City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 28, 2000

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

Re: Flor Silvestre Annexation

Dear Ron,

Regarding the referenced project, the City Engineer submitted comments to the Planning Department on November 15, 2000 regarding concerns and comments on the existing drainage system that serves the proposed annexation area. Some drainage reports have been submitted by Tierra West to the Hydrology Section describing some of the planned improvements for drainage systems in the area. Though this information is useful, it is not sufficient to answer the previously submitted comments.

I have attached a copy of the original comments for your use. The main question regards the current status of the drainage system serving the area, and the status of existing improvements compared to current City standards. In order to review the proposed plan, the Hydrology Section needs a complete submittal package that shows only the drainage system that will serve the annexation area, and what improvements are necessary to meet City standards.

Additional drainage review requires submittal of the information pertinent to the annexation, as indicated above and in the attached prior comments. If I can be of further assistance, contact me at 924-3980.

Sincerely,

Loren D. Meinz, P.E.
Public Works/Hydrology Development

attachment

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE November 15, 2000 REF. NO.

TO: Bob Paulsen, Senior Planner, Planning Department

FROM: Fred J. Aguirre, City Engineer, Public Works Department

SUBJECT: Comments for Case Number: Z-00-11 / AX-00-3

The City Engineer requests and recommends that the following requirements be satisfied prior to and as a condition to approving the proposed annexation. The conditions are as follows:

1) Bernalillo County must submit a written acknowledgement that they will continue to be responsible for the maintenance of the County pond and storm drain system after the site has been annexed to the City; **or**

2) Bernalillo County and/or the applicant **must comply** with the following actions in order to transfer their responsibility to the City of Albuquerque for the maintenance of the County pond and storm drain system prior to the site being annexed to the City:

   a) Conveyance of title or easement acceptable to the City for the pond and appurtenant structures;
   b) A license agreement from the MRGCD and the AT&SF Railroad Co. to discharge and/or maintain and construct improvements within their right-of-way and/or easement;
   c) Upgrade, per the City Work Order process, the existing pond and storm drain to current City Standards; **or** provide documentation (such as, as-built construction plans) that the existing storm drain and pond comply with current City Standards.

3) The submittal of a comprehensive drainage report acceptable to the City Engineer which adequately addresses the following issues which include but shall not be limited to the following issues:

   i) Delineation of the contributing basin to the pond and storm drain system for the existing and ultimate development;
   ii) A complete hydraulic analysis of the pond and storm drain system for the existing and proposed development;
   iii) Hydrologic analysis for the existing and developed basin;
   iv) Identification of all drainage easement and license agreements required to maintain the drainage system; and
   v) Identification of all the required improvements to comply with the City Standards.

c: John Castillo, COA, Assistant Director, Public Works
Roger Paul, Bernalillo County Public Works
Ron Bohannan, Tierra West

County of Bernalillo

State of New Mexico

ONE CIVIC PLAZA, N.W.
ALBUQUERQUE, NEW MEXICO 87102
ADMINISTRATION (505) 768-4000
COMMISSION (505) 768-4217
FAX (505) 768-4329

December 21, 2000

Mr. Chuck Gara, Chairman
Environmental Planning Commission
City of Albuquerque Planning Department
400 Second Street, 3rd Floor
Albuquerque, NM 87102

RE: Annexation Request Z-00-11/AX-00-3 (Flor Silvestre)

Dear Mr. Gara:

Bernalillo County supports annexation request, Z-00-11/AX-00-3. The County owns two properties at the southern end of this annexation that contain portions of a drainage system that serves the local Edith Boulevard area. The upper portion of the drainage system receives runoff from City of Albuquerque subdivisions (Vista del Norte) that are currently being developed.

Approval of the annexation will result in the City assuming maintenance for approximately 1,200 ft. of Edith Boulevard. The City of Albuquerque will also assume ownership and maintenance of the entire drainage system, except for the inlet structures located in a County park immediately east of Edith Boulevard.

Since other portions of Edith Boulevard remain in unincorporated areas, Bernalillo County reserves the ability to use the drainage system to drain projects in the immediate area to alleviate flooding problems. This reservation and the transition steps necessary for the City to take over the system will be worked out if the annexation request is approved.

Very truly yours,

Juan R. Vigil
County Manager

Cc: Martin J. Garcia, P.E., Division Director, Public Works
Thaddeus Lucero, Division Director, Community Services

SIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

e-mail: twdms@aol.com
1-800-245-3102

October 17, 2000

Mr. Fred Aguirre
City Engineer
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

RE: Flor Silvestre Annexation Agreement

Dear Fred:

Thank you from taking time from your busy schedule to meet with Roger Paul, Bernalillo County Public Works, and myself. The purpose of this letter is to recap the meeting and also to transmit the Edith Boulevard Drainage Analysis for your files. In the meeting, Roger Paul stated Bernalillo County is supportative of the annexation of the proposed development into the City of Albuquerque conditional upon the City taking over maintenance responsibility of the pond and downstream outfall to the Alameda Drain. I am asking Roger, with a copy of this letter, to send you the license agreement the County has with the Middle Rio Grande Conservancy District for the connection to the Alameda Drain.

You stated your only objection to the proposed maintenance was to determine if the current pond and outfall channel meet City of Albuquerque requirements. If these requirements do not meet the City requirements, then the City would require these facilities to be brought up to City standards for acceptance. You had asked for the enclosed study, as well as any as-built plans on the facilities. We are currently researching the as-built plans and taking photos. As soon as we get those or ascertain if there are any, we will provide your office with a copy.

If you have any questions concerning this project, please do not hesitate to call me.

Sincerely,

Ronald R. Bohannan, P.E.

Enclosure/s

cc: Roger Paul
Dave Gonzales

JN 990032
RRB/ba

990032:9932fa10172000

TIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

e-mail: twdms@aol.com
1-800-245-3102

October 25, 2000

Mr. Fred Aguirre
City Engineer
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

RE: Outfall to Edith Storm Drain Ponds

Dear Fred:

The above-referenced channel is a natural dirt channel, and we could not locate any as-builts on this. Enclosed please find pictures my staff took showing the condition of the channel. When you get a chance, please give me a call to review the outfall.

Sincerely,

Ronald R. Bohannan, PE

Enclosure

cc: Dave Gonzales

JN 990032
RRB:js

1999misc#6:9932fa102500

DIETZ LAW OFFICES

ETHELINDA DIETZ
Attorney-at-Law

P. O. Box 25545
Albuquerque, New Mexico
87125-0545

Telephone
(505) 242-4820

April 20, 2000

Fred Aguirre
City Engineer
City of Albuquerque
600 Second Street NW
ABQ NM 87102

RE: Tierra West, agent for Development Services, Ltd.
Z-00-11/AX-00-3

Dear Fred,

I am sending you a copy of a letter I sent to the MRGCD which details some of the problems with the drainage report that Tierra West has presented in the above referenced matter. I don't know if you have received a copy or reviewed it. I would be interested in your comments. I have a copy of the comments you wrote for the EPC prior to getting the drainage report.

I'll call later next week.

Sincerely,

ETHELINDA DIETZ

DIETZ LAW OFFICES
Ethelinda Dietz
Attorney-at-Law

P. O. Box 25545
Albuquerque, New Mexico
87125-0545

Telephone
(505) 242-4820

May 11, 2000

Mr. Lawrence C. Troncosa
Chairman,
Middle Rio Grande Conservancy District
Board of Directors
P. O. Box 256
Algodones, NM 87001

RE: Proposed realignment of Alameda Lateral
Location: Edith Blvd. north of Osuna at Tyler (the old Sandia Ranch)
Agent: Tierra West for Development Services Inc.

Dear Mr. Troncosa,

In the last couple of weeks, the Daniel B. Stephens Engineering firm has had a chance to review a drainage report filed by Tierra West in the above referenced matter. Below, I summarize, though not with best background to do so, the problems the firm has identified with the report.

The major problems are as follows:

1. The report states that approximately 83.81 cfs from an off-site basin currently flows onto the subject property. Approximately 60cfs of off-site water is to be diverted into the Alameda Lateral. It is not clear from the plan just where that diversion will occur.

2. The plan contemplates the use of a proposed 36" pipe to channel off-site water from a "cattle guard" to the Edith Pond #6. There is an existing 24" pipe that Sundt Corp. put last year that presently runs on the same side of Edith that the proposed 36" pipe is to be placed. It is not clear from the plan whether Tierra West will run a 36" pipe parallel with the 24" pipe on the west side of Edith or intends to "tap into" the existing 24" pipe, or whether there is enough ROW to have both pipes.

3. There are no hydraulics for the off-site water, so it is impossible to determine how the cattle guard will work.

4. From the flows presented in the report, an 8" curb as indicated in the proposed design will not stop the off-site water flows.

5. The cattle guard appears to run across the width of Edith. Edith is presently a County road, if the annexation is successful, that portion of Edith that match the property annexed will also be annexed into the City. The first question is has the City approved the cattle guard and the responsibility to maintain it? The second question is does the MRGCD need to know who approves the cattle guard, if it is not on their ROW? Isn't this a drainage approval nightmare?

6. There is no information about the contours or existing grades along Edith in the report so it is impossible to determine water flow directions.

7. Because of the lack of information, the plan does not convince that the 36" pipe will be able to handle the off-site water.

8. In addition, there is insufficient "fall" at 1.6% slope (as designated on the plan) to get the off-site water to drain into the pond. It would need approximately 21 1/2 feet of fall for the distance of approximately 1350 feet the water must run to get to the pond. It has 2 feet. Thus as presently designed, the drainage simply will not work.

9. Next, the cattle guard plan is inadequately described. There are no contours of off-site water flows; there is no descriptions of the inverts for the pipes at the guard and at the pond; the general hydraulics of the design are missing.

10. Next, the bridge culvert at the Robert E. Dietz, IV crossing which is immediately adjacent to the proposed realignment is not accounted for in the drawings. As it is adjacent (less than 20' away) from the first proposed turn in the realignment, it will be impacted critically during the construction phase of the project. It needs to be replaced with a box culvert structure as it is too weak to handle any heavy equipment.

11. The Street capacities have been incorrectly measured reflecting a two sided curbed City street instead of the proposed single sided curb, two lane county road. They took full credit for the crown which is not right under the proposed design. Thus they can't contain the water with the proposed curb. Also, Edith's width is 28' not 48' as used in the Street Capacities analysis.

12. The City does not allow back yard ponding or retention ponding, both of which are included in the proposed plan.

13. All on-site ponds are designed without a free board

14. There are no emergency spillways on the on-site ponds.

15. Lastly, the Zia Gardens neighborhood has complained that overflow waters from the Edith Pond #6 have flooded its residences. See the attached letter from Michael Craig. If additional water from this project are put into the pond, their problems will worsen.

For the above reasons, we feel there are serious flaws in the proposed plan.

Please advise us as to its current status.

Sincerely,

ETHELINDA DIETZ

cc: All MRGCD board members
Subhas Shah, Chief Engineer, MRGCD
Timothy Sheehan, attorney for MRGCD
Robert E. Dietz, IV
Virginia Huetigg
Michael Craig
Daniel B. Stephens Engineering

CITY OF ALBUQUERQUE

ALBUQUERQUE, NEW MEXICO

INTER-OFFICE CORRESPONDENCE November 15, 2000 REF. NO.

TO: Bob Paulsen, Senior Planner, Planning Department

FROM: Fred J. Aguirre, City Engineer, Public Works Department

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c: John Castillo, COA, Assistant Director, Public Works
Roger Paul, Bernalillo County Public Works
Ron Bohannan, Tierra West

DRAINAGE REPORT

for

Flor Silvestre

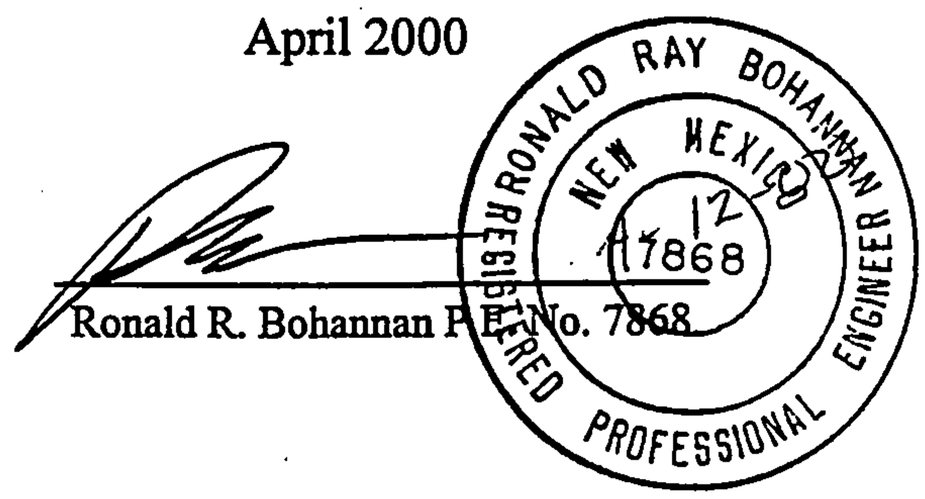
Prepared by

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

Prepared for

Development Services Ltd, Co.
P.O Box 30107
Albuquerque, New Mexico 87190

April 2000



Ronald R. Bohannan P.E. No. 7868

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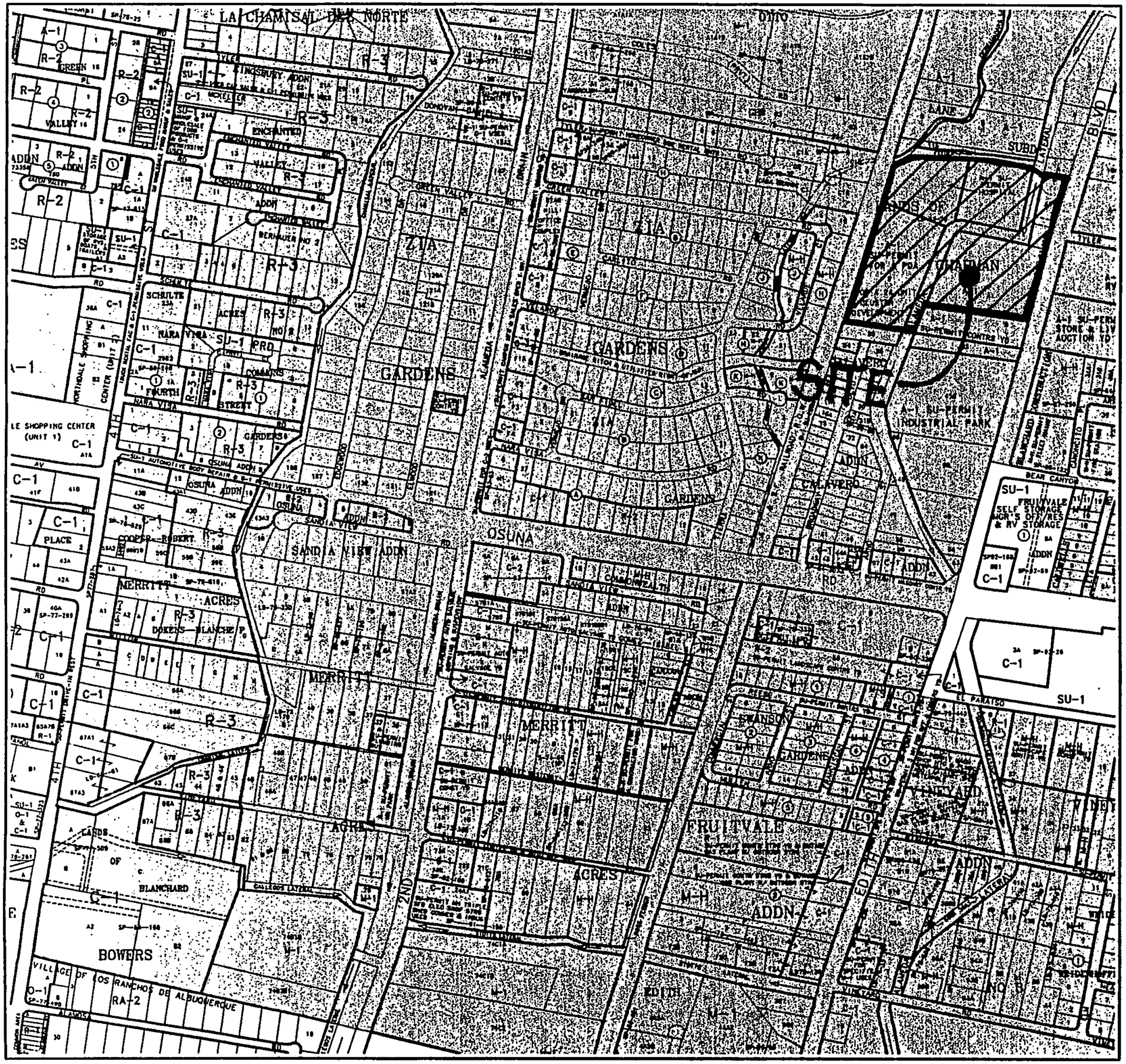

CITY OF
Albuquerque

A lbuquerque G eographic I nformation S ystem

PLANNING DEPARTMENT

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GRAPHIC SCALE IN FEET

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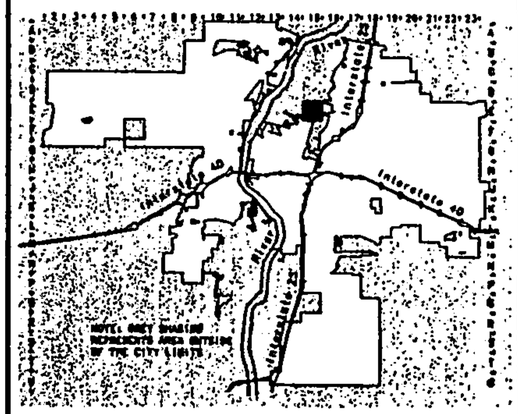


Zone Atlas Page

E-15-Z

Map Amended through
February 26, 1998

Location

Flor Silvestre is a proposed 109 unit mobile home park. It is located on Broadway between Edith and the A.T. & S.F. Railroad. The site is shown on the attached Zone Atlas Map E-15 and contains approximately 16.76 acres. The purpose of this report is to provide the drainage analysis and management plan for the mobile home park.

Existing Drainage Conditions

The site is currently undeveloped. There are four existing basins on the site. There are existing ponds within Basins 2 and 4 and the basins flow towards the ponds. Basins 1 and 3 are very flat and the water ponds within the entire basin.

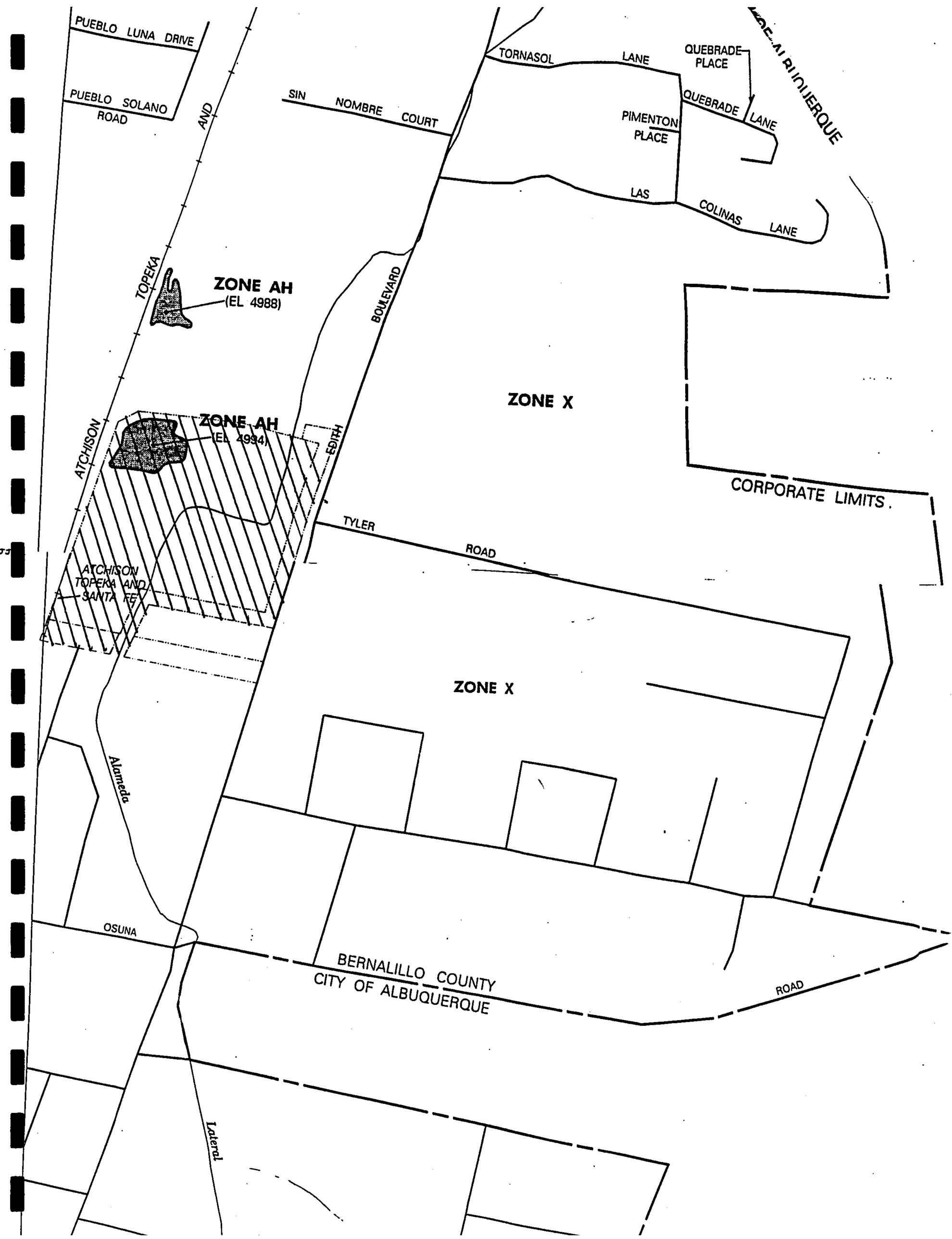
There is one offsite basin impacting the site from east of Edith Boulevard. Most of the offsite flow comes from Tyler Road to the east. The remainder of the offsite basin sheet flows across the adjacent properties to enter Edith. The flows then cross Edith, which currently does not have curb and gutter, to enter the Flor Silvestre site. The water flows across the site and most of the flows enter the Alameda Lateral. Some of the offsite flow is captured in existing ponds located on the site.

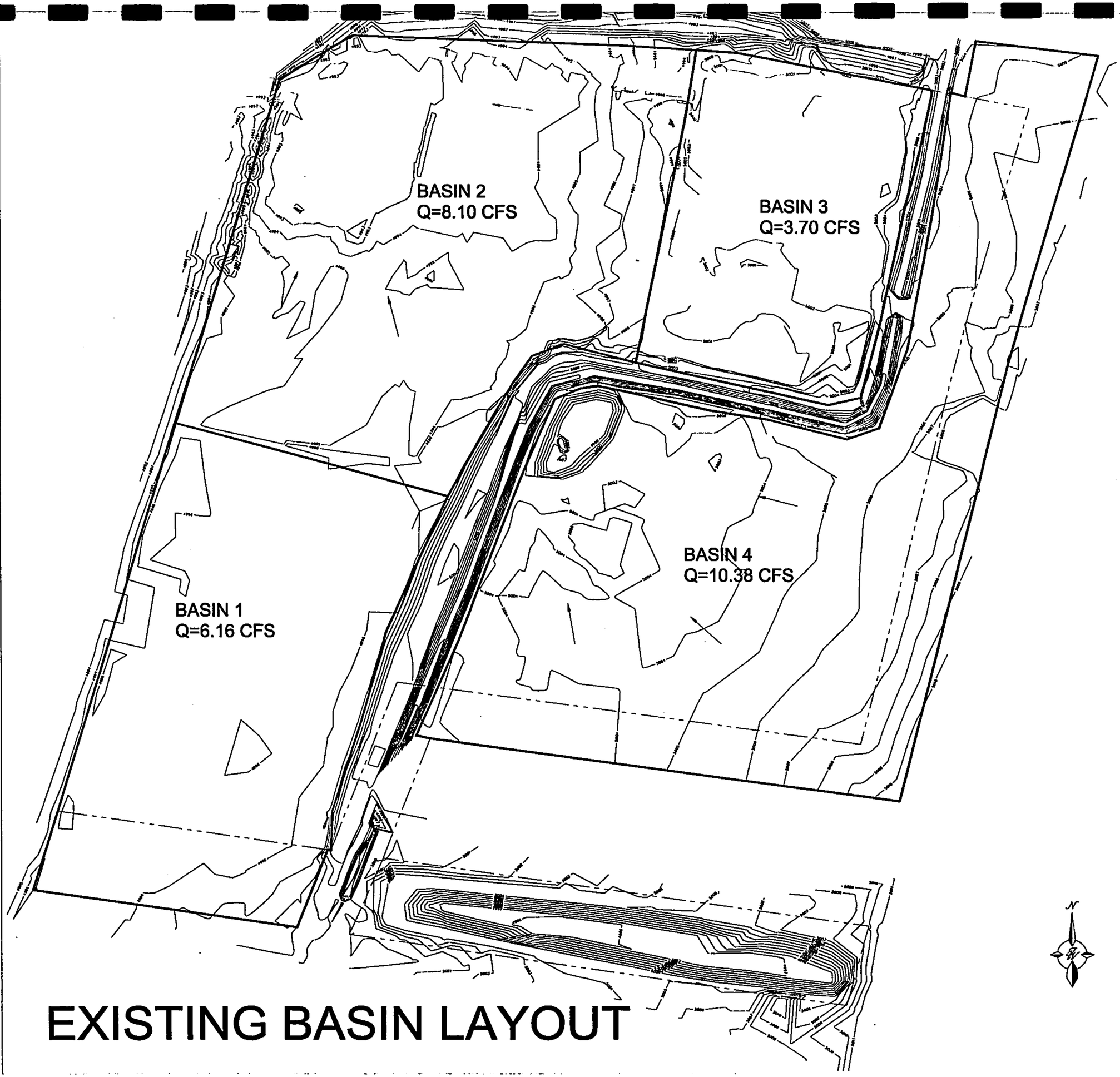
The railroad blocks any flows from the west. The natural topography of the site prevents any flows from entering the site from the north. There is a tract of land to the south between the project and an existing County drainage pond. This tract flows west and is intercepted by the Alameda Lateral.

FIRM Map and Soil Conditions

The site is located on FIRM Map 35001C0136 D and 35001C0138 D as shown on the attached excerpt. The map shows that the site has a small flood plain in the northwest corner. This flood plain is zoned AH and has a base flood elevation of 4994. This is the site of an existing pond located on the site. We will be regrading the site and a new pond will be located in

Need LOMR


PUEBLO LUNA DRIVE
PUEBLO SOLANO ROAD
AND
SIN NOMBRE COURT
TORNASOL LANE
QUEBRADE PLACE
QUEBRADE LANE
PIMENTON PLACE
LAS COLINAS LANE
TOPEKA
ZONE AH
(EL 4988)
BOULEVARD
ATCHISON
ZONE AH
(EL 4994)
HIGH
ZONE X
CORPORATE LIMITS
TYLER ROAD
ATCHISON TOPEKA AND SANTA FE
Alameda
OSUNA
BERNALILLO COUNTY
CITY OF ALBUQUERQUE
ROAD
Lateral
ZONE X



EXISTING BASIN LAYOUT

this area.

The site contains three soils from the Soil Conservation Service Soil Survey of Bernalillo County. The first is a Gila loam and has slow runoff and a slight hazard of water erosion. The second is a Gila complex which as medium runoff, moderate hazard of water erosion and a severe hazard of soil blowing. The third soil is a Vinton loamy sand has a severe hazard of soil blowing and slow runoff and is found in irrigated sections of the Rio Grande Valley.

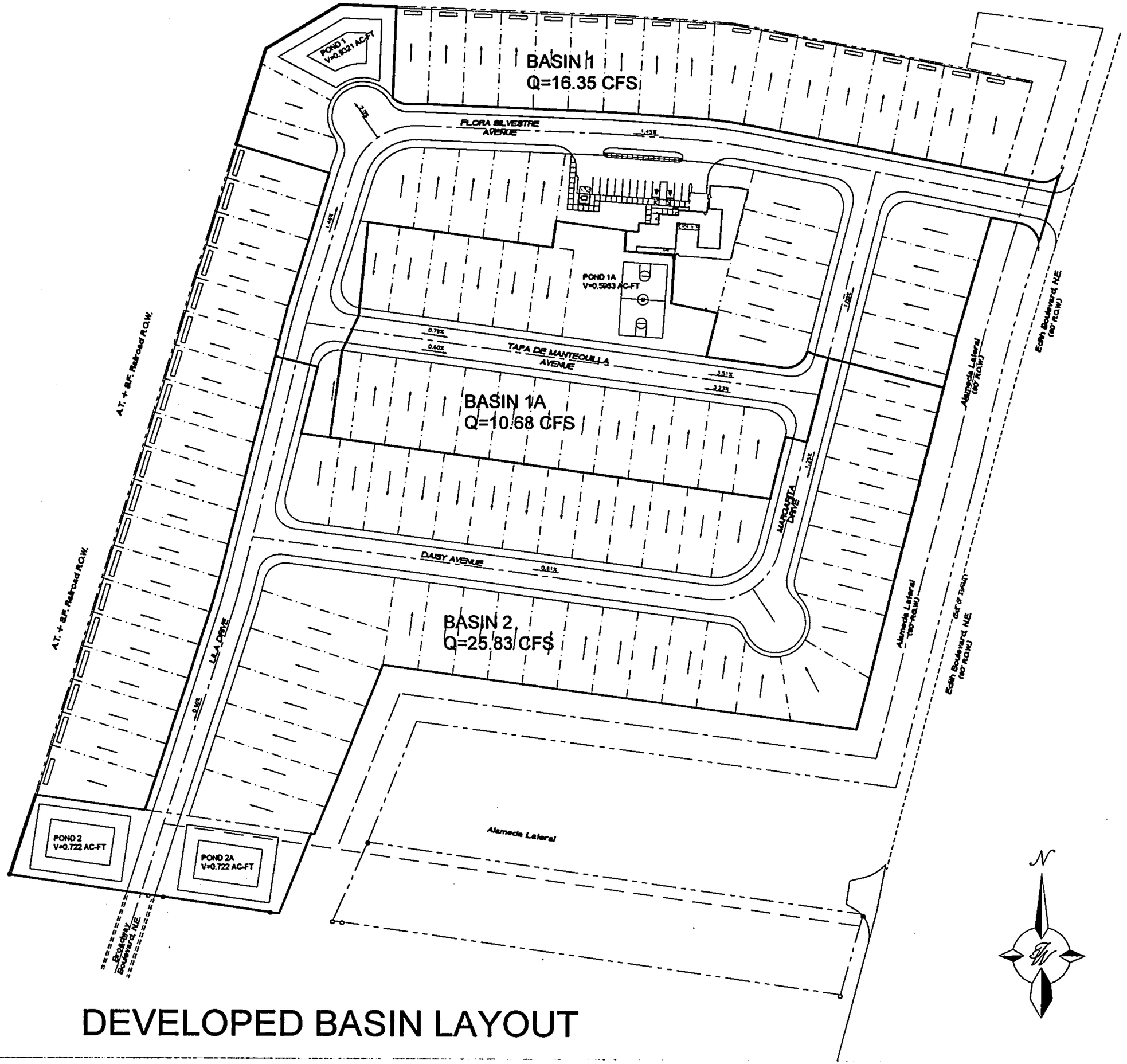
On Site Drainage Management Plan

The proposed drainage management plan is to collect the developed flows in the streets and convey the flows to several proposed retention ponds. The Alameda Lateral runs through the center of the site. The lateral will be realigned to reduce its impact on the subdivision. This is being coordinated with the Middle Rio Grande Conservancy District.

There are three proposed basins (Basin 1, 1A, and 2) on the site. Basin 1 drains to a new retention pond with a capacity of 0.9321 ac-ft. This is more than the required 10 day capacity of 0.9120 ac-ft. Basin 1A flows to a retention pond located in a park area near the center of the site. This pond has capacity for 0.5963 ac-ft, which is greater than the required 10 day capacity of 0.5960 ac-ft. Basin 2 has a required 10 day capacity of 1.4412 ac-ft. There will be two ponds located on either side of the entrance. The ponds will be connected by an 18" pipe and have a combined capacity of 1.4440 ac-ft.

The lots adjacent to the railroad will have back yard ponds due to the grades. These ponds have been sized to have capacity for the 100 year 10 day storm. We will only contain the runoff from that lot.

All the proposed streets on the site have 32' face to face street sections. The curbs will be 4" mountable curb on all the streets. The minimum and maximum street slopes are 0.6% and 3.51%, respectively. The capacity of the streets using the minimum and maximum slopes is 32.50 cfs and 21.31 cfs. Consequently, the streets have capacity for the developed flows that



DEVELOPED BASIN LAYOUT

will be conveyed to the ponds.

Off Site Drainage Management Plan

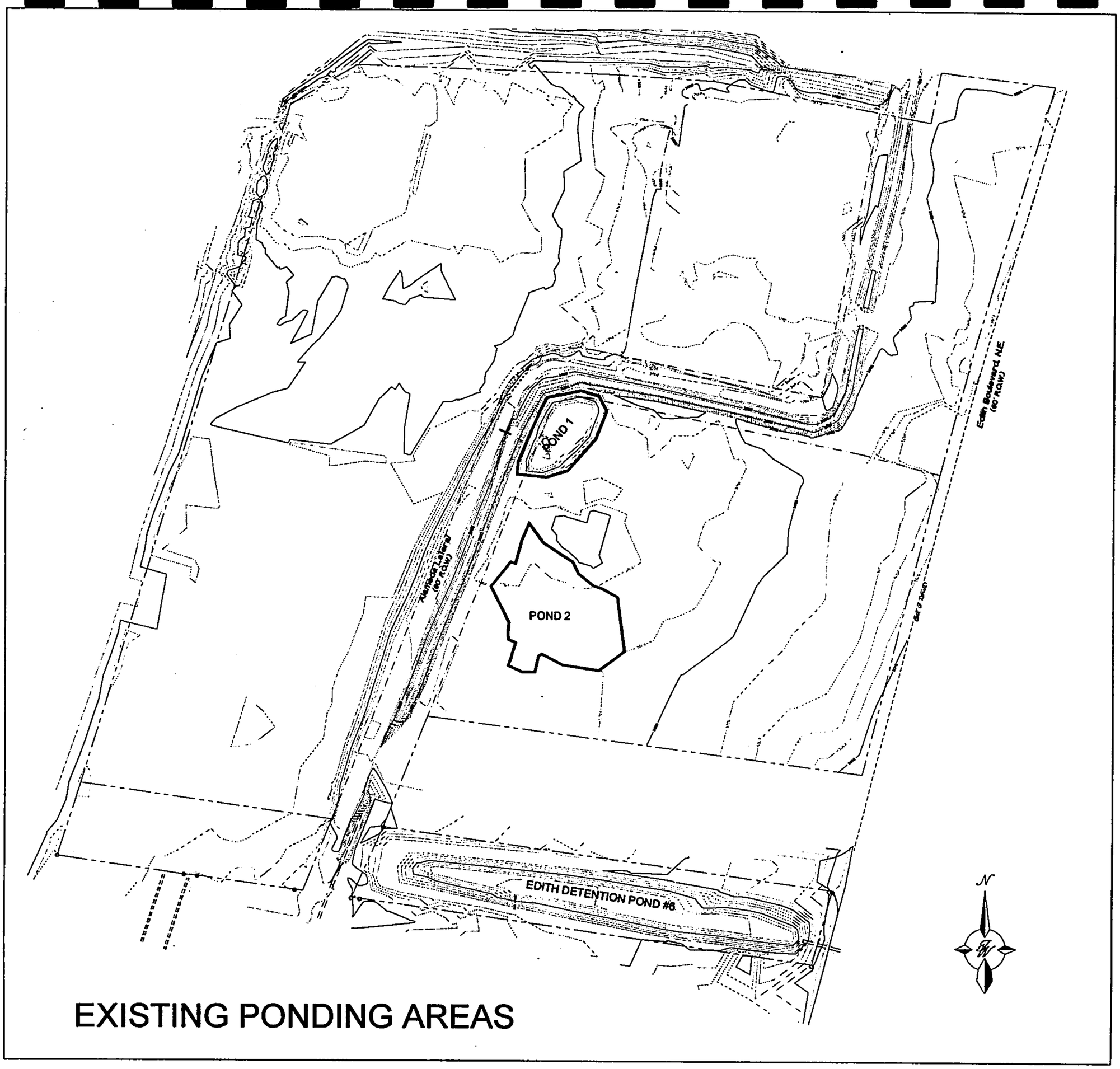
There is one off-site basin that affects the site from the east side of Edith Boulevard. This basin has a total developed flow of 83.81 cfs and a runoff volume of 2.969 ac-ft. The existing on-site ponds hold 0.8342 ac-ft. The Edith Detention Pond #6 will store the 0.8342 ac-ft and the remainder of the volume will be allowed to enter the Alameda Lateral. This is the existing historical flow that currently enters the Alameda Lateral.

We are proposing to build curb and gutter along our property frontage in Edith Boulevard. This will prevent the offsite basin from continuing its present pattern of sheet flowing across Edith and entering the Alameda Lateral. We are proposing to capture the off-site basin in a cattle guard drop inlet in Edith at the north side of Flor Silvestre. The drop inlet will connect to a 36" RCP that will convey the flows to Edith Detention Pond #6. The detention pond will hold the water that previously ponded on the Flor Silvestre site (0.8342 ac-ft). The pond has capacity for 4.0788 ac-ft, which is greater than the required capacity of 3.9198 ac-ft. The maximum water surface in the pond will reach 5001.81 feet and the emergency overflow has an elevation of 5002.50 feet. This is 0.69 feet of freeboard in the pond. The remainder of the off-site basin (51.85 cfs) will overflow the pond through a weir located on the west side of the pond to the Alameda Lateral. This is less than the historical flow of 60.34 cfs that currently enters the Lateral.

w/ Vista del Norte?

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 the on-site basins. AHYMO was used to analyze the off-site basin and Edith Detention Pond #6. The actual AHYMO for the Vista del Norte Subdivision was not used. The



EXISTING PONDING AREAS

Runoff Calculations

DRAINAGE BASINS

Existing

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	171936.82	3.9471	0.006167
2	226271.49	5.1945	0.008116
3	103452.32	2.3749	0.003711
4	289841.78	6.6539	0.010397
Total	791502.41	18.1704	0.028391

Proposed

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
1	182448.28	4.1884	0.006544
1A	119177.68	2.7359	0.004275
2	288198.05	6.6161	0.010338
Total	589824.01	13.5405	0.021157

Off-site

BASIN	AREA (SF)	AREA (AC)	AREA (MI^2)
Off-site	1108803.95	25.4546	0.039773

RUNOFF CALCULATION RESULTS

Existing

BASIN	Q-100 CFS	Q-10 CFS	V-100 AC-FT	V-10 AC-FT
1	6.16	1.5	0.174	0.043
2	8.1	1.97	0.229	0.056
3	3.7	0.9	0.105	0.026
4	10.38	2.53	0.294	0.072
Total	28.34	6.90	0.802	0.197

Proposed

BASIN	Q-100 CFS	Q-10	V-100 AC-FT	V-10 AC-FT
1	16.35	10.12	0.577	0.336
1A	10.68	6.61	0.377	0.220
2	25.83	15.98	0.912	0.531
Total	52.86	32.71	1.866	1.087

Off-Site

BASIN	Q-100 CFS	V-100 AC-FT
Off-Site	83.81	2.969

Weighted E Method

Volumes and Flows

Existing 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 Weighted E (ac-ft)	100-Year Volume-6 hr (ac-ft)	100-Year Volume -10 day (ac-ft)	100-Year Flow cfs	10-Year Weighted E (ac-ft)	10-Year Volume (ac-ft)	10-Year Flow cfs
1	171936.82	3.947	100%	3.947126	0%	0.000	0%	0	0%	0.000	0.530	0.174	0.174	6.16	0.130	0.043	1.50
2	226271.49	5.194	100%	5.194479	0%	0.000	0%	0	0%	0.000	0.530	0.229	0.229	8.10	0.130	0.056	1.97
3	103452.32	2.375	100%	2.374938	0%	0.000	0%	0	0%	0.000	0.530	0.105	0.105	3.70	0.130	0.026	0.90
4	289841.78	6.654	100%	6.653852	0%	0.000	0%	0	0%	0.000	0.530	0.294	0.294	10.38	0.130	0.072	2.53
	791502.41	18.170		18.1704		0.000		0		0.000		0.803	0.803	28.35		0.197	6.90

Developed 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 Weighted E (ac-ft)	100-Year Volume-6 hr (ac-ft)	100-Year Volume -10 day (ac-ft)	100-Year Flow (cfs)	10-Year Weighted E (ac-ft)	10-Year Volume (ac-ft)	10-Year Flow (cfs)
1	182448.28	4.188	0%	0	20%	0.838	20%	0.837687	60%	2.513	1.654	0.577	0.912	16.35	0.964	0.336	10.12
1A	119177.68	2.736	0%	0	20%	0.547	20%	0.547189	60%	1.642	1.654	0.377	0.596	10.68	0.964	0.220	6.61
2	288198.05	6.616	0%	0	20%	1.323	20%	1.323223	60%	3.970	1.654	0.912	1.441	25.83	0.964	0.531	15.98
Total	589824.01	13.540		0		2.708		2.708099		8.124		1.866	2.950	52.86		1.088	32.71

Typical Lot

	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 Weighted E (ac-ft)	100-Year Volume-6 hr (ac-ft)	100-Year Volume-10 Day (ac-ft)	100-Year Flow (cfs)	10-Year Weighted E (ac-ft)	10-Year Volume (ac-ft)	10-Year Flow (cfs)
Lot	4859.99	0.112	0%	0	20%	0.022	20%	0.022314	60%	0.067	1.654	0.015	0.0207	0.44	0.964	0.009	0.27

RUNOFF CALCULATIONS FOR WEIGHTED E METHOD

The site is @ Zone 2

LAND TREATMENT

Proposed
B = 20 %
C = 20 %
D = 60 %

Existing
B = 100 %

EXCESS PRECIPITATION, E (INCHES)

100-Year	10-Year
E_a = 0.53	E_a = 0.13
E_b = 0.78	E_b = 0.28
E_c = 1.13	E_c = 0.52
E_d = 2.12	E_d = 1.34

PEAK DISCHARGE (CFS/ACRE)

100-Year	10-Year
Q_a = 1.56	Q_a = 0.38
Q_b = 2.28	Q_b = 0.95
Q_c = 3.14	Q_c = 1.71
Q_d = 4.70	Q_d = 3.14

RUNOFF CALCULATIONS FOR AHYMO

The site is @ Zone 2

LAND TREATMENT FOR OFFSITE BASIN

B = 26 %
C = 47 %
D = 27 %

Type D
The existing Tyler Road and Edith Boulevard were calculated as type D for a total of 233517.54 SF

The percent of type D was calculated for the existing 1 du/acre houses using the formula provided in Table A-5 of Chapter 22 in the DPM.
D = √((N*N)+(5*N)) where N=units/acre.
D = √(1*1)+(5*1))
= 17%
A type D of 17% for the residential housing was used for a total of 60427.04 SF.
This was a total type D treatment for the offsite basin of 293944.58 SF or 27%.

Type C
The existing RV Park and Nursery were calculated as type C for a total of 519833.24 SF or 47%.

Type B
The remainder of the residential housing was assumed as type B for a total of 26%.

DEPTH (INCHES)

100-Year	10-Year
P_{60} = 2.01	P_{60} = 1.34
P_{360} = 2.35	P_{360} = 1.57
P_{1440} = 2.75	P_{1440} = 1.83
$P_{4\ days}$ = 3.30	$P_{4\ days}$ = 2.20

On-Site Ponding Calculations

Retention Pond

			Pond 2		Lot Ponds
	Pond 1	Pond 1A	Pond 2	Pond 2A	
Area of Pond Top (SF)	11069.40	See Attached	8676.54	8676.54	612.00
Area of Pond Bottom (SF)	2464.40	Sheet	1807.01	1807.01	0.00
Depth of Pond (FT)	6.00		6.00	6.00	3.00
Volume (CF)	40601.40	0.00	31450.65	31450.65	918.00
Volume (AC-FT)	0.9321		0.7220	0.7220	0.0211
Volume Required (CF)	39726.72	25961.76	62779.14		901.69
Volume Required (AC-FT)	0.9120	0.5960	1.4412		0.0207
Volume Provided (CF)	40601.4	25974.83	62901.3		918.00
Volume Provided (AC-FT)	**0.9321**	**0.5963**	**1.4440**		**0.0211**

Volume = (At + Ab)/2 * Depth

VOLUME CALCULATIONS

POND 1A

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab	=	10,302.11	4993.9
At	=	12,926.01	4995.4
Dt	=	1.50	
C	=	1749.27	
Ab	=	2,312.07	4991.9
At	=	5,175.05	4993.9
Dt	=	2.00	
C	=	1431.49	
Ab	=	81.98	4991.9
At	=	985.46	4996.9
Dt	=	2.00	
C	=	451.74	

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)
91.90	0	0
92.40	0.5	0.0329
92.90	1	0.0766
93.40	1.5	0.1311
93.90	2	0.1964
94.40	2.5	0.3197
94.90	3	0.4530
95.40	3.5	0.5963

Off-Site Ponding Calculations

Existing On-Site Ponds

Volume = (At + Ab)/2 * Depth

	POND 1	POND 2
Area of Pond Top (SF)	7994.37	18920.07
Area of Pond Bottom (SF)	3703.04	9460.00
Depth of Pond (FT)	5.00	0.50
Volume (CF)	29243.53	7095.02
Volume (AC-FT)	0.6713	0.1629
Volume Provided (CF)	36338.5425	
Volume Provided (AC-FT)	**0.8342**	

Total Volume from Off-site Basin = 2.969 ac-ft
Total Flow from Off-site Basin = 83.81 cfs

Volume Detained in Edith Detention Pond #6 = 0.8342 ac-ft or 28%
Flow Detained in Edith Detention Pond #6 = 23.47 cfs

Volume Allowed to Enter Alameda Lateral = 2.1348 ac-ft or 72%
Flow Allowed to Enter Alameda Lateral = 60.34 cfs

VOLUME CALCULATIONS

EDITH DETENTION POND #6

Ab - Bottom Of The Pond Surface Area
At - Top Of The Pond Surface Area
D - Water Depth
Dt - Total Pond Depth
C - Change In Surface Area / Water Depth

Volume = Ab * D + 0.5 * C * D^2
C = (At - Ab) / Dt

Ab =	22,577.24
At =	36,647.28
Dt =	6.00
C =	2345.01

ACTUAL ELEV.	DEPTH (FT)	VOLUME (AC-FT)	Q - Pipe (CFS)	Q - Wier (CFS)	Q - Total (CFS)
4996.00	0.00	0.0000	0.00	0.00	0.00
4997.00	1.00	0.5452	2.34	0.00	2.34
4998.00	2.00	1.1443	3.95	0.00	3.95
4999.00	3.00	1.7972	5.07	0.00	5.07
5000.00	4.00	2.5039	5.98	0.00	5.98
5000.50	4.50	2.8774	6.39	0.00	6.39
5001.00	5.00	3.2644	6.77	10.17	16.94
5002.00	6.00	4.0788	7.48	52.84	60.32

Orifice Equation		Weir Equation	
Q = CA SQRT(2gH)		Q = CLH^(3/2)	
C =	0.6	C =	2.95
Diameter (in)	11	Length (ft)	9.75
Area (ft^2)=	0.659952623	H (Ft) =	Depth of water
g =	32.2	Q (CFS)=	Flow
H (Ft) =	Depth of water above center of orifice		
Q (CFS)=	Flow		

```
**********************************************************************
*                          FLOR SILVESTRE MHP                        *
**********************************************************************
*       PONDING CALCULATIONS FOR EDITH DETENTION POND #6             *
**********************************************************************
*          100-YEAR, 24-HR STORM  (PONDING CALCULATIONS)             *
**********************************************************************
*
START                 TIME=0.0
*
* TYLER ROAD BASIN
*
RAINFALL              TYPE=2 RAIN QUARTER=0.0 IN
                      RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                      RAIN DAY=2.75 IN DT=0.05 HR
COMPUTE NM HYD        ID=1 HYD NO=100.1 AREA=0.03977 SQ MI
                      PER A=0.00 PER B=26.00 PER C=47.00 PER D=27.00
                      TP=-0.1333 HR MASS RAINFALL=-1
*
PRINT HYD             ID=1 CODE=1
*
* VISTA DEL NORTE SUBDIVISION
* (SIMULATES DISCHARGE OF 7.50 CFS)
*
COMPUTE NM HYD        ID=4 HYD NO=100.2 AREA=0.387094 SQ MI
                      PER A=0.00 PER B=20.00 PER C=20.00 PER D=60.00
                      TP=-0.1333 HR MASS RAINFALL=-1
*
PRINT HYD             ID=4 CODE=1
*
ROUTE RESERVOIR       ID=5 HYD NO=500.1 INFLOW ID=4 CODE=24
                      OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                          0.000              0.0000           0.00
                          1.762              2.2957           1.00
                          2.855              4.6355           2.00
                          3.633              7.0636           3.00
                          4.272              9.5801           4.00
                          4.827             12.1848           5.00
                          5.324             14.8778           6.00
                          5.779             17.6591           7.00
                          6.201             20.5287           8.00
                          6.595             23.4866           9.00
                          6.967             26.5328          10.00
                          7.321             29.6673          11.00
                          7.658             32.8901          12.00
                          7.981             36.2012          13.00
*
PRINT HYD             ID=5 CODE=1
*
* BEAR CANYON BASIN
*
COMPUTE NM HYD        ID=6 HYD NO=100.4 AREA=0.055 SQ MI
                      PER A=0.00 PER B=70.00 PER C=15.00 PER D=15.00
                      TP=-0.1333 HR MASS RAINFALL=-1
*
PRINT HYD             ID=6 CODE=1
*
ADD HYD               ID=1 HYD NO=201.5 ID=1 ID=5
ADD HYD               ID=1 HYD NO=201.6 ID=1 ID=6
*
PRINT HYD             ID=1 CODE=1
*
* EDITH DETENTION POND #6
*
ROUTE RESERVOIR       ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                      OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                          0.00               0.0000           4996.00
                          2.34               0.5452           4997.00
```

```
                          3.95            1.1443          4998.00
                          5.07            1.7972          4999.00
                          5.98            2.5039          5000.00
                          6.39            2.8774          5000.50
                         16.94            3.2644          5001.00
                         60.32            4.0788          5002.00

*
PRINT HYD              ID=2 CODE=1
*
*
FINISH
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =04/17/2000
INPUT FILE = a:pond.dat USER NO.= R_BOHANN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION	
START										TIME=	.00
RAINFALL TYPE= 2										RAIN24=	2.750
COMPUTE NM HYD	100.10	-	1	.03977	83.81	2.969	1.39989	1.500	3.293	PER IMP=	27.00
COMPUTE NM HYD	100.20	-	4	.38709	958.35	38.910	1.88471	1.500	3.868	PER IMP=	60.00
ROUTE RESERVOIR	500.10	4	5	.38709	7.54	16.745	.81108	3.150	.030	AC-FT=	31.775
COMPUTE NM HYD	100.40	-	6	.05500	96.97	3.180	1.08409	1.500	2.755	PER IMP=	15.00
ADD HYD	201.50	1& 5	1	.42686	88.18	19.714	.86594	1.500	.323		
ADD HYD	201.60	1& 6	1	.48186	185.15	22.894	.89084	1.500	.600		
ROUTE RESERVOIR	501.10	1	2	.48186	51.85	20.014	.77879	1.850	.168	AC-FT=	3.920
FINISH											

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 04/17/2000
         START TIME (HR:MIN:SEC) = 10:35:53     USER NO.= R_BOHANN.I01
         INPUT FILE = a:pond.dat

**************************************************************
*                      FLOR SILVESTRE MHP                    *
**************************************************************
*       PONDING CALCULATIONS FOR EDITH DETENTION POND #6     *
**************************************************************
*          100-YEAR, 24-HR STORM  (PONDING CALCULATIONS)     *
**************************************************************
*
START                TIME=0.0
*
* TYLER ROAD BASIN
*
RAINFALL             TYPE=2 RAIN QUARTER=0.0 IN
                     RAIN ONE=2.01 IN RAIN SIX=2.35 IN
                     RAIN DAY=2.75 IN DT=0.05 HR

COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT =     .050000 HOURS        END TIME =    24.000000 HOURS
   .0000   .0024   .0049   .0075   .0102   .0130   .0158
   .0188   .0219   .0252   .0286   .0321   .0358   .0397
   .0439   .0482   .0529   .0578   .0631   .0689   .0751
   .0836   .0930   .1201   .1842   .2944   .4649   .7103
  1.0460  1.3107  1.4303  1.5302  1.6176  1.6959  1.7667
  1.8313  1.8906  1.9452  1.9955  2.0421  2.0851  2.0946
  2.1034  2.1115  2.1191  2.1262  2.1330  2.1394  2.1455
  2.1513  2.1569  2.1622  2.1673  2.1723  2.1771  2.1817
  2.1862  2.1905  2.1948  2.1989  2.2028  2.2067  2.2105
  2.2142  2.2178  2.2213  2.2248  2.2282  2.2315  2.2347
  2.2379  2.2410  2.2440  2.2470  2.2500  2.2529  2.2557
  2.2585  2.2613  2.2640  2.2666  2.2693  2.2719  2.2744
  2.2769  2.2794  2.2818  2.2842  2.2866  2.2889  2.2913
  2.2935  2.2958  2.2980  2.3002  2.3024  2.3046  2.3067
  2.3088  2.3109  2.3129  2.3150  2.3170  2.3190  2.3209
  2.3229  2.3248  2.3267  2.3286  2.3305  2.3323  2.3342
  2.3360  2.3378  2.3396  2.3414  2.3431  2.3449  2.3466
  2.3483  2.3500  2.3517  2.3534  2.3551  2.3569  2.3586
  2.3602  2.3619  2.3636  2.3653  2.3669  2.3686  2.3703
  2.3719  2.3736  2.3752  2.3768  2.3785  2.3801  2.3817
  2.3833  2.3849  2.3865  2.3881  2.3897  2.3913  2.3929
  2.3944  2.3960  2.3976  2.3991  2.4007  2.4022  2.4038
  2.4053  2.4068  2.4084  2.4099  2.4114  2.4129  2.4144
  2.4159  2.4174  2.4189  2.4204  2.4219  2.4234  2.4248
  2.4263  2.4278  2.4292  2.4307  2.4322  2.4336  2.4350
  2.4365  2.4379  2.4394  2.4408  2.4422  2.4436  2.4450
  2.4464  2.4478  2.4493  2.4506  2.4520  2.4534  2.4548
  2.4562  2.4576  2.4589  2.4603  2.4617  2.4630  2.4644
  2.4658  2.4671  2.4685  2.4698  2.4711  2.4725  2.4738
  2.4751  2.4765  2.4778  2.4791  2.4804  2.4817  2.4830
  2.4843  2.4856  2.4869  2.4882  2.4895  2.4908  2.4921
  2.4934  2.4946  2.4959  2.4972  2.4984  2.4997  2.5010
  2.5022  2.5035  2.5047  2.5060  2.5072  2.5085  2.5097
  2.5109  2.5122  2.5134  2.5146  2.5158  2.5170  2.5183
  2.5195  2.5207  2.5219  2.5231  2.5243  2.5255  2.5267
  2.5279  2.5291  2.5303  2.5314  2.5326  2.5338  2.5350
  2.5361  2.5373  2.5385  2.5396  2.5408  2.5420  2.5431
  2.5443  2.5454  2.5466  2.5477  2.5488  2.5500  2.5511
  2.5523  2.5534  2.5545  2.5556  2.5568  2.5579  2.5590
  2.5601  2.5612  2.5623  2.5635  2.5646  2.5657  2.5668
  2.5679  2.5690  2.5701  2.5711  2.5722  2.5733  2.5744
  2.5755  2.5766  2.5776  2.5787  2.5798  2.5809  2.5819
  2.5830  2.5841  2.5851  2.5862  2.5872  2.5883  2.5893
  2.5904  2.5914  2.5925  2.5935  2.5946  2.5956  2.5966
  2.5977  2.5987  2.5997  2.6008  2.6018  2.6028  2.6038
```

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 2.6049  2.6059  2.6069  2.6079  2.6089  2.6099  2.6109
 2.6119  2.6129  2.6139  2.6149  2.6159  2.6169  2.6179
 2.6189  2.6199  2.6209  2.6219  2.6229  2.6238  2.6248
 2.6258  2.6268  2.6278  2.6287  2.6297  2.6307  2.6316
 2.6326  2.6336  2.6345  2.6355  2.6364  2.6374  2.6384
 2.6393  2.6403  2.6412  2.6421  2.6431  2.6440  2.6450
 2.6459  2.6469  2.6478  2.6487  2.6497  2.6506  2.6515
 2.6524  2.6534  2.6543  2.6552  2.6561  2.6571  2.6580
 2.6589  2.6598  2.6607  2.6616  2.6625  2.6634  2.6644
 2.6653  2.6662  2.6671  2.6680  2.6689  2.6698  2.6707
 2.6715  2.6724  2.6733  2.6742  2.6751  2.6760  2.6769
 2.6778  2.6786  2.6795  2.6804  2.6813  2.6821  2.6830
 2.6839  2.6848  2.6856  2.6865  2.6874  2.6882  2.6891
 2.6900  2.6908  2.6917  2.6925  2.6934  2.6942  2.6951
 2.6959  2.6968  2.6976  2.6985  2.6993  2.7002  2.7010
 2.7019  2.7027  2.7035  2.7044  2.7052  2.7061  2.7069
 2.7077  2.7085  2.7094  2.7102  2.7110  2.7119  2.7127
 2.7135  2.7143  2.7151  2.7160  2.7168  2.7176  2.7184
 2.7192  2.7200  2.7209  2.7217  2.7225  2.7233  2.7241
 2.7249  2.7257  2.7265  2.7273  2.7281  2.7289  2.7297
 2.7305  2.7313  2.7321  2.7329  2.7337  2.7344  2.7352
 2.7360  2.7368  2.7376  2.7384  2.7392  2.7399  2.7407
 2.7415  2.7423  2.7431  2.7438  2.7446  2.7454  2.7462
 2.7469  2.7477  2.7485  2.7492  2.7500

COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.03977 SQ MI
                     PER A=0.00 PER B=26.00 PER C=47.00 PER D=27.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   42.394    CFS   UNIT VOLUME =    .9989       B =   526.28      P60 = 2.0100
    AREA =      .010738 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


    K =   .116222HR    TP =   .133300HR    K/TP RATIO =   .871886     SHAPE CONSTANT, N =  4.073940
    UNIT PEAK =   78.421    CFS   UNIT VOLUME =    1.001       B =   360.07      P60 = 2.0100
    AREA =      .029032 SQ MI    IA =    .40342 INCHES    INF =    .97959 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

*
PRINT HYD            ID=1 CODE=1

                                PARTIAL HYDROGRAPH   100.10


    RUNOFF VOLUME =     1.39989 INCHES      =       2.9693 ACRE-FEET
    PEAK DISCHARGE RATE =      83.81 CFS  AT   1.500 HOURS   BASIN AREA =    .0398 SQ. MI.

*
* VISTA DEL NORTE SUBDIVISION
* (SIMULATES DISCHARGE OF 7.50 CFS)
*
COMPUTE NM HYD       ID=4 HYD NO=100.2 AREA=0.387094 SQ MI
                     PER A=0.00 PER B=20.00 PER C=20.00 PER D=60.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =   .075613HR    TP =   .133300HR    K/TP RATIO =   .567242     SHAPE CONSTANT, N =  6.753379
    UNIT PEAK =   887.64    CFS   UNIT VOLUME =    .9989       B =   509.45      P60 = 2.0100
    AREA =      .232256 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


    K =   .108895HR    TP =   .133300HR    K/TP RATIO =   .816915     SHAPE CONSTANT, N =  4.374743
    UNIT PEAK =   440.73    CFS   UNIT VOLUME =    1.002       B =   379.43      P60 = 2.0100
    AREA =      .154838 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000
```

```
*
PRINT HYD            ID=4 CODE=1

                                   PARTIAL HYDROGRAPH   100.20

    RUNOFF VOLUME =     1.88471 INCHES     =      38.9095 ACRE-FEET
    PEAK DISCHARGE RATE =     958.35 CFS  AT   1.500 HOURS   BASIN AREA =    .3871 SQ. MI.


*
ROUTE RESERVOIR      ID=5 HYD NO=500.1 INFLOW ID=4 CODE=24
                     OUTFLOW(CFS)      STORAGE(AC-FT)  ELEVATION(FT)
                         0.000             0.0000          0.00
                         1.762             2.2957          1.00
                         2.855             4.6355          2.00
                         3.633             7.0636          3.00
                         4.272             9.5801          4.00
                         4.827            12.1848          5.00
                         5.324            14.8778          6.00
                         5.779            17.6591          7.00
                         6.201            20.5287          8.00
                         6.595            23.4866          9.00
                         6.967            26.5328         10.00
                         7.321            29.6673         11.00
                         7.658            32.8901         12.00
                         7.981            36.2012         13.00

  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

    TIME        INFLOW      ELEV       VOLUME     OUTFLOW
    (HRS)       (CFS)       (FEET)     (AC-FT)    (CFS)

     .00          .00         .00        .000        .00
    1.20        20.45         .02        .051        .04
    2.40        36.98       11.47      31.192       7.48
    3.60         5.06       11.64      31.722       7.54
    4.80         4.11       11.54      31.400       7.50
    6.00         5.00       11.45      31.102       7.47
    7.20         4.81       11.37      30.857       7.45
    8.40         4.43       11.28      30.579       7.42
    9.60         4.12       11.19      30.270       7.38
   10.80         3.90       11.08      29.937       7.35
   12.00         3.66       10.97      29.583       7.31
   13.20         3.40       10.85      29.211       7.27
   14.40         3.28       10.73      28.823       7.23
   15.60         3.11       10.60      28.424       7.18
   16.80         2.91       10.47      28.013       7.13
   18.00         2.83       10.34      27.594       7.09
   19.20         2.70       10.20      27.167       7.04
   20.40         2.59       10.06      26.733       6.99
   21.60         2.47        9.92      26.293       6.94
   22.80         2.40        9.78      25.850       6.88
   24.00         2.29        9.63      25.403       6.83
   25.20          .01        9.42      24.764       6.75
   26.40          .00        9.20      24.099       6.67
   27.60          .00        8.98      23.442       6.59
   28.80          .00        8.77      22.792       6.50
 PEAK DISCHARGE =         7.541 CFS - PEAK OCCURS AT HOUR    3.15
 MAXIMUM WATER SURFACE ELEVATION =        11.654
 MAXIMUM STORAGE =        31.7754 AC-FT      INCREMENTAL TIME=     .050000HRS

*
PRINT HYD            ID=5 CODE=1

                                   OUTFLOW HYDROGRAPH RESERVOIR   500.10
```

```
    RUNOFF VOLUME =       .81108 INCHES      =       16.7446 ACRE-FEET
    PEAK DISCHARGE RATE =       7.54 CFS  AT   3.150 HOURS   BASIN AREA =    .3871 SQ. MI.


*
* BEAR CANYON BASIN
*
COMPUTE NM HYD       ID=6 HYD NO=100.4 AREA=0.055 SQ MI
                     PER A=0.00 PER B=70.00 PER C=15.00 PER D=15.00
                     TP=-0.1333 HR MASS RAINFALL=-1

    K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   32.571     CFS   UNIT VOLUME =     .9988        B =   526.28       P60 = 2.0100
    AREA =       .008250 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000


    K =    .127739HR     TP =    .133300HR     K/TP RATIO =    .958283      SHAPE CONSTANT, N =  3.687343
    UNIT PEAK =   117.05     CFS   UNIT VOLUME =     1.001        B =   333.76       P60 = 2.0100
    AREA =       .046750 SQ MI     IA =     .47353 INCHES     INF =    1.17588 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .050000

*
PRINT HYD            ID=6 CODE=1

                                    PARTIAL HYDROGRAPH   100.40


    RUNOFF VOLUME =     1.08409 INCHES      =        3.1800 ACRE-FEET
    PEAK DISCHARGE RATE =      96.97 CFS  AT   1.500 HOURS   BASIN AREA =    .0550 SQ. MI.


*
ADD HYD              ID=1 HYD NO=201.5 ID=1 ID=5
ADD HYD              ID=1 HYD NO=201.6 ID=1 ID=6
*
PRINT HYD            ID=1 CODE=1

                                    PARTIAL HYDROGRAPH   201.60


    RUNOFF VOLUME =       .89084 INCHES      =       22.8938 ACRE-FEET
    PEAK DISCHARGE RATE =     185.15 CFS  AT   1.500 HOURS   BASIN AREA =    .4819 SQ. MI.


*
* EDITH DETENTION POND #6
*
ROUTE RESERVOIR      ID=2 HYD NO=501.1 INFLOW ID=1 CODE=24
                     OUTFLOW(CFS)       STORAGE(AC-FT)   ELEVATION(FT)
                          0.00               0.0000          4996.00
                          2.34               0.5452          4997.00
                          3.95               1.1443          4998.00
                          5.07               1.7972          4999.00
                          5.98               2.5039          5000.00
                          6.39               2.8774          5000.50
                         16.94               3.2644          5001.00
                         60.32               4.0788          5002.00

  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *  *

    TIME        INFLOW     ELEV       VOLUME     OUTFLOW
    (HRS)       (CFS)      (FEET)     (AC-FT)    (CFS)
```

.00	.00	4996.00	.000	.00
1.20	1.68	4996.01	.004	.02
2.40	13.66	5001.14	3.380	23.11
3.60	8.08	5000.64	2.988	9.41
4.80	7.84	5000.57	2.935	7.97
6.00	7.88	5000.57	2.932	7.87
7.20	7.84	5000.57	2.931	7.86
8.40	7.78	5000.57	2.929	7.80
9.60	7.72	5000.56	2.927	7.74
10.80	7.67	5000.56	2.925	7.69
12.00	7.61	5000.56	2.923	7.63
13.20	7.55	5000.56	2.921	7.57
14.40	7.49	5000.55	2.919	7.51
15.60	7.43	5000.55	2.916	7.45
16.80	7.37	5000.55	2.914	7.40
18.00	7.32	5000.54	2.912	7.34
19.20	7.26	5000.54	2.910	7.28
20.40	7.20	5000.54	2.908	7.22
21.60	7.14	5000.54	2.906	7.16
22.80	7.08	5000.53	2.904	7.10
24.00	7.02	5000.53	2.901	7.04
25.20	6.75	5000.52	2.892	6.80
26.40	6.67	5000.51	2.889	6.70
27.60	6.59	5000.51	2.886	6.62
28.80	6.50	5000.51	2.883	6.53

PEAK DISCHARGE = 51.853 CFS - PEAK OCCURS AT HOUR 1.85
MAXIMUM WATER SURFACE ELEVATION = 5001.805
MAXIMUM STORAGE = 3.9198 AC-FT INCREMENTAL TIME= .050000HRS

*
PRINT HYD ID=2 CODE=1

OUTFLOW HYDROGRAPH RESERVOIR 501.10

RUNOFF VOLUME = .77879 INCHES = 20.0142 ACRE-FEET
PEAK DISCHARGE RATE = 51.85 CFS AT 1.850 HOURS BASIN AREA = .4819 SQ. MI.

*
*
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 10:35:53

Street Capacity Calculations

Street Capacity Calculations

Tapa de Mantequillas, Lila
32' F-F Street Section with 4" curb
Slope= 0.006

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	0.0016	0.3302	0.0048	0.0003	0.0006	0.1939	0.0019	0.3417	0.0020
0.0175	0.0049	0.5778	0.0085	0.0014	0.0028	0.2816	0.0049	0.3751	0.0040
0.0250	0.0100	0.8254	0.0121	0.0036	0.0071	0.3572	0.0089	0.3981	0.0063
0.0325	0.0169	1.0730	0.0158	0.0072	0.0144	0.4254	0.0138	0.4159	0.0088
0.0400	0.0256	1.3206	0.0194	0.0125	0.0250	0.4886	0.0195	0.4305	0.0115
0.0475	0.0361	1.5682	0.0230	0.0198	0.0396	0.5479	0.0260	0.4430	0.0143
0.0550	0.0484	1.8159	0.0267	0.0292	0.0585	0.6042	0.0332	0.4540	0.0173
0.0625	0.0625	2.0635	0.0303	0.0411	0.0822	0.6579	0.0411	0.4638	0.0203

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 + Y1 + 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)
0.0630	0.0635	2.0890	0.0304	0.0419	0.0838	0.6595	0.0416	0.4631	0.0204
0.0900	0.1364	3.4663	0.0394	0.1069	0.2137	0.7834	0.0705	0.4602	0.0289
0.1200	0.2602	4.9966	0.0521	0.2456	0.4912	0.9441	0.1133	0.4803	0.0412
0.1500	0.4289	6.5269	0.0657	0.4729	0.9458	1.1026	0.1654	0.5017	0.0552
0.1800	0.6427	8.0572	0.0798	0.8063	1.6126	1.2546	0.2258	0.5211	0.0703
0.2100	0.9014	9.5875	0.0940	1.2620	2.5239	1.4000	0.2940	0.5384	0.0863
0.2400	1.2052	11.1178	0.1084	1.8551	3.7102	1.5393	0.3694	0.5537	0.1030
0.3250	2.3102	15.4536	0.1495	4.4058	8.8117	1.9072	0.6198	0.5895	0.1535
0.3330	2.4328	15.8617	0.1534	4.7197	9.4393	1.9400	0.6460	0.5925	0.1584

For water depths greater than 0.333 ft but less than 0.3425 ft

Y1= Y-0.333
A2= A1 + 50*Y1^2 + 16.65 * Y1
P2= P1 + 2 * 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)
0.3340	2.4495	15.9617	0.1535	4.7538	9.5076	1.9408	0.6482	0.5918	0.1586
0.3360	2.4832	16.1617	0.1536	4.8231	9.6462	1.9423	0.6526	0.5905	0.1590
0.3390	2.5345	16.4618	0.1540	4.9295	9.8590	1.9450	0.6594	0.5887	0.1597
0.3425	2.5954	16.8119	0.1544	5.0573	10.1146	1.9485	0.6674	0.5867	0.1606

For water depths greater than 0.3425 ft but less than 0.513 ft

Y2= Y - 0.3425
A3= A2 + Y2*16.475 + 25 Y2^2
P3= P2 + SQRT (2501 Y2^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.3430	2.6038	16.8369	0.1546	5.0794	10.1587	1.9508	0.6691	0.5870	0.1609
0.3800	3.2550	18.6872	0.1742	6.8738	13.7475	2.1118	0.8025	0.6037	0.1860
0.4000	3.6355	19.6874	0.1847	7.9822	15.9643	2.1956	0.8783	0.6118	0.1997
0.4200	4.0360	20.6876	0.1951	9.1922	18.3844	2.2776	0.9566	0.6193	0.2136
0.4400	4.4565	21.6878	0.2055	10.5072	21.0144	2.3577	1.0374	0.6264	0.2276
0.4600	4.8970	22.6880	0.2158	11.9306	23.8611	2.4363	1.1207	0.6330	0.2417
0.4800	5.3575	23.6882	0.2262	13.4655	26.9311	2.5134	1.2064	0.6393	0.2559
0.5130	**6.1610**	**25.3386**	**0.2431**	**16.2510**	**32.5019**	**2.6377**	**1.3531**	**0.6490**	**0.2797**

Street Capacity Calculations

Tapa de Mantequilla

32' F-F Street Section with 4" curb

Slope= 0.0351

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	0.0016	0.3302	0.0048	0.0008	0.0015	0.4690	0.0047	0.8265	0.0077
0.0175	0.0049	0.5778	0.0085	0.0033	0.0067	0.6811	0.0119	0.9073	0.0153
0.0250	0.0100	0.8254	0.0121	0.0086	0.0173	0.8639	0.0216	0.9628	0.0238
0.0325	0.0169	1.0730	0.0158	0.0174	0.0348	1.0290	0.0334	1.0059	0.0328
0.0400	0.0256	1.3206	0.0194	0.0303	0.0605	1.1818	0.0473	1.0413	0.0422
0.0475	0.0361	1.5682	0.0230	0.0478	0.0957	1.3252	0.0629	1.0715	0.0520
0.0550	0.0484	1.8159	0.0267	0.0707	0.1415	1.4613	0.0804	1.0981	0.0622
0.0625	0.0625	2.0635	0.0303	0.0995	0.1989	1.5913	0.0995	1.1217	0.0727

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 + Y1 + 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)
0.0630	0.0635	2.0890	0.0304	0.1013	0.2026	1.5952	0.1005	1.1200	0.0731
0.0900	0.1364	3.4663	0.0394	0.2584	0.5169	1.8947	0.1705	1.1130	0.1036
0.1200	0.2602	4.9966	0.0521	0.5941	1.1881	2.2835	0.2740	1.1617	0.1461
0.1500	0.4289	6.5269	0.0657	1.1438	2.2876	2.6668	0.4000	1.2135	0.1931
0.1800	0.6427	8.0572	0.0798	1.9501	3.9003	3.0345	0.5462	1.2604	0.2432
0.2100	0.9014	9.5875	0.0940	3.0523	6.1045	3.3861	0.7111	1.3022	0.2957
0.2400	1.2052	11.1178	0.1084	4.4869	8.9739	3.7231	0.8936	1.3393	0.3501
0.3250	**2.3102**	**15.4536**	**0.1495**	**10.6563**	**21.3126**	**4.6128**	**1.4992**	**1.4259**	**0.5127**
0.3330	2.4328	15.8617	0.1534	11.4153	22.8307	4.6923	1.5626	1.4330	0.5286

For water depths greater than 0.333 ft but less than 0.3425 ft

Y1= Y-0.333

A2= A1 + 50*Y1^2 + 16.65 * Y1

P2= P1 + 2 * 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)
0.3340	2.4495	15.9617	0.1535	11.4979	22.9959	4.6941	1.5678	1.4314	0.5294
0.3360	2.4832	16.1617	0.1536	11.6655	23.3311	4.6979	1.5785	1.4282	0.5312
0.3390	2.5345	16.4618	0.1540	11.9228	23.8457	4.7043	1.5948	1.4239	0.5339
0.3425	2.5954	16.8119	0.1544	12.2320	24.4641	4.7129	1.6142	1.4192	0.5372

For water depths greater than 0.3425 ft but less than 0.513 ft

Y2= Y - 0.3425

A3= A2 + Y2*16.475 + 25 Y2^2

P3= P2 + SQRT (2501 Y2^2)

Depth (ft)	Area (ft^2)	P (ft)	R (A/P)	Q (cfs)	2Q (cfs)	Vel (ft/s)	D*V	Fr	D2 (ft)
0.3430	2.6038	16.8369	0.1546	12.2854	24.5707	4.7183	1.6184	1.4197	0.5382
0.3800	3.2550	18.6872	0.1742	16.6254	33.2508	5.1077	1.9409	1.4602	0.6174
0.4000	3.6355	19.6874	0.1847	19.3063	38.6126	5.3105	2.1242	1.4797	0.6606
0.4200	4.0360	20.6876	0.1951	22.2329	44.4659	5.5087	2.3137	1.4979	0.7042
0.4400	4.4565	21.6878	0.2055	25.4135	50.8271	5.7026	2.5091	1.5150	0.7481
0.4600	4.8970	22.6880	0.2158	28.8562	57.7123	5.8926	2.7106	1.5311	0.7922
0.4800	5.3575	23.6882	0.2262	32.5688	65.1376	6.0791	2.9180	1.5463	0.8367
0.5130	6.1610	25.3386	0.2431	39.3058	78.6117	6.3798	3.2728	1.5697	0.9108

Street Capacity Calculations

Edith Boulevard
48' F-F Street Section with 8" curb
Slope= 0.006

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	0.170312	0.004697	0.000152	0.000304	0.189907	0.001899	0.334668	0.001885
0.02	0.0032	0.340624	0.009395	0.000965	0.001929	0.301459	0.006029	0.375652	0.004591
0.04	0.0128	0.681249	0.018789	0.006125	0.012251	0.478536	0.019141	0.421655	0.011128
0.06	0.0288	1.021873	0.028184	0.018059	0.036119	0.62706	0.037624	0.451134	0.018635
0.08	0.0512	1.362498	0.037578	0.038893	0.077786	0.759629	0.06077	0.473292	0.026838
0.1	0.08	1.703122	0.046973	0.070518	0.141035	0.881472	0.088147	0.491225	0.035592
0.12	0.1152	2.043746	0.056367	0.11467	0.229339	0.995396	0.119448	0.506381	0.044809
0.125	0.125	2.128902	0.058716	0.127857	0.255714	1.022857	0.127857	0.509838	0.047178

For water depths greater than 0.125 ft but less than 0.565 ft

Y1= Y-0.125
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)
0.125	0.125	2.128902	0.058716	0.127857	0.255714	1.022857	0.127857	0.509838	0.047178
0.175	0.2875	4.679402	0.061439	0.303097	0.606194	1.054251	0.184494	0.444116	0.052989
0.225	0.575	7.229902	0.079531	0.720007	1.440015	1.252187	0.281742	0.465211	0.073427
0.275	0.9875	9.780402	0.100967	1.449783	2.899565	1.468134	0.403737	0.493369	0.098556
0.305	1.295	11.3107	0.114493	2.067452	4.134904	1.596488	0.486929	0.509434	0.114971
0.375	2.1875	14.8814	0.146996	4.125371	8.250743	1.885884	0.707207	0.542714	0.156005
0.425	2.975	17.4319	0.170664	6.197653	12.39531	2.083245	0.885379	0.563142	0.187149
0.475	3.8875	19.9824	0.194546	8.837533	17.67507	2.27332	1.079827	0.581281	0.219532
0.565	5.845	24.5733	0.23786	15.19302	30.38603	2.599319	1.468615	0.609407	0.280449

For water depths greater than 0.565 ft but less than 0.667 ft

Y2= Y - 0.565
A3= A2 + Y2*24
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)
0.565	5.845	24.5733	0.23786	15.19302	30.38603	2.599319	1.468615	0.609407	0.280449
0.545	5.365	24.5533	0.218504	13.17817	26.35634	2.456323	1.338696	0.586353	0.255228
0.565	5.845	24.5733	0.23786	15.19302	30.38603	2.599319	1.468615	0.609407	0.280449
0.585	6.325	24.5933	0.257184	17.31949	34.63899	2.73826	1.601882	0.630912	0.305832
0.6104	6.9346	24.6187	0.28168	20.17613	40.35225	2.909487	1.775951	0.656268	0.338295
0.625	7.285	24.6333	0.295738	21.89507	43.79014	3.0055	1.878438	0.66996	0.357065
0.645	7.765	24.6533	0.314968	24.33873	48.67746	3.134414	2.021697	0.687779	0.382907
0.667	8.293	24.6753	0.336085	27.14292	54.28585	3.272992	2.183086	0.706243	0.4115

For water depths greater than 0.667 ft but less than 0.867 ft

Y3= Y - 0.667

A4= A3 + 22 * 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)
0.667	8.293	24.6753	0.336085	27.14292	54.28585	3.272992	2.183086	0.706243	0.4115
0.7013	9.077012	26.39064	0.343948	30.17058	60.34117	3.323845	2.331013	0.699457	0.426649
0.74	10.03223	28.32603	0.35417	34.00299	68.00598	3.389377	2.508139	0.694346	0.445423
0.78	11.09823	30.32643	0.365959	38.44624	76.89248	3.464179	2.70206	0.691234	0.466442
0.8084	**11.90365**	**31.74672**	**0.374957**	**41.90957**	**83.81913**	**3.520733**	**2.84616**	**0.690068**	**0.482239**
0.84	12.84723	33.32703	0.38549	46.07478	92.14957	3.586361	3.012543	0.689583	0.500576
0.867	13.693	34.6773	0.394869	49.90143	99.80286	3.644302	3.15961	0.689726	0.516823

Pipe
Calculations

Pipe Capacity

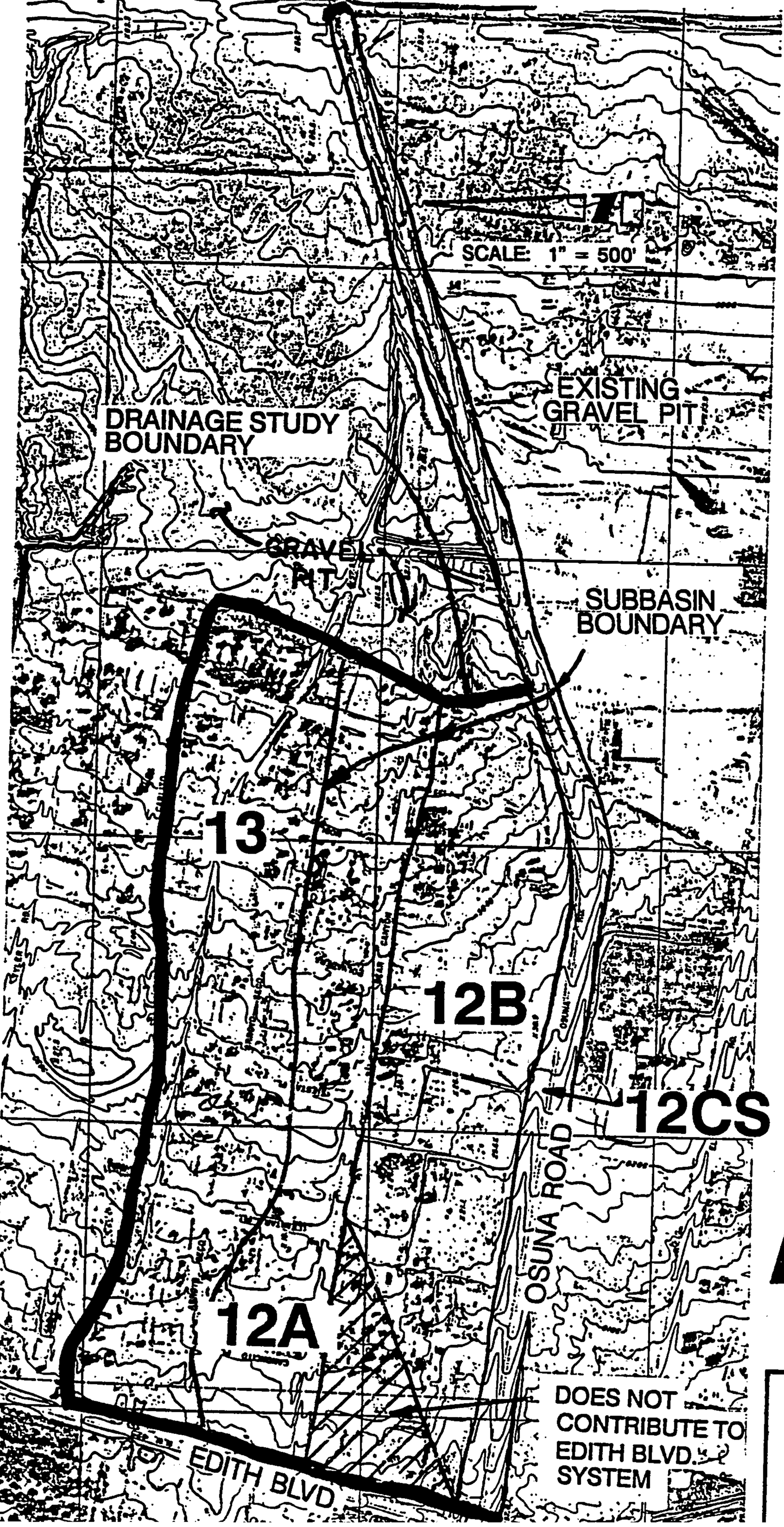
Pipe	D	Slope	Area	R	Q Provided	Q Required	Velocity
	(in)	(%)	(ft^2)		(cfs)	(cfs)	(ft/s)
1	18	7.685	1.77	0.375	29.20	16.35	9.25
1A	18	2.31	1.77	0.375	16.01	10.68	6.04
2 and 2A	18	6.1	1.77	0.375	26.01	12.92	7.31
Existing County Pond	36	1.6	7.07	0.75	84.59	83.81	11.86

<u>Manning's Equation:</u>

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

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

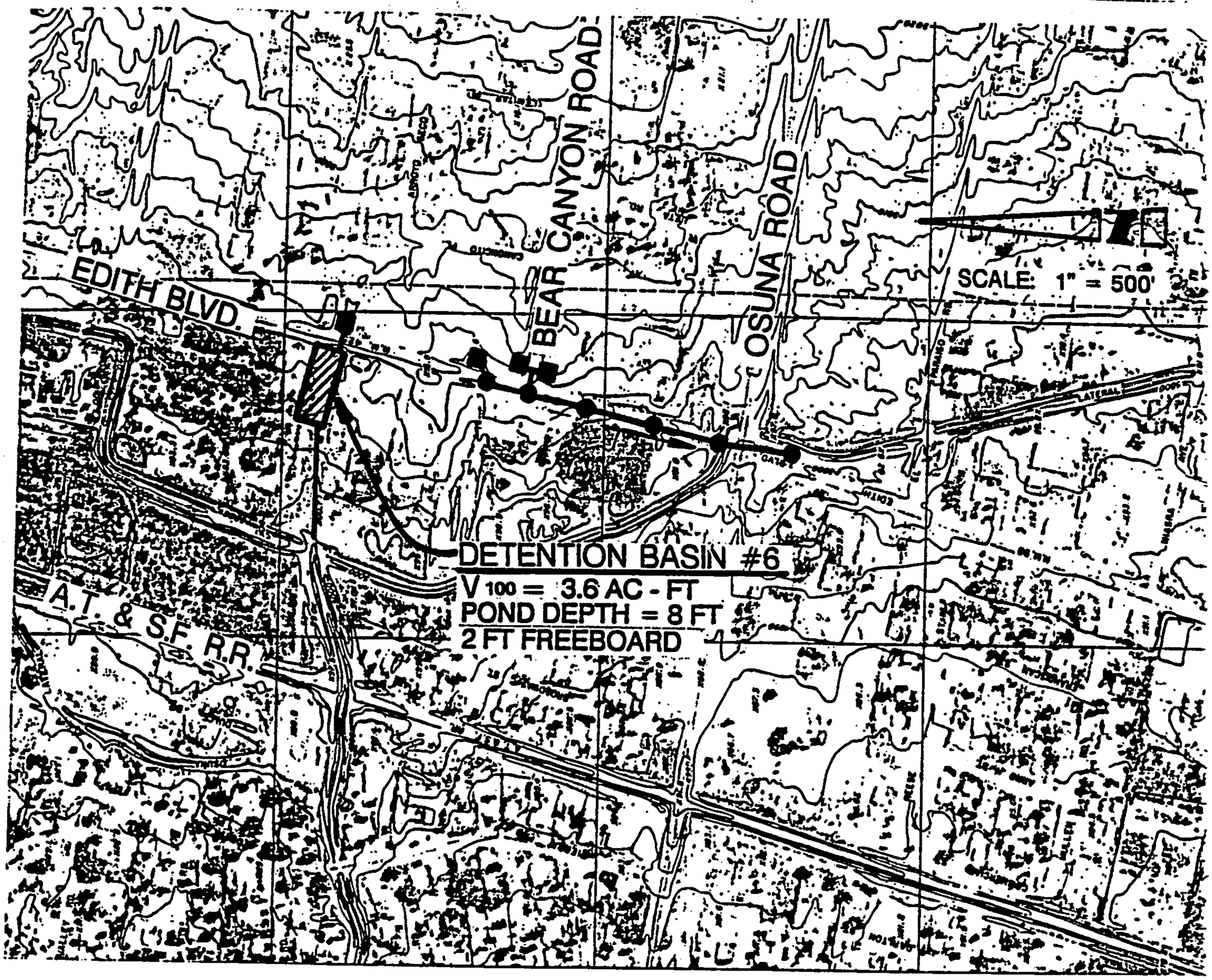
Excerpt from "Edith Boulevard Drainage Analysis" by Boyle Engineering



Boyle Engineering Corporation

PLATE IA

EDITH BLVD.
DRAINAGE STUDY

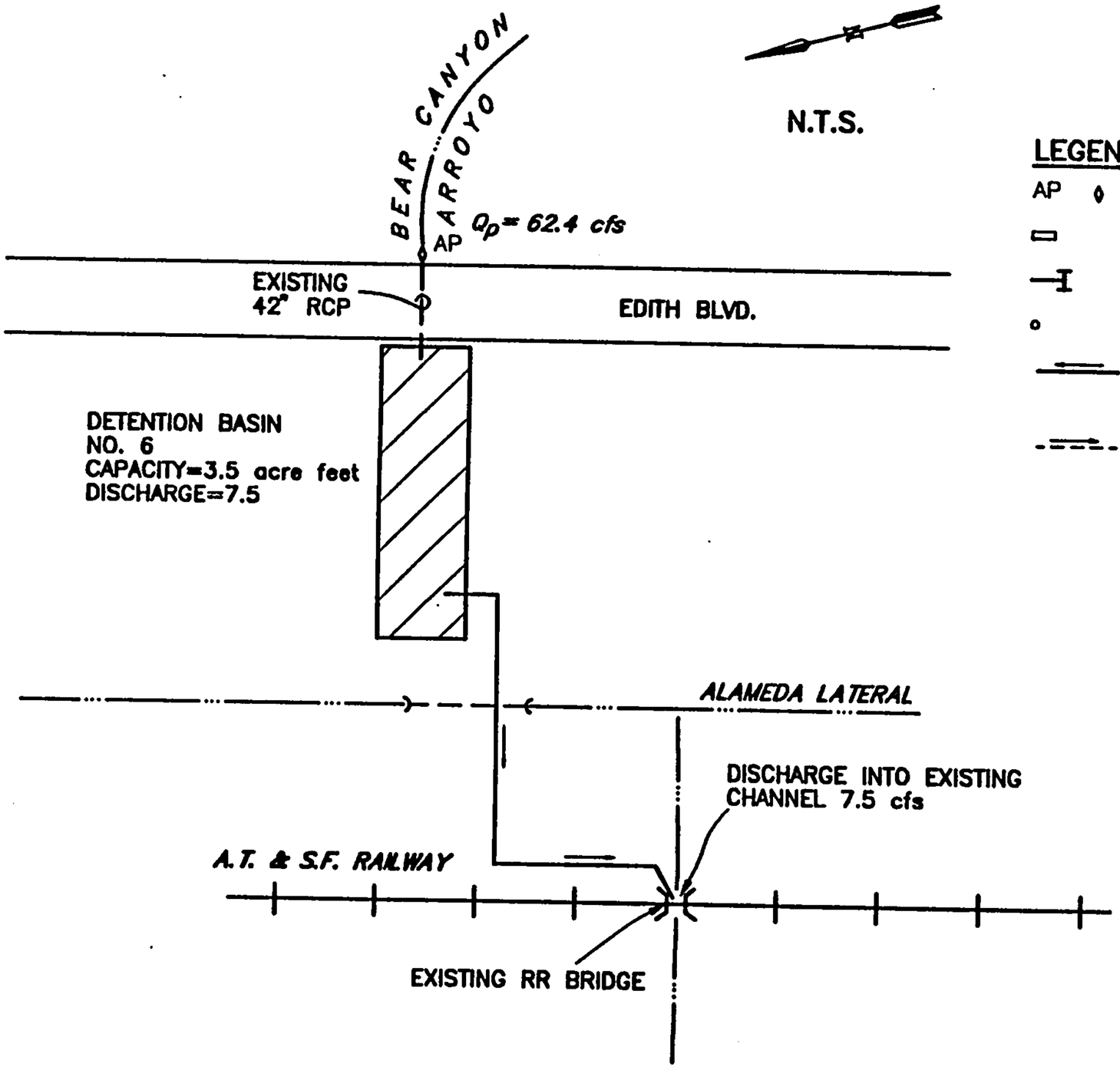


Boyle Engineering Corporation

PLATE IIIA

EDITH BLVD.
DRAINAGE STUDY
PROPOSED DRAINAGE PLAN

BOYLE ENGINEERING CORPORATION



LEGEND

- AP ◊ HYDROLOGIC ANALYSIS POINT
- ▭ CURB DROP INLET
- —I STORM DRAIN STUB OUT
- ○ MANHOLE
- ═══ PROPOSED STORM DRAIN ARROW SHOWS DIRECTION OF FLOW
- - - - EXISTING STORM DRAIN ARROW SHOWS DIRECTION OF FLOW

ALL FLOWS ARE IN cfs

SYSTEM 13

Figure 13

The northerly branch begins about 250 feet north of Bear Canyon Lane, where a median drop inlet is placed in a natural depression on the east side of Edith Boulevard. Two additional median drop inlets are placed on the east side of the intersection of Bear Canyon Lane and Edith Boulevard. From that point, System 12 continues south to where it connects to a short section of existing RCP at Osuna Road, then continues south to the junction at Vineyard Road. The combined flow travels west for 800 feet, where it discharges into Detention Basin No. 3, North. This detention facility is discussed in the description of System 11. See Figure 12 for a schematic of System 12 and Table 9 for a hydrologic summary of Basin 12.

A portion of the runoff generated in basin 12B (Cross hatched area on Plate IA) is drained by existing combination inlets placed on the west side of Edith Boulevard just north of Osuna Road. The flow from this area does not contribute to the Edith Boulevard Storm Drain System. System 12 control for the hydraulic grade line is the 10-year water surface elevation in detention basin No. 3 (4969.6).

F. System 13

System 13 drains Sub-basin 13, the area surrounding the Bear Canyon Arroyo. The system basically consists of a small detention facility and several hundred feet of RCP used to route the discharge. Detention Basin No. 6 is located in the Bear Canyon Arroyo site between Edith Boulevard and the AT & SF railroad. The basin accepts runoff directly from the Bear Canyon Arroyo, and releases the discharge at a controlled rate by means of a flow restriction plate. The capacity of Detention Basin No. 6 is 3.5 acre feet with two feet of freeboard. The side slopes are 2 to 1, and the depth is 8.5 feet.

Detention Basin No. 6 discharges into a 24-inch RCP that extends west the AT & SF railroad right-of-way. Then south for about 180 feet within the AT & SF right of way where it discharges into an existing drainage channel. The channel travels under the railway and continues in a westerly direction. At Second Street, the flow of 7.5 cfs from the channel enters a 24-inch CMP which discharges into the Alameda Drain. No hydraulic grade line was

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 9, 2000

Ronald R. Bohannan, P.E.
Tierra West, LLC
8509 Jefferson NE
Albuquerque, New Mexico 87113

RE: Drainage Report and Grading and Drainage Plan for Flor Silvestre, (E15/D11) Submitted for Site Development Plan for Subdivision and Building Permit Approval, Preliminary Plat and Grading Approval, Engineer's Stamp Dated 4/12/00.

Dear Mr. Bohannan:

It was my understanding that the above referenced subdivision was being annexed into the City. If this is the case, then the subdivision must be designed using City criteria. The use of permanent retention ponds in the City is prohibited, therefore an outfall must be provided and the plan must address the downstream capacity. This issue must be resolved prior to Site Plan or Preliminary Plat approval. The portion of Edith Boulevard adjacent to this site must also be addressed.

With respect to the off-site drainage, it appears that the developed portions of the Vista Del Norte subdivision that drain to the Edith Detention Pond #6 were not included in the off-site basin map.

If you have any questions regarding these comments, please call me at 924-3982.

Sincerely,

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

c: File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: *Flor Silvestre* **ZONE ATLAS/DRNG. FILE #:** *E-15* / D011

DRB #: _____ **EPC #:** _____ **WORK ORDER #:** _____

LEGAL DESCRIPTION: _____

CITY ADDRESS: *Between Edith and ATSF Railroad and north of Osuna*

ENGINEERING FIRM:	*TIERRA WEST, LLC*	**CONTACT:**	*RONALD R. BOHANNAN OR SARA LAVY*
ADDRESS:	*8509 Jefferson NE, ABQ, NM 87113*	**PHONE:**	*(505) 858-3100*
OWNER:		**CONTACT:**	
ADDRESS:		**PHONE:**	
ARCHITECT:		**CONTACT:**	
ADDRESS:		**PHONE:**	
SURVEYOR:	*Precision Surveys*	**CONTACT:**	*Larry Medrano*
ADDRESS:	*8414-D Jefferson NE*	**PHONE:**	*(505)856-5700*
CONTRACTOR:		**CONTACT:**	
ADDRESS:		**PHONE:**	

TYPE OF SUBMITTAL:

- ___X___ DRAINAGE REPORT
- _____ DRAINAGE PLAN
- _____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ___X___ GRADING PLAN
- _____ EROSION CONTROL PLAN
- _____ ENGINEER'S CERTIFICATION
- _____ OTHER

PRE-DESIGN MEETING:

- _____ YES
- ___X___ NO
- _____ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- _____ SKETCH PLAN APPROVAL
- ___X___ PRELIMINARY PLAT APPROVAL
- ___X___ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___X___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- _____ SECTOR PLAN APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ FOUNDATION PERMIT APPROVAL
- _____ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY APPROVAL
- ___X___ GRADING PERMIT APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ S. A. D. DRAINAGE REPORT
- _____ DRAINAGE REQUIREMENTS
- _____ *OTHER*

RECEIVED
APR 27 2000
HYDROLOGY SECTION

DATE SUBMITTED: 4/27/00

BY: *Sara Lavy*

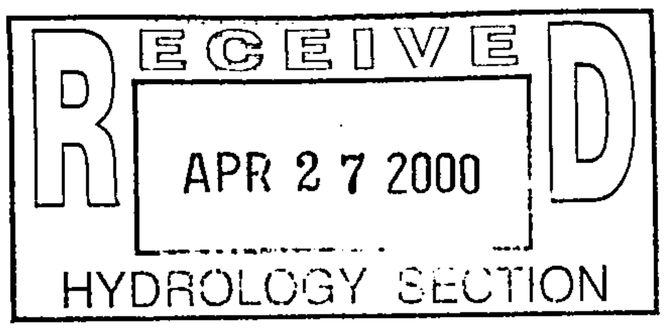
SIERRA WEST, LLC

8509 Jefferson NE
Albuquerque, NM 87113

(505) 858-3100
fax (505) 858-1118

e-mail: twdms@aol.com
1-800-245-3102

April 27, 2000



Ms. Susan Calongne
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Flor Silvestre (E15/D11, PWDN 990173)

Dear Ms. Calongne:

We have addressed the comments regarding the grading and drainage plan in the following manner.

1. Do you propose to plat the individual Lots? If each lot is to be platted separately, then the lots with backyard ponds must have drainage easements for the ponds. If separate lots are not being platted, then pond covenants will be required for each individual pond. If this is the case, then perhaps the small backyard ponds can be revised into one linear pond along the back of the lots.
This site is a proposed mobile home park and the individual lots will not be platted. They will be rented to the occupants. No public waters will be accepted in the backyard ponds. Therefore, no pond covenants will be required. There are elevation differences between the lots that prevent the use of one linear pond along the back of the lots.

2. This plan proposed to fill in the floodplain and direct the runoff into four large ponds. This will require a Letter of Map Revision (LOMR) from FEMA. Financial guarantees for this subdivision will not be released until the LOMR is received. FEMA will require that the proposed retention ponds be maintained, therefore, pond covenants identifying maintenance responsibilities will be required for the four large ponds.
We are working on the LOMR for the site. We will provide pond covenants for the four large ponds on the site specifying maintenance responsibilities.

3. This plan proposed to realign the existing Alameda Lateral through this site. Since this facility belongs to the Middle Rio Grande Conservancy District (MRGCD), written permission from the MRGCD is required prior to any grading on the site. Provide a cross-section and a complete analysis for the portion of the Alameda Lateral that is to be realigned. How do you propose to intercept flows from the existing channel? Is the existing Alameda Lateral right-of-way width adequate for the realigned channel, especially at the 90° turns? Would a proposed pipe be more feasible? Can the runoff from the subdivision drain into the Alameda Lateral?
The new concrete channel will connect to the existing channel at the south end of the site where the siphon is located and at the north end after a reverse curve. There are no existing drainage structures located on this portion of the Lateral. We are proposing to vacate the current right-of-way for the Alameda Lateral and dedicate a new 60' right-of-way for the channel. According to discussions with the MRGCD, sixty feet is an adequate width for the new right-of-way. The MRGCD would like a concrete lined channel, not a pipe. The MRGCD will also not allow any runoff from the subdivision to discharge to the channel.

4. Pond volume calculations were provided for Pond 1A, however, no calculations were provided for the other ponds.
Pond volume calculations are provided for all the ponds. This has been clarified in the report.

4. Channel capacity calculations were provided at the end of the report, however, it is not clear what

these calculations are for. Please identify the channels on the plan.
The previously shown channels have been changed to storm drains. Pipe calculations are shown in the report. The storm drains convey the flow from the adjacent streets into the drainage ponds.

5. It is not clear on the plan how the runoff in Lila Drive is being intercepted into the ponds. Is this portion of the street in a sump condition? Provide grades on Broadway Boulevard to show how this street drains.
There is a high point in Lila Drive just south of Tapa de Mantequilla Avenue. The southern portion of the street drains to ponds 2 and 2A. The northern portion of the street drains to Pond 1, which is in a sump area. Broadway Boulevard has a water block at the entrance to the site, which prevents drainage from the adjacent subdivision from entering the site.

6. What is the slope on Tapa de Mantequilla Avenue? Two slopes were provided for the west side of this road.
There is a sump condition is the center of Tapa de Mantequilla Avenue and the street is also super-elevated. This allows the water to enter the north side of the street where the inlet structure to the pond is located. There are two slopes on the west side of the street because there is a transition to the super-elevated section and the street will have different slopes on each side.

7. Provide cross-section for the ponds. On the plan, provide elevations and enough detail to show how the runoff is being intercepted into each pond. Show the 100-year water surface elevations on the ponds. Do the calculations for Pond 2 apply to Pond 2A?
We provided cross-sections for the ponds on the grading plan. We also show details of the inlet structure to each pond and the 100-year water elevations are provided. Pond 2 and 2A will be connected with a pipe to act as one pond.

8. It appears that retaining walls may be needed around the east side of the subdivision. Show proposed grades within the Alameda right-of-way. Also provide existing off-site grades around the east and south sides of the site.
We show existing grades on the east and south sides of the site. A retaining wall is shown on the east side of the site near the Alameda Lateral.

If you have any questions regarding this matter, please do not hesitate to call me.

Sincerely,

Sara Lavy

Sara Lavy

cc: Dave Gonzales

JN: 990032
scl