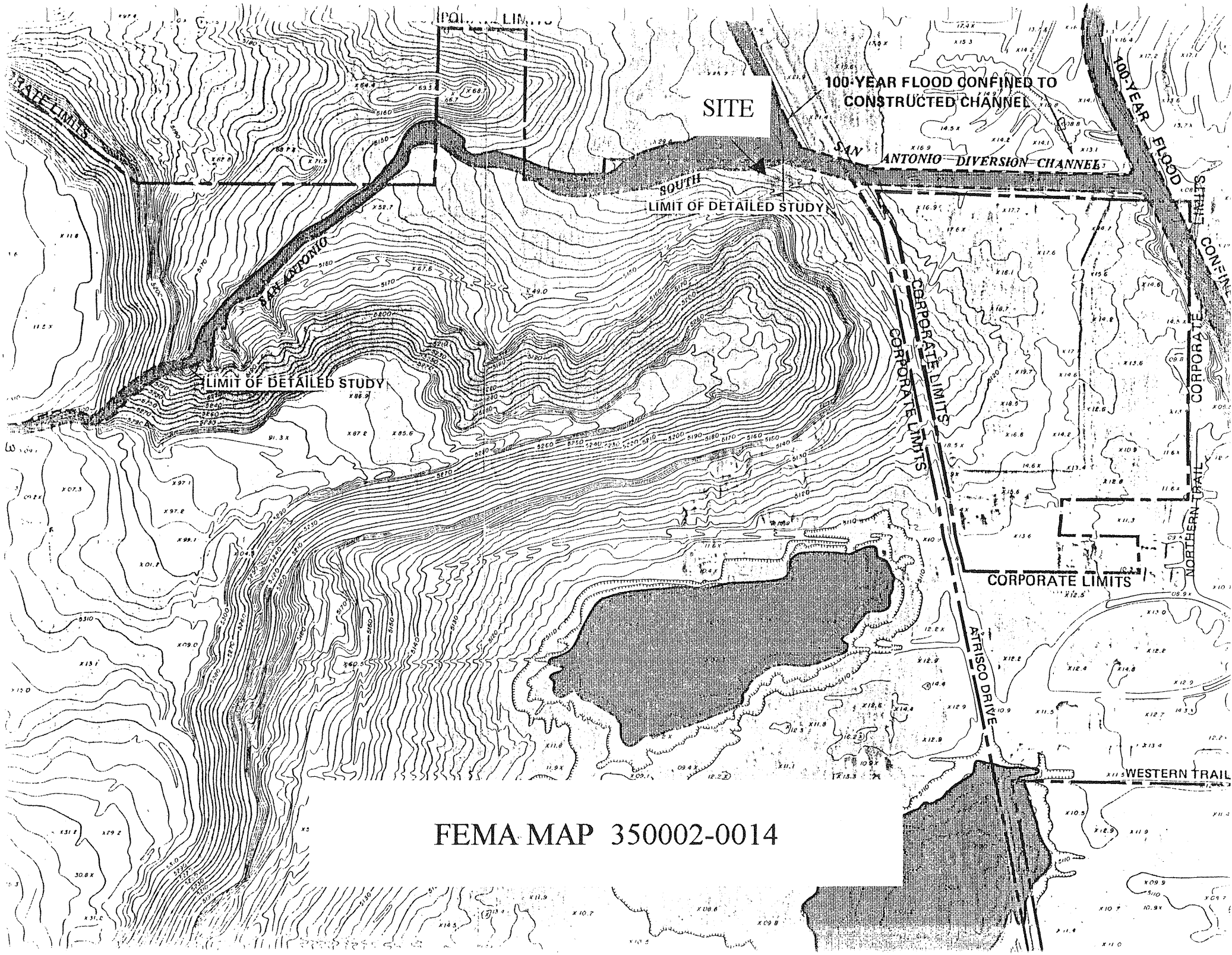
On-Site Drainage Management Plan

There are three proposed basins on the site. The roof drainage and the bulk of the flows drain to a paved parking lot designated as Basin 1. Basin 1 has a runoff flow of 1.52 cfs. This basin will drain to the northeast corner of the site into a proposed concrete channel that will route the flow into the existing San Antonio Diversion Channel. Basin 2 has a runoff flow of 0.18 cfs. It consists of a courtyard in the front of each condominium that will drain to Vulcan Street. In Basin 3 a small side yard and common landscape area will continue to flow north with a runoff flow of 0.15 cfs to the natural channel.

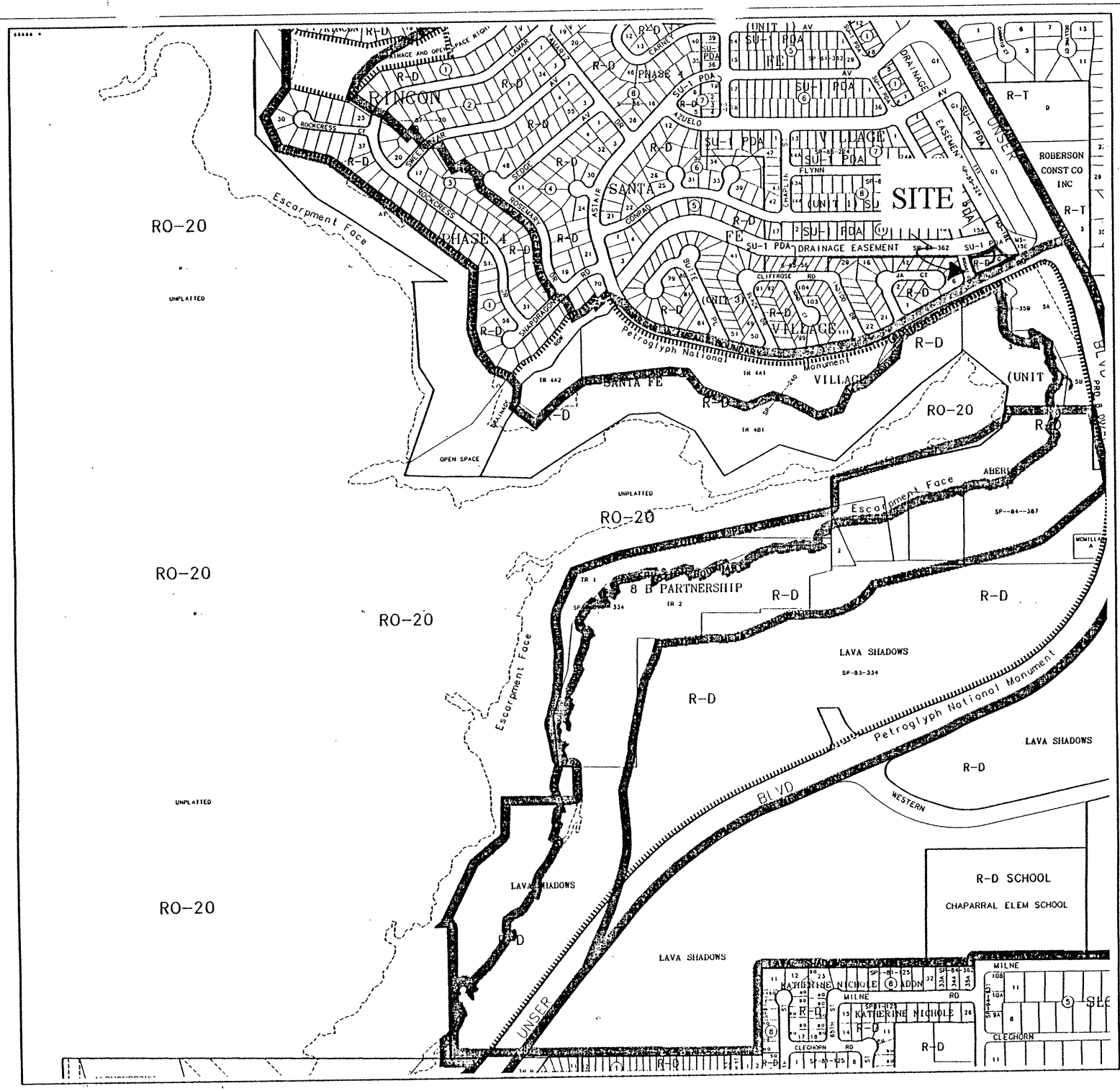
The combined flow from all three basins is 1.85 cfs. This flow is approximately 0.81 cfs greater than the historic flow. The flow in the Diversion Channel is being increased by such a small degree as will not be injurious to the downstream capacity. Therefore, we are recommending free discharge from the three points.

Summary

There are three proposed basins and no upland flows entering the site. Basin 1 and Basin 3 will free discharge into the existing San Antonio Diversion Channel. Basin 2 will drain into Vulcan Road. — to Union?



FEMA MAP 350002-0014



SCALE IN FEET

250 0 500 1000

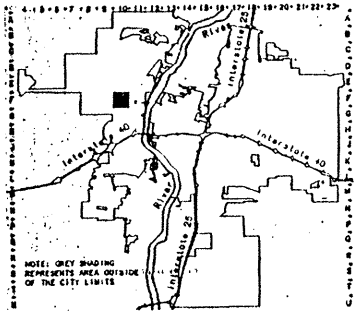
(PHOTOCOPY--NOT TO SCALE)

North

A Albuquerque Geographic Information System

© Planning Department

Map Amended through August 24, 1994



LEGAL DESCRIPTION

T11N

R2E

SEC 34

UNIFORM PROPERTY CODE

1-010-061

F-10-Z

Location and Location Map

The proposed project is on the west side of the City of Albuquerque located north of Vulcan Road and east of Bogart Street and contains 0.5125 acres. The proposed project consists of seven condominiums totaling approximately 6680 SF of single family houses. The site is shown and highlighted on the attached Zone Atlas Map F-10 and is identified as Tract 6A and 6B of Santa Fe Village. The purpose of this report is to provide the drainage analysis and management plan for this site.

Existing Drainage Conditions

This site is currently undeveloped. There is one existing basin on the site with an existing runoff flow of 1.04 cfs. This basin sheet flows east into the adjacent San Antonio Diversion Channel. There are no off-site flows entering the site. All upland flows are diverted by the nearby streets into the drainage channel. The channel has a concrete rundown on the west and an earth swale with basaltic or riprap sides. Currently this site sheet flows north and east to the natural channel.

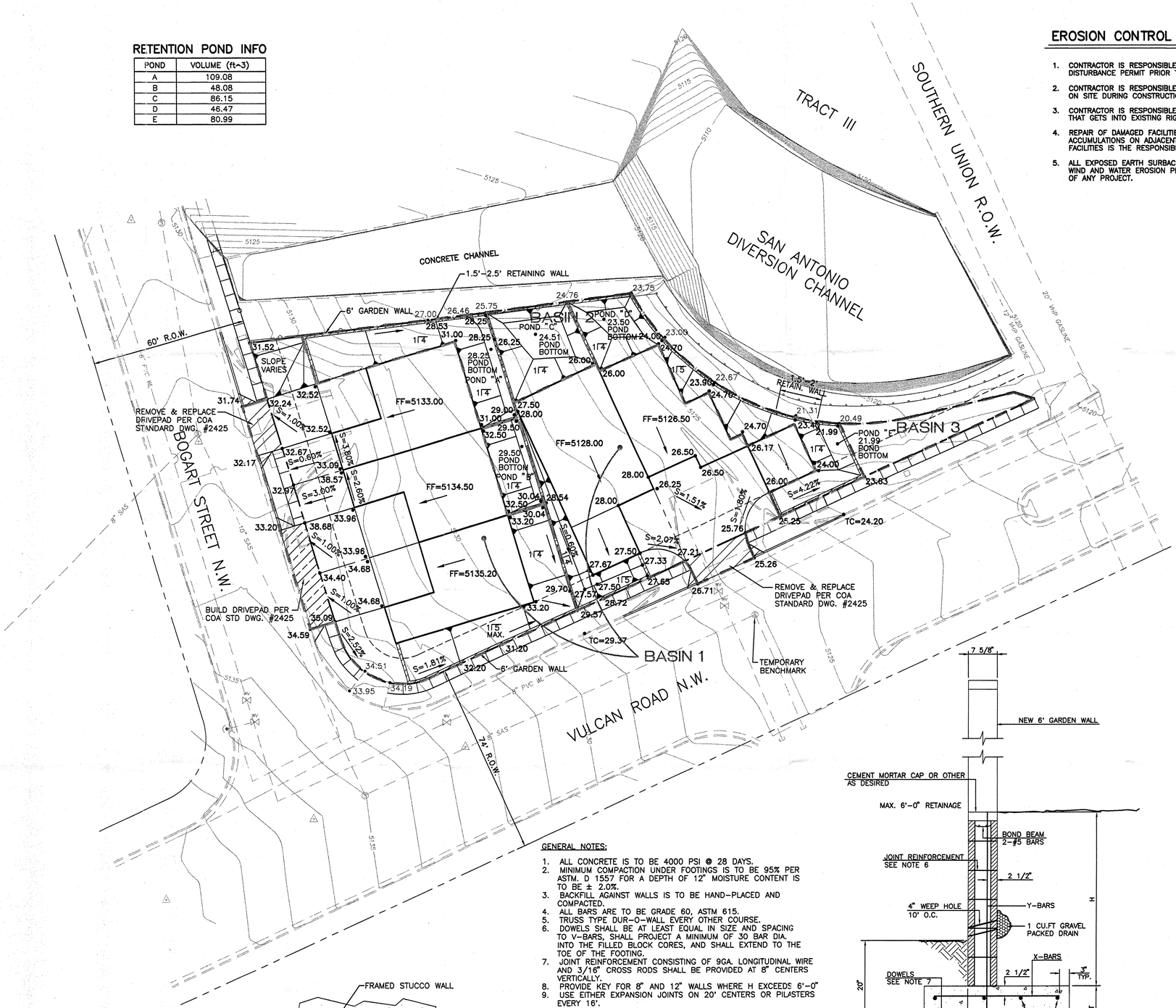
FEMA Map and Soil Conditions

The site is located on FEMA Map section 350002 panel 14 as shown on the attached excerpt. The map shows that the site does not lie within any 100 year flood plains.

The site contains two different soil types from the Soil Conservation Service Survey of Bernalillo County. One soil is a Bluepoint-Kokan association; it has slow runoff and the hazard of water erosion is moderate or severe. The other nearby soil is a Kokan-Rock outcrop association. This soil occurs at the edge of the basalt mesa breaks on the West Mesa. It has a slight hazard of water erosion and rapid runoff.

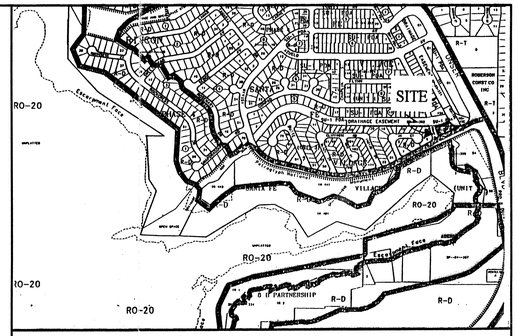
RETENTION POND INFO

POND	VOLUME (ft^3)
A	109.08
B	48.08
C	86.15
D	46.47
E	80.99

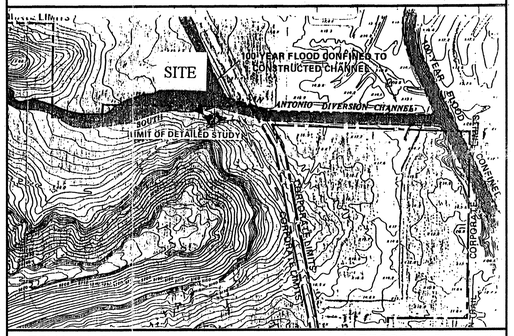


EROSION CONTROL PLAN NOTES

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A TOPSOIL DISTURBANCE PERMIT PRIOR TO BEGINNING WORK.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RUN-OFF ON SITE DURING CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR CLEANING ALL SEDIMENT THAT GETS INTO EXISTING RIGHT-OF-WAY.
4. REPAIR OF DAMAGED FACILITIES AND CLEANUP OF SEDIMENT ACCUMULATIONS ON ADJACENT PROPERTIES AND IN PUBLIC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL EXPOSED EARTH SURFACES MUST BE PROTECTED FROM WIND AND WATER EROSION PRIOR TO FINAL (CITY) ACCEPTANCE OF ANY PROJECT.



VICINITY MAP F-10-Z



FEMA MAP 350002-0014 C

SANTA FE VILLAGE

LEGAL DESCRIPTION: / TRACTS 6A & 6B BEING TRACT 6 OF SANTA FE VILLAGE

BENCHMARK INFORMATION:

BENCHMARK NO. 16-E10 @5134.88 IS LOCATED AT THE INTERSECTION OF UNSER BLVD. AND FLOR DEL SOL PLACE NW.

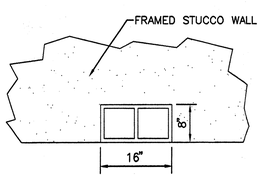
TEMPORARY BENCHMARK SET AT THE SANITARY SEWER MANHOLE AT VULCAN ROAD AND THE ACCESS ROAD. ELEVATION: 51261.16

LEGEND

- BOUNDARY LINE
- EASEMENT LINE
- EXISTING UTILITY LINE
- EXISTING PIPE CAP
- METAL BARRIER
- CHAINLINK FENCE
- BUILDING LINE
- BASIN LINE
- RETAINING WALL
- 6' GARDEN WALL
- CENTERLINE MONUMENT
- FOUND MONUMENT AS DESCRIBED
- WV WATER VALVE
- MANHOLE
- FIRE HYDRANT
- UTILITY PEDESTAL
- 31.00 SPOT ELEVATION
- FLOW ARROW

GENERAL NOTES:

1. ALL CONCRETE IS TO BE 4000 PSI @ 28 DAYS.
2. MINIMUM COMPACTION UNDER FOOTINGS IS TO BE 95% PER ASTM. D 1557 FOR A DEPTH OF 12" MOISTURE CONTENT IS TO BE ± 2.0%.
3. BACKFILL AGAINST WALLS IS TO BE HAND-PLACED AND COMPACTED.
4. ALL BARS ARE TO BE GRADE 60, ASTM 615.
5. TRUSS TYPE DUR-O-WALL EVERY OTHER COURSE.
6. DOWELS SHALL BE AT LEAST EQUAL IN SIZE AND SPACING TO V-BARS, SHALL PROJECT A MINIMUM OF 30 BAR DIA. INTO THE FILLED BLOCK CORES, AND SHALL EXTEND TO THE TOE OF THE FOOTING.
7. JOINT REINFORCEMENT CONSISTING OF 9GA. LONGITUDINAL WIRE AND 3/16" CROSS RODS SHALL BE PROVIDED AT 8" CENTERS VERTICALLY.
8. PROVIDE KEY FOR 8" AND 12" WALLS WHERE H EXCEEDS 6'-0"
9. USE EITHER EXPANSION JOINTS ON 20' CENTERS OR PILASTERS EVERY 16'.

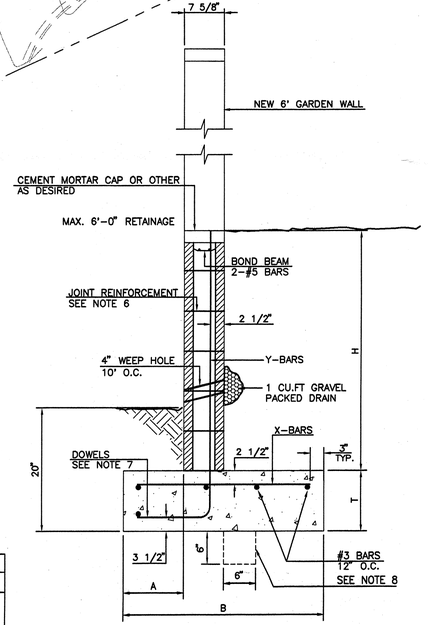


DETAIL OF WALL

NOT TO SCALE

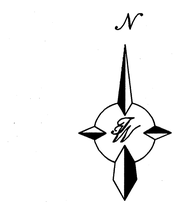
8 INCH REINFORCED CONCRETE MASONRY WALL

H	A	B	T	V-BARS	X-BARS
ft.-in.	in.	ft.-in.	in.		
1'-4"	6"	1'-11"	9"	#3 @32" O.C.	#3 @27" O.C.
2'-0"	6"	1'-11"	9"	#3 @32" O.C.	#3 @27" O.C.
2'-8"	6"	1'-11"	9"	#3 @32" O.C.	#3 @27" O.C.
3'-4"	8"	2'-4"	9"	#3 @32" O.C.	#3 @27" O.C.
4'-0"	10"	2'-9"	9"	#4 @32" O.C.	#3 @27" O.C.



RETAINING WALL DETAIL

NOT TO SCALE



GRAPHIC SCALE

20 0 10 20 40

1 inch = 20.00'

20/950052/9552GR3.DWG/JDN/8-19-96

ENGINEER'S SEAL

RONALD RAY BOHANNAN NEW MEXICO 7868 REGISTERED PROFESSIONAL ENGINEER

RONALD R. BOHANNAN P.E. #7868

GRADING PLAN SANTA FE VILLAGE

BOGART STREET AND VULCAN ROAD N.W. ALBUQUERQUE BERNALILLO COUNTY, NEW MEXICO

TIERRA WEST DEVELOPMENT MANAGEMENT SERVICES

4421 McLEOD RD. NE., SUITE D ALBUQUERQUE, NEW MEXICO 87109 (505)883-7592

DRAWN BY JDN

DATE 8/09/96

9552GR3.DWG

SHEET # 2 OF 3

JOB # 950052

AUG 20 1996

FILE COPY

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

Ken Schultz
Mayor

UTILITY DEVELOPMENT DIVISION
HYDROLOGY SECTION
(505) 768-2650

August 20, 1987

Elvidio Diniz, P.E.
Resource Technology, Inc.
2129 Osuna Road, NE Suite 2A
Albuquerque, New Mexico 87113

RE: REVISED DRAINAGE PLAN OF SANTA FE VILLAGE UNIT III - COMMERCIAL AREA; RECEIVED AUGUST 6, 1987 FOR SITE DEVELOPMENT PLAN APPROVAL (F-10/D6A)

Dear Elvidio:

The above referenced submittal dated August 4, 1987, is approved for Site Development Plan sign-off by City Engineer.

Prior to Building Permit request, provide the following additional items:

1. a breakdown of on-site area 4 land treatment to justify using a "C" value of 0.77 and RCN of 77.

2. detailed large scale drainage and grading plans for each building site.

If you have any questions, please call me at 768-2650.

Cordially,

Roger A Green, PE

Roger A. Green, P.E.
C.E./Hydrology Section

cc: Coda Roberson

RAG/bsj

FILE

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

DESIGN HYDROLOGY SECTION
123 Central NW, Albuquerque, NM 87102
(505) 766-7644

March 25, 1986

Elvidio Diniz, P.E.
Resource Technology, Inc.
2620 San Mateo Blvd., NE Suite B
Albuquerque, New Mexico 87110

RE: CONCEPTUAL GRADING & DRAINAGE PLAN SUBMITTAL OF SANTA FE VILLAGE, UNIT III COMMERCIAL AREA, RECEIVED MARCH 13, 1986 FOR SITE DEVELOPMENT PLAN APPROVAL (F-10/D6A)

Dear Elvidio:

The above referenced submittal, dated August 7, 1986 with revised drawing dated March 13, 1986, is approved for Site Development Plan.

A detailed Grading & Drainage plan will be required at time of Rough Grading and Building Permit approval, and when Platting actions or a work order require an approved infrastructure listing.

If you have any questions, call me at 766-7644.

Cordially,

Roger A. Green, PE

Roger A. Green, P.E.
C.E./Design Hydrology

cc: Coda Roberson

RAG/bsj

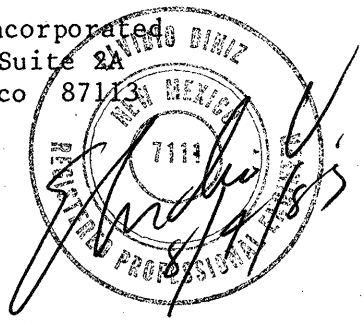
DRAINAGE PLAN (REVISED) FOR
SANTA FE VILLAGE UNIT III - COMMERCIAL AREA
ALBUQUERQUE, NEW MEXICO

prepared for

Roberson Construction Company
6001 Atrisco Road, NW
Albuquerque, New Mexico 87120

prepared by

Resource Technology, Incorporated
2129 Osuna Road NE, Suite 2A
Albuquerque, New Mexico 87113



June 18, 1987

DRAINAGE PLAN FOR

SANTA FE VILLAGE UNIT III - COMMERCIAL AREA

Table of Contents

INTRODUCTION

This report discusses the grading and drainage plan for the proposed commercial area within Santa Fe Village Unit III subdivision, located in the City of Albuquerque, New Mexico. A previous drainage report titled "Drainage Plan for Santa Fe Village Unit III - Commercial Area Albuquerque, New Mexico (August 7, 1985)" was submitted to and approved by the City Design Hydrology Section. However, the site plan has changed since that report and therefore this report is submitted to reflect the changes to the drainage plan, and serve as the currently effective drainage report.

SITE LOCATION AND DESCRIPTION

Figure 1 shows the location of the commercial area within Santa Fe Village Unit III subdivision which is located on Zone Atlas page F-10. The site is composed of two locations divided by Vulcan Road. The area located south of Vulcan Road is bounded on the east by Unser Blvd. NW (Atrisco Road NW) and on the west by the volcanic escarpment. The area located north of Vulcan Road is bounded on the north by a concrete drainage channel within a drainage right-of-way which varies from 54 ft. to 63 ft. wide. This channel conveys flows from the South Branch of San Antonio Arroyo into an AMAFCA gabion grade control structure located on the east side of the area.

Figure 2 shows the on- and off-site soil types for the commercial area. The Bluepoint-Kokan association covers the on-site area, and the Kokan-Rock outcrop association covers all of the off-site area. A general description of each soil type follows:

> Bluepoint-Kokan association - About 50% Bluepoint loamy fine sand and 40% Kokan gravely sand. Hydrologic Soil Group A.
>
> Kokan-Rock outcrop association - About 75% Kokan gravelly sand with 25% to 45% slopes with about 40% of the surface covered with large basalt boulders. This soil is located off-site on the volcanic escarpment. Hydrologic Soil Group A.

Land Use

Boca Negra Park is located on top of the escarpment, as shown on the Grading and Drainage Plan Figure 6 of 6 (submitted as Figure 6 of 6 of the Site Development Plan to Environmental Planning Commission), and the escarpment area between the park and the proposed development area may become City open space. Consequently, no development is expected on the off-site areas contributing drainage to the study area.

The proposed development area is presently undeveloped with no structures; however, an AMAFCA gabion grade control structure is located in San Antonio Arroyo as shown on Figure 6 of 6, and Vulcan Road has been constructed with concrete curb and gutter and temporary paving. Also the present intersection with Unser is temporary.

The proposed commercial area is divided by Vulcan Road which is the main access into Santa Fe Village Unit III. A restaurant and a retail

building with offices on the second floor will be located on the south side of Vulcan Road; a convenience store may be built on the north side of Vulcan Road. The entire area (also contributing off-site area), including the restaurant, retail/office building and convenience store will drain into the AMAFCA gabion grade control structure.

The parking lot and drive area located between the retail/office building and Unser Blvd. NW (Atrisco Road NW) will be paved.

A hike/bike path is also planned along the base of the volcanic escarpment, and is shown as an open space trail on the drainage plan.

According to the Federal Emergency Management Agency flood hazard maps, the commercial area south of Vulcan Road is located in Flood Hazard Zone C and the commercial area north of Vulcan Road is located in Flood Hazard Zone AO. However, due to the existing concrete channel (discussed above) the 100-yr. flood will be confined within the channel and therefore the commercial site is not within the 100-yr. flood plain.

OFF-SITE FLOWS

Three off-site drainage areas are located on the volcanic escarpment west of the proposed restaurant and retail/office buildings, and are named off-site drainage areas A, B, and C. Off-site Area D is a part of Vulcan Road located west of the trench drain (discussed with On-Site Flows) as shown on Figure 6 of 6. Off-site Area E contains the escarpment and half of Vulcan Road up to the south entrance to the

commercial area. Flow from Off-site Area E is considered in this drainage plan because its flow will be conveyed to the AMAFCA gabion grade control structure by means of a trench drain across Vulcan Road. This feature is discussed below with on-site flows.

Table 1 lists the areas, runoff coefficients and runoff curve numbers for all off-site areas. The time of concentration for the largest off-site area, Off-site Area E, is only 2.6 minutes; therefore, the other off-site areas which are much smaller than Off-site Area E, can be assumed to have a time of concentration less than 10 minutes for all off-site areas and therefore the Tc is assumed to be 10 minutes based on DPM criteria. Table 2 lists the peak discharges (using the rational method) and runoff volumes (using the SCS method) from each off-site area. No development can occur in Boca Negra Park or on the escarpment, and therefore future condition runoff will remain the same as for existing conditions.

The flow from off-site areas A, B, C and E will enter the project site as overland flow, except for some flow concentration from Off-site Area B. The edge of asphalt on the west side of the development and these off-site areas will be set to meet existing ground.

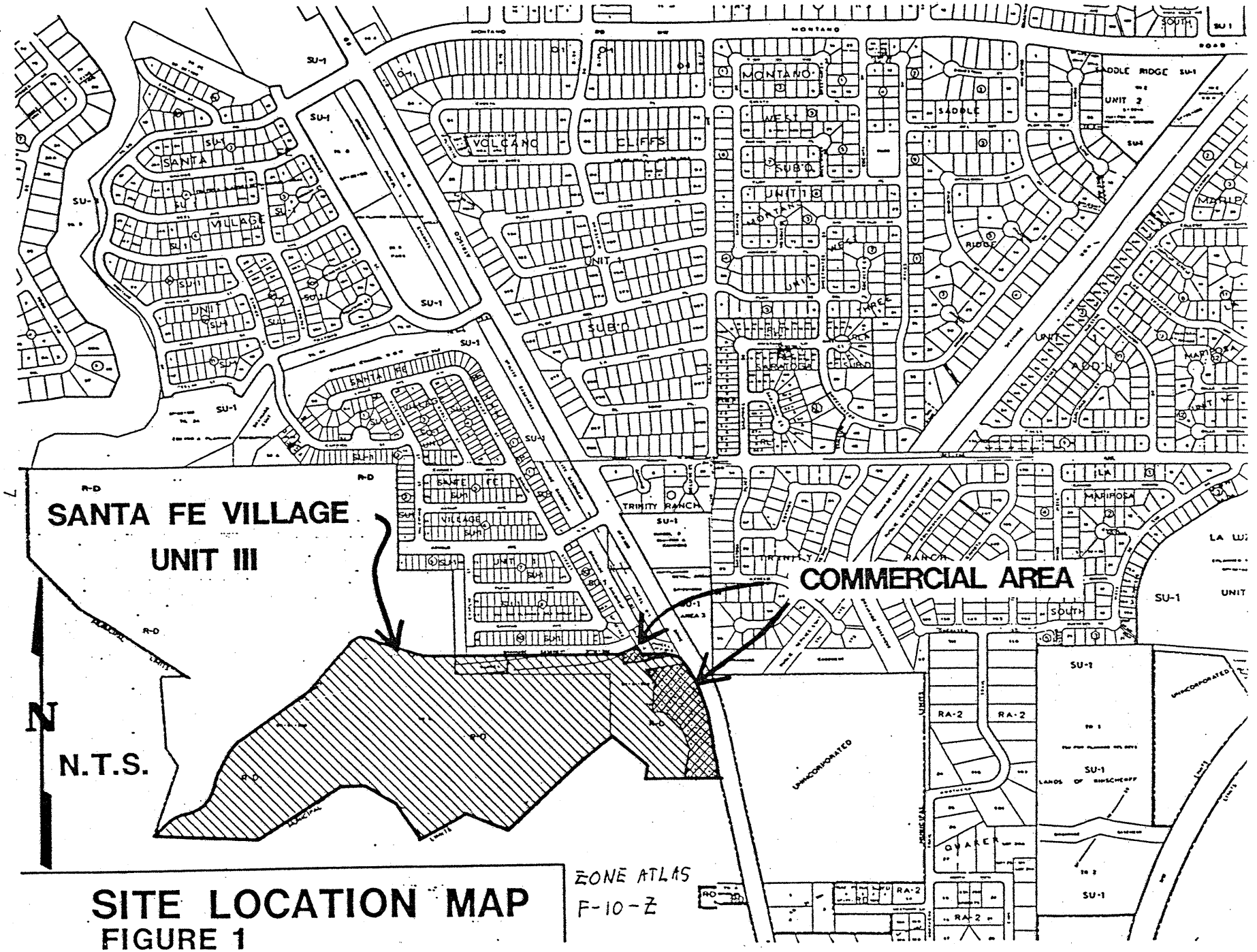
ON-SITE FLOWS

The on-site area was divided into 6 drainage areas to accomodate the grading plan. These areas are designated Areas 1 through 6, and are shown on Figure 6 of 6, the Grading and Drainage Plan. Table 3 shows

the areas, runoff coefficients and runoff curve numbers for each area. The time of concentration for the longest flow path (areas 1,3 and 4), from the south end of the parking area near the restaurant to the northern retail/office building parking lot is 2.8 minutes. All other flow paths are shorter; therefore, the times of concentration for all other on-site areas were assumed to be less than 10 minutes. Based on DPM criteria, the time of concentration for all on-site areas is assumed to be 10 minutes. Table 4 lists the peak discharge and runoff volume for each on-site area.

The peak discharges and runoff volumes from the on- and off-site areas were analyzed at the analysis points (labled 10-18) shown on the drainage plan. Table 5 lists the peak discharge and runoff volumes at each analysis point based on the contributing areas. The flow data from contributing areas at each analysis point were added because the time of concentration for each contributing area is less than 10 minutes and therefore discharges from all areas are assumed to peak at the same time.

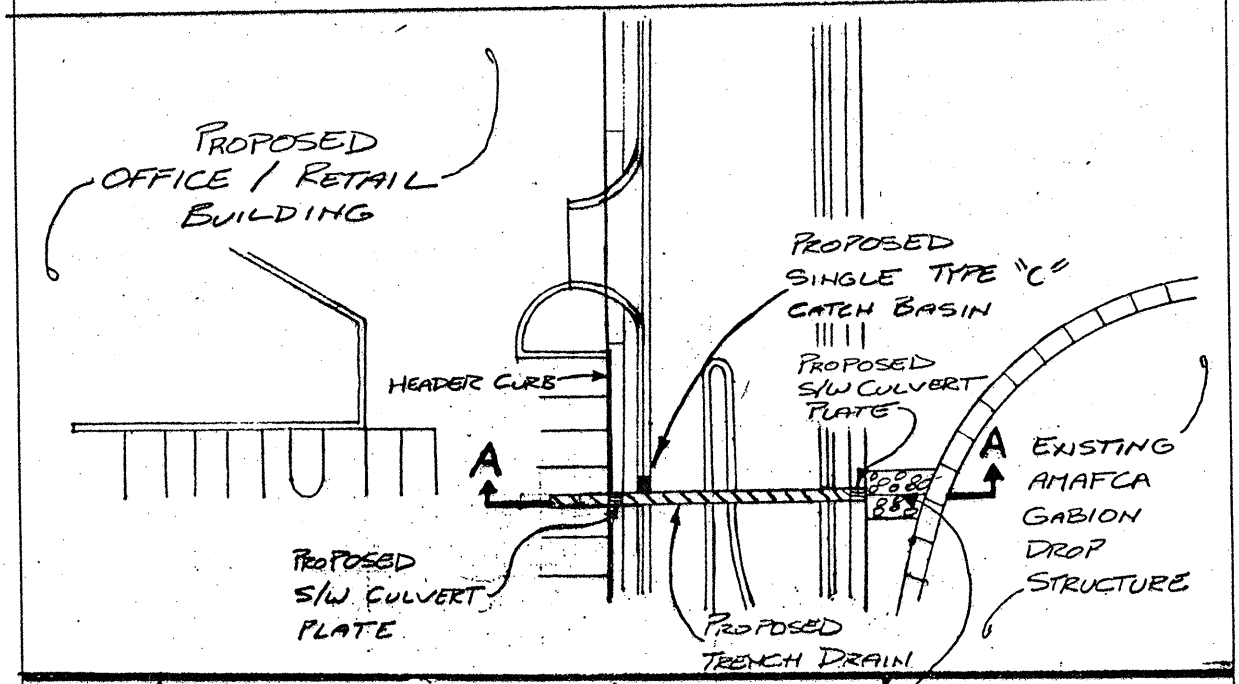
The off-site flows plus the on-site flows will drain down swales located in the drives of the restaurant and retail/office building to a 3-foot wide trench drain as shown on the drainage plan. The flow will enter the trench drain grate in the parking lot and the grate will continue to the back of sidewalk at Vulcan Road. Steel sidewalk culvert plates will cover the trench drain on both sides of Vulcan Road and the trench drain will cross the entire width of Vulcan Road. The trench

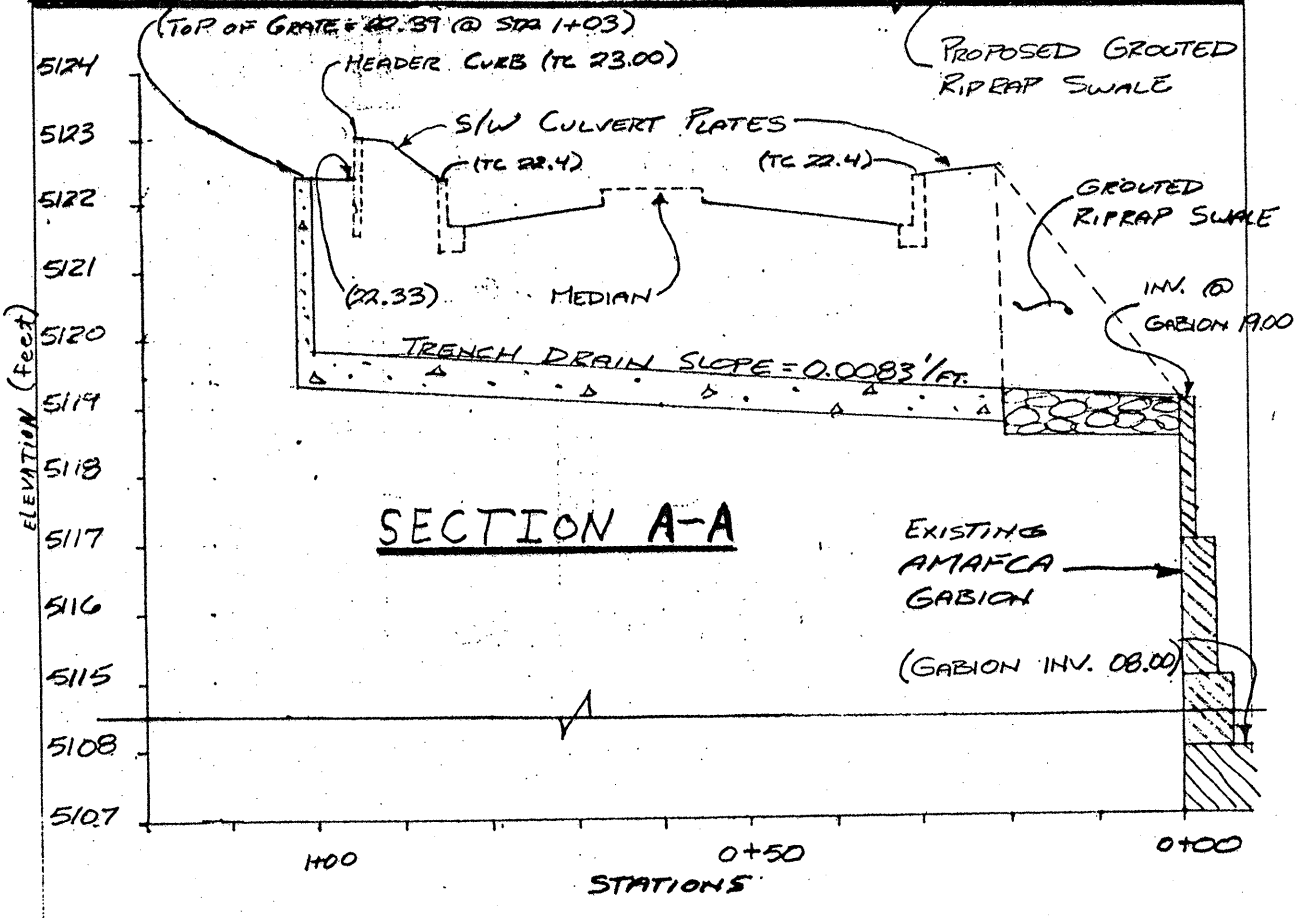


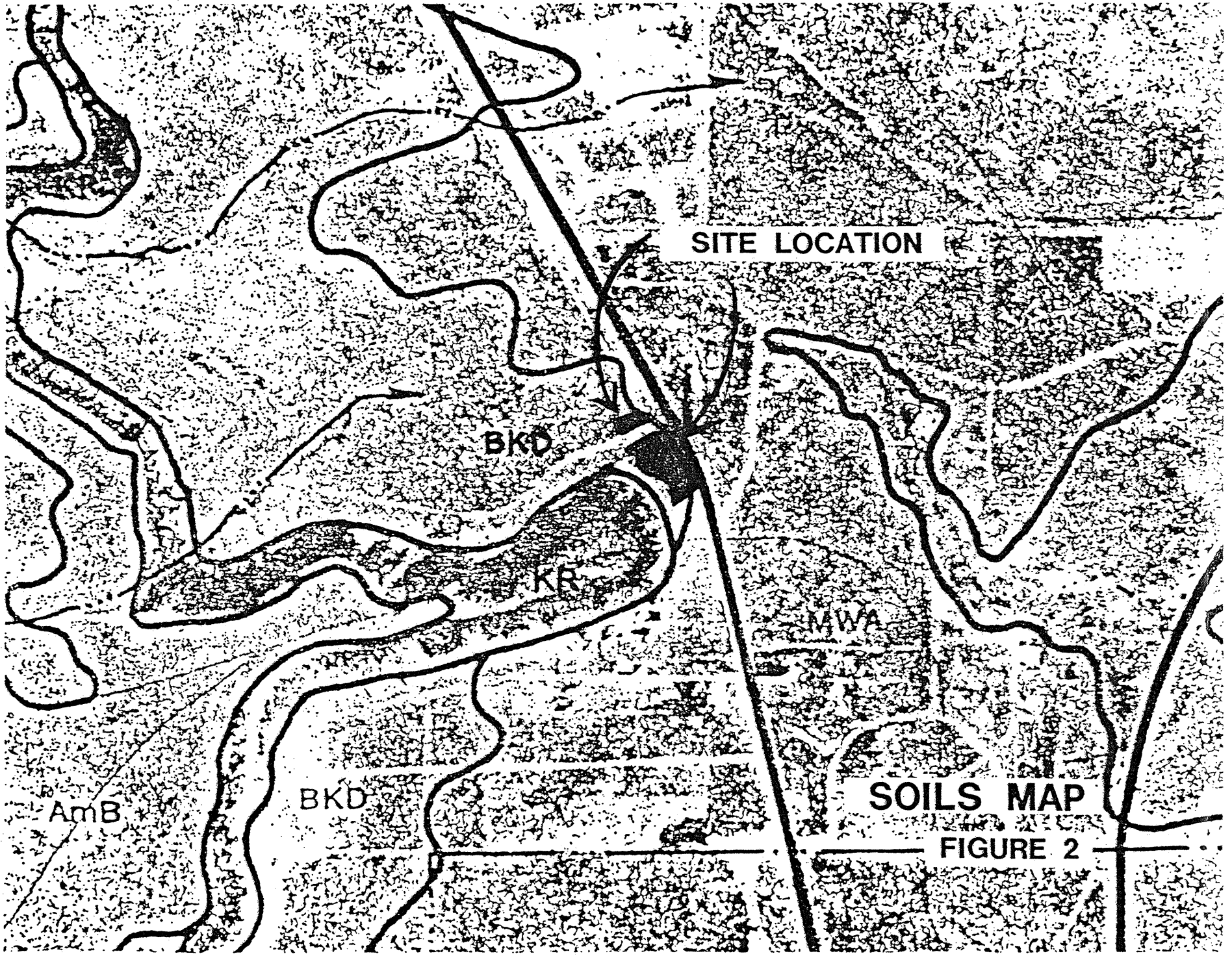
SITE LOCATION MAP
FIGURE 1

TRENCH DRAIN DETAIL

FIGURE 3







SOILS MAP

FIGURE 2

drain will outfall into a grouted rip-rap or concrete swale and discharge into the AMAFCA gabion grade control structure. A single Type "C" catch basin will be located at the south flow line of Vulcan Road adjacent and west of the trench drain and it will drain into the trench drain. This catch basin is necessary to ensure that the flow from Off-site Area E (and a portion of Area D) are intercepted and conveyed into the trench drain. Figure 3 shows a plan and profile sketch of the proposed trench drain.

A landscaped berm will be located between Unser Blvd. NW (Atrisco Road NW) and the parking area for the restaurant - retail/office building. This berm will have a maximum height of 6 feet, with maxmium side slopes of 3H:1V and will be landscaped with native plants.

Due to the steep grade near the escarpment behind the retail stores/offices and the large differences between existing ground and slab elevations, retaining walls will be required at the rear of the restaurant and retail/office buildings and several other locations as shown on Figure 6 of 6.

The flow characteristics at the analysis points shown on Figure 6 of 6 are listed in Table 6.

The invert of the proposed grouted rip-rap outfall will be located on top of the AMAFCA gabion grade control structure. The headwall soffit elevation of the box culverts (under Unser Boulevard) downstream from the gabion structure is approximately five feet below the outfall

elevation at Analysis Point 19. Consequently backwater effects are unlikely at the outfall (from flow in the gabion grade control structure).

Santa Fe Village unit III

6 of 6

NEIGHBORHOOD COMMERCIAL CENTER

SCALE 1" = 50'

NORTH

ROBERSON CONSTRUCTION CO INC.
6001 Arrisco NW
Albuquerque NM 87120
Ph. 897 4936

JONATHAN CARL COHLMEYER, ARCHITECT
301 GOLD SW
ALBUQUERQUE 87102
242-8401

RESOURCE TECHNOLOGY, INC.
2129 OSUNA NE
ALBUQUERQUE 87113
345-3115

KEYED NOTES

1. PROJECT SIGN
2. DIRECTORY SIGN
3.
4. LAWN
5. ASPHALT DRIVE
6.
7.

PROJECT INFORMATION

OFF STREET PARKING	REQUIRED	PROVIDED
SOUTH PORTION	160	160
HANDICAPPED	8	8
NORTH PORTION	22	22
HANDICAPPED	1	1
SMALL CAR	45	53
LANDSCAPED AREA	7%	8%
		1.15 Ac. Native
BICYCLE RACKS	11	16
REFUSE	2 8 4 Yd. & 2 8 6 Yd.	

OPEN SPACE REQUIREMENT

OPEN SPACE REQUIREMENTS WERE MET IN E.P.C. HEARING C-86-126

STREET & CURB INFORMATION

	LENGTH (+/-)	R.O.W.	ROAD WIDTH
VULCAN PARKWAY AT SOUTH	MAJOR LOCAL	78'	4 @ 12'
VULCAN PARKWAY	MAJOR LOCAL	60'	40'
BOGART STREET	LOCAL	60' TO 50'	40' TO 32'
PARKING LOOP	PRIVATE		25'

CURB INFORMATION

1. 25' INSIDE CURB RADIUS
2. 20' INSIDE CURB RADIUS
3. 20' CENTER LINE RADIUS

LEGEND

- SECTION CUT
- SPOT ELEVATION
- BERMING
- BASE OF MINE PERCENT SLOPE
- EXTENT OF LAVA ROCK & ESCARPMENT
- DRAINAGE
- ELC — ELECTRIC, PHONE, CTV
- G — GAS
- W — WATER
- S — SEWER
- (5) CURVE
- POWER POLES
- 6 NUMBER OF PARKING SPACES
- BICYCLE RACKS
- REFUSE COLLECTION BINS
- BICYCLE/WALKWAY TRAIL
- FIRE HYDRANT
- NATIVE GRASS MIXTURE
- STOP SIGNS

100yr. Qp OF 8.29 cfs. WAS DETERMINED IN "DRAINAGE REPORT FOR SANTA FE VILLAGE UNIT III PHASES 1 AND 2, ALBUQUERQUE, N.M." AND APPROVED BY THE CITY.

BOCA NEGRA PARK

VULCAN ROAD

RESIDENTIAL
SANTA FE VILLAGE
UNIT III (PHASE 1)

BOGART STREET

EXISITING CONCRETE CHANNEL (SOUTH BRANCH OF SAN ANTONIO ARROYO)

SAN ANTONIO ARROYO

BUILDING C
4,400 ff
5127.0 ff

BUILDING B
28,800 ff
14,600 ff ABOVE 5137.0' 2nd FLR.
14,200 ff BELOW 5126.0' 1st FLR.

BUILDING A
8,400 ff
5136.8' ff

TYPE "C" CATCH BASIN

A.M.A.E.C.A. GABION DROP STRUCTURE

GROUTED RIP RAP OUTFALL

CONCRETE HEADWALL

3' WIDE TRENCH DRAIN

SIDEWALK STEEL PLATES

9% SLOPE & PROPOSED PROPERTY LINE

PROPERTY LINE

ESCARPMENT

9% SLOPE

OPEN SPACE TRAIL

5220
5200
5180
5160
5140
5130
5120

EASEMENT FILED PROVIDING 19 PARKING SPACES FOR OPEN SPACE ACCESS AT LOCATIONS TO BE DETERMINED

NO CURB - PAVEMENT WILL MEET EXISTING GRADE

4' CONC. VALLEY GUTTER

BERM

UNSER BOULEVARD R.O.W. AS PER TRANSPORTATION DEPARTMENT DESIGN

UNSER BOULEVARD

PROPOSED ALIGNMENT OF SOUTHERN UNION GAS EASEMENT

10' GAS EASEMENT

EXISTING ATRISCO ROAD

LEFT TURN IN-RIGHT TURN OUT AT VULCAN/UNSER INTERSECTION TO BE DESIGNED BY TRANSPORTATION DEPARTMENT

LEGEND

- EXISTING ELEVATION
- + PROPOSED ELEVATION
- RETAINING WALL
- fl FLOWLINE
- tc T.O.CURB
- tp T.O.PAVING
- ts T.O. SIDEWALK
- be BUILDING EDGE
- tr T.O. RETAINING
- inv INVERT
- tw T.O. WALL
- ff FINISH FLOOR
- 1 ON-SITE DRAINAGE AREA
- A OFF-SITE DRAINAGE AREA
- (3) ANALYSIS POINT
- DRAINAGE DIVIDE
- FLOW DIRECTION
- S= SLOPE

NATIVE PLANTINGS

PAVING CURB LANDSCAPE

CURB CUT AT WALKS

CURB CUT AT SITE EDGE

BOCA NEGRA POINT
OPEN SPACE TRAIL
BICYCLES

3' BERM

DIRECTORY SIGN 1/4"=1'

BOCA NEGRA POINT

3' BERM

PROJECT SIGN 1/4"=1'

RECEIVED
AUG 06 1987
HYDROLOGY SECTION

GRADING & DRAINAGE PLAN