



Federal Emergency Management Agency

Washington, D.C. 20472

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

The Honorable Martin J. Chavez
Mayor, City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103-1293

**IN REPLY REFER TO:
Case No.: 97-06-1071P**

Community: City of Albuquerque, New Mexico
Community No.: 350002
Panel Affected: 35001C0327 D
Effective Date of
This Revision: **SEP 10 1997**

102-D-A

Dear Mayor Chavez:

This responds to a request that the Federal Emergency Management Agency (FEMA) revise the effective Flood Insurance Rate Map (FIRM) for Bernalillo County, New Mexico and Incorporated Areas (the effective FIRM for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated July 31, 1997, Ms. Susan M. Calongne, P.E., City Floodplain Administrator, City of Albuquerque, requested that FEMA revise the FIRM to show the effects of a storm drain system associated with the Dos Caminos subdivision, including a reinforced-concrete pipe with a diameter that varies from 4.5 feet to 6 feet beneath Miami Road and a 3-foot-diameter pipe beneath Juniper Road. The pipes beneath Miami Road and Juniper Road outlet to the West Bluff Outfall, a 14-foot by 14-foot reinforced-concrete box culvert along the northwest side of the intersection of Coors Boulevard and Interstate Highway 40 (I-40) that conveys floodwaters to the Rio Grande.

All data required to complete our review of this request were submitted with Ms. Calongne's letter.

We have completed our review of the submitted data and the flood data shown on the effective FIRM. As a result of the project, the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) is contained within the storm drain system. The Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, located south of Miami Road, east of Estancia Drive, north of Juniper Road, and northwest of the intersection of Coors Boulevard and I-40, has been removed from the FIRM. The modifications are shown on the enclosed annotated copy of FIRM Panel(s) 35001C0327 D. This Letter of Map Revision (LOMR) hereby revises the above-referenced panel(s) of the effective FIRM dated September 20, 1996.

The modifications are effective as of the date shown above. The map panel(s) as listed above and as modified by this letter will be used for all flood insurance policies and renewals issued for your community.

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The following table is a partial listing of existing and modified base flood elevations (BFEs):

Location	Existing BFE (feet)*	Modified BFE (feet)*
Ponding area northwest of intersection of Coors Boulevard and I-40	5,195	None**

*Referenced to the National Geodetic Vertical Datum, rounded to the nearest whole foot

** Base flood contained in storm drain system

Public notification of the modified BFEs will be given in the *Albuquerque Journal* on or about October 2 and October 9, 1992. A copy of this notification is enclosed. In addition, a notice of changes will be published in the *Federal Register*. Within 90 days of the second publication in the *Albuquerque Journal*, a citizen may request that FEMA reconsider the determination made by this LOMR. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that, until the 90-day period elapses, the determination to modify the BFEs presented in this LOMR may itself be modified.

Because this LOMR will not be printed and distributed to primary users, such as local insurance agents and mortgage lenders, your community will serve as a repository for these new data. We encourage you to disseminate the information reflected by this LOMR throughout the community, so that interested persons, such as property owners, local insurance agents, and mortgage lenders, may benefit from the information. We also encourage you to prepare a related article for publication in your community's local newspaper. This article should describe the assistance that officials of your community will give to interested persons by providing these data and interpreting the NFIP maps.

We will not physically revise and republish the FIRM for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This LOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development, and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

The basis of this LOMR is, in whole or in part, a storm drain system project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management regulations. Consequently, the ultimate responsibility for maintenance of the storm drain system rests with your community.

This determination has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or

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exceed NFIP criteria. These criteria are the minimum requirements and do not supersede any State or local requirements of a more stringent nature. This includes adoption of the effective FIRM to which the regulations apply and the modifications described in this LOMR.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by contacting the Director, Mitigation Division of FEMA in Denton, Texas, at (817) 898-5127. If you have any technical questions regarding this LOMR, please contact Mr. Alan Johnson of our staff in Washington, DC, either by telephone at (202) 646-3403 or by facsimile at (202) 646-4596.

Sincerely,


Frederick H. Sharrocks, Jr., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosure(s)

cc: Ms. Susan M. Calongne, P.E.
City Floodplain Administrator
City of Albuquerque

Mr. Dennis A. Lorenz, P.E. ✓
Principal
Brasher & Lorenz, Inc.

CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO, UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On September 20, 1996, the Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the City of Albuquerque, Bernalillo County, New Mexico, through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Directorate has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified base flood elevations (BFEs) revise the FIRM for the community.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

A hydraulic analysis was performed to incorporate a storm drain system associated with the Dos Caminos subdivision. The aforementioned storm drain system contains the flood having a 1-percent chance of being equaled or exceeded in any given year. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)*	Modified BFE (feet)*
Ponding area northwest of intersection of Coors Boulevard and I-40	5,195	None**

*National Geodetic Vertical Datum, rounded to nearest whole foot

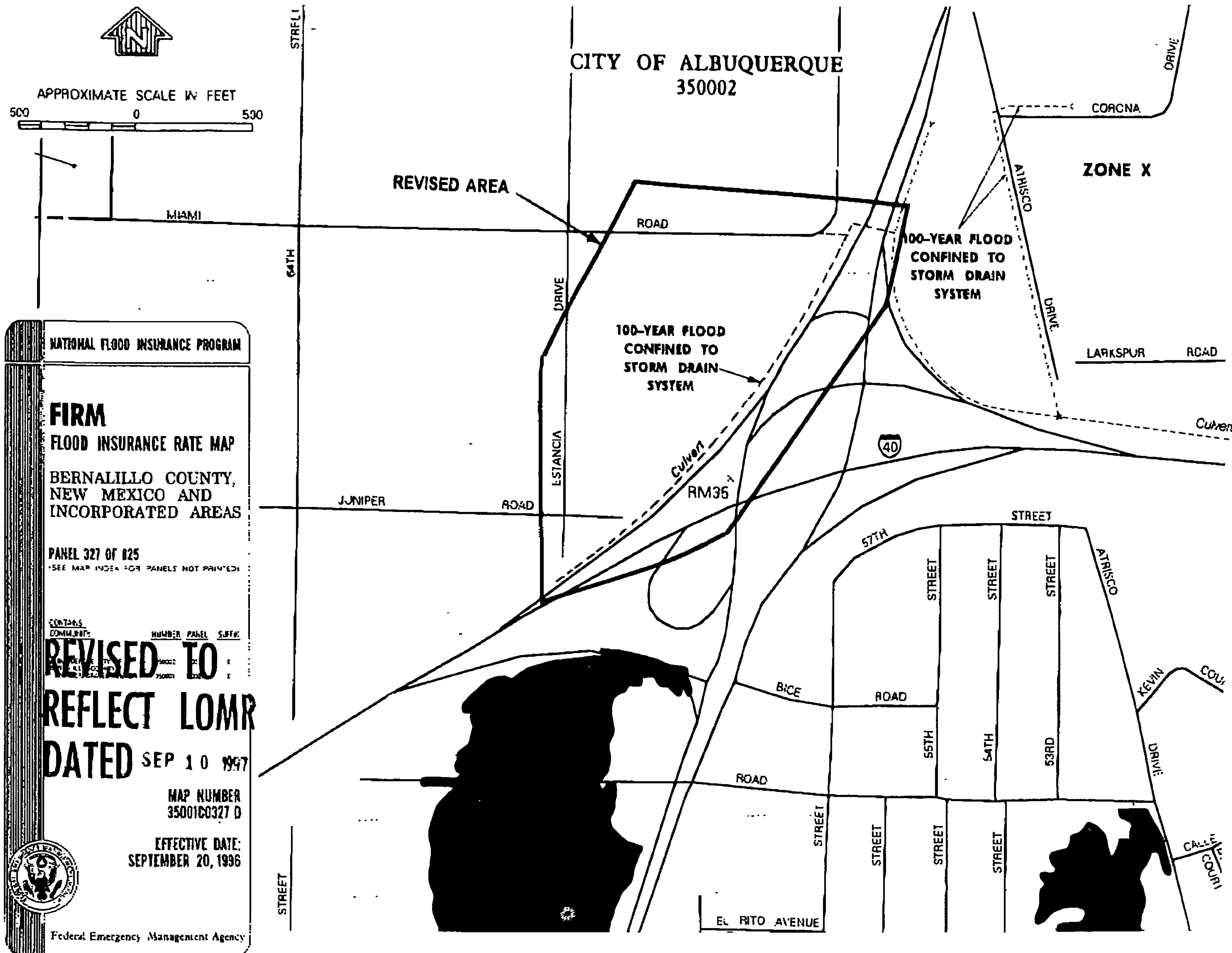
** Base flood contained in storm drain system

Under the above-mentioned Acts of 1968 and 1973, the Mitigation Directorate must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Directorate reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Directorate's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable Martin J. Chavez
Mayor, City of Albuquerque
P.O. Box 1293
Albuquerque, New Mexico 87103-1293

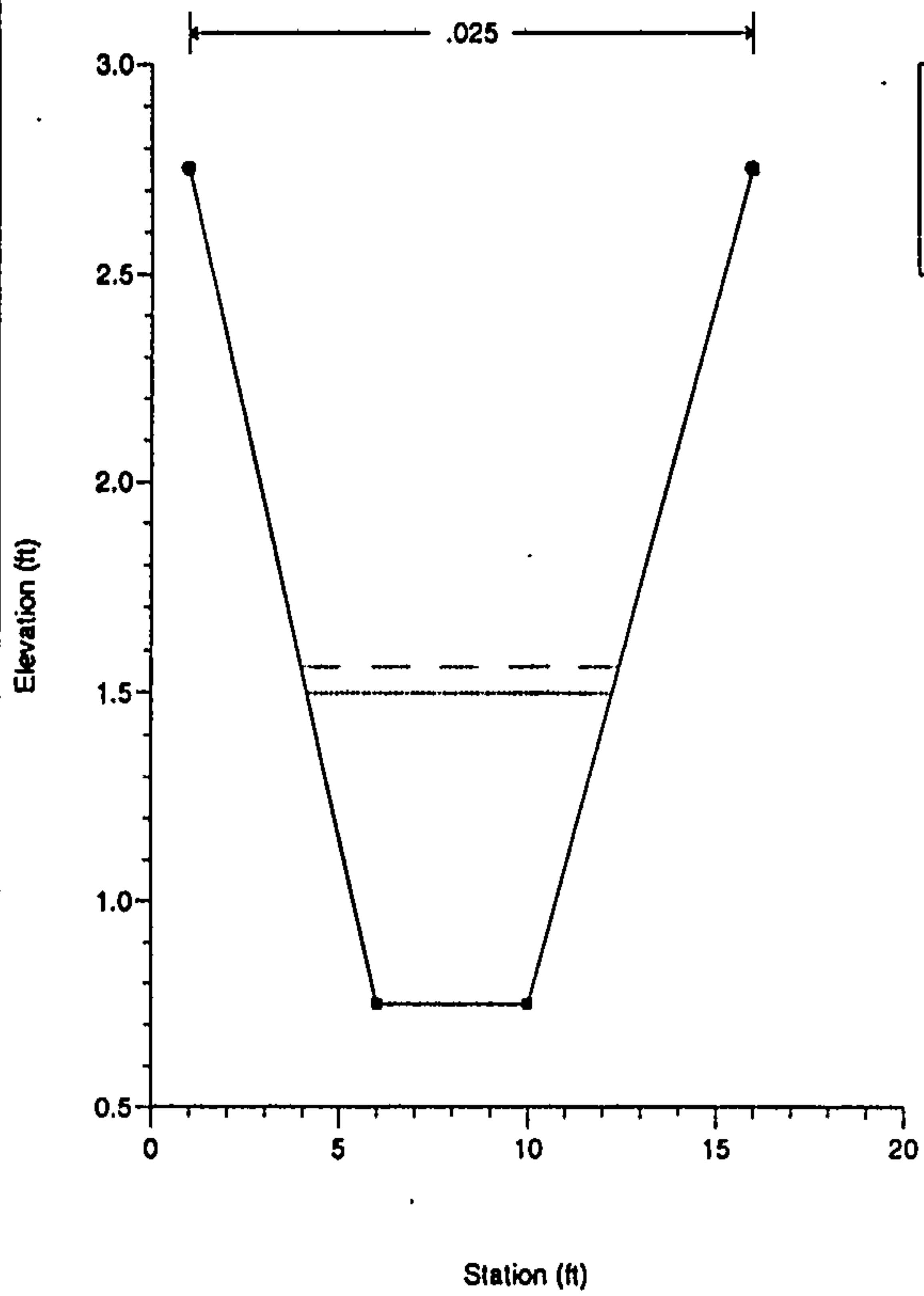


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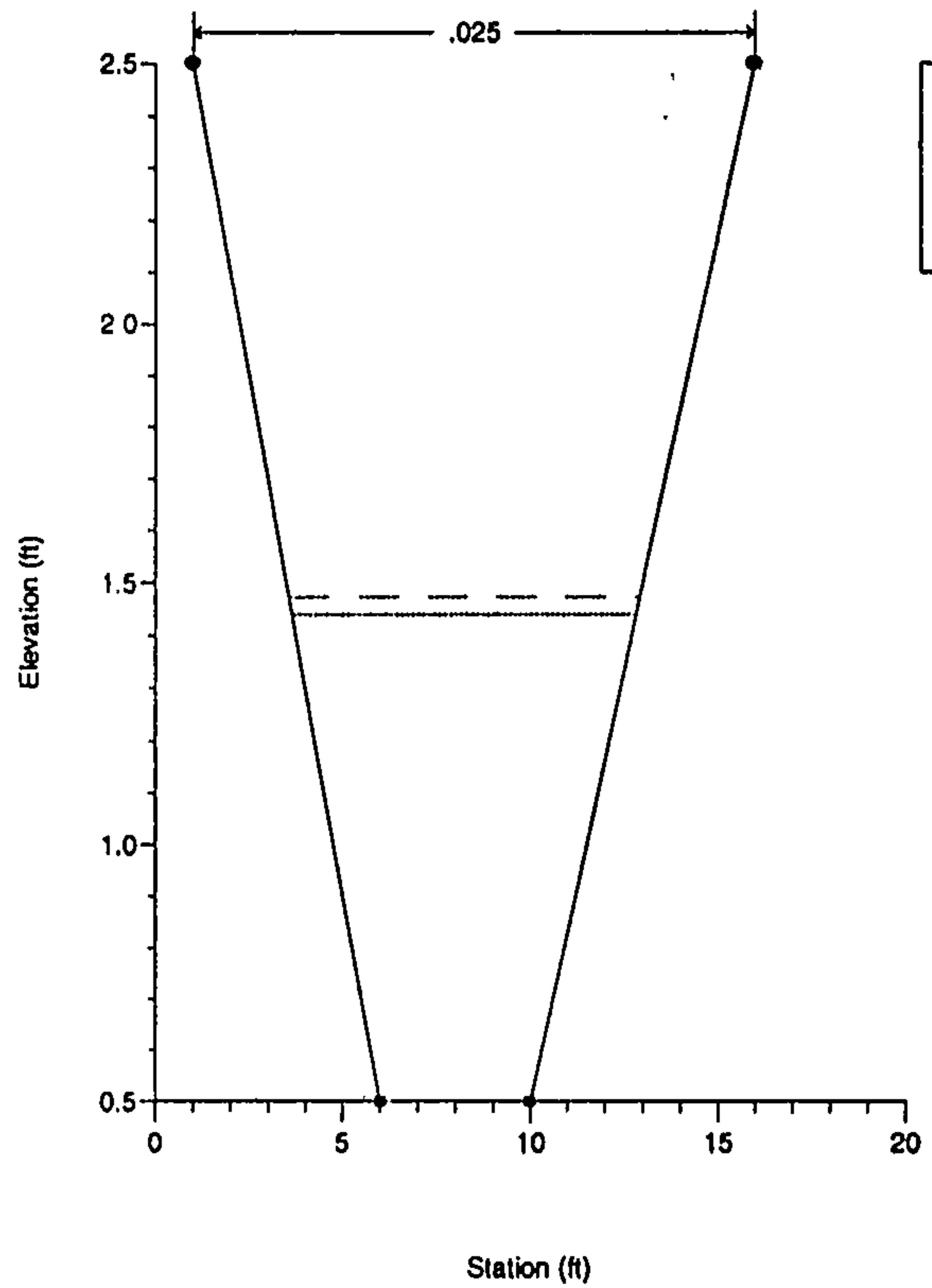
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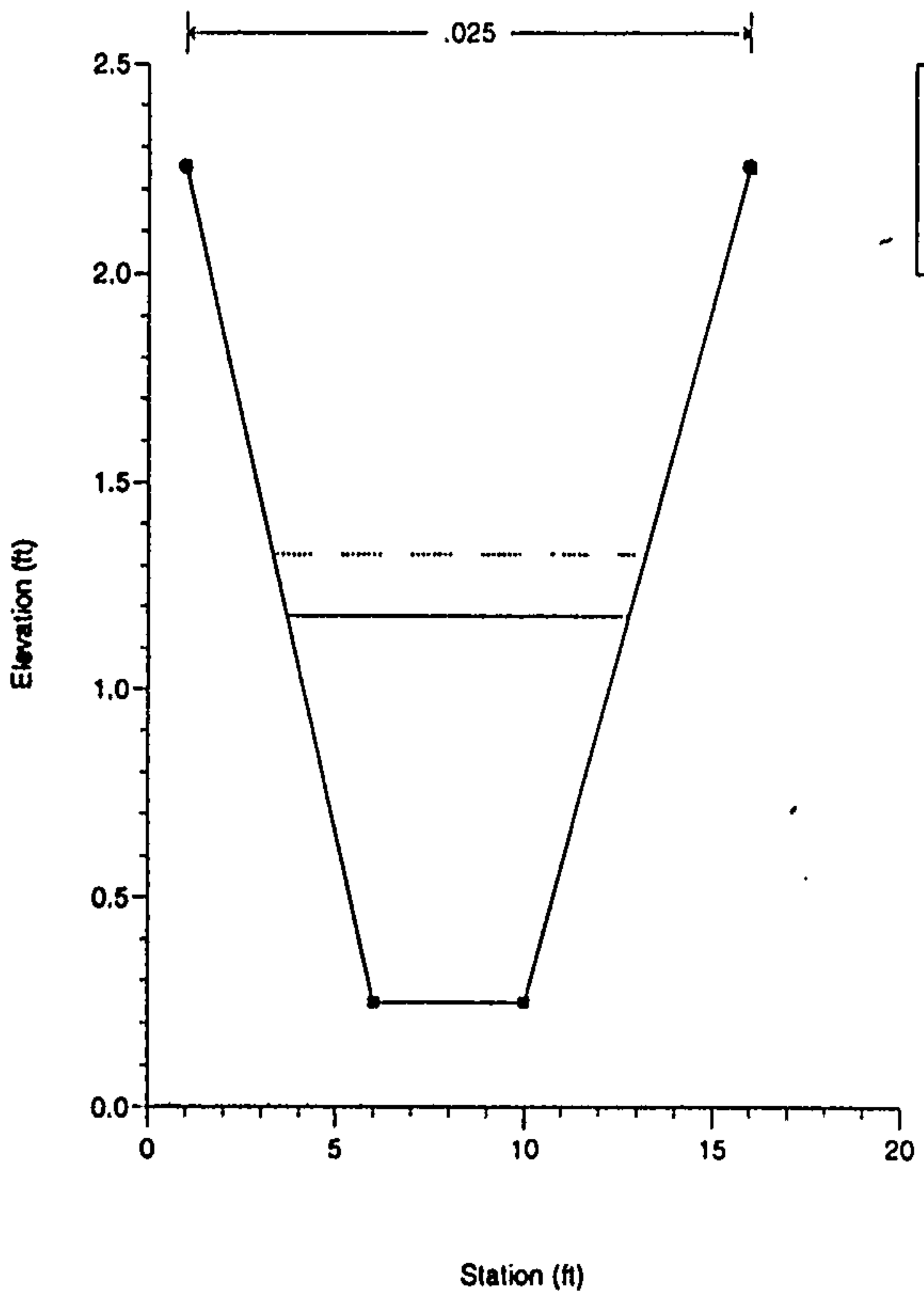
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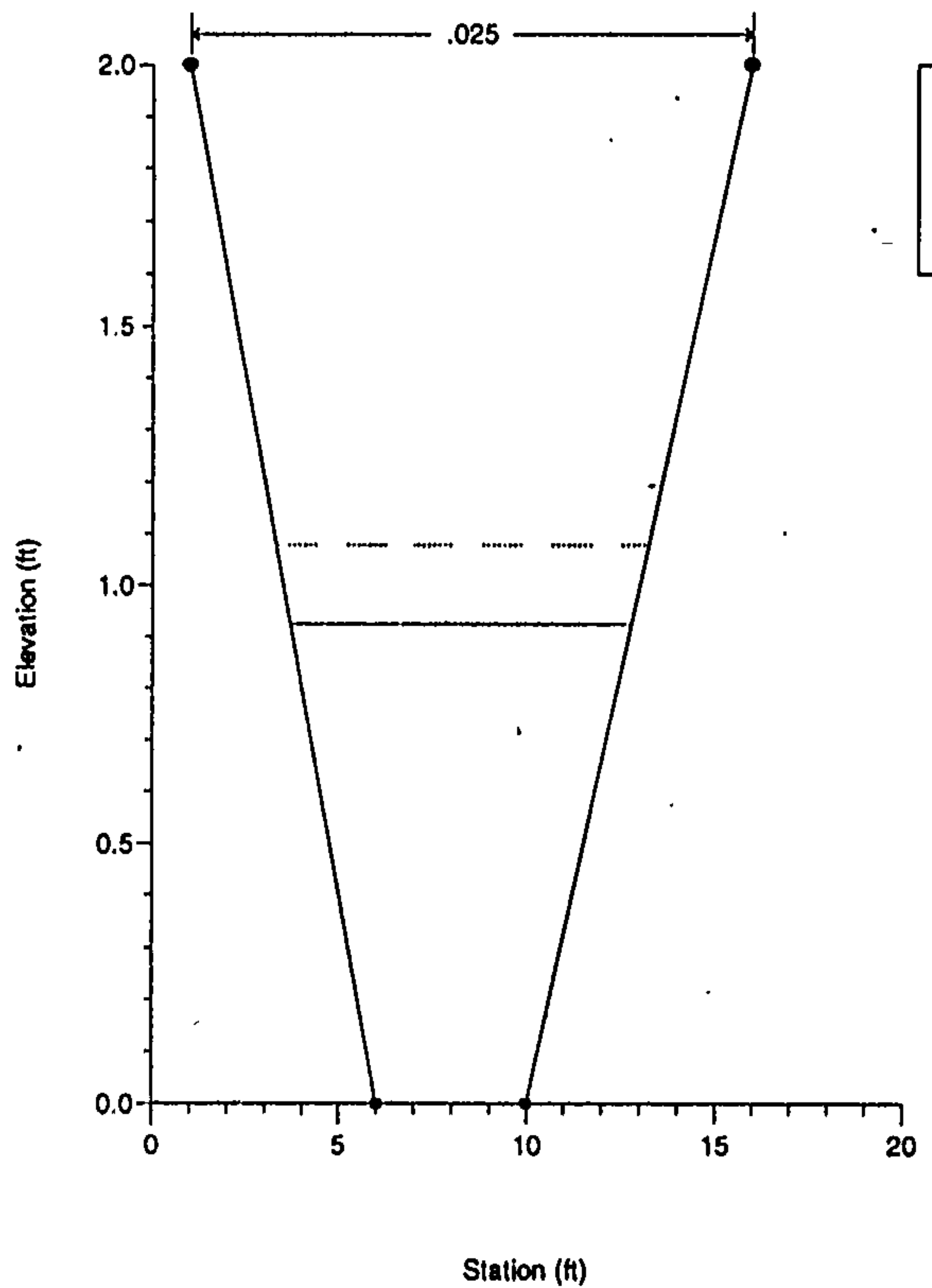
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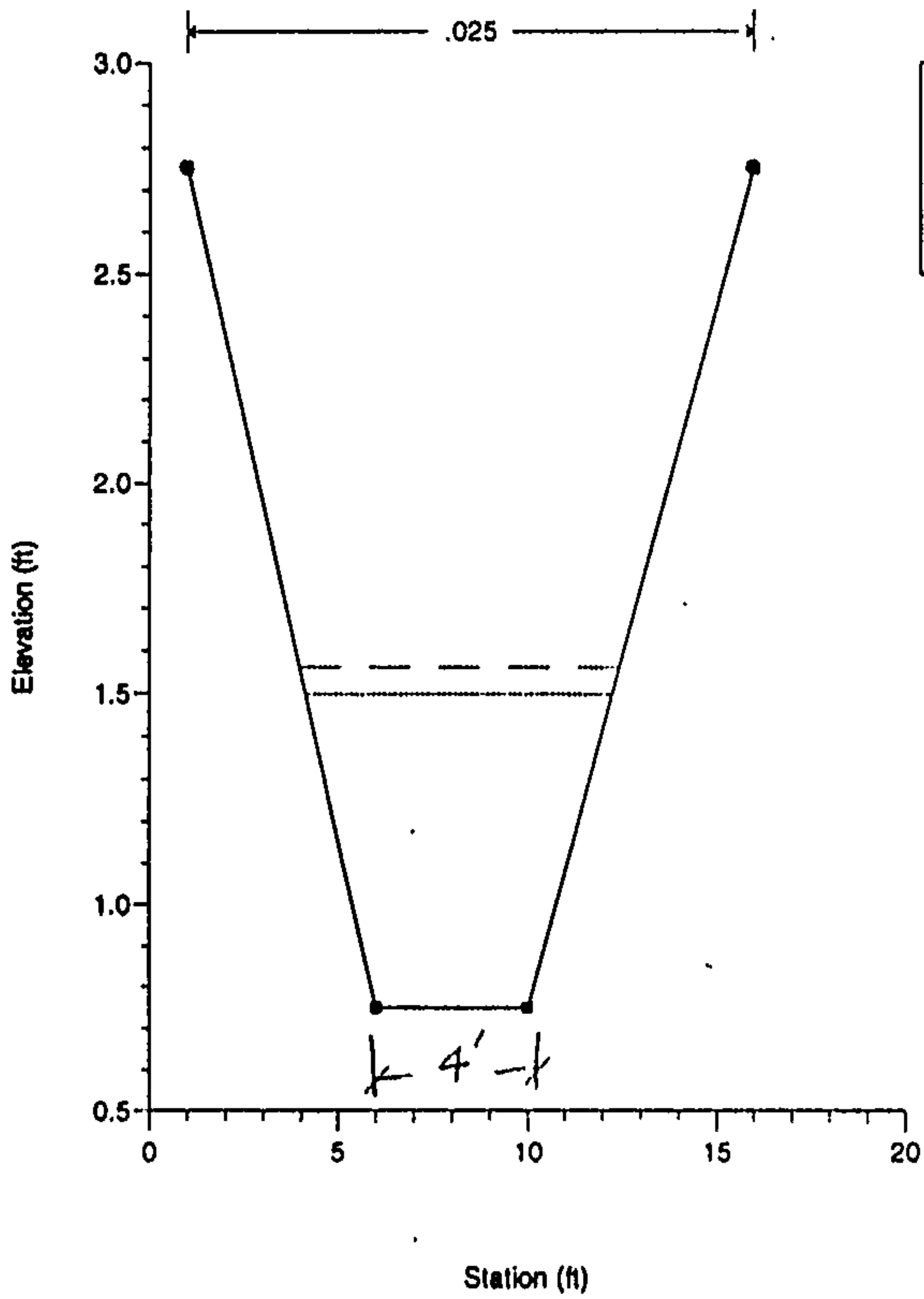


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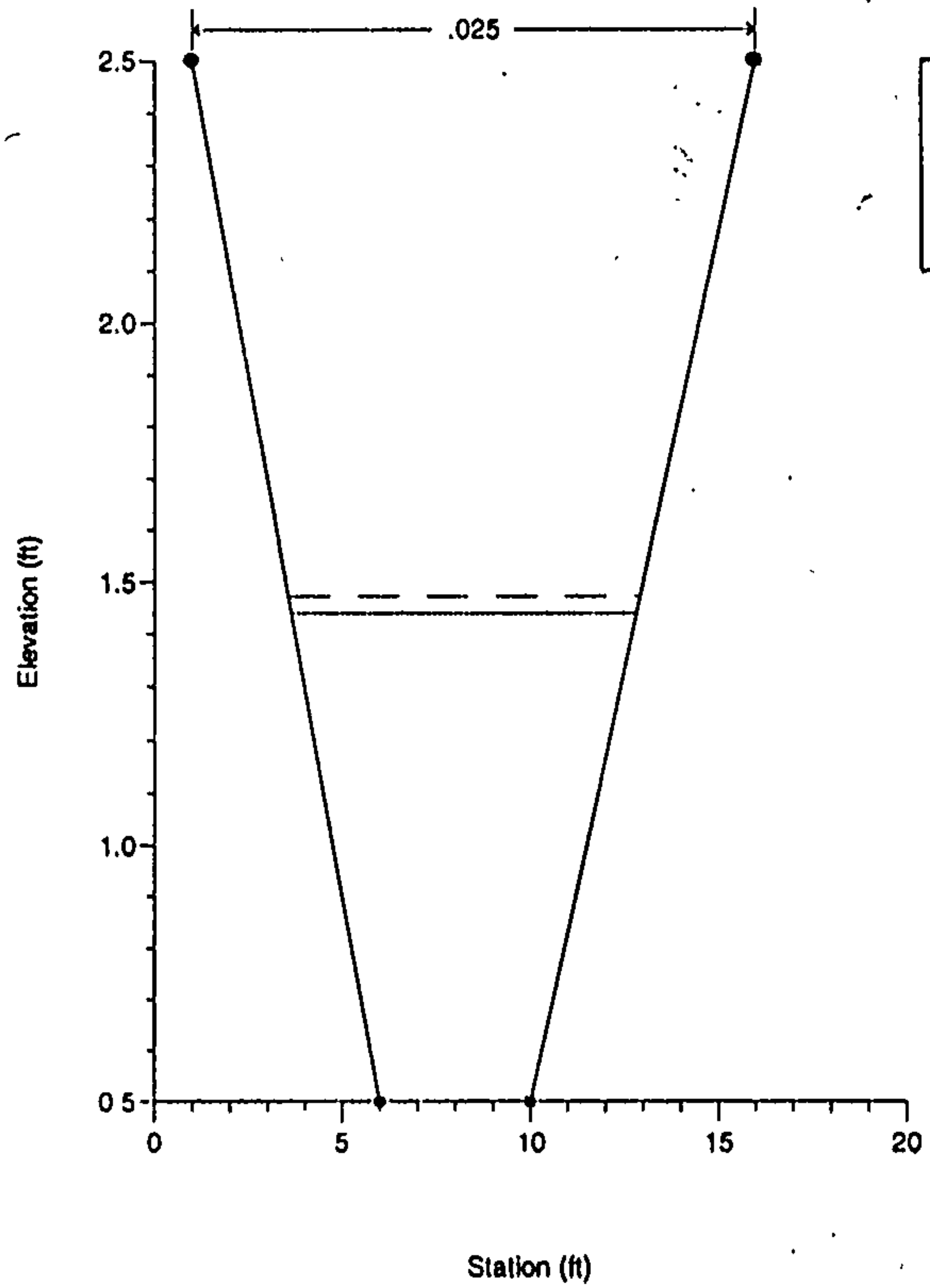
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9 cfs



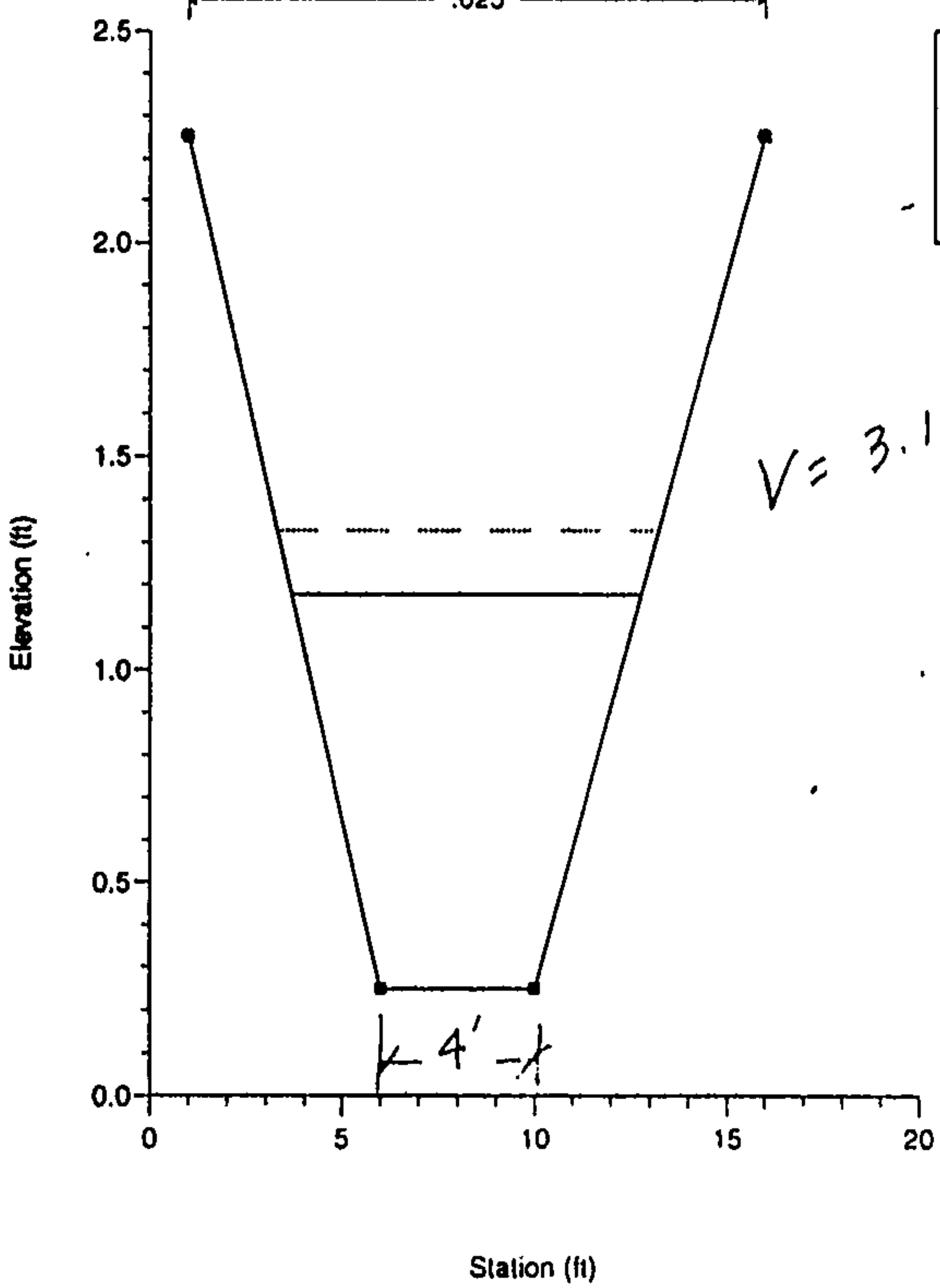
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9 cfs



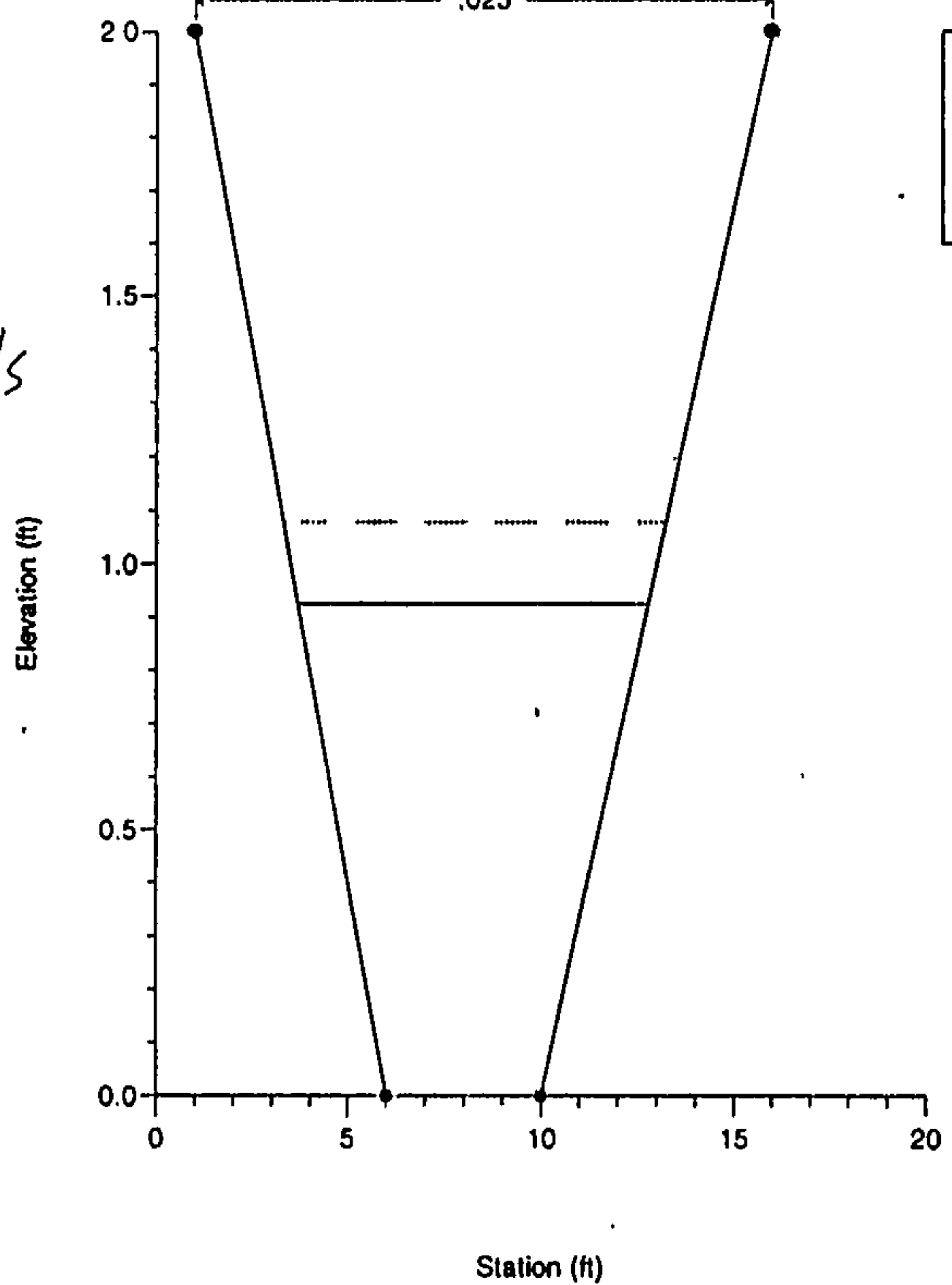
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19 cfs

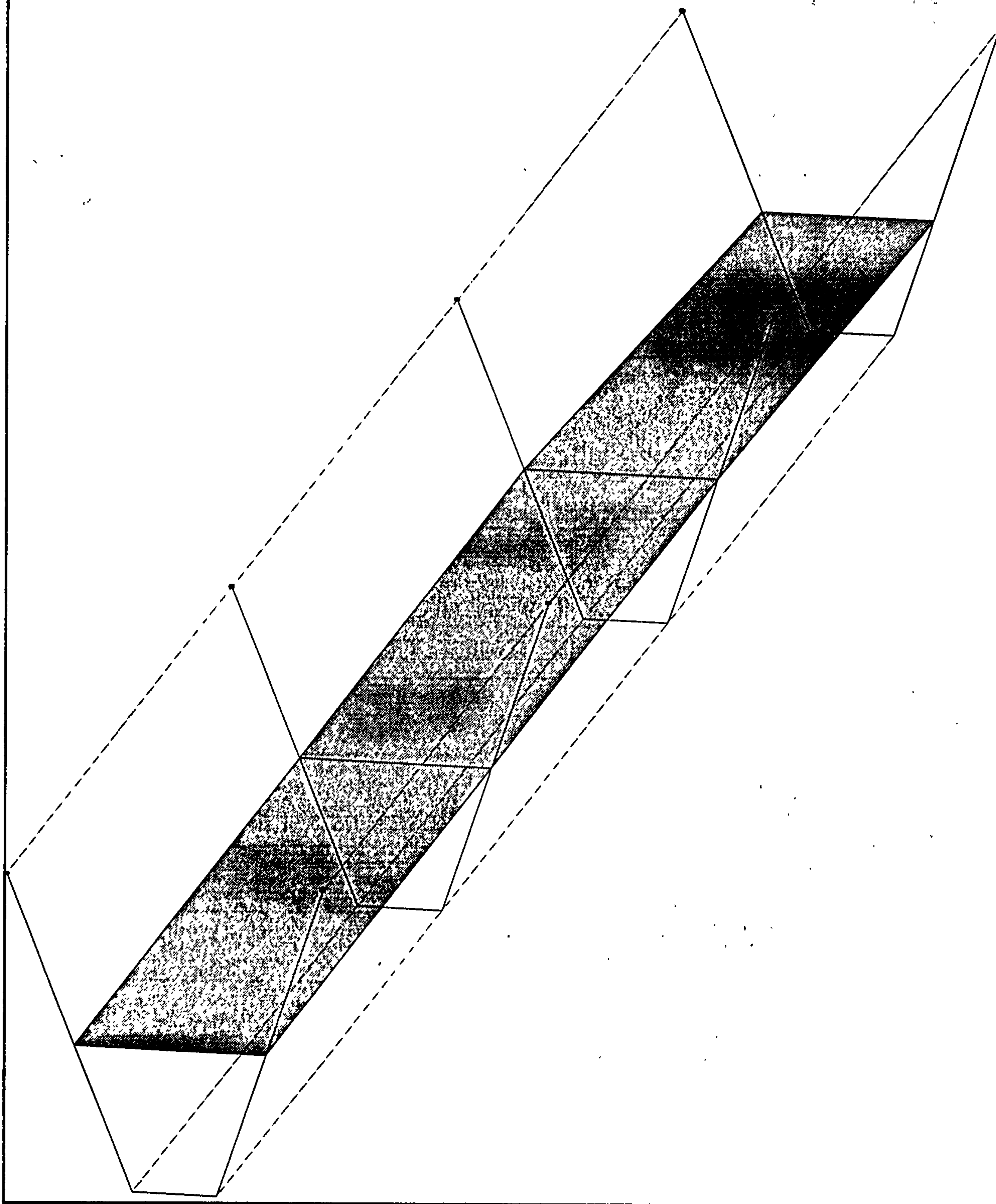


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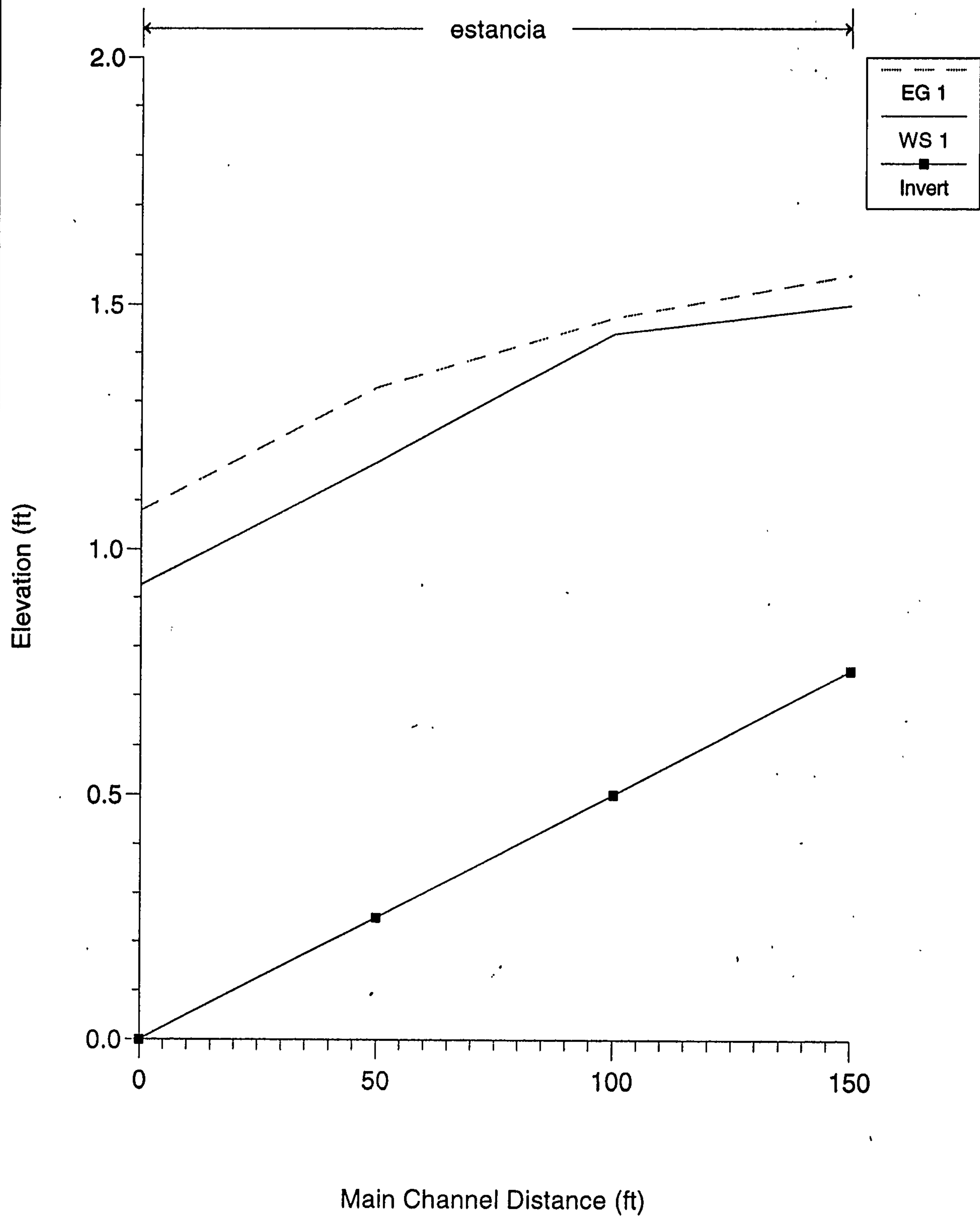
19 cfs



doscominos Plan: Plan 01 11/7/97
Riv Sta = 400 to 100 PF#: 1



doscominos Plan: Plan 01 11/7/97



HEC-RAS Plan: Plan 01 Reach: estancia 11/7/97

River Sta.	E.G. Elev.	W.S. Elev.	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
400	1.56	1.50	0.06	0.08	0.01		9.00		8.12
300	1.47	1.44	0.03	0.13	0.01		9.00		9.17
200	1.33	1.18	0.15	0.25	0.00		19.00		9.09
100	1.08	0.93	0.15	0.00	0.00		19.00		9.09

HEC-RAS Plan: Plan 01 Reach: estancia 11/7/97

River Sta.	Q Total	Min Ch El.	W.S. Elev.	Crit W.S.	E.G. Elev.	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
400	9.00	0.75	1.50		1.56	0.002531	1.98	4.53	8.12	0.47
300	9.00	0.50	1.44		1.47	0.001059	1.45	6.19	9.17	0.31
200	19.00	0.25	1.18		1.33	0.005000	3.13	6.06	9.09	0.68
100	19.00	0.00	0.93	0.74	1.08	0.005001	3.13	6.06	9.09	0.68

DRAINAGE INFORMATION SHEET

PROJECT TITLE: DOS CAMINOS SUBDIVISION ZONE ATLAS/DRNG. FILE #: H11-055
 DRB #: 96-282 EPC #: _____ WORK ORDER #: _____
 LEGAL DESCRIPTION: UNIT 8, TOWN OF ATRISIO GRANTS, TRACTS 311, 312
 CITY ADDRESS: ESTANCIA DRIVE NW

ENGINEERING FIRM: Brasher & Lorenz, Inc. CONTACT: Dennis A. Lorenz
2201 San Pedro NE Bldg. 1 Suite 210
 ADDRESS: Albuquerque, New Mexico 87110 PHONE: 888-6088

OWNER: BORAY CONSTRUCTION CONTACT: BO. JOHNSON
 ADDRESS: 5905 AZUL CT NW PHONE: 899-9656

ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

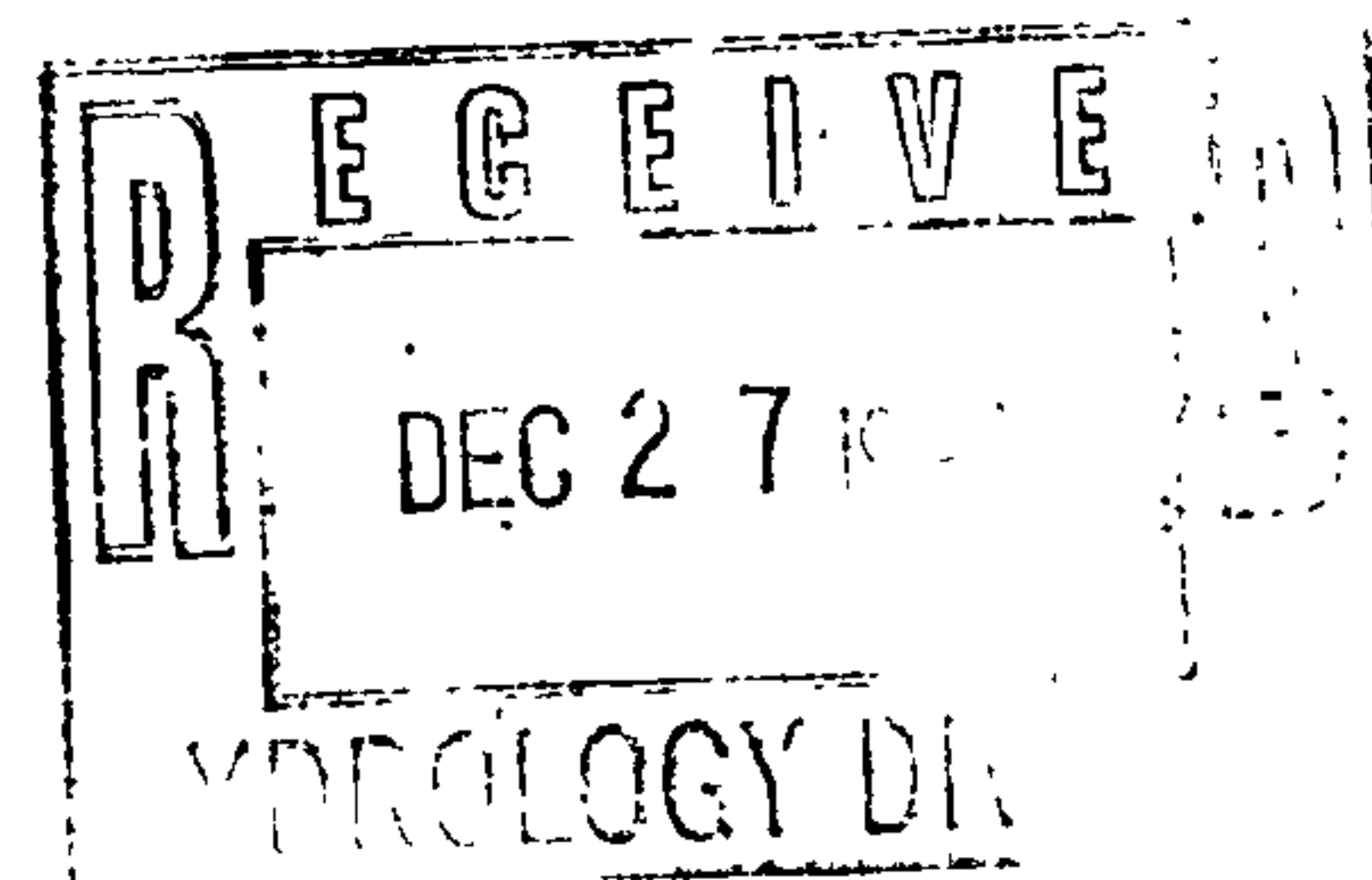
CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:
☒ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER _____

PRE-DESIGN MEETING:
☐ YES
☐ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:
☐ SKETCH PLAT APPROVAL
☒ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ OTHER _____ (SPECIFY)

DATE SUBMITTED: 12-27-96
 BY: Dennis A. Lorenz



BRASHER & LORENZ, INC.

CONSULTING ENGINEERS

2201 SAN PEDRO NE BUILDING 1 SUITE 210 ALBUQUERQUE, NM 87110 PHONE (505) 888-6088 FAX (505) 888-6188

December 26, 1996

Lisa Ann Manwill
Engineering Associate, Hydrology Department
City of Albuquerque
PO Box 1293
Albuquerque, New Mexico 87102

**SUBJECT: DRAINAGE REPORT FOR DOS CAMINOS
(H11-D55) DRB 96-282**

Dear Lisa:

Attached please find 1 copy of the revised Drainage Report for the subject project. The Report has been revised to address the comments listed in your December 17, 1996 letter. The following plan changes were made, per comments by DRB and Hydrology:

1. The pedestrian access easement has been removed between lots 12 and 13.
2. The lots have been renumbered.
3. The pad elevations are given to mean sea level.
4. Since designs of the proposed homes are not yet available roof drain locations are not shown on the plan, however, direction of roof drainage is shown by arrows on lots which are to drain to rear yard ponds (Lots 11 through 32).

*Roof flows
cannot drain
to rear yard
ponds.*

On December 20, 1996 a meeting was held at AMAFCA to discuss the proposed storm drain to be constructed in Miami Road. At the meeting, Fred Aguirre agreed to the following:

1. The project would proceed with the temporary road/swale proposed in Miami Road. Reference of the Developers requirement to participate in the storm drain project will be made on the Infrastructure List.
2. CLOMR will not be required prior to Preliminary Plat approval. LOMR will be required prior to release of Financial Guarantees.

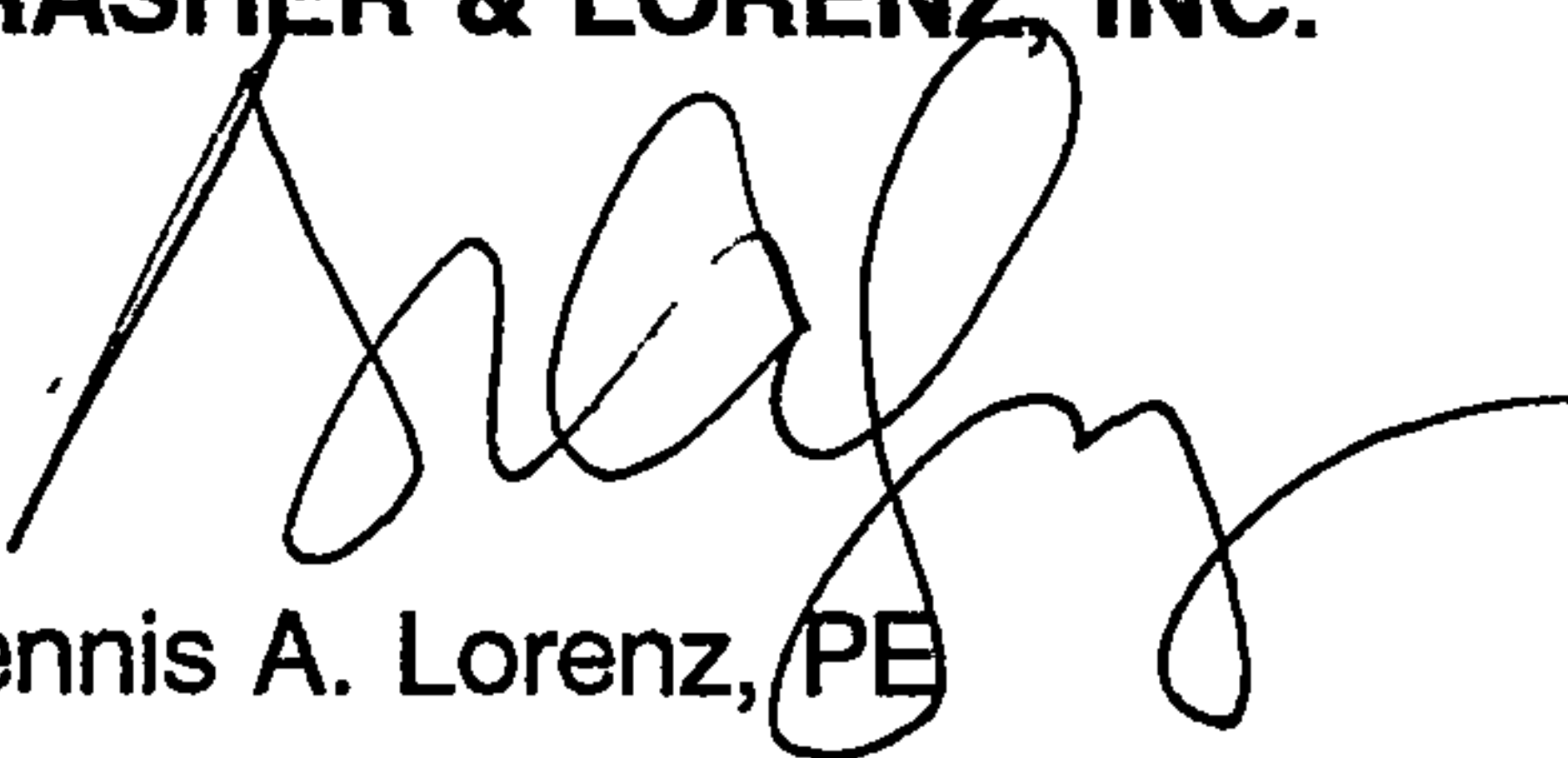
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DEC 27

*Must be
on Infrastructure
List.*

If there is anything I can do to assist your timely review, please call.

Sincerely,

BRASHER & LORENZ, INC.



Dennis A. Lorenz, PE

/dl/6079

encl

6013

DRAINAGE REPORT
FOR
DOS CAMINOS SUBDIVISION
Albuquerque, New Mexico

Prepared by:

BRASHER & LORENZ, INC.
Consulting Engineers
2201 San Pedro NE Building 1, Suite 210
Albuquerque, New Mexico 87110

December 1996

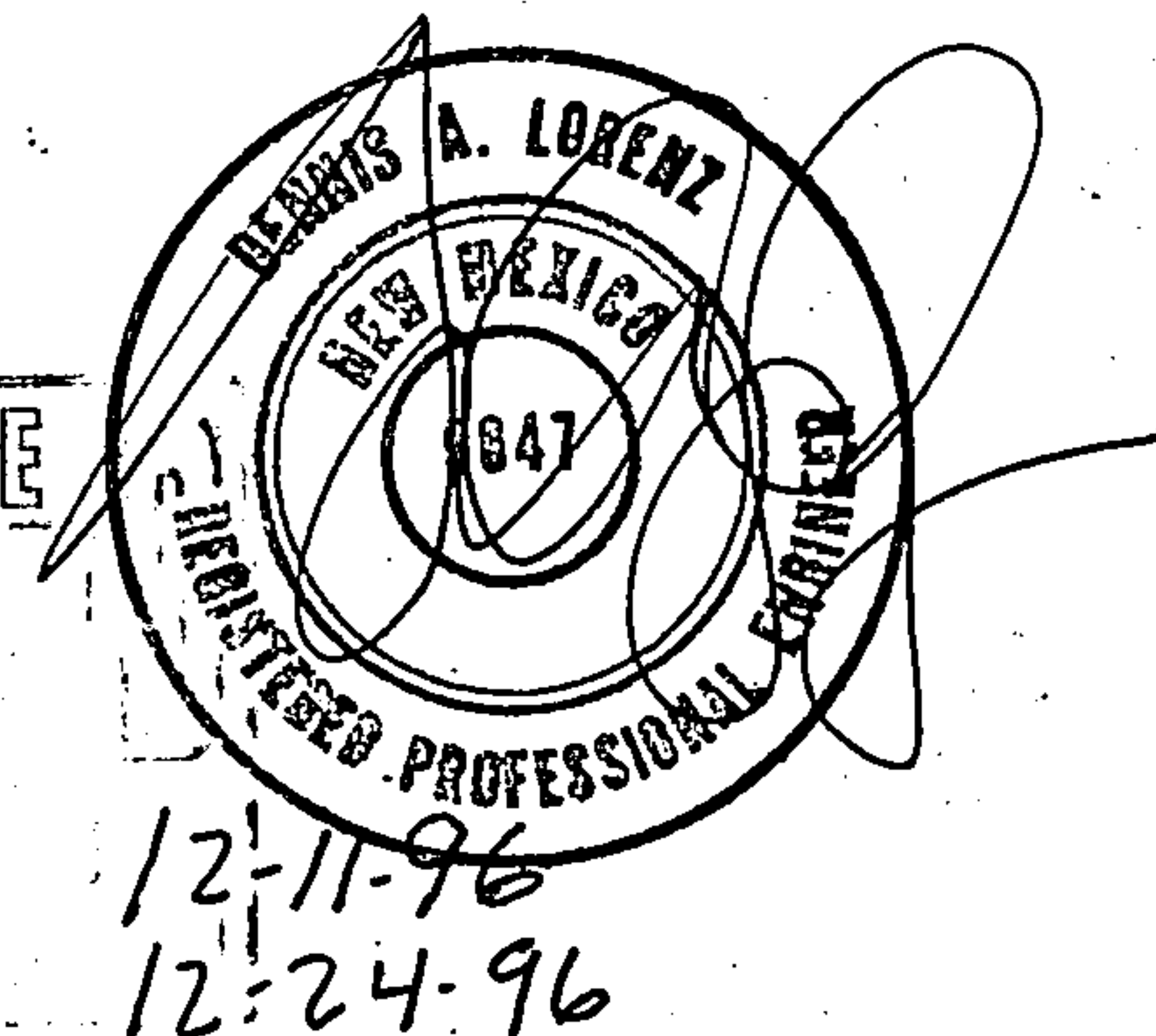
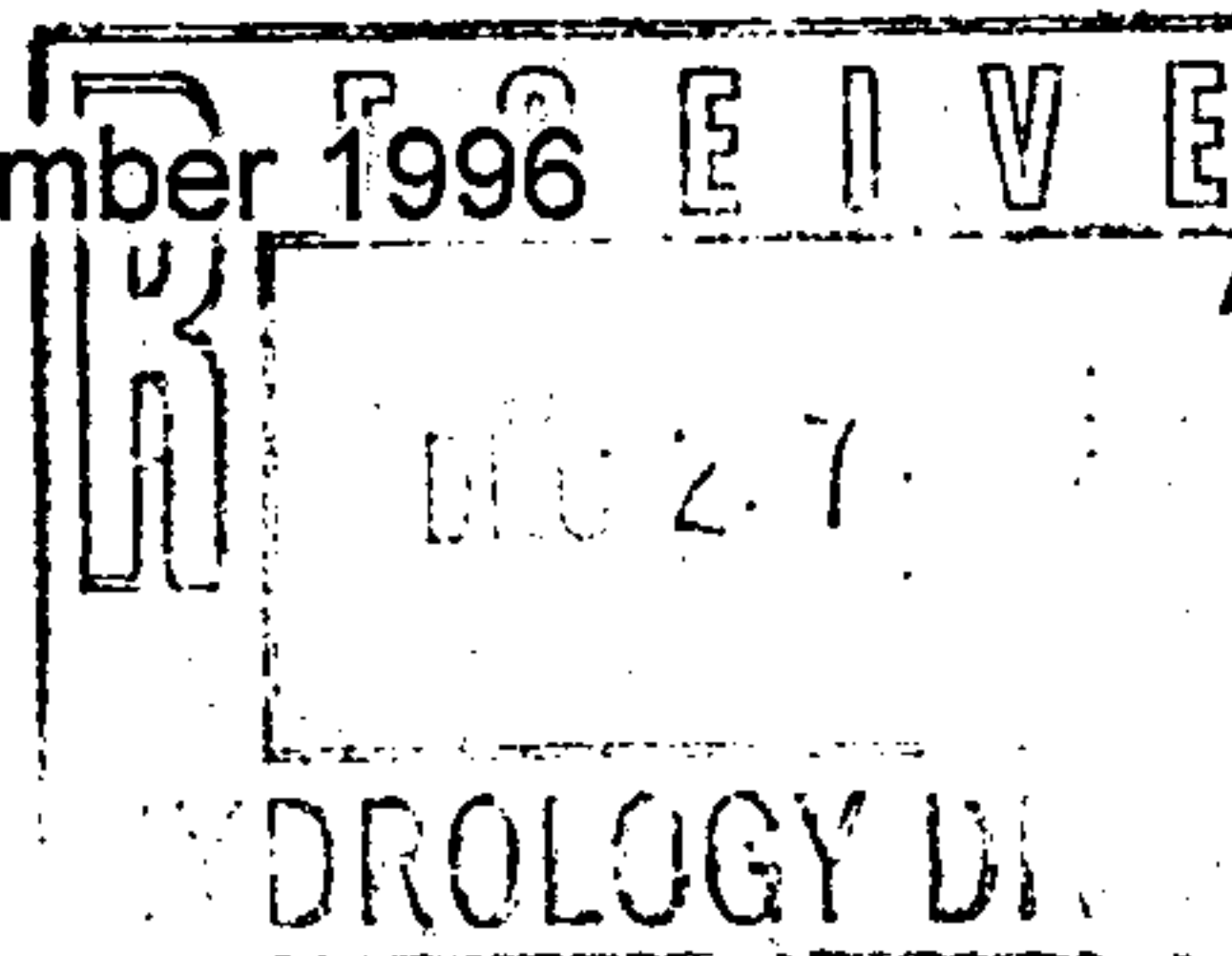


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CALCULATIONS	APPENDIX
GRADING AND DRAINAGE MASTER PLAN	POCKET

PURPOSE AND SCOPE

Pursuant to the established Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Drainage Report outlines the drainage management criteria for controlling developed runoff from the project site. The property is to be developed as Dos Caminos Subdivision, a 70/lot residential subdivision, with associated paving, landscaping, utility, grading and drainage improvements. The scope of this plan is to provide drainage criteria for the safe management of excess runoff, and design detail for the construction of the required grading, paving and drainage improvements.

EXISTING CONDITIONS

The project site is approximately 9.2 acres and is located northwest of the I-40-Coors Rd. interchange. It is bounded by Miami Road on the north, Juniper Road on the south, Estancia Drive on the west and an undeveloped tract to the east. Presently the site is undeveloped. The site is sparsely vegetated with native grasses and shrubs.

The site is the west half of an undrained playa that drains tracts from the north and west. These offsite flows cross the existing pavement on Estancia Drive and Miami Road to enter the site. Most of the site lies in a FEMA designated 100 year flood zone with a base flood elevation of 5195. Most of the site drains from west to east at a 1 percent slope. The north quarter of the site drains from north to south at a 2 percent slope. Elevations are about 5196 along the north and west tract lines. The site slopes gently to undrained depressions along the east tract line. These depressions have elevations of about 5191.

Adjacent properties that are drained by the subject site:

(See "Existing Conditions" map)

1. **Basin A:** 35 (approx.) acre undeveloped basin roughly bounded by Estancia Drive, Juniper Road, 64th. Street and Ouray Road. It generates a peak 100 year/6 hour discharge of 29 cfs. Water from the tract flows at a 1 percent slope in a southeasterly direction. It flows freely across the Estancia Drive/Miami Road intersection into the subject site.
2. **Basin B:** 5.3 (approx.) acre tract containing a school, parking lot and playground owned by the Seventh Day Adventist Church. The site generates about 16 cfs in the 100 year/6 hour flood. Water from this tract flows along the west side of Estancia Drive and crosses into the subject site across the Estancia Drive/Miami Road intersection.
3. **Basin C:** 5.3 (approx.) acre tract containing the Seventh Day Adventist Church building and parking lot. About half the tract is undeveloped. It generates 12.6 cfs in the 100 year/6 hour flood. Water from this tract flows freely across the existing temporary pavement on Estancia Drive into the subject site.

4. Site (Including Adjacent Streets) The undeveloped site and surrounding streets generate 17.2 cfs in the 100 year/6 hour flood.

5. Summary of Existing Basins

Basin	Description	100 yr/6 hr peak flow
A	vacant 35 acre tract nw of site	29.0 cfs
B	5.3 acre school and playground	16.0 cfs
C	5.3 acre church tract	12.6 cfs
Site	11.6 acres. Site and adjacent streets	17.2 cfs
total		74.8 cfs

Adjacent land that is not drained by the subject site:
(See "Existing Conditions" map)

- 1. City Reservoir** (under construction) This project will drain to Ouray Road.
- 2. Summer Ray Subdivision:** The subdivision currently drains to a storm drain on 64th Street and temporary retention ponds on the east side of the tract. One retention pond will be replaced by a future connection to the proposed Miami Road stormdrain (not part of this project). The other pond will be replaced by a storm drain system on Juniper Road to be constructed as part of this project.
- 3. Tompiro Subdivision:** The subdivision currently drains to a retention pond near Miami Road. This pond will be replaced by a connection to the proposed Miami Road storm drain. An isolated section of the 54" storm drain has already been constructed between Estancia Drive and the east boundary of the subject site.

5. Summary

DEVELOPED CONDITIONS

All of the stormwater from the Dos Caminos Subdivision will drain to the AMAFCA West Bluff Outfall, a 14'x14' concrete box culvert, currently under construction, that will drain to the Rio Grande.

The site will drain to two stubouts from the West Bluff Outfall: 1) a 36" stubout at Juniper Road and 2) a 72" stubout at Miami Road.

Drainage Facilities

1. Juniper Road Storm Drain Network

A permanent storm drain network will be constructed as part of this project. Drop inlets near the Juniper Road/Estancia Drive intersection will carry storm water to a drain that will lead to the 36" Juniper Road stubout from the AMAFCA West Bluff Outfall.

2. Miami Road Swale and Drop Inlet

A temporary 25' wide asphalt swale will be constructed along the centerline of Miami Road (currently unpaved) from the project to the AMAFCA West Bluff Outfall 72" Miami Road stubout. The swale will serve a dual purpose.

In addition to draining stormwater from the site, it will provide nearby residents with an improved driving surface. Miami Road is currently a poorly drained, muddy road. The swale will also provide neighbors with the opportunity to provide better drainage for their lots which currently lie in a 100-year flood plain.

The swale will drain to a drop inlet that will also be constructed as part of this project. The drop inlet will drain to the AMAFCA stub-out.

When the city completes the future Miami Road storm drain the subject site will be drained by drop inlets on Miami Road.

Basins that will Drain to Miami Swale and Drop Inlet

1. Basin A

Basin A is a 35 acre undeveloped tract that currently drains across the Estancia/Miami intersection to the subject site. Its 100 year/6 hour peak flow is 29.0 cfs. The flow from this Basin will be channeled into the temporary Miami swale by completion of the south side of Miami Road. The north side of Miami Road was already constructed as part of another project. The south side will be constructed as part of this project and will include standard curb and gutter.

The Estancia Drive reconstruction will include a 1 foot water block about 150 feet south of the intersection with Miami Road. This will prevent Basin A from draining south on Estancia Drive. There will be no bar ditch on the north side of Estancia for 20 feet in the vicinity of the water block high point. This will prevent stormwater from running backwards up the bar ditch.

Basin A will produce considerably more runoff in the developed condition. The drainage plan for the adjacent Summer Ray Subdivision includes a low point in Miami Road that will capture all the runoff from Basin A. The drainage plan states that drop inlets at the low point will transport Basin A storm water into the future Miami Road storm drain. The Summer Ray Subdivision does not propose any temporary retention ponds to handle stormwater from Basin A.

The temporary Miami swale proposed here will be designed to handle existing flows only.

*Only one inlet?
Capacity calc?*

2. Basin B

Basin B is a 5.3 acre site occupied by the Seventh Day Adventist School and playground. It currently drains across the Estancia/Miami intersection to the subject site. It's 100 year/6 hour peak flow is 16 cfs. Flow from this basin will be channeled to the Miami Swale in the same manner as that of Basin A.

3. Basin C (North Section)

Basin C is a 5.3 acre tract occupied by the Seventh Day Adventist Church and parking lot. It currently drains across Estancia Drive into the subject site. This project includes reconstruction of Estancia Drive into an urban section with curb and gutter. Estancia Drive is currently a 20 foot wide paved street with unpaved shoulders and no drainage ditches.

The improved Estancia Drive will have a high point about 150 feet south of the intersection with Miami Road. This will divide Basin C so that the north 0.55 acres drain to Miami Road and the south 4.75 acres will drain to Juniper Road. the north 0.55 acres will only produce 0.7 cfs in the 100 year/6 hour storm.

4. Basin E

Basin E is a 20.2 acre undeveloped tract north of Miami Road that will drain into the Miami swale. It produces 31.1 cfs in the 100 year/6 hour storm. The swale will be sized to accommodate this flow.

5. Basin M

Basin M includes the portion of the proposed subdivision and adjacent streets that will drain to the Miami swale and drop inlet. It contains about 4.7 acres and generates 18.1 cfs.

6. Summary of Basins that will Drain to Miami Swale and Drop Inlet

Basin	Description	100 yr/6 hr peak flow
A	vacant 29 acre tract nw of site	29.0 cfs
B	5.3 acre school and playground	16.0 cfs
C	0.55 acres at north end of church tract	0.7 cfs
E	20.2 acre vacant tract ne of site	21.1 cfs
M	portion of subdivision to drain to Miami	18.1 cfs
	total draining to Miami Rd. (A,B,C and M)	63.8 cfs
	capacity of proposed Miami Road	77.9 cfs
	(total draining to Miami Swale and DI (by hydrograph addition))	75.1 cfs
	capacity of proposed Miami Swale	80.0 cfs

Basins that will Drain to Juniper Storm Drain Network

1. Basin C (South Section)

As mentioned in the previous section, the reconstruction of Estancia Drive will divide Basin C into two basins, one flowing into the Miami Swale and one flowing to the Juniper Storm Drain Network. The south 4.75 acres will drain into the Juniper Storm Drain and will generate a 100 year/6 hour peak flow of 19.4 cfs. This analysis assumes full development of the property by the church.

2. Basin D

According to the Drainage Plan for the Summer Ray Subdivision, part of the subdivision generates a 100 year/6 hour peak flow of 15.87 cfs. This runoff is drained by a temporary retention pond near the southwest corner of Basin C. The Juniper Storm Drain Network must be designed to accomodate this flow

3. Basin F

Basin F includes all of the Juniper Street right-of-way from 68th Street to the proposed end of Juniper Street near the proposed subdivision. Future plans call for Juniper Street to be a forty foot wide urban street with curb and gutter between 64th. Street and Estancia Drive. Currently the north side of Juniper Street is paved with standard curb and gutter from 64th Street to the west property line of the church tract (Basin C). A fully constructed Juniper Street will contain 1.7 acres and will generate a 100 year/6 hour peak runoff of 7.4 cfs.

4. Basin J

This is that portion of the proposed subdivision and adjacent streets that will drain to the Juniper Storm Drain Network. It contains 6.9 acres and will generate a 100 year/6 hour peak flow of 28.3 cfs.

5. Summary of Basins Draining to Juniper Storm Drain Network

Basin	Description	100 yr/6 hr peak flow
C	4.75 acre portion of church property	19.3 cfs
D	Summer Ray Subdivision	15.9 cfs
F	Future fully constructed Juniper Road	7.4 cfs
J	Portion of subdivision to drain to Juniper	28.3 cfs
	total	70.9 cfs

Analysis of On-Site Flows (See On-Site Flows Map)

The site was divided into 10 sub-basins to determine curb type and swale sizes.

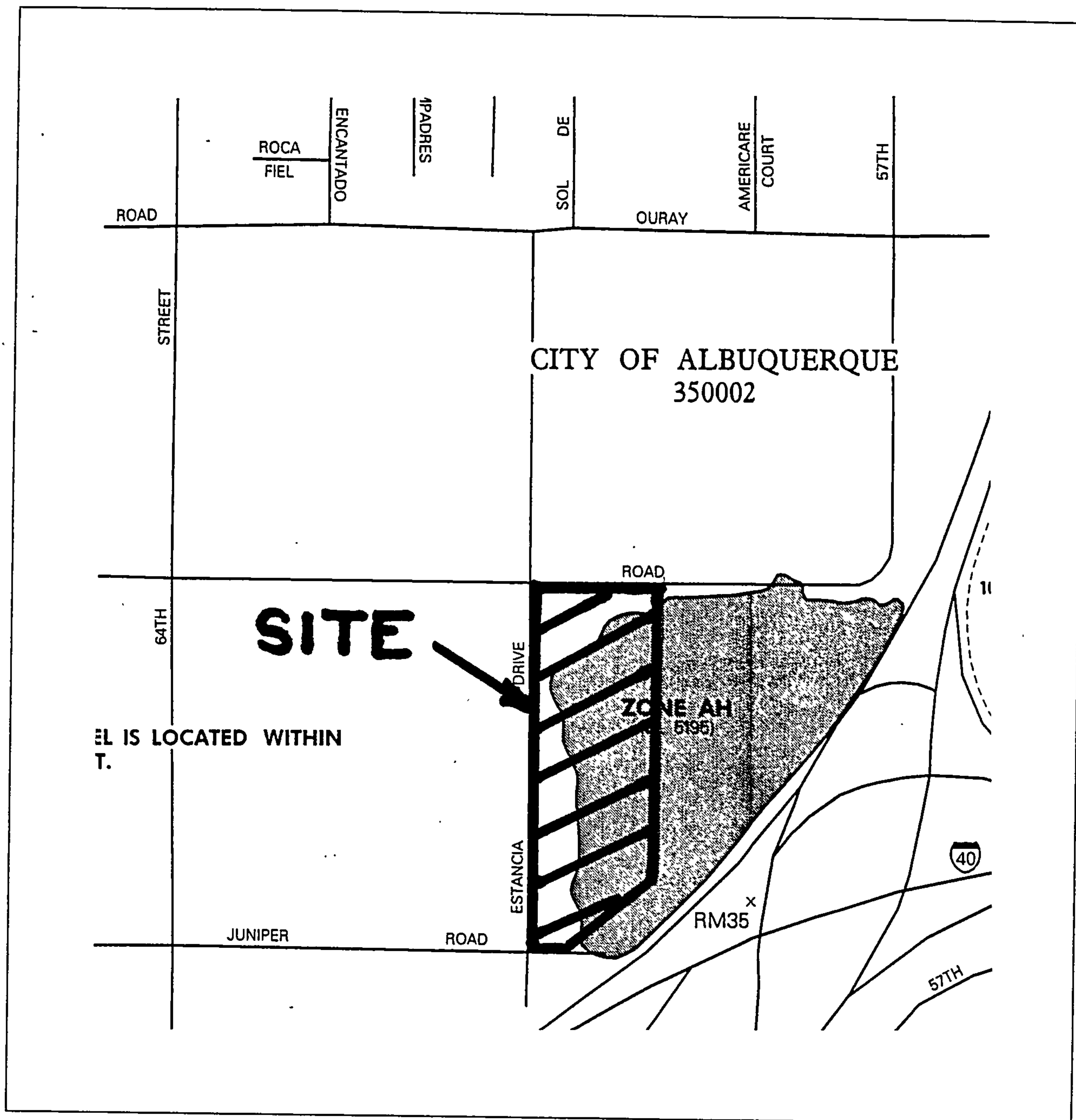
Basin	Description	100 yr/6 hr peak flow
1	Lots on Juniper	1.3 cfs
2	Estancia Drive (Draining South)	5.2 cfs
3	Lots on Estancia	6.0 cfs
4	South Interior Street	7.3 cfs
5	East Interior Street (South End)	8.5 cfs
6	Estancia Drive (Draining North)	0.8 cfs
7	Lots on Miami	2.5 cfs
8	East Interior Street (North End)	9.0 cfs
9	Miami Road	2.9 cfs
10	Backyards	to be drained by individual backyard ponds

TEMPORARY EROSION CONTROL

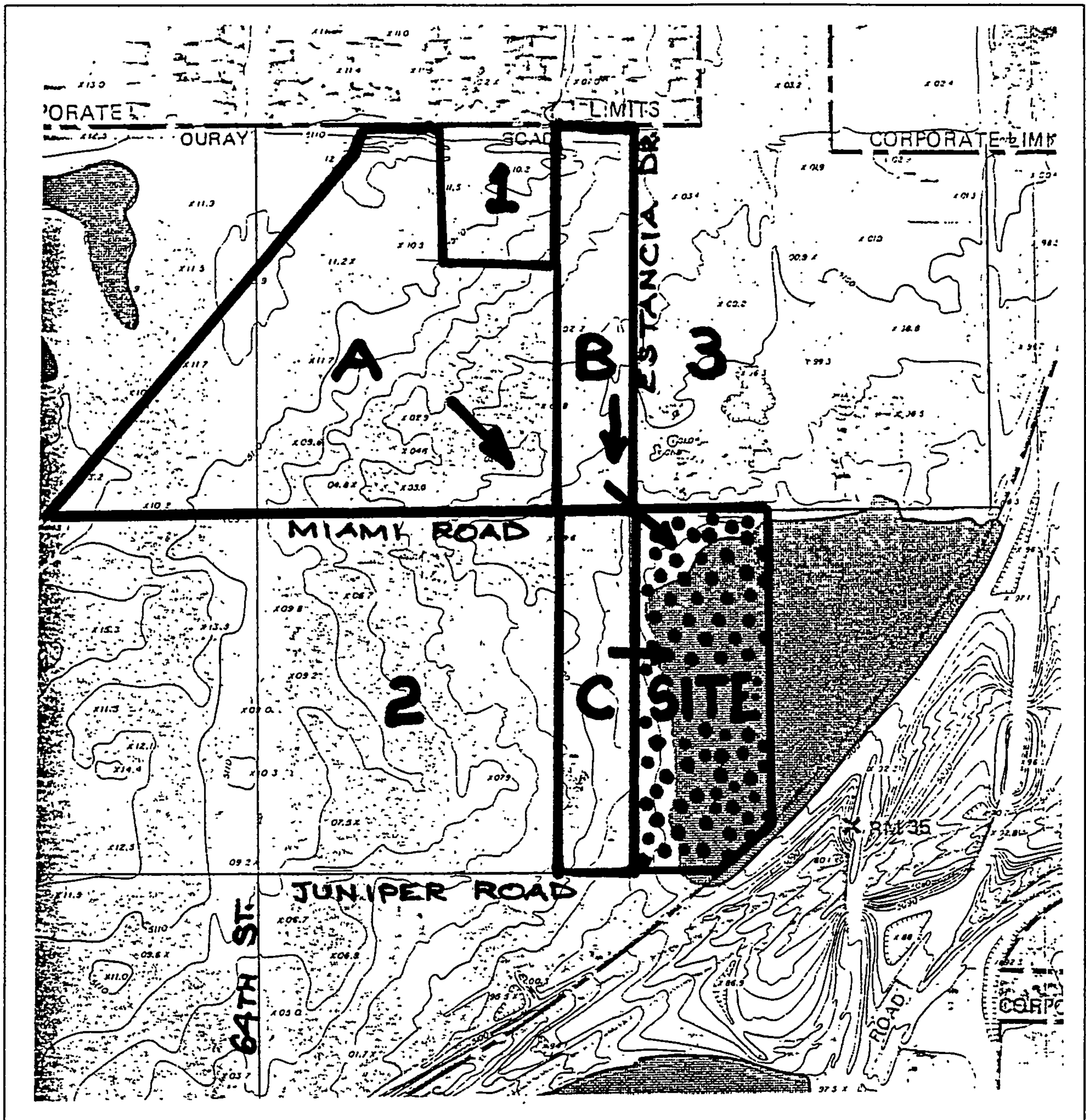
1. The intent of this temporary erosion control plan is to limit the discharge of sediment into the public street and/or storm drainage system and to protect adjacent properties from excess runoff during construction.
2. The Contractor shall obtain a Top Soil Disturbance Permit from Environmental Health prior to performing any earthwork related operations.
3. Temporary erosion control berms should be constructed along the project boundaries to direct excess runoff to the ponding area.
4. It is the Contractor's responsibility to properly maintain all temporary erosion control facilities during the construction phase of the project.



SOILS MAP
Figure 2

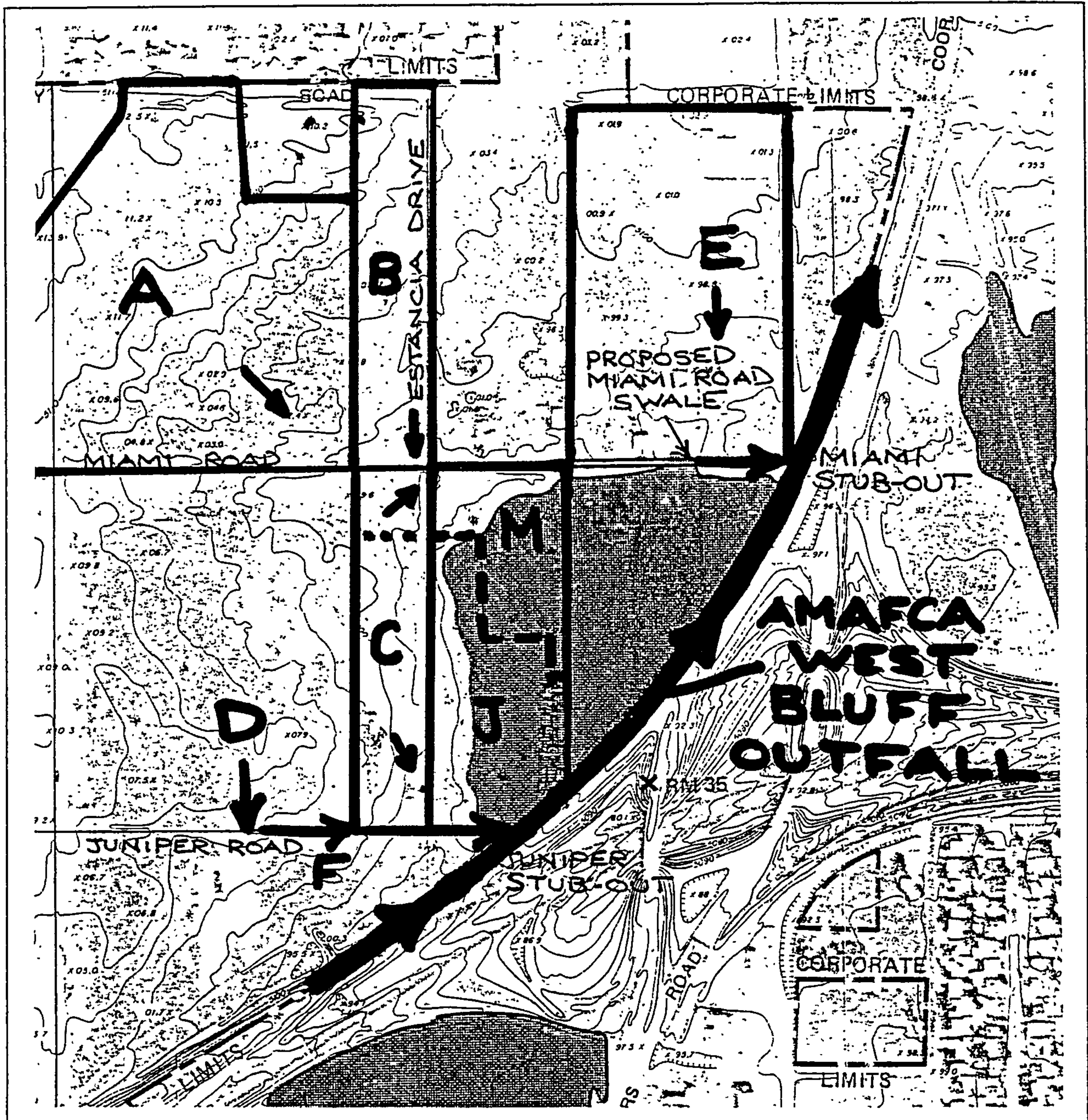


FLOOD INSURANCE RATE MAP
Figure 3



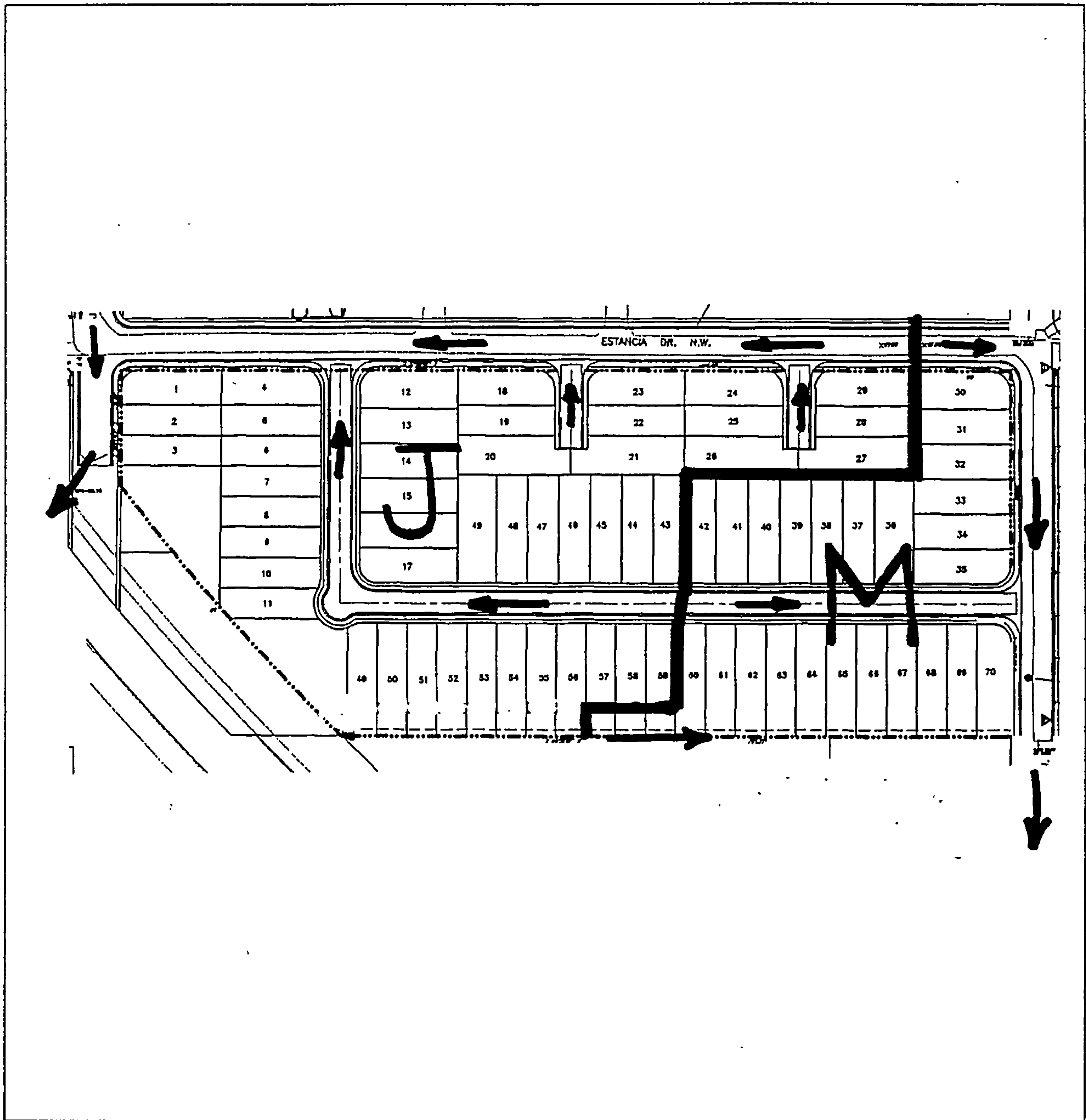
MAP OF EXISTING BASINS

Figure 4

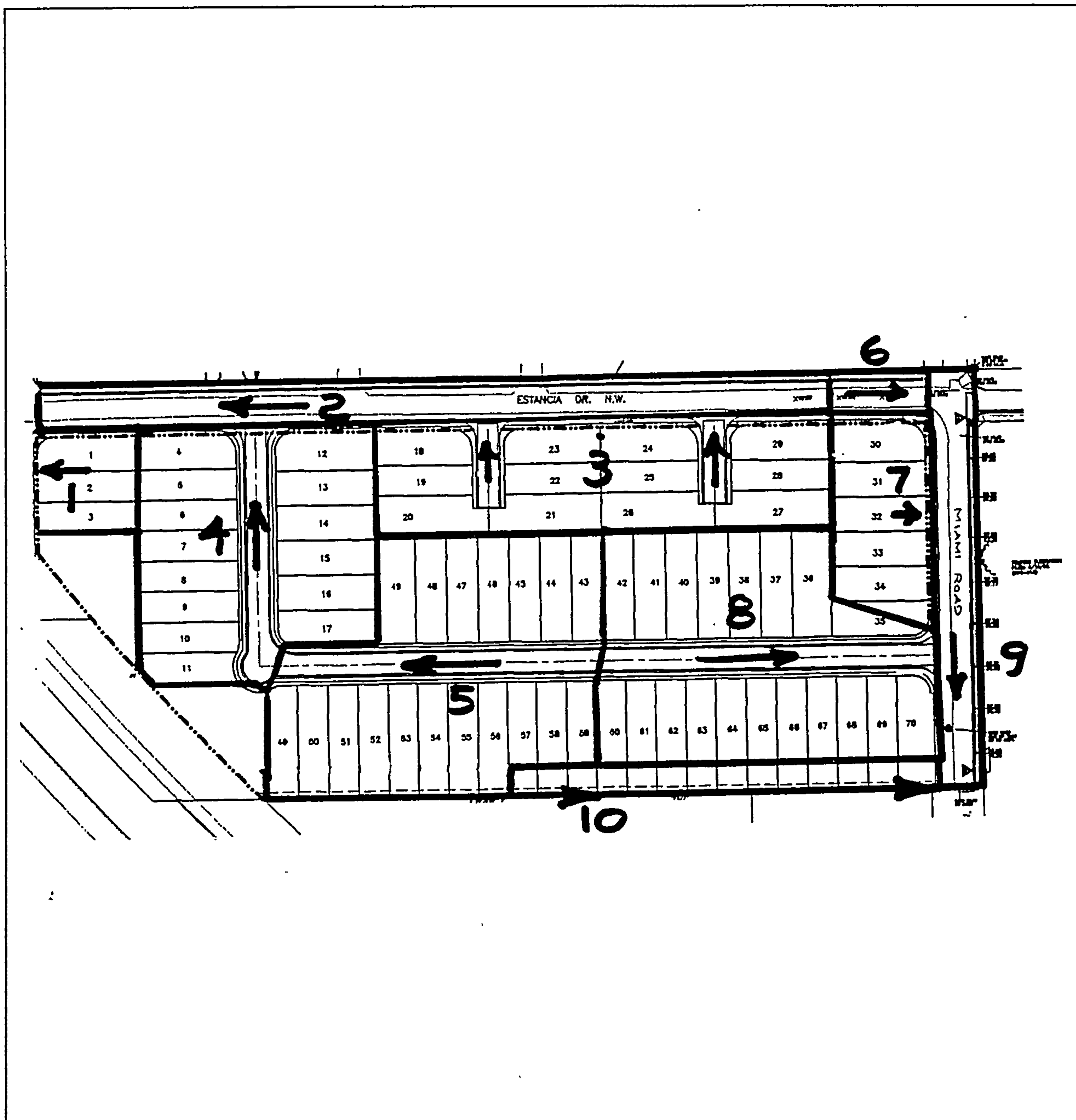


MAP OF DEVELOPED BASINS

Figure 5



MAP OF MAJOR ON-SITE BASINS
Figure 6



MAP OF MINOR ON-SITE BASINS
Figure 7

CALCULATIONS

6079

EXISTING BASINSBASIN A

35 ACRES

80% A

10% B

10% C

$$T_p = \frac{2}{3} T_c$$

$$T_c = \frac{L_1}{V_1} + \frac{L_2}{V_2}$$

$$V_1 = 10 K \sqrt{S}$$

$$S = 0.7\%$$

$$K = 0.7$$

$$V_1 = 10 (.7) \sqrt{.007} = 0.586 \text{ FPS}$$

$$L_1 = 400 \text{ FT}$$

$$V_2 = 10 K \sqrt{S}$$

$$K = 2.0$$

$$V_2 = 10 (2) \sqrt{.007} = 1.67 \text{ FPS}$$

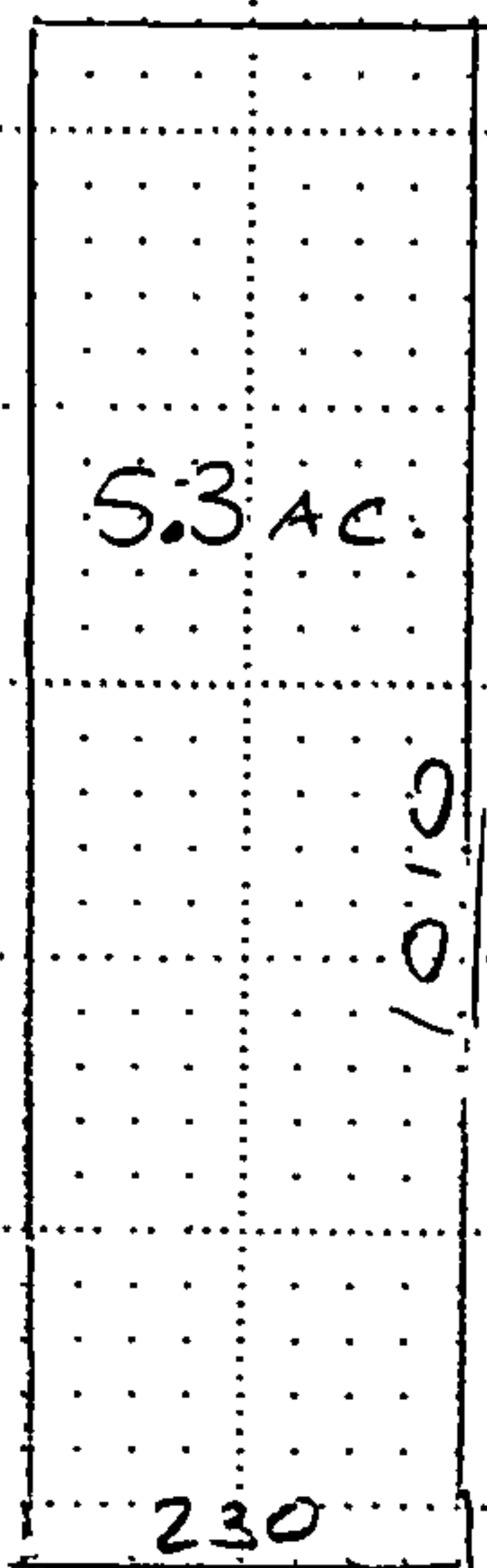
$$L_2 = 1300 \text{ FT}$$

$$T_c = \frac{400}{0.586} + \frac{1300}{1.67} = 1461 \text{ SEC} = 0.406 \text{ HR}$$

$$T_p = \frac{2}{3} (0.406 \text{ HR}) = 0.27$$

EXISTING BASINS

BASIN B (SCHOOL)



A 10%

B 20%

C 40%

D 30%

$$T_P = \frac{2}{3} T_C$$

$$T_C = \frac{L}{V}$$

$$L = 1000 \text{ FT}$$

$$V = K\sqrt{S}$$

$$S = 1\%$$

$$K = 3 \text{ (STREET FLOW)}$$

$$V = 3\sqrt{1} = 3$$

$$T_C = \frac{1000}{3} \left(\frac{1}{3600} \right) = 0.09$$

$$T_P = T_{P \text{ min}} = 0.133 \text{ HR}$$

EXISTING BASINS

3. BASIN C (CHURCH)

5.3 AC
0.00828 SQ. MI.

A 50%
B 10%
C 15%
D 25%

4. SITE

11.6 AC
0.01813 SQ. MI.

A = 95%
B = 0
C = 0
D = 5%

HYMO PROGRAM (HYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 12/09/1996
START TIME (HR:MIN:SEC) = 11:46:47 USER NO. = BRASHERE.I01
INPUT FILE = 6079EXST.DAT

*S EXISTING CONDITIONS
*S 100-YEAR 6 HOUR RAINFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1
* A
COMPUTE NM HYD ID=1 HYD NO= A DA=0.0547 SQ MI
PER A=80 PER B=10 PER C=10
PER D=0 TP=0.27HR MASSRAIN=-1

K = .312006HR TP = .270000HR K/TP RATIO = 1.155578 SHAPE CONSTANT, N = 3.066574
UNIT PEAK = 58.186 CFS UNIT VOLUME = .9998 B = 287.21 P60 = 1.9000
AREA = .054700 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA A

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.833	21.7	3.667	.8	5.500	.1	7.333	.0
.167	.0	2.000	12.9	3.833	.7	5.667	.1	7.500	.0
.333	.0	2.167	7.6	4.000	.6	5.833	.1	7.667	.0
.500	.0	2.333	4.4	4.167	.5	6.000	.1	7.833	.0
.667	.0	2.500	2.8	4.333	.4	6.167	.1	8.000	.0
.833	.0	2.667	2.3	4.500	.3	6.333	.0	8.167	.0
1.000	.0	2.833	1.9	4.667	.3	6.500	.0	8.333	.0

1.167	.0	3.000	1.6	4.833	.2	6.667	.0
1.333	.0	3.167	1.4	5.000	.2	6.833	.0
1.500	16.7	3.333	1.1	5.167	.2	7.000	.0
1.667	29.0	3.500	1.0	5.333	.1	7.167	.0

RUNOFF VOLUME = .51449 INCHES = 1.5009 ACRE-FEET
PEAK DISCHARGE RATE = 29.01 CFS AT 1.667 HOURS BASIN AREA = .0547 SQ. MI.

* B
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
PER A=10 PER B=20 PER C=40
PER D=30 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8045 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.9000
AREA = .002484 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .121354HR TP = .133333HR K/TP RATIO = .910159 SHAPE CONSTANT, N = 3.891264
UNIT PEAK = 15.121 CFS UNIT VOLUME = .9995 B = 347.85 P60 = 1.9000
AREA = .005796 SQ MI IA = .43571 INCHES INF = 1.07000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

HYDROGRAPH FROM AREA B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	16.0	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	8.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	4.3	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	2.6	3.500	.1	5.000	.0	6.500	.0
.667	.0	2.167	1.3	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.7	3.833	.0	5.333	.0		
1.000	.0	2.500	.4	4.000	.0	5.500	.0		
1.167	.0	2.667	.3	4.167	.0	5.667	.0		
1.333	2.4	2.833	.2	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.16121 INCHES = .5128 ACRE-FEET
PEAK DISCHARGE RATE = 16.00 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* C
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00828 SQ MI
PER A=50 PER B=10 PER C=15
PER D=25 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.1704 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.9000
AREA = .002070 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .147331HR TP = .133333HR K/TP RATIO = 1.104982 SHAPE CONSTANT, N = 3.199571
UNIT PEAK = 13.866 CFS UNIT VOLUME = .9991 B = 297.71 P60 = 1.9000
AREA = .006210 SQ MI IA = .57000 INCHES INF = 1.44600 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.8	2.667	.3	4.000	.0	5.333	.0
.167	.0	1.500	12.5	2.833	.2	4.167	.0	5.500	.0
.333	.0	1.667	6.8	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	3.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.1	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.1	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.6	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.4	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = .91945 INCHES = .4060 ACRE-FEET
PEAK DISCHARGE RATE = 12.55 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* SITE

COMPUTE NM HYD ID=4 HYD NO= SITE DA=0.01813 SQ MI
PER A=95 PER B=0 PER C=0
PER D=5 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.5780 CFS UNIT VOLUME = .9960 B = 526.28 P60 = 1.9000
AREA = .000907 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .162968HR TP = .133333HR K/TP RATIO = 1.222262 SHAPE CONSTANT, N = 2.911962
UNIT PEAK = 35.467 CFS UNIT VOLUME = .9993 B = 274.56 P60 = 1.9000
AREA = .017223 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA SITE

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.8	2.667	.4	4.000	.0	5.333	.0
.167	.0	1.500	16.9	2.833	.3	4.167	.0	5.500	.0
.333	.0	1.667	9.7	3.000	.2	4.333	.0	5.667	.0
.500	.0	1.833	3.9	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.0	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.3	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.8	3.667	.1	5.000	.0	6.333	.0
1.167	.0	2.500	.6	3.833	.0	5.167	.0		

RUNOFF VOLUME = .52812 INCHES = .5107 ACRE-FEET
PEAK DISCHARGE RATE = 17.16 CFS AT 1.533 HOURS BASIN AREA = .0181 SQ. MI.

*

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:46:49

BASINS THAT DRAIN TO MIAMI

1. BASIN A (NW VACANT TRACT) - UNDEVELOPED
SAME AS FOR EXISTING CONDITIONS

$$35 \text{ ACRES} = 0.0547 \text{ SQ MI}$$

A 80%

B 10%

C 10%

D 0%

$$T_p = 0.22 \text{ HRS}$$

2. BASIN B (SCHOOL)

SAME AS EXISTING CONDITIONS

$$5.3 \text{ AC} = 0.00828 \text{ SQ MI}$$

$$T_p = 0.133 \text{ HR}$$

A 10%

B 20%

C 40%

D 30%

3. BASIN C (NORTH)

$$0.55 \text{ AC} = 0.00086 \text{ SQ MI}$$

$$T_p = 0.133 \text{ HR}$$

A = 100%

B = 0%

C = 0%

D = 0%

BASINS THAT DRAIN TO MIAMI (CONT'D)

4. BASIN E

$$20.2 \text{ AC} = 0.03156 \text{ SQ MI}$$

$$T_D = \frac{2}{3} T_C$$

$$T_C = \frac{L_1}{V_1} + \frac{L_2}{V_2}$$

$$L_1 = 400 \text{ FT}$$

$$V_1 = 10K\sqrt{S}$$

$$K = 0.7$$

$$S = 0.007 \text{ FT/FT}$$

$$V_1 = 10(.7)\sqrt{0.007} = 0.586 \text{ FPS}$$

$$L_2 = 700 \text{ FT}$$

$$V_2 = 10K\sqrt{S}$$

$$K = 2.0$$

$$S = 0.007 \text{ FT/FT}$$

$$V_2 = 10(2)\sqrt{0.007} = 1.67 \text{ FPS}$$

$$T_C = \frac{400}{.586} + \frac{700}{1.67} = 1102 \text{ SEC} = 0.31 \text{ HR}$$

$$T_D = \frac{2}{3}(0.31) = 0.21 \text{ HR}$$

5. BASIN M

$$4.7 \text{ ACRES} = 0.00734 \text{ SQ MI}$$

$$T_D = 0.133 \text{ HRS}$$

A —
B 15%
C 15%
D 70%

```

*S      DOS CAMINOS (6079M.DAT)
*S      100-YEAR 6 HOUR RAINFALL
*S      MIAMI ROAD OUTFALL
START   TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
        RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333
SEDIMENT BULK CODE=1 BULK FACTOR=1
* A NORTHWEST VACANT TRACT
COMPUTE NM HYD ID=1 HYD NO= A DA=0.0547 SQ MI
                PER A=80 PER B=10 PER C=10
                PER D=0 TP=0.27HR MASSRAIN=-1
                ID=1 CODE=5
PRINT HYD
* B SCHOOL
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
                PER A=10 PER B=20 PER C=40
                PER D=30 TP=0.133HR MASSRAIN=-1
                ID=2 CODE=5
PRINT HYD
* C (NORTH SECTION)
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00086 SQ MI
                PER A=100 PER B=0 PER C=0
                PER D=0 TP=0.133HR MASSRAIN=-1
                ID=3 CODE=5
PRINT HYD
* E NORTH VACANT TRACT
COMPUTE NM HYD ID=4 HYD NO= E DA=.03156 SQ MI
                PER A=80 PER B=10 PER C=10
                PER D=0 TP=0.21HR MASSRAIN=-1
                ID=4 CODE=5
PRINT HYD
* M SITE
COMPUTE NM HYD ID=5 HYD NO= M DA=0.00734 SQ MI
                PER A=0 PER B=15 PER C=15
                PER D=70 TP=0.133HR MASSRAIN=-1
                ID=5 CODE=5
PRINT HYD
ADD HYD ID=6 HYD=T1 ID I=1 ID II=2
ADD HYD ID=7 HYD=T2 ID I=6 ID II=3
ADD HYD ID=8 HYD=TOTAL ID I=7 ID II=4
ADD HYD ID=9 HYD=TOTAL ID I=8 ID II=5
PRINT HYD ID=9 CODE=5
*
FINISH

```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = 6079M.DAT

RUN DATE (MON/DAY/YR) =12/09/1996
USER NO.= BRASHER.101

COMMAND	HYDROGRAPH IDENTIFICATION	FROM NO.	TO ID	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
*S	DOS CAMINOS (6079M.DAT)										
*S	100-YEAR 6 HOUR RAINFALL										
*S	MIAMI ROAD OUTFALL										
START											
RAINFALL TYPE= 1											TIME= .00
SEDIMENT BULK											RAIN6= 2.210
COMPUTE NM HYD	A	-	1	.05470	29.01	1.501	.51449	1.667	.829		PK BF = 1.00
COMPUTE NM HYD	B	-	2	.00828	16.03	.513	1.16121	1.500	3.024		PER IMP= .00
COMPUTE NM HYD	C	-	3	.00086	.74	.021	.45191	1.533	1.347		PER IMP= 30.00
COMPUTE NM HYD	E	-	4	.03156	21.09	.866	.51449	1.600	1.044		PER IMP= .00
COMPUTE NM HYD	M	-	5	.00734	18.12	.640	1.63371	1.500	3.857		PER IMP= 70.00
ADD HYD	T1	1& 2	6	.06298	39.21	2.014	.59950	1.600	.973		
ADD HYD	T2	6& 3	7	.06384	39.82	2.034	.59752	1.600	.975		
ADD HYD	TOTAL	7& 4	8	.09540	60.91	2.900	.57005	1.600	.998		
ADD HYD	TOTAL	8& 5	9	.10274	75.10	3.540	.64604	1.567	1.142		

FINISH

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 12/09/1996
START TIME (HR:MIN:SEC) = 11:58:59 USER NO.= BRASHERE.I01
INPUT FILE = 6079M.DAT

*S DOS CAMINOS (6079M.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S MIAMI ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0014	.0029	.0043	.0059	.0074	.0090
.0106	.0123	.0140	.0157	.0175	.0193	.0212
.0232	.0252	.0272	.0294	.0316	.0339	.0362
.0387	.0412	.0439	.0466	.0495	.0525	.0557
.0590	.0625	.0663	.0715	.0771	.0831	.0961
.1249	.1694	.2331	.3202	.4347	.5806	.7622
.9839	1.1890	1.2748	1.3472	1.4117	1.4703	1.5243
1.5745	1.6213	1.6652	1.7065	1.7455	1.7824	1.8172
1.8502	1.8816	1.9113	1.9395	1.9662	1.9722	1.9779
1.9832	1.9883	1.9932	1.9978	2.0023	2.0066	2.0107
2.0147	2.0185	2.0223	2.0259	2.0294	2.0328	2.0361
2.0393	2.0425	2.0455	2.0485	2.0515	2.0543	2.0571
2.0599	2.0625	2.0652	2.0678	2.0703	2.0728	2.0752
2.0776	2.0800	2.0823	2.0845	2.0868	2.0890	2.0912
2.0933	2.0954	2.0975	2.0995	2.1015	2.1035	2.1055
2.1074	2.1093	2.1112	2.1131	2.1149	2.1167	2.1185
2.1203	2.1221	2.1238	2.1255	2.1272	2.1289	2.1305
2.1322	2.1338	2.1354	2.1370	2.1386	2.1401	2.1417
2.1432	2.1447	2.1462	2.1477	2.1492	2.1506	2.1521
2.1535	2.1549	2.1564	2.1577	2.1591	2.1605	2.1619
2.1632	2.1646	2.1659	2.1672	2.1685	2.1698	2.1711
2.1724	2.1736	2.1749	2.1762	2.1774	2.1786	2.1799
2.1811	2.1823	2.1835	2.1847	2.1858	2.1870	2.1882
2.1893	2.1905	2.1916	2.1928	2.1939	2.1950	2.1961
2.1972	2.1983	2.1994	2.2005	2.2016	2.2027	2.2037
2.2048	2.2058	2.2069	2.2079	2.2090	2.2100	

SEDIMENT BULK CODE=1 BULK FACTOR=1
* A NORTHWEST VACANT TRACT
COMPUTE NM HYD ID=1 HYD NO= A DA=0.0547 SQ MI
PER A=80 PER B=10 PER C=10
PER D=0 TP=0.27HR MASSRAIN=-1

K = .312006HR TP = .270000HR K/TP RATIO = 1.155578 SHAPE CONSTANT, N = 3.066574
UNIT PEAK = 58.186 CFS UNIT VOLUME = .9998 B = 287.21 P60 = 1.9000
AREA = .054700 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA A

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.833	21.7	3.667	.8	5.500	.1	7.333	.0
.167	.0	2.000	12.9	3.833	.7	5.667	.1	7.500	.0
.333	.0	2.167	7.6	4.000	.6	5.833	.1	7.667	.0
.500	.0	2.333	4.4	4.167	.5	6.000	.1	7.833	.0
.667	.0	2.500	2.8	4.333	.4	6.167	.1	8.000	.0
.833	.0	2.667	2.3	4.500	.3	6.333	.0	8.167	.0
1.000	.0	2.833	1.9	4.667	.3	6.500	.0	8.333	.0
1.167	.0	3.000	1.6	4.833	.2	6.667	.0		
1.333	.0	3.167	1.4	5.000	.2	6.833	.0		
1.500	16.7	3.333	1.1	5.167	.2	7.000	.0		
1.667	29.0	3.500	1.0	5.333	.1	7.167	.0		

RUNOFF VOLUME = .51449 INCHES = 1.5009 ACRE-FEET
PEAK DISCHARGE RATE = 29.01 CFS AT 1.667 HOURS BASIN AREA = .0547 SQ. MI.

* B SCHOOL
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
PER A=10 PER B=20 PER C=40
PER D=30 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8291 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.9000
AREA = .002484 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .121051HR TP = .133000HR K/TP RATIO = .910159 SHAPE CONSTANT, N = 3.891264
UNIT PEAK = 15.159 CFS UNIT VOLUME = .9996 B = 347.85 P60 = 1.9000
AREA = .005796 SQ MI IA = .43571 INCHES INF = 1.07000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

HYDROGRAPH FROM AREA B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	16.0	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	8.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	4.3	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	2.6	3.500	.1	5.000	.0	6.500	.0
.667	.0	2.167	1.3	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.7	3.833	.0	5.333	.0		
1.000	.0	2.500	.4	4.000	.0	5.500	.0		
1.167	.0	2.667	.3	4.167	.0	5.667	.0		
1.333	2.4	2.833	.2	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.16121 INCHES = .5128 ACRE-FEET
PEAK DISCHARGE RATE = 16.03 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* C (NORTH SECTION)
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00086 SQ MI
PER A=100 PER B=0 PER C=0
PER D=0 TP=0.133HR MASSRAIN=-1

K = .162561HR TP = .133000HR K/TP RATIO = 1.222262 SHAPE CONSTANT, N = 2.911962
UNIT PEAK = 1.7754 CFS UNIT VOLUME = .9917 B = 274.56 P60 = 1.9000
AREA = .000860 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.833	.0	1.667	.4	2.500	.0	3.333	.0
.167	.0	1.000	.0	1.833	.2	2.667	.0		
.333	.0	1.167	.0	2.000	.1	2.833	.0		
.500	.0	1.333	.0	2.167	.0	3.000	.0		
.667	.0	1.500	.7	2.333	.0	3.167	.0		

RUNOFF VOLUME = .45191 INCHES = .0207 ACRE-FEET
 PEAK DISCHARGE RATE = .74 CFS AT 1.533 HOURS BASIN AREA = .0009 SQ. MI.

* E NORTH VACANT TRACT

COMPUTE NM HYD ID=4 HYD NO= E DA=.03156 SQ MI
 PER A=80 PER B=10 PER C=10
 PER D=0 TP=0.21HR MASSRAIN=-1

K = .242671HR TP = .210000HR K/TP RATIO = 1.155578 SHAPE CONSTANT, N = 3.066574
 UNIT PEAK = 43.163 CFS UNIT VOLUME = .9996 B = 287.21 P60 = 1.9000
 AREA = .031560 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA E

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	1.2	4.000	.2	5.333	.0
.167	.0	1.500	15.6	2.833	.9	4.167	.1	5.500	.0
.333	.0	1.667	19.5	3.000	.7	4.333	.1	5.667	.0
.500	.0	1.833	10.9	3.167	.6	4.500	.1	5.833	.0
.667	.0	2.000	5.5	3.333	.5	4.667	.1	6.000	.0
.833	.0	2.167	2.8	3.500	.4	4.833	.1	6.167	.0
1.000	.0	2.333	1.8	3.667	.3	5.000	.0	6.333	.0
1.167	.0	2.500	1.5	3.833	.2	5.167	.0	6.500	.0

RUNOFF VOLUME = .51449 INCHES = .8660 ACRE-FEET
 PEAK DISCHARGE RATE = 21.09 CFS AT 1.600 HOURS BASIN AREA = .0316 SQ. MI.

* M SITE

COMPUTE NM HYD ID=5 HYD NO= M DA=0.00734 SQ MI
 PER A=0 PER B=15 PER C=15
 PER D=70 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 20.331 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
 AREA = .005138 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
 UNIT PEAK = 5.8699 CFS UNIT VOLUME = .9983 B = 354.54 P60 = 1.9000
 AREA = .002202 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=5

HYDROGRAPH FROM AREA M

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	18.1	3.000	.2	4.500	.1	6.000	.1
.167	.0	1.667	9.3	3.167	.1	4.667	.1	6.167	.0
.333	.0	1.833	5.7	3.333	.1	4.833	.1	6.333	.0
.500	.0	2.000	4.0	3.500	.1	5.000	.1	6.500	.0
.667	.0	2.167	1.8	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	.9	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.5	4.000	.1	5.500	.1		
1.167	.0	2.667	.3	4.167	.1	5.667	.1		
1.333	4.6	2.833	.2	4.333	.1	5.833	.1		

RUNOFF VOLUME = 1.63371 INCHES = .6395 ACRE-FEET
 PEAK DISCHARGE RATE = 18.12 CFS AT 1.500 HOURS BASIN AREA = .0073 SQ. MI.

ADD HYD ID=6 HYD=T1 ID I=1 ID II=2
 ADD HYD ID=7 HYD=T2 ID I=6 ID II=3
 ADD HYD ID=8 HYD=TOTAL ID I=7 ID II=4
 ADD HYD ID=9 HYD=TOTAL ID I=8 ID II=5

PRINT HYD ID=9 CODE=5

HYDROGRAPH FROM AREA TOTAL

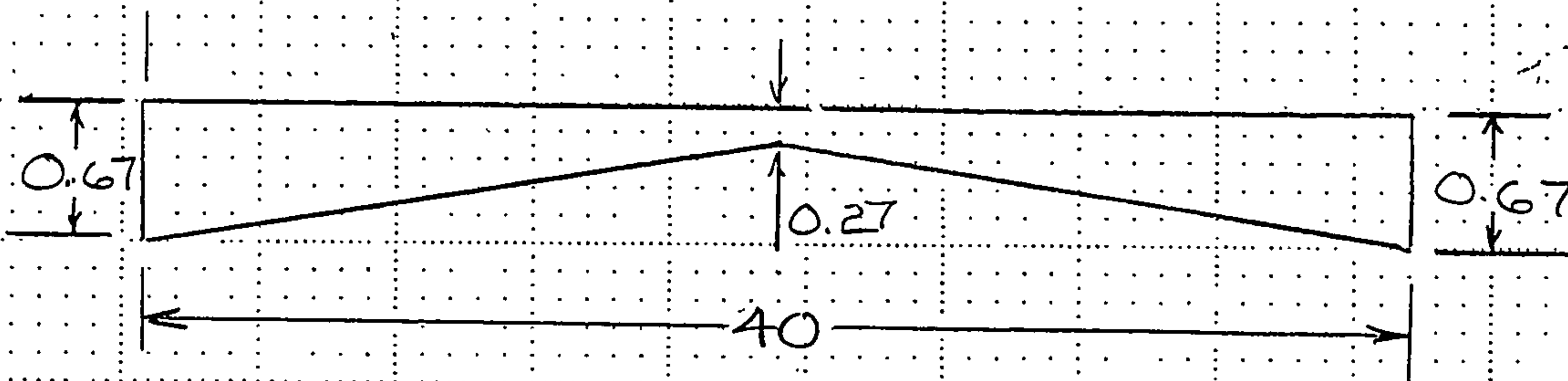
TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.833	42.7	3.667	1.2	5.500	.3	7.333	.0
.167	.0	2.000	25.1	3.833	1.0	5.667	.2	7.500	.0
.333	.0	2.167	13.5	4.000	.9	5.833	.2	7.667	.0
.500	.0	2.333	7.9	4.167	.7	6.000	.2	7.833	.0
.667	.0	2.500	5.3	4.333	.6	6.167	.1	8.000	.0
.833	.0	2.667	4.1	4.500	.5	6.333	.1	8.167	.0
1.000	.0	2.833	3.3	4.667	.5	6.500	.1	8.333	.0
1.167	.0	3.000	2.7	4.833	.4	6.667	.0		
1.333	7.0	3.167	2.2	5.000	.4	6.833	.0		
1.500	67.3	3.333	1.8	5.167	.3	7.000	.0		
1.667	66.8	3.500	1.5	5.333	.3	7.167	.0		

RUNOFF VOLUME = .64604 INCHES = 3.5399 ACRE-FEET
 PEAK DISCHARGE RATE = 75.10 CFS AT 1.567 HOURS BASIN AREA = .1027 SQ. MI.

*
 FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 11:59:01

CAPACITY OF MIAMI ROAD



$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

$$n = 0.015$$

$$A = 2(20)\left(\frac{1}{2}\right)(0.67 + 0.27) = 18.8 \text{ FT}^2$$

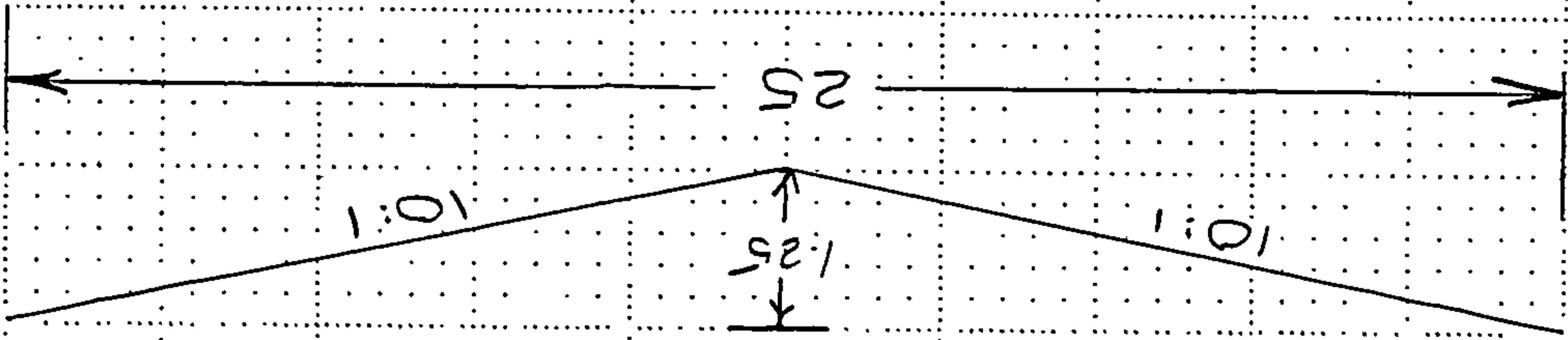
$$R = \frac{A}{WP} = \frac{18.8 \text{ FT}^2}{41.34 \text{ FT}} = 0.455 \text{ FT}$$

$$S = 0.005 \text{ FT/FT}$$

$$Q = \frac{1.49}{0.015} (18.8 \text{ FT}^2) (0.455)^{2/3} (0.005)^{1/2}$$

$$= 77.9 \text{ CFS}$$

CAPACITY OF MIAMI SWALE



$$Q = 1.49 \frac{n}{A R^{2/3}} S^{1/2}$$

$$n = 0.015$$
$$A = 12.5 (1.25) = 15.63 \text{ FT}^2$$
$$R = \frac{W_P}{A} = \frac{15.63}{25.12} = 0.622$$
$$S = 0.005 \text{ FT/FT}$$

$$Q = \frac{1.49}{0.015} (15.63 \text{ FT}^2)^{2/3} (0.005)^{1/2} = 80.0 \text{ CFS}$$

BASINS THAT DRAIN TO JUNIPER

1. BASIN C (SOUTH SECTION) - ASSUME FULLY DEVELOPED

4.75 ACRES = 0.00742 SQ. MI.

A 0%

B 10%

C 10%

D 80%

$T_p = 0.133$ HR

2. BASIN D SUMMER RAY SUBDIVISION

15.87 EFS (PER DRAINAGE PLAN FOR
SUMMER RAY SUBDIVISION)

3. BASIN F JUNIPER ROAD

1.72 AC = 0.0027 SQ MI

A 0

B 5%

C 5%

D 90%

$T_p = 0.133$ HR

4. BASIN J SITE 2 ADJACENT STREETS

6.9 AC = 0.0108 SQ MI

A 0%

B 10%

C 10%

D 80%

[illegible]

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/07/1996
START TIME (HR:MIN:SEC) = 12:21:44 USER NO.= BRASHERE.I01
INPUT FILE = 6079j.dat

*S DOS CAMINOS (6079JUNI.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S JUNIPER ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1

* C (SOUTH SECTION)

COMPUTE NM HYD

ID=1 HYD NO= C DA=0.00742 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 23.489 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .005936 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 3.9559 CFS UNIT VOLUME = .9970 B = 354.54 P60 = 1.9000
AREA = .001484 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	19.2	3.000	.2	4.500	.1	6.000	.1
.167	.0	1.667	9.8	3.167	.1	4.667	.1	6.167	.0
.333	.0	1.833	6.2	3.333	.1	4.833	.1	6.333	.0
.500	.0	2.000	4.4	3.500	.1	5.000	.1	6.500	.0
.667	.0	2.167	2.0	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	.9	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.6	4.000	.1	5.500	.1		
1.167	.0	2.667	.4	4.167	.1	5.667	.1		
1.333	5.2	2.833	.3	4.333	.1	5.833	.1		

RUNOFF VOLUME = 1.74787 INCHES = .6917 ACRE-Feet
PEAK DISCHARGE RATE = 19.25 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

* F

COMPUTE NM HYD

ID=3 HYD NO= F DA=0.0027 SQ MI
PER A=0 PER B=5 PER C=5
PER D=90 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8373 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .002430 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .73635 CFS UNIT VOLUME = .9827 B = 354.54 P60 = 1.9000
AREA = .000270 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA F

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.2	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	7.4	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	2.4	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	1.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.8	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.4	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.86202 INCHES = .2681 ACRE-Feet
PEAK DISCHARGE RATE = 7.43 CFS AT 1.500 HOURS BASIN AREA = .0027 SQ. MI.

* J

COMPUTE NM HYD

ID=4 HYD NO= J DA=.0108 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 34.977 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 1.9000
AREA = .008640 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 5.8908 CFS UNIT VOLUME = .9980 B = 354.54 P60 = 1.9000
AREA = .002160 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA J

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	28.3	3.000	.3	4.500	.1	6.000	.2
.167	.0	1.667	14.1	3.167	.2	4.667	.1	6.167	.1
.333	.0	1.833	8.9	3.333	.2	4.833	.1	6.333	.0
.500	.0	2.000	6.4	3.500	.2	5.000	.1	6.500	.0
.667	.0	2.167	2.8	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	1.3	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.8	4.000	.1	5.500	.1		
1.167	.0	2.667	.5	4.167	.1	5.667	.2		
1.333	7.9	2.833	.4	4.333	.1	5.833	.2		

RUNOFF VOLUME = 1.74786 INCHES = 1.0068 ACRE-FEET
PEAK DISCHARGE RATE = 28.32 CFS AT 1.500 HOURS BASIN AREA = .0108 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 12:21:45

Dos Caminos

Subdivision

5/7/97

ORIFICE CALCULATIONS

ASSUMPTIONS

- 1) Gate = 2' 1 1/2" x 6' 4 3/4" (double)
- 2) 45% of Gate is sound, 55% is actual opening
- 3) C = 0.6

a) $Q = CA\sqrt{2gh}$ USE 2 - DOUBLE GATES

$23.3 = (0.6 \times 55\% \text{ of } 2.125 \times 6.3958 \times 2) \sqrt{(2 \times 32.2) \times 4}$

$23.3 = (0.6 \times 7.4751 \times 2) \sqrt{64.4 \times 4}$
 $h = 0.1048'$

b) ASSUME ORIFICE IS 1/2 COVERED

$Q = CA\sqrt{2gh}$
 $h = 0.4191'$

DOS CAMINOS

ORIFICE CALCULATIONS

$$Q = C A \sqrt{2gh}$$

$$Q = (0.6)(.55\% \text{ of } 2.125 \times 6.3958) \sqrt{(2)(32.2)(0.67)}$$

$$Q = 29.46 \text{ CFS.}$$

FOR 47.6 CFS YOU NEED 2 CATCH BASINS
What is the depth?

WEIR CALCULATION

$$Q = C L H^{3/2}$$

$$Q = (0.6)(6.3958)(0.67)^{3/2}$$

$$Q = 4.12 \text{ CFS}$$



TEMPORARY ROADSIDE SWALE (ESTANCIA)

1. BASIN C (SOUTH SECTION) ASSUME EXISTING CONDITIONS

$$4.75 \text{ ACRES} = 0.00742 \text{ SQ. MI.}$$

A 40%

B 10%

C 20%

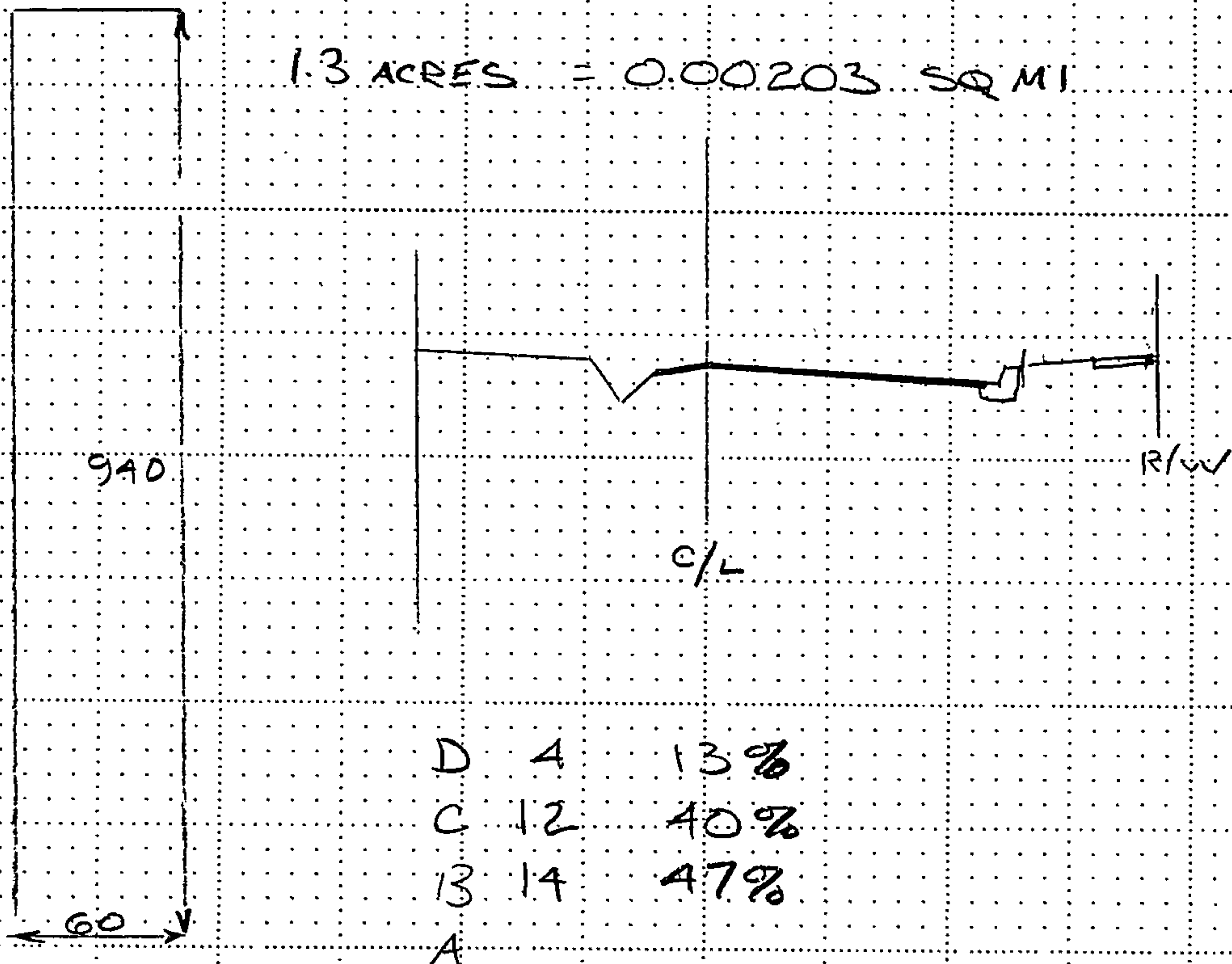
D 30%

$$\bar{T}_p = 0.133 \text{ HR}$$

$$Q_{100/6 \text{ HR}} = 12.4 \text{ CFS (FROM ANYMO)}$$

2. ESTANCIA R/W

$$1.3 \text{ ACRES} = 0.00203 \text{ SQ MI.}$$



D 4 13%

C 12 40%

B 14 47%

A

$$Q_{100/6 \text{ HR}} = 3.6 \text{ CFS (FROM ANYMO)}$$

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH B - CHANNEL BOTTOM WIDTH S - CHANNEL SLOPE
Q - FLOWRATE M - CHANNEL SIDE SLOPE N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y,Q,B,M,S OR N) ? Y

Q (CFS) ? 16
B (FT) ? 0
M (FT/FT) ? 3
S (FT/FT) ? .005
N (FT^{1/6}) ? .03

RESULTS

Y= 1.41 FT
A= 5.97 SF
P= 8.92 FT
V= 2.68 FPS
F= 0.56 SUB-CRITICAL FLOW

<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

RUN DATE (MON/DAY/YR) =11/07/1996
USER NO.= BRASHERE.101

		FROM	TO			PEAK	RUNOFF			CFS	PAGE = 1
COMMAND	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	PER ACRE	NOTATION	
*S	DOS CAMINOS (6079JUNI.DAT)										
*S	100-YEAR 6 HOUR RAINFALL										
*S	JUNIPER ROAD OUTFALL										
START											
RAINFALL	TYPE= 1									TIME=	.00
SEDIMENT	BULK									RAIN6=	2.210
COMPUTE NM HYD	1.00	-	1	.00742	12.36	.404	1.01983	1.500	2.602	PK BF =	1.00
COMPUTE NM HYD	2.00	-	2	.00203	3.55	.106	.97619	1.500	2.731	PER IMP=	30.00
FINISH										PER IMP=	13.33

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/07/1996
START TIME (HR:MIN:SEC) = 15:48:58 USER NO.= BRASHERE.I01
INPUT FILE = 6079a.dat

*S DOS CAMINOS (6079JUNI.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S JUNIPER ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1

* C (SOUTH SECTION)

COMPUTE NM HYD

ID=1 HYD NO= 1 DA=0.00742 SQ MI
PER A=40 PER B=10 PER C=20
PER D=30 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.8082 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.9000
AREA = .002226 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141806HR TP = .133000HR K/TP RATIO = 1.066211 SHAPE CONSTANT, N = 3.312254
UNIT PEAK = 11.964 CFS UNIT VOLUME = .9989 B = 306.36 P60 = 1.9000
AREA = .005194 SQ MI IA = .54286 INCHES INF = 1.37000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

OUTFLOW HYDROGRAPH REACH 1.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.667	.2	4.000	.0	5.333	.0
.167	.0	1.500	12.4	2.833	.2	4.167	.0	5.500	.0
.333	.0	1.667	6.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	3.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.1	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.1	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.6	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.4	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.01983 INCHES = .4036 ACRE-Feet
PEAK DISCHARGE RATE = 12.36 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*ESTANCIA R/W
COMPUTE NM HYD

ID=2 HYD NO= 2 DA=0.00203 SQ MI
PER A=0 PER B=14 PER C=12
PER D=4 TP=0.133HR MASSRAIN=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR TOTAL AREA

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.0710 CFS UNIT VOLUME = .9883 B = 526.28 P60 = 1.9000
AREA = .000271 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119159HR TP = .133000HR K/TP RATIO = .895929 SHAPE CONSTANT, N = 3.956882
UNIT PEAK = 4.6601 CFS UNIT VOLUME = .9975 B = 352.29 P60 = 1.9000
AREA = .001759 SQ MI IA = .43077 INCHES INF = 1.05615 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

OUTFLOW HYDROGRAPH REACH 2.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.3	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	3.5	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.9	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.2	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0		
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = .97619 INCHES = .1057 ACRE-Feet
PEAK DISCHARGE RATE = 3.55 CFS AT 1.500 HOURS BASIN AREA = .0020 SQ. MI.

*
*
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:48:59

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/08/1996
START TIME (HR:MIN:SEC) = 15:39:52 USER NO.= BRASHERE.I01
INPUT FILE = 6079SITE.DAT

*S DOS CAMINOS (6079MIAM.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S MIAMI ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1
* 1 LOTS ON JUNIPER
COMPUTE NM HYD ID=1 HYD NO= 1 DA=0.0005 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.4169 CFS UNIT VOLUME = .9926 B = 526.28 P60 = 1.9000
AREA = .000350 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .40908 CFS UNIT VOLUME = .9690 B = 354.54 P60 = 1.9000
AREA = .000150 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

TIME		FLOW		TIME		FLOW		TIME		FLOW	
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.333	.3	2.667	.0	4.000	.0	5.333	.0		
.167	.0	1.500	1.3	2.833	.0	4.167	.0	5.500	.0		
.333	.0	1.667	.6	3.000	.0	4.333	.0	5.667	.0		
.500	.0	1.833	.4	3.167	.0	4.500	.0	5.833	.0		
.667	.0	2.000	.3	3.333	.0	4.667	.0	6.000	.0		
.833	.0	2.167	.1	3.500	.0	4.833	.0	6.167	.0		
1.000	.0	2.333	.0	3.667	.0	5.000	.0				
1.167	.0	2.500	.0	3.833	.0	5.167	.0				

RUNOFF VOLUME = 1.63371 INCHES = .0436 ACRE-FEET
PEAK DISCHARGE RATE = 1.26 CFS AT 1.500 HOURS BASIN AREA = .0005 SQ. MI.

* 2 ESTANCIA DRIVE (DRAINING SOUTH)
COMPUTE NM HYD ID=2 HYD NO= 2 DA=0.0019 SQ MI
PER A=0 PER B=5 PER C=5
PER D=90 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.7664 CFS UNIT VOLUME = .9977 B = 526.28 P60 = 1.9000
AREA = .001710 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .50648 CFS UNIT VOLUME = .9729 B = 354.54 P60 = 1.9000
AREA = .000190 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

TIME		FLOW		TIME		FLOW		TIME		FLOW	
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.333	1.5	2.667	.1	4.000	.0	5.333	.0		
.167	.0	1.500	5.2	2.833	.1	4.167	.0	5.500	.0		
.333	.0	1.667	2.6	3.000	.0	4.333	.0	5.667	.0		
.500	.0	1.833	1.7	3.167	.0	4.500	.0	5.833	.0		
.667	.0	2.000	1.2	3.333	.0	4.667	.0	6.000	.0		
.833	.0	2.167	.6	3.500	.0	4.833	.0	6.167	.0		
1.000	.0	2.333	.3	3.667	.0	5.000	.0	6.333	.0		
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0		

RUNOFF VOLUME = 1.86202 INCHES = .1887 ACRE-FEET
PEAK DISCHARGE RATE = 5.18 CFS AT 1.500 HOURS BASIN AREA = .0019 SQ. MI.

* 3 LOTS ON ESTANCIA
COMPUTE NM HYD ID=3 HYD NO= 3 DA=0.0023 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.2626 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.9000
AREA = .001840 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118512HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.2232 CFS UNIT VOLUME = .9896 B = 354.54 P60 = 1.9000
AREA = .000460 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=3 CODE=5

OUTFLOW HYDROGRAPH REACH 3.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.6	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	6.0	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.0	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	1.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	1.4	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.6	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.3	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.74787 INCHES = .2144 ACRE-FEET
PEAK DISCHARGE RATE = 5.97 CFS AT 1.500 HOURS BASIN AREA = .0023 SQ. MI.

* 4 SOUTH INTERIOR STREET

COMPUTE NM HYD ID=4 HYD NO= 4 DA=.0028 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.8414 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.9000
AREA = .002240 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118513HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.4891 CFS UNIT VOLUME = .9914 B = 354.54 P60 = 1.9000
AREA = .000560 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=4 CODE=5

OUTFLOW HYDROGRAPH REACH 4.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	7.3	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	2.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	1.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.8	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.4	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.74787 INCHES = .2610 ACRE-FEET
PEAK DISCHARGE RATE = 7.26 CFS AT 1.500 HOURS BASIN AREA = .0028 SQ. MI.

* 5 EAST INTERIOR STREET (SOUTH END)

COMPUTE NM HYD ID=5 HYD NO= 5 DA=0.00326 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.294 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.9000
AREA = .002608 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118513HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.7337 CFS UNIT VOLUME = .9930 B = 354.54 P60 = 1.9000
AREA = .000652 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=5 CODE=5

OUTFLOW HYDROGRAPH REACH 5.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	8.5	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	4.3	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	2.7	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	1.9	3.500	.0	5.000	.0	6.500	.0
.667	.0	2.167	.9	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.4	3.833	.0	5.333	.0		
1.000	.0	2.500	.3	4.000	.0	5.500	.0		
1.167	.0	2.667	.2	4.167	.0	5.667	.0		
1.333	2.3	2.833	.1	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.74787 INCHES = .3039 ACRE-FEET
PEAK DISCHARGE RATE = 8.45 CFS AT 1.500 HOURS BASIN AREA = .0033 SQ. MI.

* 6 ESTANCIA DRIVE (DRAINING NORTH)

COMPUTE NM HYD ID=6 HYD NO= 6 DA=0.0003 SQ MI
PER A=0 PER B=0 PER C=20
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = .94730 CFS UNIT VOLUME = .9881 B = 526.28 P60 = 1.9000
AREA = .000240 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .106231HR TP = .133333HR K/TP RATIO = .796738 SHAPE CONSTANT, N = 4.498737
UNIT PEAK = .17422 CFS UNIT VOLUME = .9290 B = 387.15 P60 = 1.9000
AREA = .000060 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=6 CODE=5

OUTFLOW HYDROGRAPH REACH 6.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.2	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	.8	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.4	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.3	3.167	.0	4.500	.0	5.833	.0

.667 .0 2.000 .2 3.333 .0 4.833 .0 6.167 .0
.833 .0 2.167 .1 3.500 .0 5.000 .0
1.000 .0 2.333 .0 3.667 .0 5.167 .0
1.167 .0 2.500 .0 3.833 .0 5.167 .0

RUNOFF VOLUME = 1.78409 INCHES = .0285 ACRE-FEET
PEAK DISCHARGE RATE = .81 CFS AT 1.500 HOURS BASIN AREA = .0003 SQ. MI.

* 7 6 LOTS ON MIAMI
COMPUTE NM HYD ID=7 HYD NO= 7 DA=0.0010 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=0.13333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.7630 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.9000
AREA = .000700 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118512HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .79771 CFS UNIT VOLUME = .9831 B = 354.54 P60 = 1.9000
AREA = .000300 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=7 CODE=5

OUTFLOW HYDROGRAPH REACH 7.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.6	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	2.5	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.3	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.8	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.2	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.63371 INCHES = .0871 ACRE-FEET
PEAK DISCHARGE RATE = 2.48 CFS AT 1.500 HOURS BASIN AREA = .0010 SQ. MI.

* 8 EAST INTERIOR STREET (NORTH END)
COMPUTE NM HYD ID=8 HYD NO= 8 DA=.00358 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.145 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .002506 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 2.9290 CFS UNIT VOLUME = .9957 B = 354.54 P60 = 1.9000
AREA = .001074 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=8 CODE=5

OUTFLOW HYDROGRAPH REACH 8.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	8.9	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	4.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	2.7	3.333	.0	4.833	.0	6.333	.0
.500	.0	2.000	1.9	3.500	.0	5.000	.0	6.500	.0
.667	.0	2.167	.9	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.4	3.833	.0	5.333	.0		
1.000	.0	2.500	.3	4.000	.0	5.500	.0		
1.167	.0	2.667	.2	4.167	.0	5.667	.0		
1.333	2.3	2.833	.1	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.63371 INCHES = .3119 ACRE-FEET
PEAK DISCHARGE RATE = 8.95 CFS AT 1.500 HOURS BASIN AREA = .0036 SQ. MI.

* 9 MIAMI ROAD
COMPUTE NM HYD ID=9 HYD NO= 9 DA=.0011 SQ MI
PER A=0 PER B=0 PER C=20
PER D=80 TP=.1333HR MASSRAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.4743 CFS UNIT VOLUME = .9961 B = 526.28 P60 = 1.9000
AREA = .000880 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .106205HR TP = .133300HR K/TP RATIO = .796738 SHAPE CONSTANT, N = 4.498737
UNIT PEAK = .63895 CFS UNIT VOLUME = .9801 B = 387.15 P60 = 1.9000
AREA = .000220 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=5

OUTFLOW HYDROGRAPH REACH 9.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.8	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	2.9	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.5	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.3	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.78409 INCHES = .1047 ACRE-FEET
PEAK DISCHARGE RATE = 2.93 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

* 10 MIAMI ROAD
COMPUTE NM HYD ID=10 HYD NO= 10 DA=.0008 SQ MI
PER A=0 PER B=43 PER C=43
PER D=14 TP=.1333HR MASSRAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = .44218 CFS UNIT VOLUME = .9751 B = 526.28 P60 = 1.9000
AREA = .000112 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118483HR TP = .133300HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.8299 CFS UNIT VOLUME = .9930 B = 354.54 P60 = 1.9000
AREA = .000688 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=10 CODE=5

OUTFLOW HYDROGRAPH REACH 10.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.1	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	1.4	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.8	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.4	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.2	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.1	3.500	.0	4.833	.0		
1.000	.0	2.333	.1	3.667	.0	5.000	.0		
1.167	.0	2.500	.0	3.833	.0	5.167	.0		

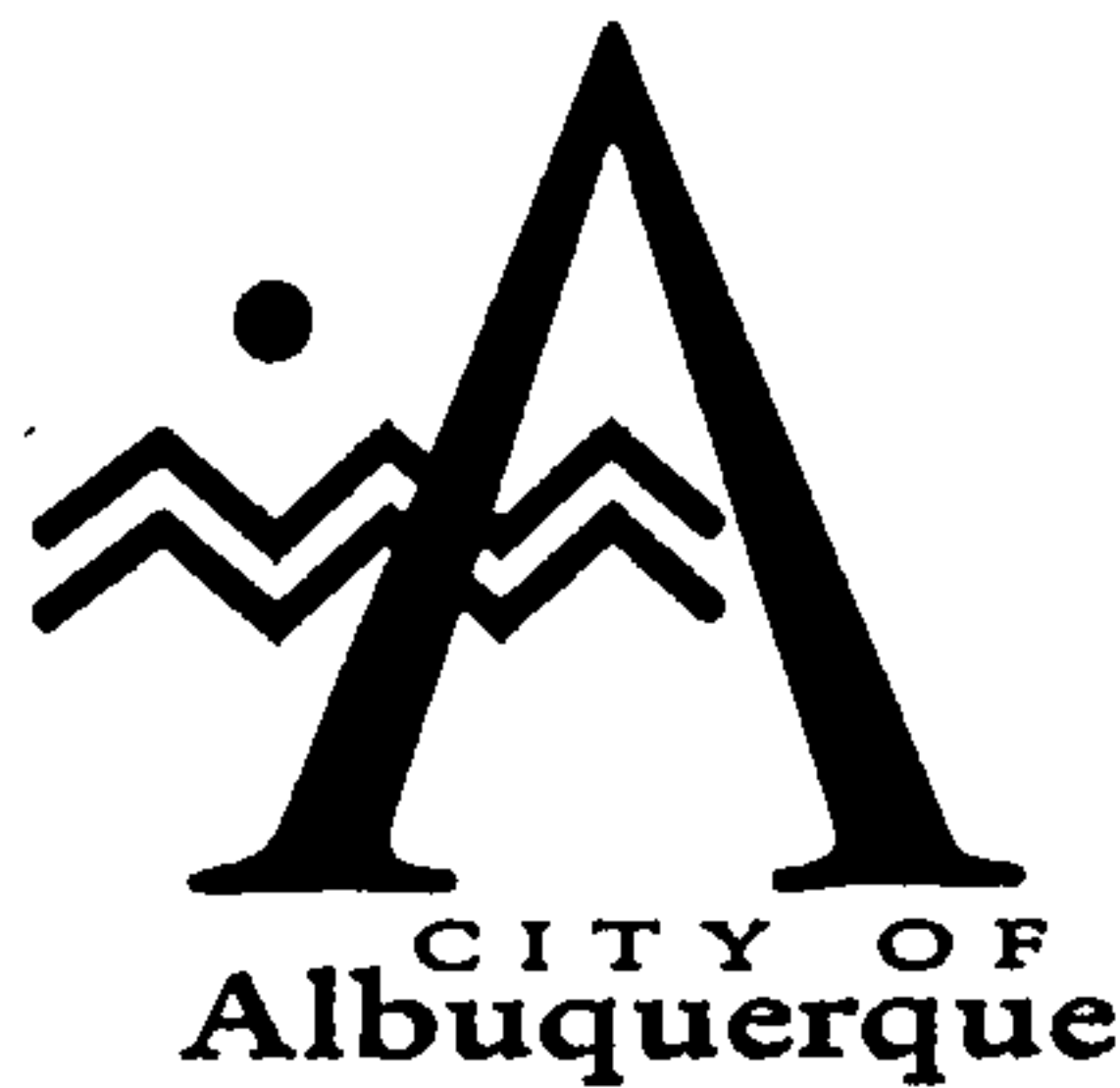
RUNOFF VOLUME = .99442 INCHES = .0424 ACRE-FEET
PEAK DISCHARGE RATE = 1.43 CFS AT 1.500 HOURS BASIN AREA = .0008 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:39:54

[illegible]



September 24, 1998

Bo K. Johnson, P.E.
Bokay Construction, Inc.
5905 Azuelo Ct. NW
Albuquerque, New Mexico 87120

***RE: Grading and Drainage Certification for Dos Caminos Subdivision (H11/D55),
Submitted for Release of Financial Guarantees, Engineer's Stamp Dated 9/1/98.***

Dear Mr. Johnson:

The above referenced plan is adequate to satisfy the Grading and Drainage Certification requirement per the Infrastructure List dated January 7, 1997 and revised on April 8, 1997, for the release of Financial Guarantees for Dos Caminos Subdivision.

The Letter of Map Revision (LOMR) issued by the Federal Emergency Management Agency on September 10, 1997 removed the FEMA floodplain from this site. This satisfies the LOMR requirement for the release of Financial Guarantees for this subdivision.

If you have any questions, or if I may be of further assistance to you, please call me at 924-3982.

Sincerely,

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

c: Terri Martin, Work Order #567681
File

Good for You, Albuquerque!



BRASHER & LORENZ, INC.
CONSULTING ENGINEERS

2201 SAN PEDRO NE BUILDING 1 SUITE 210 ALBUQUERQUE, NM 87110 PHONE (505) 888-6088 FAX (505) 888-6188

August 7, 1998

Fred Aguirre
City Engineer, Hydrology
Development and Builders Services Center
Plaza Del Sol
Public Works Department
Albuquerque, NM 87103

SUBJECT: DOS CAMINOS
Grading and Drainage Certification

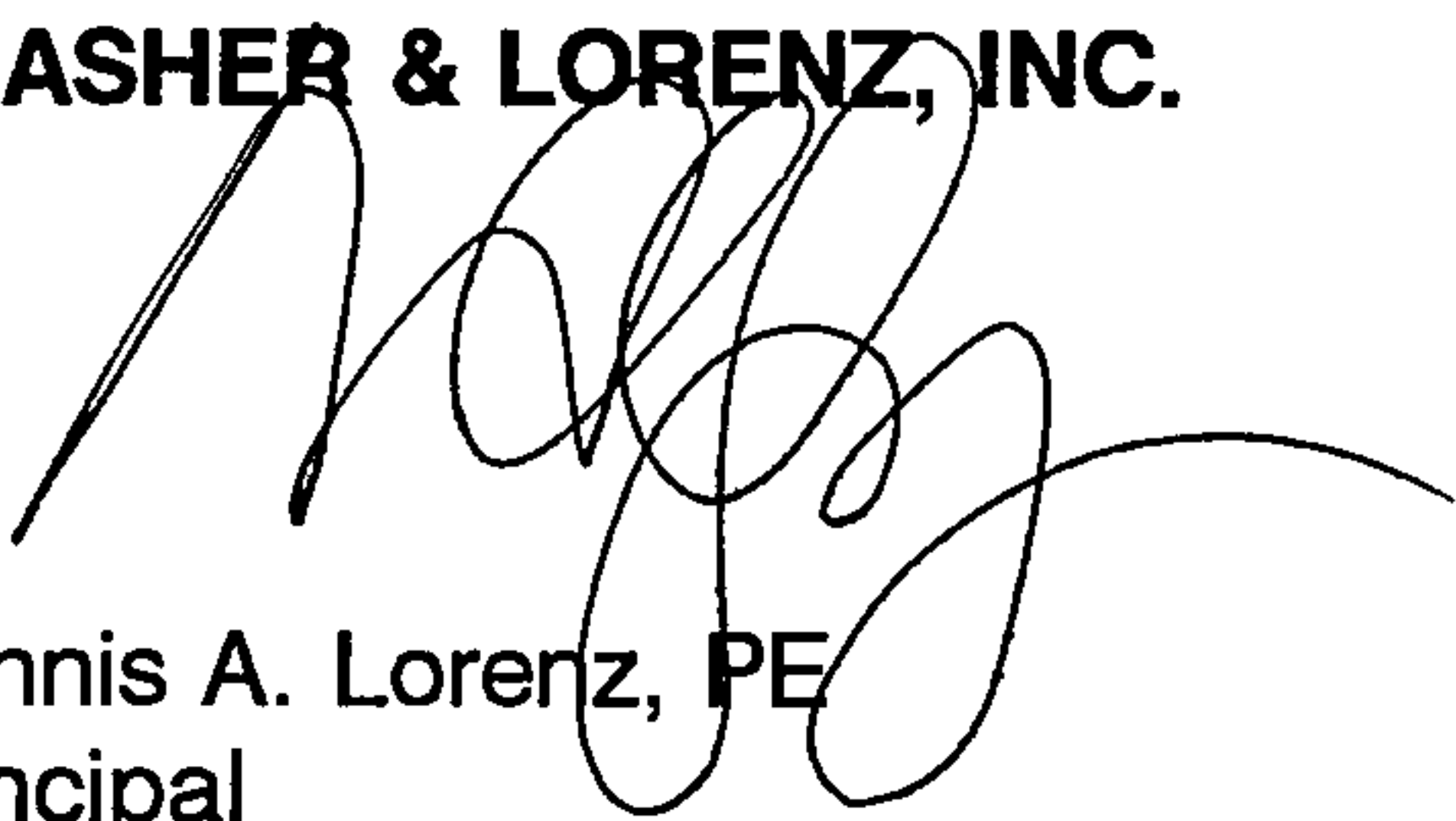
Dear Fred:

I hereby give permission to Bo Johnson, NMPE No. 5922, to prepare the Engineer's Grading and Drainage Certification for the subject project. Mr. Johnson will utilize the Grading and Drainage Plan, prepared by Brasher & Lorenz, Inc, stamped and dated December 24, 1996, by myself. Mr. Johnson will be responsible for all aspects of the certification, which will be submitted to you for approval and release of financial guaranty.

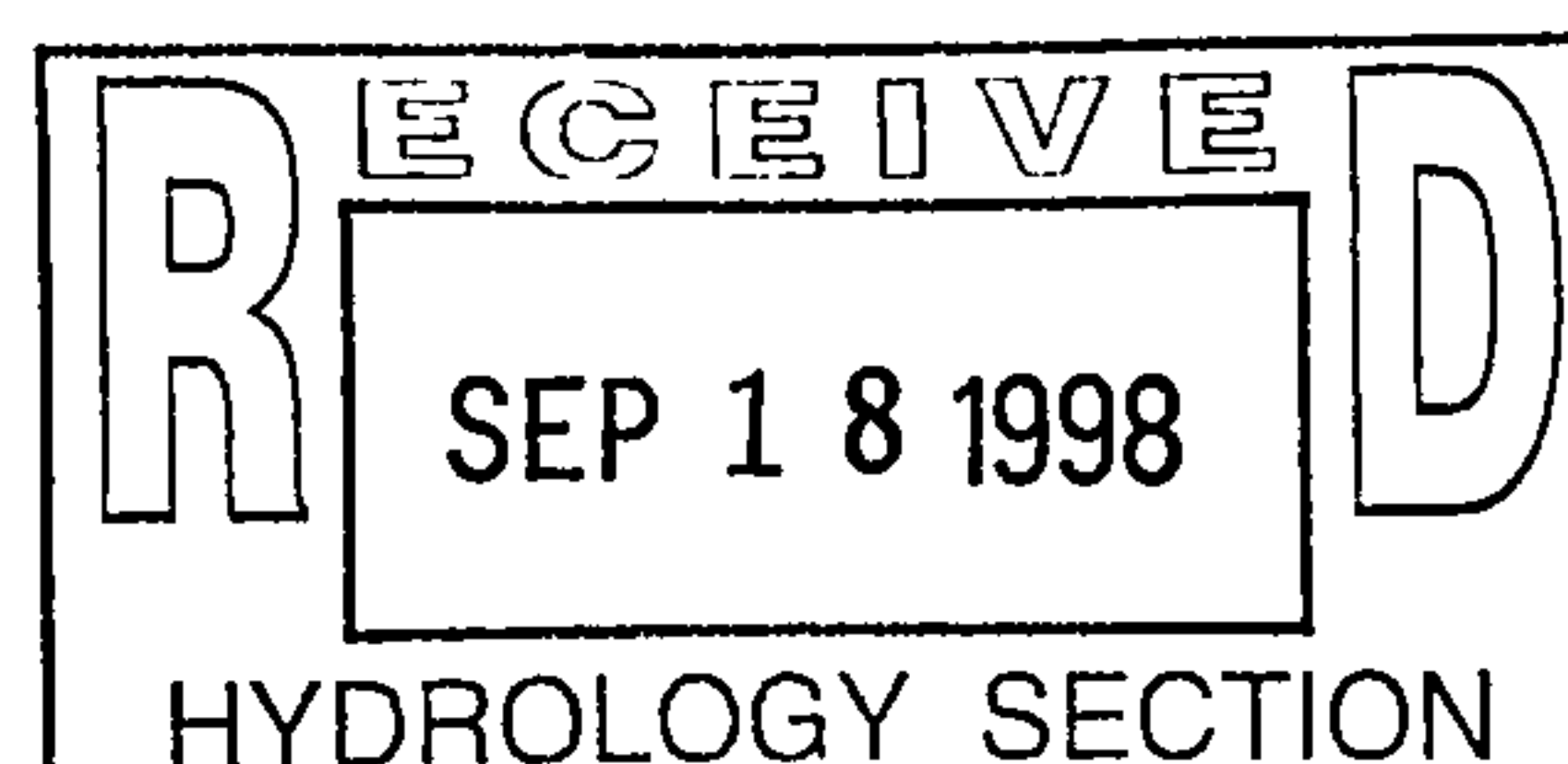
If you have any questions, please call.

Sincerely,

BRASHER & LORENZ, INC.


Dennis A. Lorenz, PE
Principal

dl/6079/cert



DRAINAGE INFORMATION SHEET

PROJECT TITLE: Dos Caminos ZONE ATLAS/DRNG. FILE #: H-11 0055
DRB #: 96-282 EPC #: WORK ORDER #: 567681
LEGAL DESCRIPTION: Dos Caminos subdivision
CITY ADDRESS: Estancia NW at Miami NW
ENGINEERING FIRM: Bokay Construction, Inc. CONTACT: Bo K. Johnson, PE
ADDRESS: 5905 Azuelo Ct. NW 87120 PHONE: 899-9656
OWNER: Curb, Inc. CONTACT: Bo K. Johnson, PE
ADDRESS: 6301 Indian Sch. Rd. NE Ste. 680 PHONE: 899-9656
ARCHITECT: CONTACT:
ADDRESS: PHONE:
SURVEYOR: Albuquerque Surveying Co. Inc. CONTACT: Vlad Jirik
ADDRESS: 2119 Menaul Blvd. NE PHONE: 884-2036
CONTRACTOR: CONTACT:
ADDRESS: PHONE:

TYPE OF SUBMITTAL:

 DRAINAGE REPORT
 DRAINAGE PLAN
 CONCEPTUAL GRADING & DRAINAGE PLAN
 GRADING PLAN
 EROSION CONTROL PLAN
XX ENGINEER'S CERTIFICATION
 OTHER

PRE-DESIGN MEETING:

 YES
 NO
 COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

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

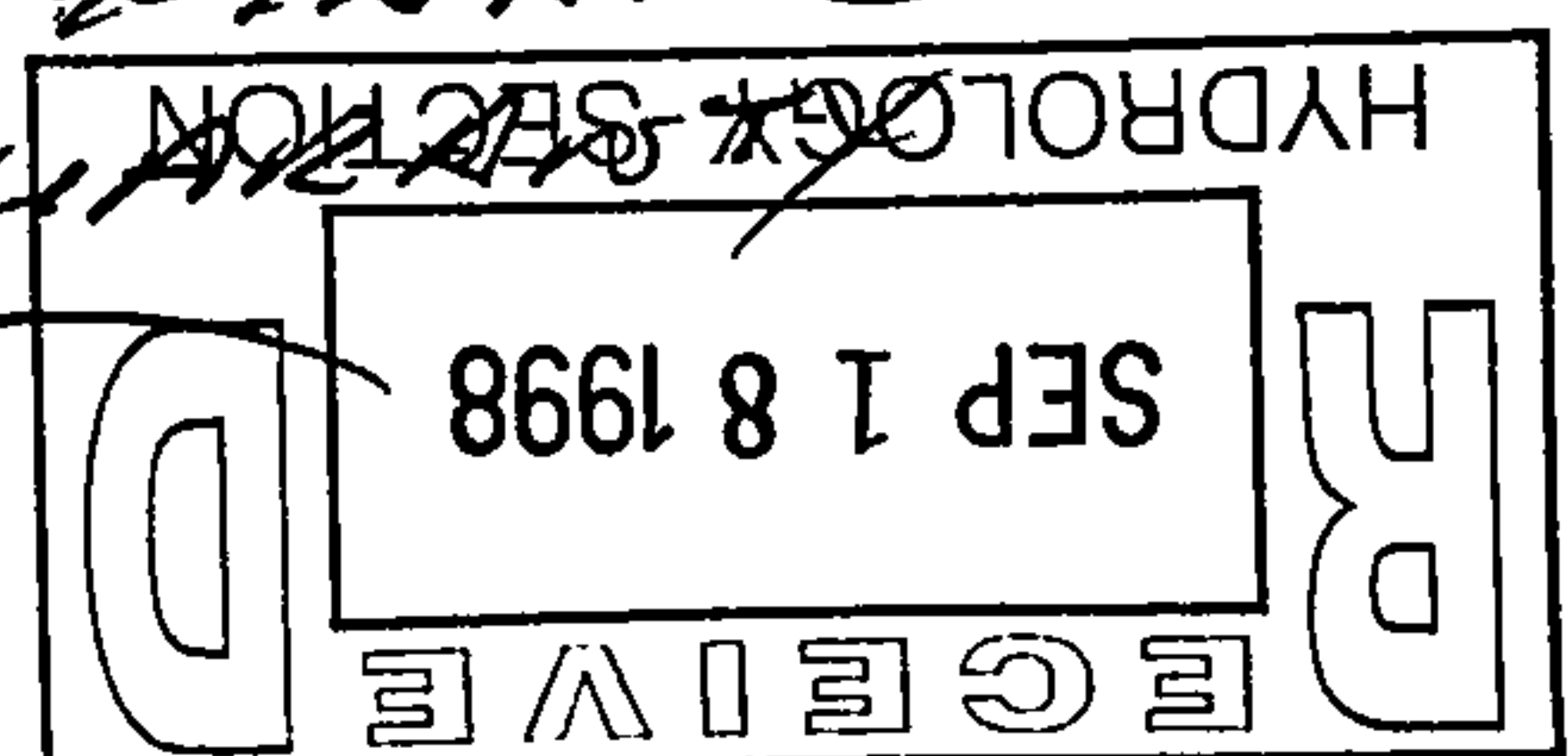
XX SUBDIVISION CERTIFICATION

XX OTHER FOR RELEASE (SPECIFY)

OF FINANCIAL
GUARANTEE

DATE SUBMITTED: 9-18-98

BY: Bo K. Johnson PE



DEVELOPMENT & BUILDING SERVICE CENTER
ONE STOP

600 SECOND ST. N.W./2ND FLOOR
ATTENTION: Mitch Reynolds
505-924-3900

Records Withdrawal Form

Project No. 111 055

Date: 2/7/01

Project Title: Camino's Subdivision

- ☒ a. File b. Mylars c. Redlines/Comments
d. Other _____

Requested By: Scott Armstrong
Bhannon Hester Phone No.: 798 7832

Company
Comments: Please copy material bound by rubber
band in front of file.

① 9/24/88 letter & attachments ③ Dec. 1996 Drainage Report (w/attachments)
② 7/4/98 letter

Anticipated Return Date: 2/8/01

Receipt Acknowledged

I here by accept full responsibility for the security of the above noted records/plans until return receipt acknowledgement is completed. Records/plans will be returned to the Development & Building Services Center on or before the indicated anticipated return date.

Delivery Picked Up By:

Name: _____
Print

Organization: _____

Signed: _____
Phone No. _____

Date: _____

Office Use Only

Return Acknowledged

Received by: [Signature] Date: _____
Print

EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
DOS CAMINOS SUBDIVISION

DRB Case No.: 96-282
DRC Project No.: _____
Prelim. Plat Approved: _____
Prelim. Plat Expires: _____
Site Plan Approved: _____
Date Submitted: 1-7-97
Rev. 4-8-97

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County, and/or AMAFCA determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider's responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City, County, and/or AMAFCA.

<u>SIZE</u>	<u>IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>4'</u>	<u>SIDEWALK (E. SIDE)*</u>	<u>ESTANCIA</u>	<u>MIAMI</u>	<u>JUNIPER</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)*</u>	<u>CAMINO QUIETO</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)*</u>	<u>CAMINO CORTO</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)*</u>	<u>CAMINO DE LA LUNA</u>	<u>ESTANCIA</u>	<u>CAMINO CONTENTO</u>
<u>4'</u>	<u>SIDEWALK (S. SIDE)*</u>	<u>MIAMI</u>	<u>ESTANCIA</u>	<u>E. SUB'D. BOUND.</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)*</u>	<u>CAMINO CONTENTO</u>	<u>MIAMI</u>	<u>CAMINO DE LA LUNA</u>
<u>24' 20' FC/EP</u>	<u>PVM'T, C&G (EAST SIDE)</u>	<u>ESTANCIA</u>	<u>MIAMI</u>	<u>JUNIPER</u>
<u>20' 4' 4' tenor</u>	<u>PVM'T, C & G</u>	<u>CAMINO QUIETO</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>22' FC/FC</u>				

Signed By: Bo K. Johnson
Print Name: Bo K. Johnson, P.E.
Firm: Bokay Construction, Inc.

* DEFERRED PER SIDEWALK VARIANCE (DEFERRAL)
(SU-97-2)

EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
DOS CAMINOS SUBDIVISION

DRB Case No.: 96-282
 DRC Project No.: _____
 Prelim. Plat Approved: _____
 Prelim. Plat Expires: _____
 Site Plan Approved: _____
 Date Submitted: 1-7-97

PRELIMINARY Plat Approval

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County, and/or AMAFCA determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider's responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City, County, and/or AMAFCA.

SIZE	IMPROVEMENT	LOCATION	FROM	TO
	RESIDENTIAL STREETLIGHTS PER D.P.M.			
22' F/F1 *	PVM'T, C & G <i>yes</i>	CAMINO CORTO	ESTANCIA	E. TERMINUS
28' F/F2 *	PVM'T, C & G <i>yes</i>	CAMINO DE LA LUNA	ESTANCIA	CAMINO CONTENTO
28' F/F3 *	PVM'T, C & G	CAMINO CONTENTO	MIAMI	CAMINO DE LA LUNA
24' 20' FC/EP	PVM'T, C & G	MIAMI (S.SIDE)	ESTANCIA	E. SUB'D BOUND.
22' (20) FC/EP	PVM'T, C & G	JUNIPER (N.SIDE)	ESTANCIA	E. SUB'D BOUND.
30" 36"	<i>both sides</i> STORM DRAIN *	JUNIPER	W. PL LOT 1	BOX CULV. @ I-40

Signed By: *Bo K. Johnson*
 Print Name: Bo K. Johnson, P.E.
 Firm: Bokay Construction, Inc.

* 18" + 24" STORM DRAINS @ JUNIPER SYSTEM
 * ASSOC. MH'S + CATCH BASINS IN JUNIPER SYSTEM
 * 1, 2, 3 both sides

EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
DOS CAMINOS SUBDIVISION

DRB Case No.: 96-282
DRC Project No.: _____
Prelim. Plat Approved: _____
Prelim. Plat Expires: _____
Site Plan Approved: _____
Date Submitted: 1-7-97

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County, and/or AMAFCA determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider's responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City, County, and/or AMAFCA.

<u>SIZE</u>	<u>IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>ESTANCIA</u>	<u>CAMINO QUIETO</u>	<u>JUNIPER</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>CAMINO QUIETO</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>CAMINO CORTO</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>CAMINO DE LA LUNA</u>	<u>ESTANCIA</u>	<u>CAMINO CONTENTO</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>CAMINO CONTENTO</u>	<u>MIAMI</u>	<u>CAMINO DE LA LUNA</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>JUNIPER</u>	<u>ESTANCIA</u>	<u>W. APPROX. 440'</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>JUNIPER</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>

Signed By: B. K. Johnson
Print Name: Bo K. Johnson, P.E.
Firm: Bokay Construction, Inc.

EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
DOS CAMINOS SUBDIVISION

DRB Case No.: 96-282
DRC Project No.: _____
Prelim. Plat Approved: _____
Prelim. Plat Expires: _____
Site Plan Approved: _____
Date Submitted: 1-7-97

Following is a summary of PUBLIC/PRIVATE Infrastructure required to be constructed or financially guaranteed for the above development. This summary is not necessarily a complete listing. During CPC, BCC, the design process and/or in the preparation of the construction drawings, if the City, County, and/or AMAFCA determines that appurtenant items have not been included in the summary, those items will be included in the listing and related financial guarantee, if the items normally are the Subdivider's responsibility. In addition, any unforeseen items which arise during construction which are necessary to complete the project and which normally are the Subdivider's responsibility are the responsibility of the Subdivider and will be included in the financial guarantee provided to the City, County, and/or AMAFCA.

<u>SIZE</u>	<u>IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>10"</u>	<u>WATERLINE</u>	<u>ESTANCIA</u>	<u>MIAMI</u>	<u>JUNIPER</u>
<u>4"</u>	<u>WATERLINE</u>	<u>CAMINO QUIETO</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>4"</u>	<u>WATERLINE</u>	<u>CAMINO CORTO</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>6"</u>	<u>WATERLINE</u>	<u>CAMINO DE LA LUNA</u>	<u>ESTANCIA</u>	<u>CAMINO CONTENTO</u>
<u>6"</u>	<u>WATERLINE</u>	<u>CAMINO CONTENTO</u>	<u>MIAMI</u>	<u>CAMINO DE LA LU</u>
<u>4"</u>	<u>WATERLINE</u>	<u>JUNIPER</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
	~~PUBLIC STREET~~			
	~~TEMPORARY SURFACE DRAINAGE~~			
	~~IMPROVEMENTS~~	<u>MIAMI</u>	<u>E. SUB'D BOUND</u>	<u>CHLV @ I-40</u>
	~~# OF INLETS TO BOX @ I-40 TO BE DETERMINED AT DRG~~			

NOTE #1: L.O.M.R. REQUIRED PRIOR TO FINAL RELEASE OF FINANCIAL GUARANTEE.

NOTE #2: GRADING AND DRAINAGE CERTIFICATION MUST BE ACCEPTED PRIOR TO
Signed By: [Signature] RELEASE OF
Print Name: Bo K. Johnson, P.E. FINANCIAL
Firm: Bokay Construction, Inc. GUARANTEES.

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

[Signature] 4-08-97 [Signature] 4-8-97 [Signature] 4-8-97
Traffic Date Utility Dev. Date Parks & G.S. Date
[Signature] 1-07-97 Robert W. Kane 1-7-97 [Signature] 1-7-97
City Engineer Date AMAFCA Date DRB Chairman Date
BCPWD DRE Date BCPWD DRAN Date

DRAINAGE INFORMATION SHEET

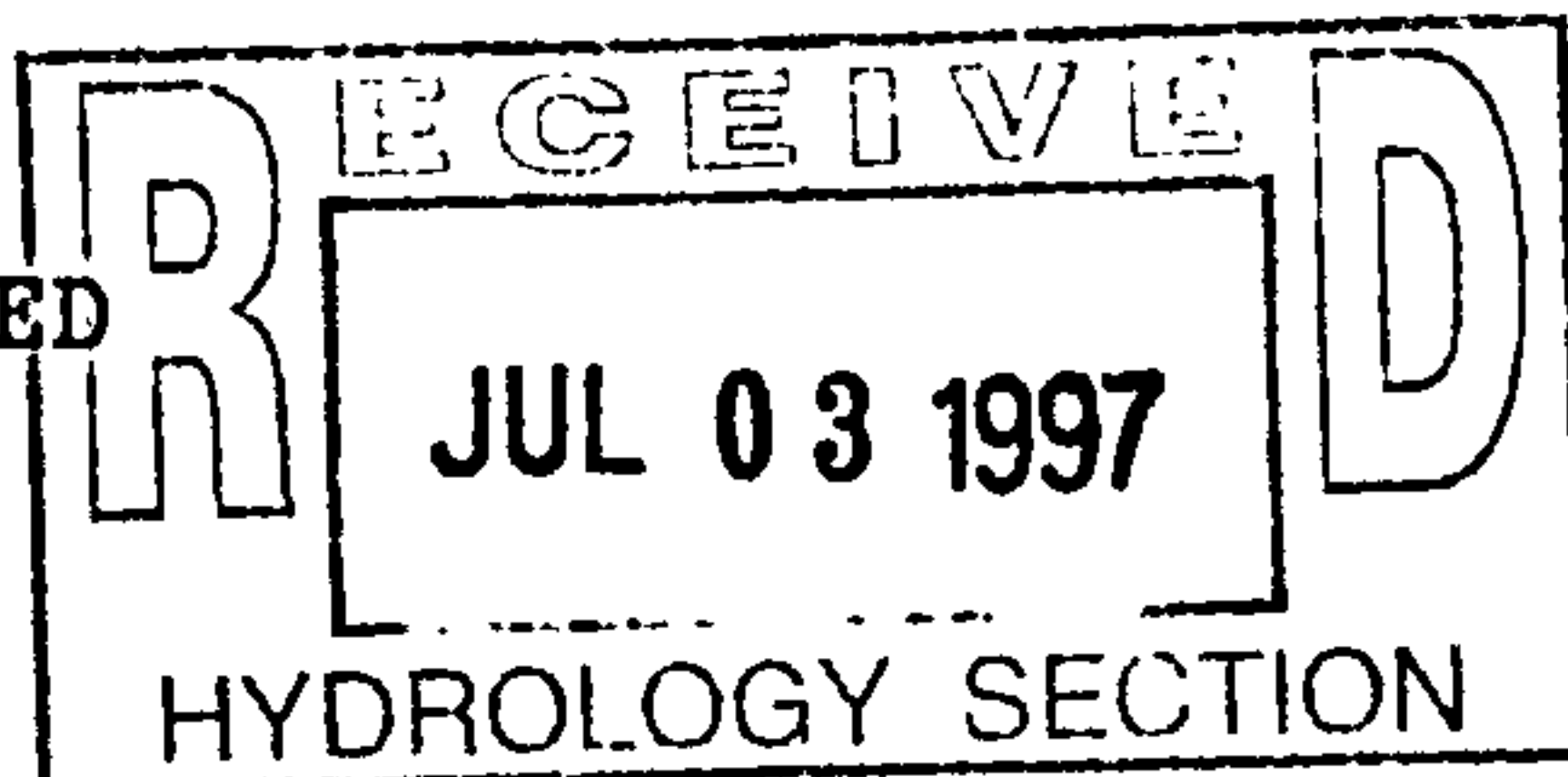
PROJECT TITLE: Dos Caminos ZONE ATLAS/DRNG. FILE #: H-11/D55
 DRB #: 96-282 EPC #: _____ WORK ORDER #: _____
 LEGAL DESCRIPTION: LOTS 311 & 312, UNIT 8, TOWN OF ATRISCO GRANT
 CITY ADDRESS: MIAMI - ESTANCIA N.W.
 ENGINEERING FIRM: BRASHER/LORENZ - BOKEY CONTACT: DENNIS LORENZ
 ADDRESS: 2201 SW PEDRO NE. PHONE: _____
 OWNER: CURB, INC. CONTACT: _____
 ADDRESS: _____ PHONE: _____
 ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

____ DRAINAGE REPORT
 ____ DRAINAGE PLAN
 ____ CONCEPTUAL GRADING & DRAINAGE PLAN
☒ GRADING PLAN
 ____ EROSION CONTROL PLAN
 ____ ENGINEER'S CERTIFICATION
☒ OTHER AMENDED GRADING

PRE-DESIGN MEETING:

____ YES
 ____ NO
 ____ COPY PROVIDED



CHECK TYPE OF APPROVAL SOUGHT:

____ SKETCH PLAT APPROVAL
☒ PRELIMINARY PLAT APPROVAL
 ____ S. DEV. PLAN FOR SUB'D. APPROVAL
 ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
 ____ SECTOR PLAN APPROVAL
☒ FINAL PLAT APPROVAL
 ____ FOUNDATION PERMIT APPROVAL
 ____ BUILDING PERMIT APPROVAL
 ____ CERTIFICATE OF OCCUPANCY APPROVAL
 ____ GRADING PERMIT APPROVAL
 ____ PAVING PERMIT APPROVAL
 ____ S.A.D. DRAINAGE REPORT
 ____ DRAINAGE REQUIREMENTS
 ____ SUBDIVISION CERTIFICATION
 ____ OTHER _____ (SPECIFY)

DATE SUBMITTED: 7/3/97

BY: [Signature]

DRAINAGE REPORT
FOR
DOS CAMINOS SUBDIVISION
Albuquerque, New Mexico

Prepared by:
BRASHER & LORENZ, INC.
Consulting Engineers
2201 San Pedro NE Building 1, Suite 210
Albuquerque, New Mexico 87110

December 1996

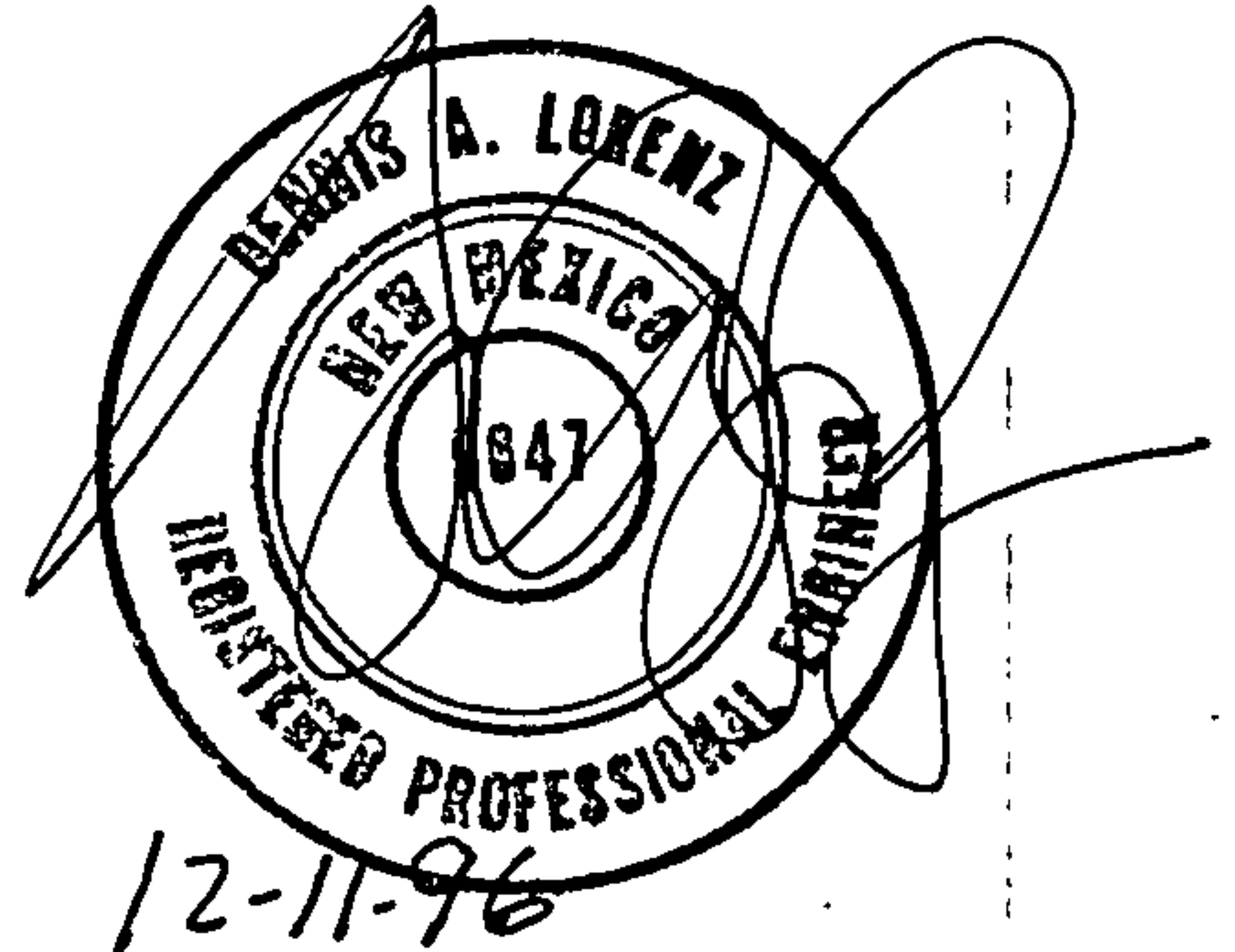
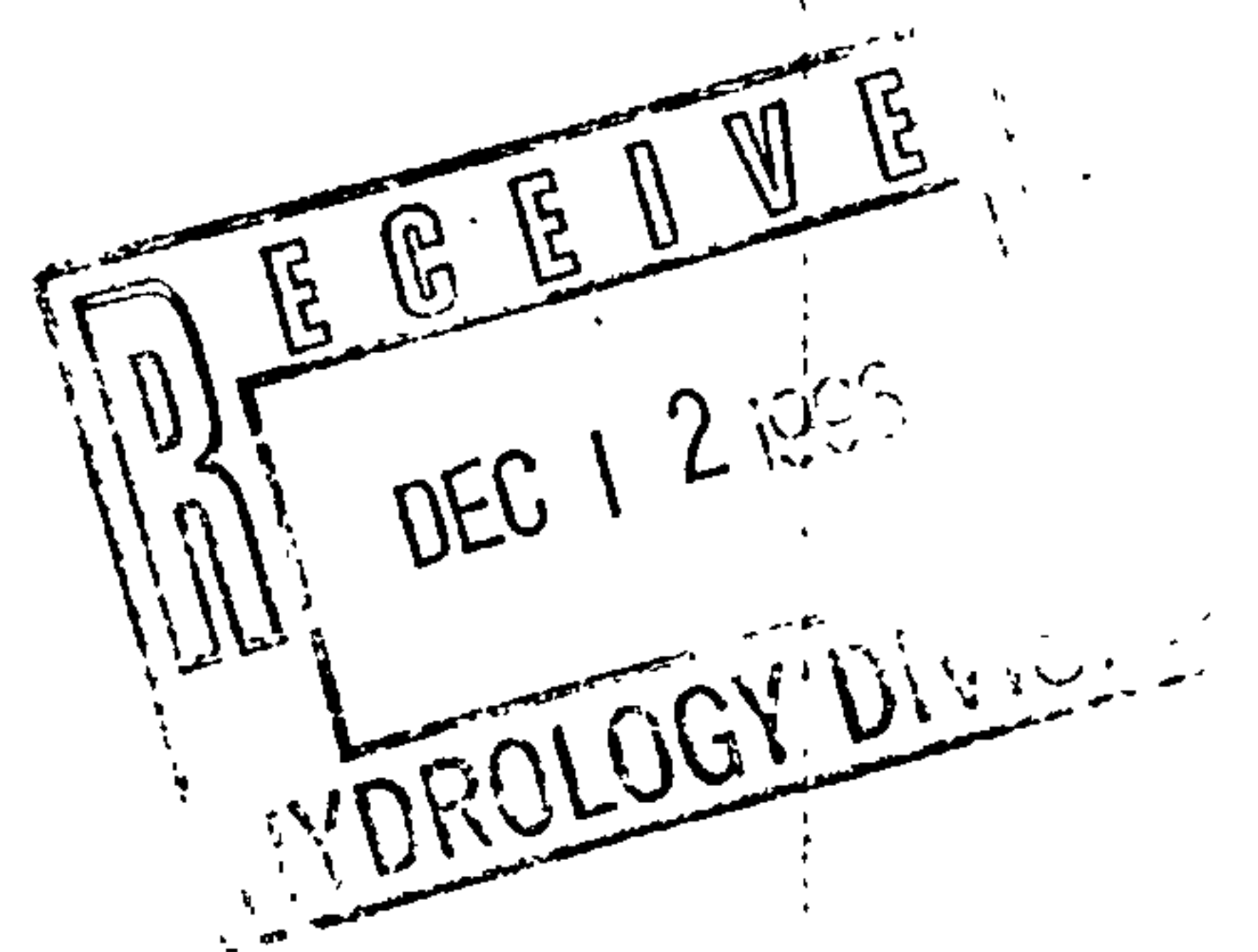


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TITLE	PAGE NO.
MAPS	APPENDIX
CALCULATIONS	APPENDIX
GRADING AND DRAINAGE MASTER PLAN	POCKET

PURPOSE AND SCOPE

Pursuant to the established Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Drainage Report outlines the drainage management criteria for controlling developed runoff from the project site. The property is to be developed as Dos Caminos Subdivision, a 7~~0~~ lot residential subdivision, with associated paving, landscaping, utility, grading and drainage improvements. The scope of this plan is to provide drainage criteria for the safe management of excess runoff, and design detail for the construction of the required grading, paving and drainage improvements.

EXISTING CONDITIONS

The project site is approximately 9.2 acres and is located northwest of the I-40-Coors Rd. interchange. It is bounded by Miami Road on the north, Juniper Road on the south, Estancia Drive on the west and an undeveloped tract to the east. Presently the site is undeveloped. The site is sparsely vegetated with native grasses and shrubs.

The site is the west half of an undrained playa that drains tracts from the north and west. These offsite flows cross the existing pavement on Estancia Drive and Miami Road to enter the site. Most of the site lies in a FEMA designated 100 year flood zone with a base flood elevation of 5195. Most of the site drains from west to east at a 1 percent slope. The north quarter of the site drains from north to south at a 2 percent slope. Elevations are about 5196 along the north and west tract lines. The site slopes gently to undrained depressions along the east tract line. These depressions have elevations of about 5191.

Adjacent properties that are drained by the subject site:

(See "Existing Conditions" map)

1. **Basin A:** 35 (approx.) acre undeveloped basin roughly bounded by Estancia Drive, Juniper Road, 64th. Street and Ouray Road. It generates a peak 100 year/6 hour discharge of 29 cfs. Water from the tract flows at a 1 percent slope in a southeasterly direction. It flows freely across the Estancia Drive/Miami Road intersection into the subject site.
2. **Basin B:** 5.3 (approx.) acre tract containing a school, parking lot and playground owned by the Seventh Day Adventist Church. The site generates about 16 cfs in the 100 year/6 hour flood. Water from this tract flows along the west side of Estancia Drive and crosses into the subject site across the Estancia Drive/Miami Road intersection.
3. **Basin C:** 5.3 (approx.) acre tract containing the Seventh Day Adventist Church building and parking lot. About half the tract is undeveloped. It generates 12.6 cfs in the 100 year/6 hour flood. Water from this tract flows freely across the existing temporary pavement on Estancia Drive into the subject site.

4. Site (Including Adjacent Streets) The undeveloped site and surrounding streets generate 17.2 cfs in the 100 year/6 hour flood.

5. Summary of Existing Basins

Basin	Description	100 yr/6 hr peak flow
A	vacant 35 acre tract nw of site	29.0 cfs
B	5.3 acre school and playground	16.0 cfs
C	5.3 acre church tract	12.6 cfs
Site	11.6 acres. Site and adjacent streets	17.2 cfs
	total	74.8 cfs

Adjacent land that is not drained by the subject site:
(See "Existing Conditions" map)

1. City Reservoir (under construction) This project will drain to Ouray Road.

2. Summer Ray Subdivision: The subdivision currently drains to a storm drain on 64th Street and temporary retention ponds on the east side of the tract. One retention pond will be replaced by a future connection to the proposed Miami Road storm drain (not part of this project). The other pond will be replaced by a storm drain system on Juniper Road to be constructed as part of this project.

3. Tompiro Subdivision: The subdivision currently drains to a retention pond near Miami Road. This pond will be replaced by a connection to the proposed Miami Road storm drain. An isolated section of the 54" storm drain has already been constructed between Estancia Drive and the east boundary of the subject site.

5. Summary

DEVELOPED CONDITIONS

All of the stormwater from the Dos Caminos Subdivision will drain to the AMAFCA West Bluff Outfall, a 14'x14' concrete box culvert, currently under construction, that will drain to the Rio Grande.

The site will drain to two stubouts from the West Bluff Outfall: 1) a 36" stubout at Juniper Road and 2) a 72" stubout at Miami Road.

Drainage Facilities

1. Juniper Road Storm Drain Network

A permanent storm drain network will be constructed as part of this project. Drop inlets near the Juniper Road/Estancia Drive intersection will carry storm water to a drain that will lead to the 36" Juniper Road stubout from the AMAFCA West Bluff Outfall.

2. Miami Road Swale and Drop Inlet

A temporary 25' wide asphalt swale will be constructed along the centerline of Miami Road (currently unpaved) from the project to the AMAFCA West Bluff Outfall 72" Miami Road stubout. The swale will serve a dual purpose.

In addition to draining stormwater from the site, it will provide nearby residents with an improved driving surface. Miami Road is currently a poorly drained, muddy road. The swale will also provide neighbors with the opportunity to provide better drainage for their lots which currently lie in a 100-year flood plain.

The swale will drain to a drop inlet that will also be constructed as part of this project. The drop inlet will drain to the AMAFCA stub-out.

When the city completes the future Miami Road storm drain the subject site will be drained by drop inlets on Miami Road.

Basins that will Drain to Miami Swale and Drop Inlet

1. Basin A

Basin A is a 35 acre undeveloped tract that currently drains across the Estancia/Miami intersection to the subject site. Its 100 year/6 hour peak flow is 29.0 cfs. The flow from this Basin will be channeled into the temporary Miami swale by completion of the south side of Miami Road. The north side of Miami Road was already constructed as part of another project. The south side will be constructed as part of this project and will include standard curb and gutter.

The Estancia Drive reconstruction will include a 1 foot water block about 150 feet south of the intersection with Miami Road. This will prevent Basin A from draining south on Estancia Drive. There will be no bar ditch on the north side of Estancia for 20 feet in the vicinity of the water block high point. This will prevent stormwater from running backwards up the bar ditch.

Basin A will produce considerably more runoff in the developed condition. The drainage plan for the adjacent Summer Ray Subdivision includes a low point in Miami Road that will capture all the runoff from Basin A. The drainage plan states that drop inlets at the low point will transport Basin A storm water into the future Miami Road storm drain. The Summer Ray Subdivision does not propose any temporary retention ponds to handle stormwater from Basin A.

The temporary Miami swale proposed here will be designed to handle existing flows only.

2. Basin B

Basin B is a 5.3 acre site occupied by the Seventh Day Adventist School and playground. It currently drains across the Estancia/Miami intersection to the subject site. It's 100 year/6 hour peak flow is 16 cfs. Flow from this basin will be channeled to the Miami Swale in the same manner as that of Basin A.

3. Basin C (North Section)

Basin C is a 5.3 acre tract occupied by the Seventh Day Adventist Church and parking lot. It currently drains across Estancia Drive into the subject site. This project includes reconstruction of Estancia Drive into an urban section with curb and gutter. Estancia Drive is currently a 20 foot wide paved street with unpaved shoulders and no drainage ditches.

The improved Estancia Drive will have a high point about 150 feet south of the intersection with Miami Road. This will divide Basin C so that the north 0.55 acres drain to Miami Road and the south 4.75 acres will drain to Juniper Road. the north 0.55 acres will only produce 0.7 cfs in the 100 year/6 hour storm.

4. Basin E

Basin E is a 20.2 acre undeveloped tract north of Miami Road that will drain into the Miami swale. It produces 31.1 cfs in the 100 year/6 hour storm. The swale will be sized to accommodate this flow.

5. Basin M

Basin M includes the portion of the proposed subdivision and adjacent streets that will drain to the Miami swale and drop inlet. It contains about 4.7 acres and generates 18.1 cfs.

6. Summary of Basins that will Drain to Miami Swale and Drop Inlet

Basin	Description	100 yr/6 hr peak flow
A	vacant 29 acre tract nw of site	29.0 cfs
B	5.3 acre school and playground	16.0 cfs
C	0.55 acres at north end of church tract	0.7 cfs
E	20.2 acre vacant tract ne of site	21.1 cfs
M	portion of subdivision to drain to Miami	18.1 cfs
	total draining to Miami Rd. (A,B,C and M)	63.8 cfs
	capacity of proposed Miami Road	77.9 cfs
	total draining to Miami Swale and DI (by hydrograph addition)	75.1 cfs
	capacity of proposed Miami Swale	80.0 cfs

Basins that will Drain to Juniper Storm Drain Network

1. Basin C (South Section)

As mentioned in the previous section, the reconstruction of Estancia Drive will divide Basin C into two basins, one flowing into the Miami Swale and one flowing to the Juniper Storm Drain Network. The south 4.75 acres will drain into the Juniper Storm Drain and will generate a 100 year/6 hour peak flow of 19.4 cfs. This analysis assumes full development of the property by the church.

2. Basin D

According to the Drainage Plan for the Summer Ray Subdivision, part of the subdivision generates a 100 year/6 hour peak flow of 15.87 cfs. This runoff is drained by a temporary retention pond near the southwest corner of Basin C. The Juniper Storm Drain Network must be designed to accomodate this flow

3. Basin F

Basin F includes all of the Juniper Street right-of-way from 68th Street to the proposed end of Juniper Street near the proposed subdivision. Future plans call for Juniper Street to be a forty foot wide urban street with curb and gutter between 64th. Street and Estancia Drive. Currently the north side of Juniper Street is paved with standard curb and gutter from 64th Street to the west property line of the church tract (Basin C). A fully constructed Juniper Street will contain 1.7 acres and will generate a 100 year/6 hour peak runoff of 7.4 cfs.

4. Basin J

This is that portion of the proposed subdivision and adjacent streets that will drain to the Juniper Storm Drain Network. It contains 6.9 acres and will generate a 100 year/6 hour peak flow of 28.3 cfs.

5. Summary of Basins Draining to Juniper Storm Drain Network

Basin	Description	100 yr/6 hr peak flow
C	4.75 acre portion of church property	19.3 cfs
D	Summer Ray Subdivision	15.9 cfs
F	Future fully constructed Juniper Road	7.4 cfs
J	Portion of subdivision to drain to Juniper	28.3 cfs
	total	70.9 cfs

Analysis of On-Site Flows (See On-Site Flows Map)

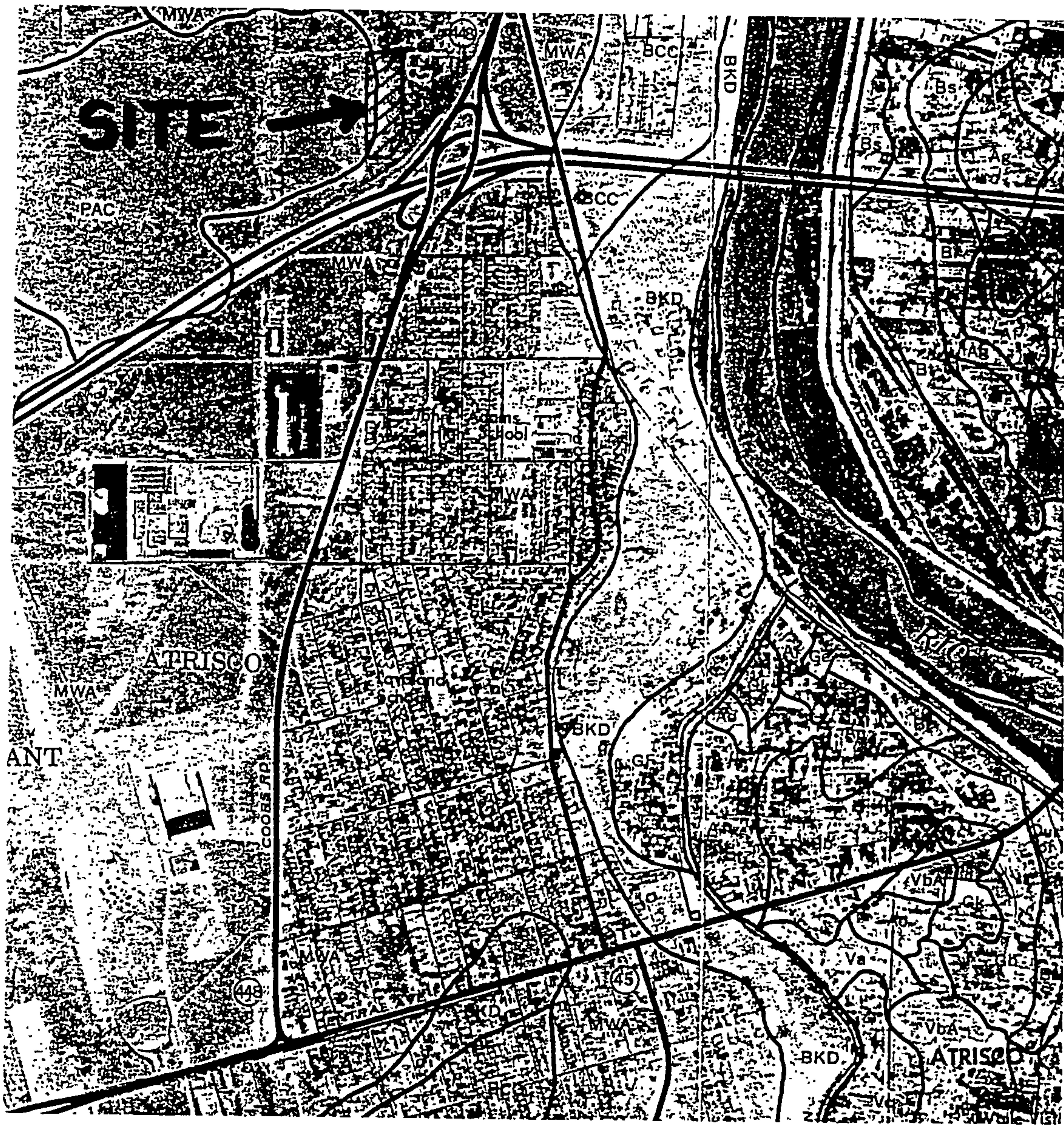
The site was divided into 10 sub-basins to determine curb type and swale sizes.

Basin	Description	100 yr/6 hr peak flow
1	Lots on Juniper	1.3 cfs
2	Estancia Drive (Draining South)	5.2 cfs
3	Lots on Estancia	6.0 cfs
4	South Interior Street	7.3 cfs
5	East Interior Street (South End)	8.5 cfs
6	Estancia Drive (Draining North)	0.8 cfs
7	Lots on Miami	2.5 cfs
8	East Interior Street (North End)	9.0 cfs
9	Miami Road	2.9 cfs
10	Backyards	to be drained by individual backyard ponds

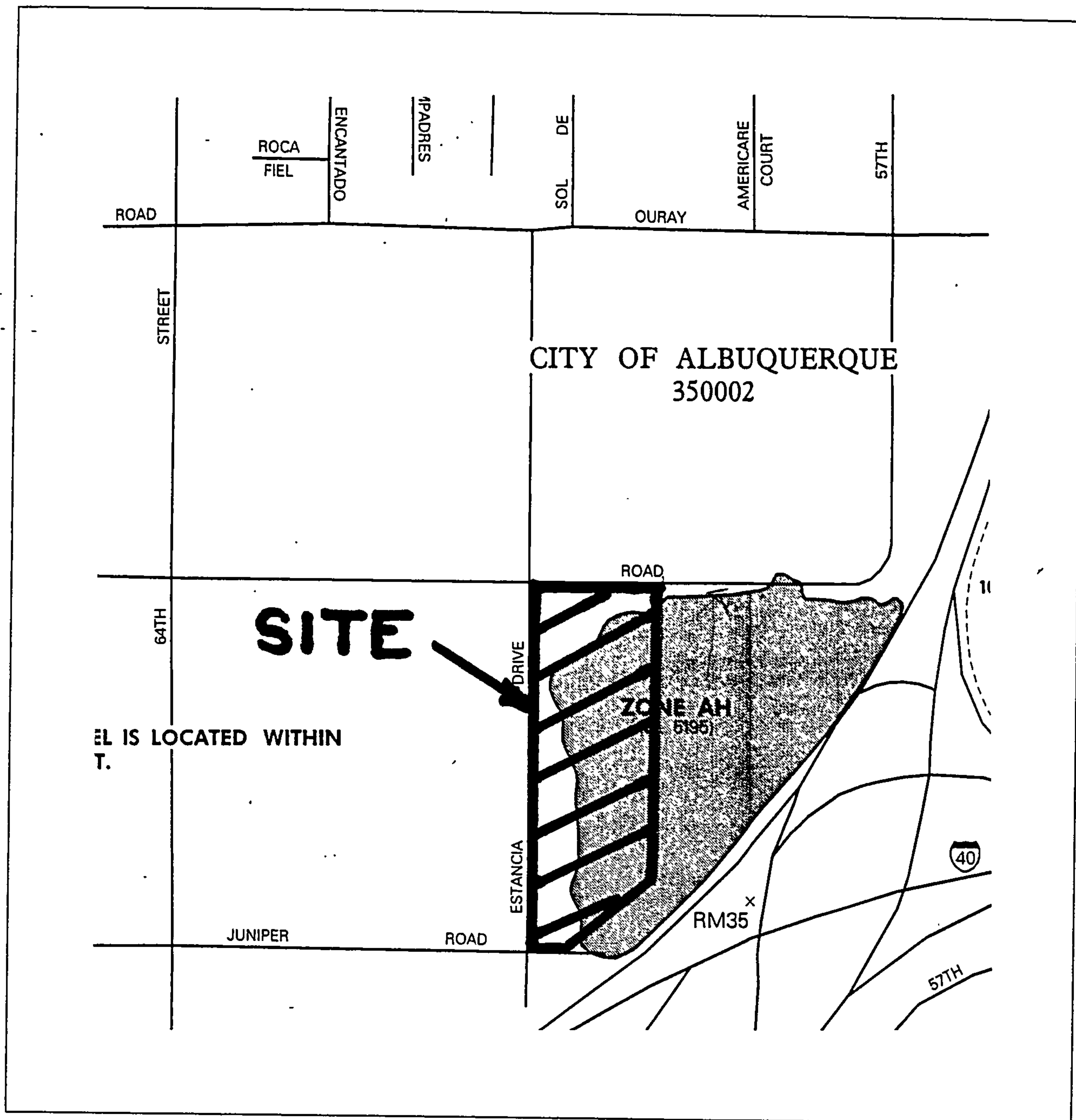
TEMPORARY EROSION CONTROL

1. The intent of this temporary erosion control plan is to limit the discharge of sediment into the public street and/or storm drainage system and to protect adjacent properties from excess runoff during construction.
2. The Contractor shall obtain a Top Soil Disturbance Permit from Environmental Health prior to performing any earthwork related operations.
3. Temporary erosion control berms should be constructed along the project boundaries to direct excess runoff to the ponding area.
4. It is the Contractor's responsibility to properly maintain all temporary erosion control facilities during the construction phase of the project.



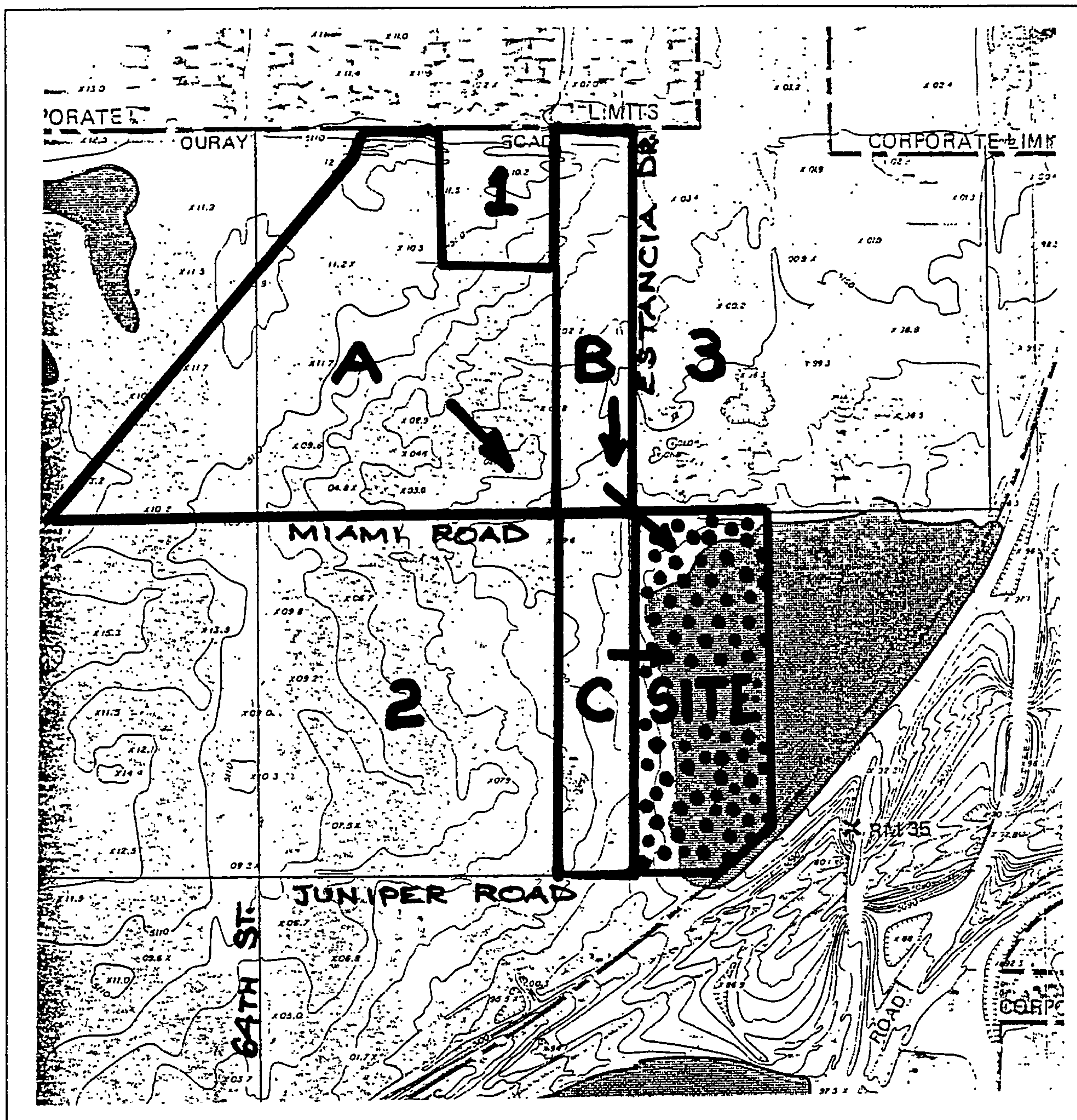


SOILS MAP
Figure 2



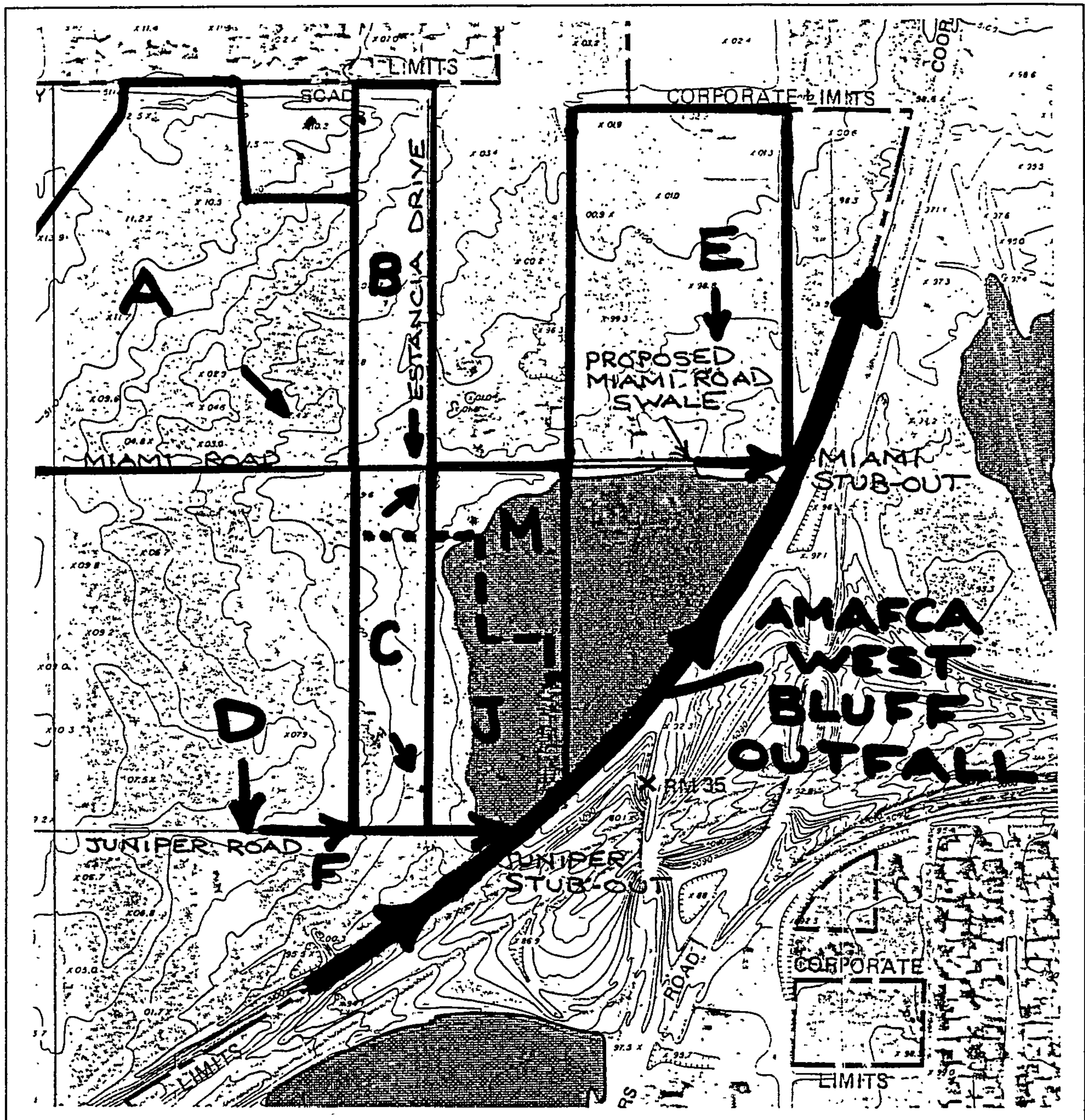
FLOOD INSURANCE RATE MAP

Figure 3

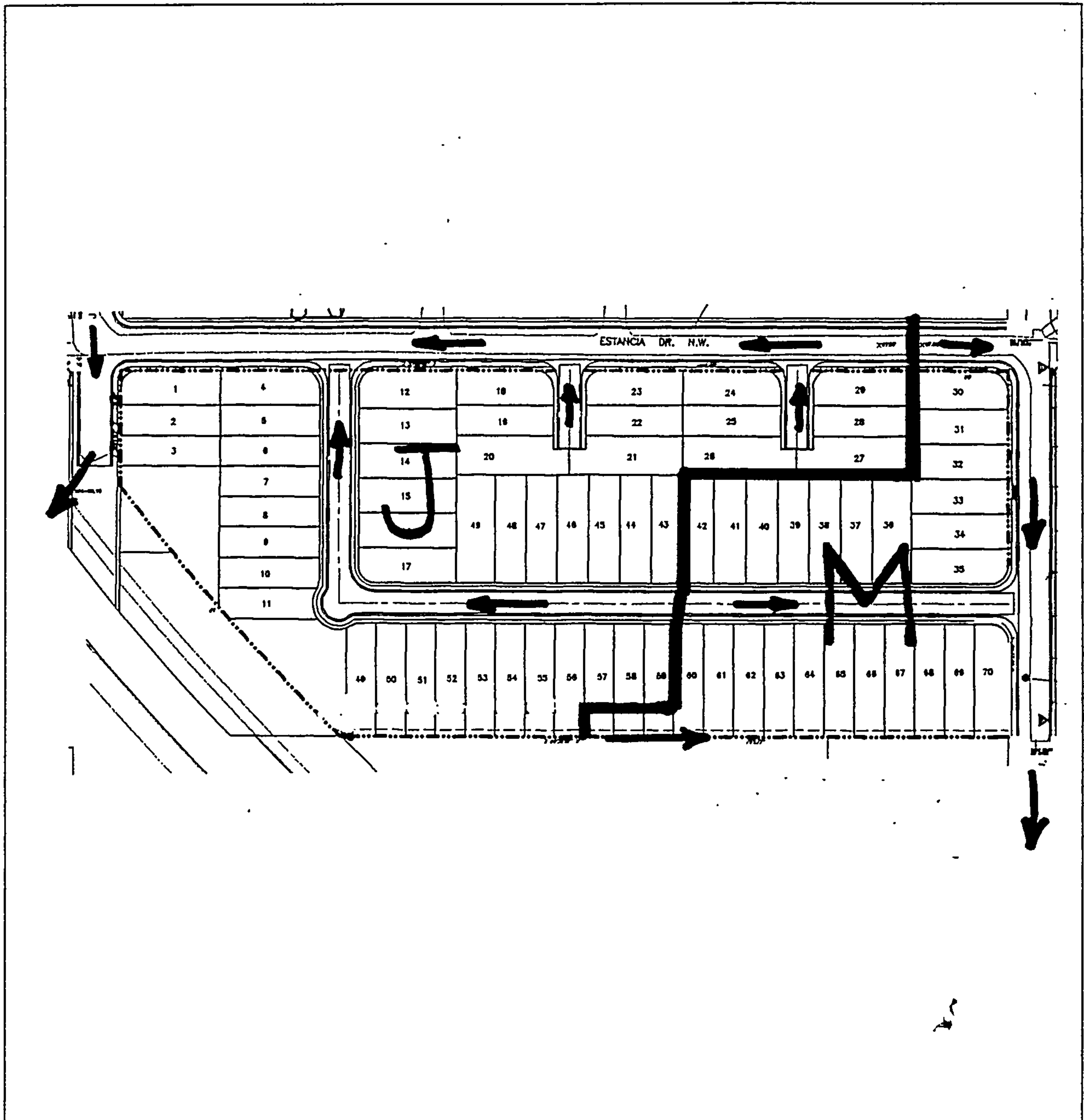


MAP OF EXISTING BASINS

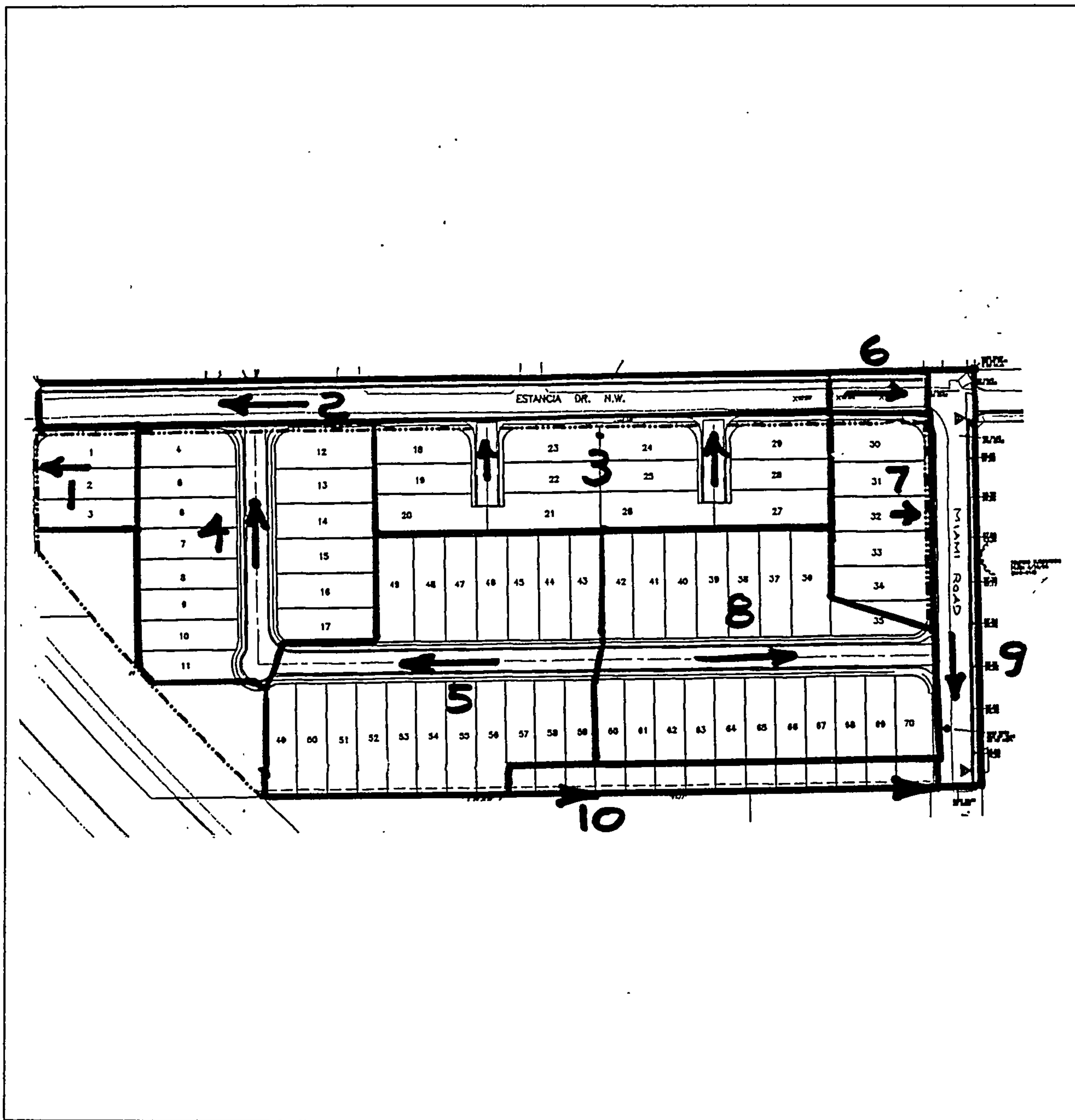
Figure 4



MAP OF DEVELOPED BASINS
Figure 5



MAP OF MAJOR ON-SITE BASINS
Figure 6



MAP OF MINOR ON-SITE BASINS
Figure 7

CALCULATIONS

6079

EXISTING BASINSBASIN A

35 ACRES

80% A

10% B

10% C

$$T_p = \frac{2}{3} T_c$$

$$T_c = \frac{L_1}{V_1} + \frac{L_2}{V_2}$$

$$V_1 = 10 K \sqrt{S}$$

$$S = 0.7\%$$

$$K = 0.7$$

$$V_1 = 10 (.7) \sqrt{.007} = 0.586 \text{ FPS}$$

$$L_1 = 400 \text{ FT}$$

$$V_2 = 10 K \sqrt{S}$$

$$K = 2.0$$

$$V_2 = 10 (2) \sqrt{.007} = 1.67 \text{ FPS}$$

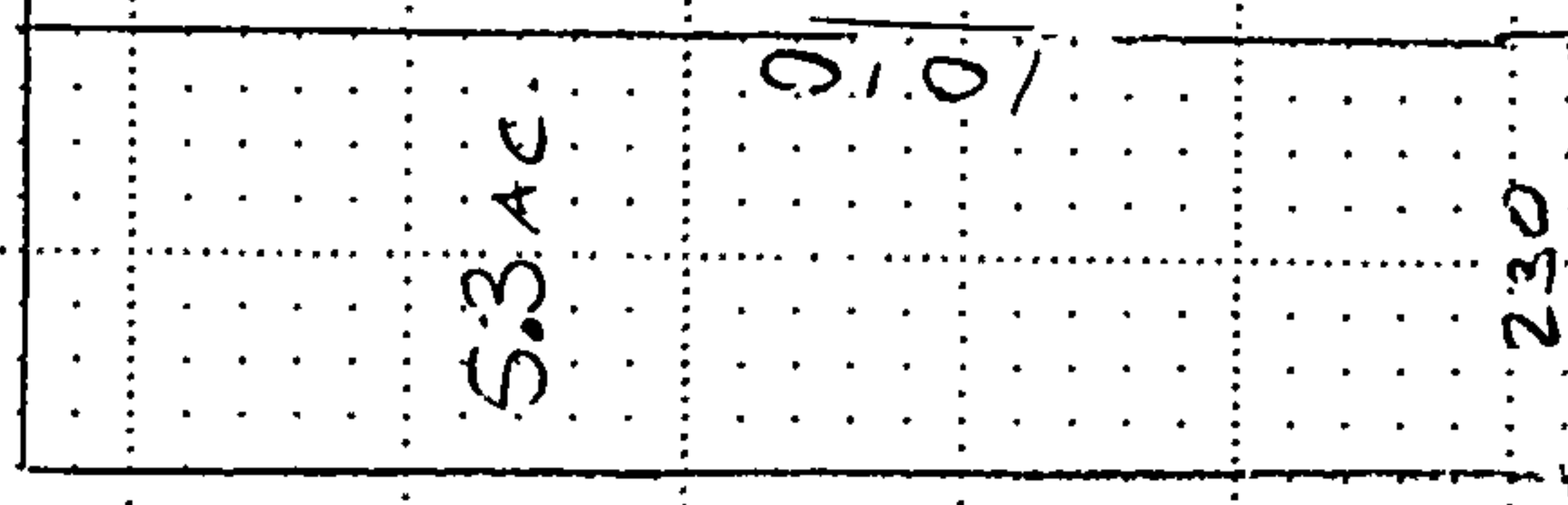
$$L_2 = 1300 \text{ FT}$$

$$T_c = \frac{400}{0.586} + \frac{1300}{1.67} = 1461 \text{ SEC} = 0.406 \text{ HR}$$

$$T_p = \frac{2}{3} (0.406 \text{ HR}) = 0.27$$

EXISTING BASINS

BASIN B (SCHOOL)



- A 10%
- B 20%
- C 40%
- D 30%

$$T_p = \frac{2}{3} T_c$$

$$T_c = \frac{L}{V}$$

$$L = 1000 \text{ FT}$$

$$V = K\sqrt{S}$$

$$5.3 \text{ AC} = 0.00828 \text{ sq mi} \quad S = 1\%$$

$$K = 3 \text{ (STREET FLOW)}$$

$$V = 3\sqrt{1} = 3$$

$$T_c = \frac{1000}{3} \left(\frac{1}{3600} \right) = 0.09$$

$$T_p = T_{p \text{ min}} = 0.133 \text{ HR}$$

EXISTING BASINS

3. BASIN C (CHURCH)

5.3 AC
0.00828 SQ. MI.

A 50%

B 10%

C 15%

D 25%

4. SITE

11.6 AC
0.01813 SQ. MI.

A = 95%

B = 0

C = 0

D = 5%

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 12/09/1996
START TIME (HR:MIN:SEC) = 11:46:47 USER NO.= BRASHERE.I01
INPUT FILE = 6079EXST.DAT

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*S 100-YEAR 6 HOUR RAINFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

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2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
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2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

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PER D=0 TP=0.27HR MASSRAIN=-1

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AREA = .054700 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA A

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.833	21.7	3.667	.8	5.500	.1	7.333	.0
.167	.0	2.000	12.9	3.833	.7	5.667	.1	7.500	.0
.333	.0	2.167	7.6	4.000	.6	5.833	.1	7.667	.0
.500	.0	2.333	4.4	4.167	.5	6.000	.1	7.833	.0
.667	.0	2.500	2.8	4.333	.4	6.167	.1	8.000	.0
.833	.0	2.667	2.3	4.500	.3	6.333	.0	8.167	.0
1.000	.0	2.833	1.9	4.667	.3	6.500	.0	8.333	.0
1.167	.0	3.000	1.6	4.833	.2	6.667	.0		
1.333	.0	3.167	1.4	5.000	.2	6.833	.0		
1.500	16.7	3.333	1.1	5.167	.2	7.000	.0		
1.667	29.0	3.500	1.0	5.333	.1	7.167	.0		

RUNOFF VOLUME = .51449 INCHES = 1.5009 ACRE-Feet
PEAK DISCHARGE RATE = 29.01 CFS AT 1.667 HOURS BASIN AREA = .0547 SQ. MI.

* B
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
PER A=10 PER B=20 PER C=40
PER D=30 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8045 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.9000
AREA = .002484 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .121354HR TP = .133333HR K/TP RATIO = .910159 SHAPE CONSTANT, N = 3.891264
UNIT PEAK = 15.121 CFS UNIT VOLUME = .9995 B = 347.85 P60 = 1.9000
AREA = .005796 SQ MI IA = .43571 INCHES INF = 1.07000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

HYDROGRAPH FROM AREA B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	16.0	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	8.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	4.3	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	2.6	3.500	.1	5.000	.0	6.500	.0
.667	.0	2.167	1.3	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.7	3.833	.0	5.333	.0		
1.000	.0	2.500	.4	4.000	.0	5.500	.0		
1.167	.0	2.667	.3	4.167	.0	5.667	.0		
1.333	2.4	2.833	.2	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.16121 INCHES = .5128 ACRE-Feet
PEAK DISCHARGE RATE = 16.00 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* C
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00828 SQ MI
PER A=50 PER B=10 PER C=15
PER D=25 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.1704 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.9000
AREA = .002070 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .147331HR TP = .133333HR K/TP RATIO = 1.104982 SHAPE CONSTANT, N = 3.199571
UNIT PEAK = 13.866 CFS UNIT VOLUME = .9991 B = 297.71 P60 = 1.9000
AREA = .006210 SQ MI IA = .57000 INCHES INF = 1.44600 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.8	2.667	.3	4.000	.0	5.333	.0
.167	.0	1.500	12.5	2.833	.2	4.167	.0	5.500	.0
.333	.0	1.667	6.8	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	3.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.1	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.1	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.6	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.4	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = .91945 INCHES = .4060 ACRE-FEET
PEAK DISCHARGE RATE = 12.55 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* SITE

COMPUTE NM HYD ID=4 HYD NO= SITE DA=0.01813 SQ MI
PER A=95 PER B=0 PER C=0
PER D=5 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.5780 CFS UNIT VOLUME = .9960 B = 526.28 P60 = 1.9000
AREA = .000907 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .162968HR TP = .133333HR K/TP RATIO = 1.222262 SHAPE CONSTANT, N = 2.911962
UNIT PEAK = 35.467 CFS UNIT VOLUME = .9993 B = 274.56 P60 = 1.9000
AREA = .017223 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA SITE

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.8	2.667	.4	4.000	.0	5.333	.0
.167	.0	1.500	16.9	2.833	.3	4.167	.0	5.500	.0
.333	.0	1.667	9.7	3.000	.2	4.333	.0	5.667	.0
.500	.0	1.833	3.9	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.0	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.3	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.8	3.667	.1	5.000	.0	6.333	.0
1.167	.0	2.500	.6	3.833	.0	5.167	.0		

RUNOFF VOLUME = .52812 INCHES = .5107 ACRE-FEET
PEAK DISCHARGE RATE = 17.16 CFS AT 1.533 HOURS BASIN AREA = .0181 SQ. MI.

*

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 11:46:49

BASINS THAT DRAIN TO MIAMI

1. BASIN A (NW VACANT TRACT) - UNDEVELOPED
SAME AS FOR EXISTING CONDITIONS

$$35 \text{ ACRES} = 0.0547 \text{ SQ MI}$$

A 80%

B 10%

C 10%

D 0%

$$T_p = 0.22 \text{ HRS}$$

2. BASIN B (SCHOOL)

SAME AS EXISTING CONDITIONS

$$5.3 \text{ AC} = 0.00828 \text{ SQ MI}$$

$$T_p = 0.133 \text{ HR}$$

A 10%

B 20%

C 40%

D 30%

3. BASIN C (NORTH)

$$0.55 \text{ AC} = 0.00086 \text{ SQ MI}$$

$$T_p = 0.133 \text{ HR}$$

A = 100%

B = 0%

C = 0%

D = 0%

BASINS THAT DRAIN TO MIAMI (CONT'D)

4. BASIN E

$$20.2 \text{ AC} = 0.03156 \text{ SQ MI}$$

$$T_D = \frac{2}{3} T_C$$

$$T_C = \frac{L_1}{V_1} + \frac{L_2}{V_2}$$

$$L_1 = 400 \text{ FT}$$

$$V_1 = 10K\sqrt{S}$$

$$K = 0.7$$

$$S = 0.007 \text{ FT/FT}$$

$$V_1 = 10(.7)\sqrt{0.007} = 0.586 \text{ FPS}$$

$$L_2 = 700 \text{ FT}$$

$$V_2 = 10K\sqrt{S}$$

$$K = 2.0$$

$$S = 0.007 \text{ FT/FT}$$

$$V_2 = 10(2)\sqrt{0.007} = 1.67 \text{ FPS}$$

$$T_C = \frac{400}{.586} + \frac{700}{1.67} = 1102 \text{ SEC} = 0.31 \text{ HR}$$

$$T_D = \frac{2}{3} (0.31) = 0.21 \text{ HR}$$

5. BASIN M

$$4.7 \text{ ACRES} = 0.00734 \text{ SQ MI}$$

$$T_D = 0.133 \text{ HRS}$$

A —
B 15%
C 15%
D 70%

```

*S      DOS CAMINOS (6079M.DAT)
*S      100-YEAR 6 HOUR RAINFALL
*S      MIAMI ROAD OUTFALL
START   TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
        RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333
SEDIMENT BULK CODE=1 BULK FACTOR=1
* A NORTHWEST VACANT TRACT
COMPUTE NM HYD ID=1 HYD NO= A DA=0.0547 SQ MI
                PER A=80 PER B=10 PER C=10
                PER D=0 TP=0.27HR MASSRAIN=-1
                ID=1 CODE=5
PRINT HYD
* B SCHOOL
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
                PER A=10 PER B=20 PER C=40
                PER D=30 TP=0.133HR MASSRAIN=-1
                ID=2 CODE=5
PRINT HYD
* C (NORTH SECTION)
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00086 SQ MI
                PER A=100 PER B=0 PER C=0
                PER D=0 TP=0.133HR MASSRAIN=-1
                ID=3 CODE=5
PRINT HYD
* E NORTH VACANT TRACT
COMPUTE NM HYD ID=4 HYD NO= E DA=.03156 SQ MI
                PER A=80 PER B=10 PER C=10
                PER D=0 TP=0.21HR MASSRAIN=-1
                ID=4 CODE=5
PRINT HYD
* M SITE
COMPUTE NM HYD ID=5 HYD NO= M DA=0.00734 SQ MI
                PER A=0 PER B=15 PER C=15
                PER D=70 TP=0.133HR MASSRAIN=-1
                ID=5 CODE=5
PRINT HYD
ADD HYD ID=6 HYD=T1 ID I=1 ID II=2
ADD HYD ID=7 HYD=T2 ID I=6 ID II=3
ADD HYD ID=8 HYD=TOTAL ID I=7 ID II=4
ADD HYD ID=9 HYD=TOTAL ID I=8 ID II=5
PRINT HYD ID=9 CODE=5
*
FINISH

```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = 6079M.DAT

RUN DATE (MON/DAY/YR) =12/09/1996
USER NO.= BRASHERE.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	PAGE = 1	NOTATION
*S	DOS CAMINOS (6079M.DAT)										
*S	100-YEAR 6 HOUR RAINFALL										
*S	MIAMI ROAD OUTFALL										
START											
RAINFALL TYPE= 1											
SEDIMENT BULK											
COMPUTE NM HYD	A	-	1	.05470	29.01	1.501	.51449	1.667	.829	PER IMP=	.00
COMPUTE NM HYD	B	-	2	.00828	16.03	.513	1.16121	1.500	3.024	PER IMP=	30.00
COMPUTE NM HYD	C	-	3	.00086	.74	.021	.45191	1.533	1.347	PER IMP=	.00
COMPUTE NM HYD	E	-	4	.03156	21.09	.866	.51449	1.600	1.044	PER IMP=	.00
COMPUTE NM HYD	M	-	5	.00734	18.12	.640	1.63371	1.500	3.857	PER IMP=	70.00
ADD HYD	T1	1& 2	6	.06298	39.21	2.014	.59950	1.600	.973		
ADD HYD	T2	6& 3	7	.06384	39.82	2.034	.59752	1.600	.975		
ADD HYD	TOTAL	7& 4	8	.09540	60.91	2.900	.57005	1.600	.998		
ADD HYD	TOTAL	8& 5	9	.10274	75.10	3.540	.64604	1.567	1.142		

FINISH

HYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 12/09/1996
START TIME (HR:MIN:SEC) = 11:58:59 USER NO.= BRASHERE.I01
INPUT FILE = 6079M.DAT

*S DOS CAMINOS (6079M.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S MIAMI ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0014	.0029	.0043	.0059	.0074	.0090
.0106	.0123	.0140	.0157	.0175	.0193	.0212
.0232	.0252	.0272	.0294	.0316	.0339	.0362
.0387	.0412	.0439	.0466	.0495	.0525	.0557
.0590	.0625	.0663	.0715	.0771	.0831	.0961
.1249	.1694	.2331	.3202	.4347	.5806	.7622
.9839	1.1890	1.2748	1.3472	1.4117	1.4703	1.5243
1.5745	1.6213	1.6652	1.7065	1.7455	1.7824	1.8172
1.8502	1.8816	1.9113	1.9395	1.9662	1.9722	1.9779
1.9832	1.9883	1.9932	1.9978	2.0023	2.0066	2.0107
2.0147	2.0185	2.0223	2.0259	2.0294	2.0328	2.0361
2.0393	2.0425	2.0455	2.0485	2.0515	2.0543	2.0571
2.0599	2.0625	2.0652	2.0678	2.0703	2.0728	2.0752
2.0776	2.0800	2.0823	2.0845	2.0868	2.0890	2.0912
2.0933	2.0954	2.0975	2.0995	2.1015	2.1035	2.1055
2.1074	2.1093	2.1112	2.1131	2.1149	2.1167	2.1185
2.1203	2.1221	2.1238	2.1255	2.1272	2.1289	2.1305
2.1322	2.1338	2.1354	2.1370	2.1386	2.1401	2.1417
2.1432	2.1447	2.1462	2.1477	2.1492	2.1506	2.1521
2.1535	2.1549	2.1564	2.1577	2.1591	2.1605	2.1619
2.1632	2.1646	2.1659	2.1672	2.1685	2.1698	2.1711
2.1724	2.1736	2.1749	2.1762	2.1774	2.1786	2.1799
2.1811	2.1823	2.1835	2.1847	2.1858	2.1870	2.1882
2.1893	2.1905	2.1916	2.1928	2.1939	2.1950	2.1961
2.1972	2.1983	2.1994	2.2005	2.2016	2.2027	2.2037
2.2048	2.2058	2.2069	2.2079	2.2090	2.2100	

SEDIMENT BULK CODE=1 BULK FACTOR=1
* A NORTHWEST VACANT TRACT

COMPUTE NM HYD ID=1 HYD NO= A DA=0.0547 SQ MI
PER A=80 PER B=10 PER C=10
PER D=0 TP=0.27HR MASSRAIN=-1

K = .312006HR TP = .270000HR K/TP RATIO = 1.155578 SHAPE CONSTANT, N = 3.066574
UNIT PEAK = 58.186 CFS UNIT VOLUME = .9998 B = 287.21 P60 = 1.9000
AREA = .054700 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA A

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.833	21.7	3.667	.8	5.500	.1	7.333	.0
.167	.0	2.000	12.9	3.833	.7	5.667	.1	7.500	.0
.333	.0	2.167	7.6	4.000	.6	5.833	.1	7.667	.0
.500	.0	2.333	4.4	4.167	.5	6.000	.1	7.833	.0
.667	.0	2.500	2.8	4.333	.4	6.167	.1	8.000	.0
.833	.0	2.667	2.3	4.500	.3	6.333	.0	8.167	.0
1.000	.0	2.833	1.9	4.667	.3	6.500	.0	8.333	.0
1.167	.0	3.000	1.6	4.833	.2	6.667	.0		
1.333	.0	3.167	1.4	5.000	.2	6.833	.0		
1.500	16.7	3.333	1.1	5.167	.2	7.000	.0		
1.667	29.0	3.500	1.0	5.333	.1	7.167	.0		

RUNOFF VOLUME = .51449 INCHES = 1.5009 ACRE-FEET
PEAK DISCHARGE RATE = 29.01 CFS AT 1.667 HOURS BASIN AREA = .0547 SQ. MI.

* B SCHOOL
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
PER A=10 PER B=20 PER C=40
PER D=30 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8291 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.9000
AREA = .002484 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .121051HR TP = .133000HR K/TP RATIO = .910159 SHAPE CONSTANT, N = 3.891264
UNIT PEAK = 15.159 CFS UNIT VOLUME = .9996 B = 347.85 P60 = 1.9000
AREA = .005796 SQ MI IA = .43571 INCHES INF = 1.07000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

HYDROGRAPH FROM AREA B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	16.0	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	8.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	4.3	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	2.6	3.500	.1	5.000	.0	6.500	.0
.667	.0	2.167	1.3	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.7	3.833	.0	5.333	.0		
1.000	.0	2.500	.4	4.000	.0	5.500	.0		
1.167	.0	2.667	.3	4.167	.0	5.667	.0		
1.333	2.4	2.833	.2	4.333	.0	5.833	.0		

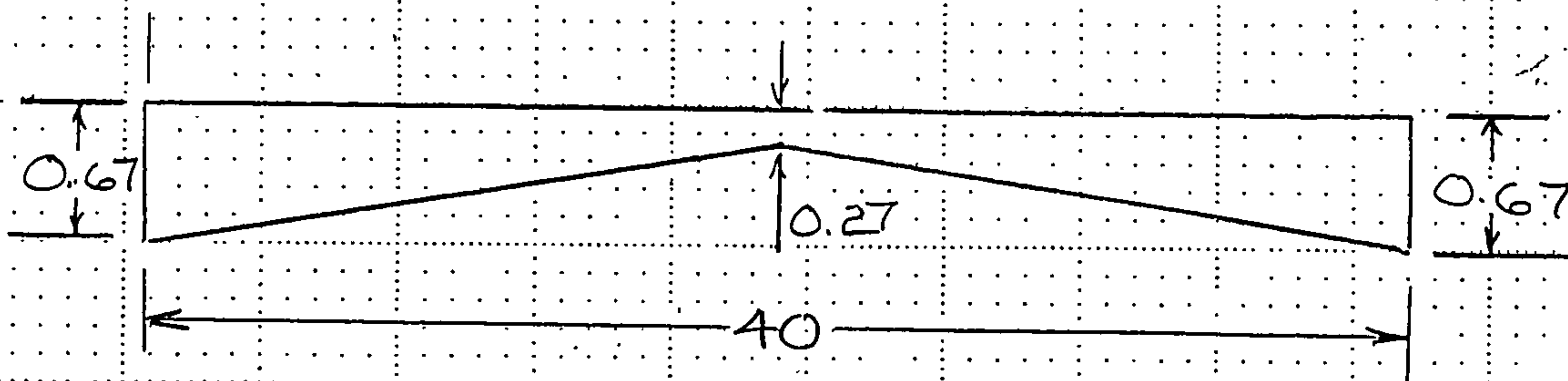
RUNOFF VOLUME = 1.16121 INCHES = .5128 ACRE-FEET
PEAK DISCHARGE RATE = 16.03 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* C (NORTH SECTION)
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00086 SQ MI
PER A=100 PER B=0 PER C=0
PER D=0 TP=0.133HR MASSRAIN=-1

K = .162561HR TP = .133000HR K/TP RATIO = 1.222262 SHAPE CONSTANT, N = 2.911962
UNIT PEAK = 1.7754 CFS UNIT VOLUME = .9917 B = 274.56 P60 = 1.9000
AREA = .000860 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

CAPACITY OF MIAMI ROAD



$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

$$n = 0.015$$

$$A = 2(20)\left(\frac{1}{2}\right)(0.67 + 0.27) = 18.8 \text{ FT}^2$$

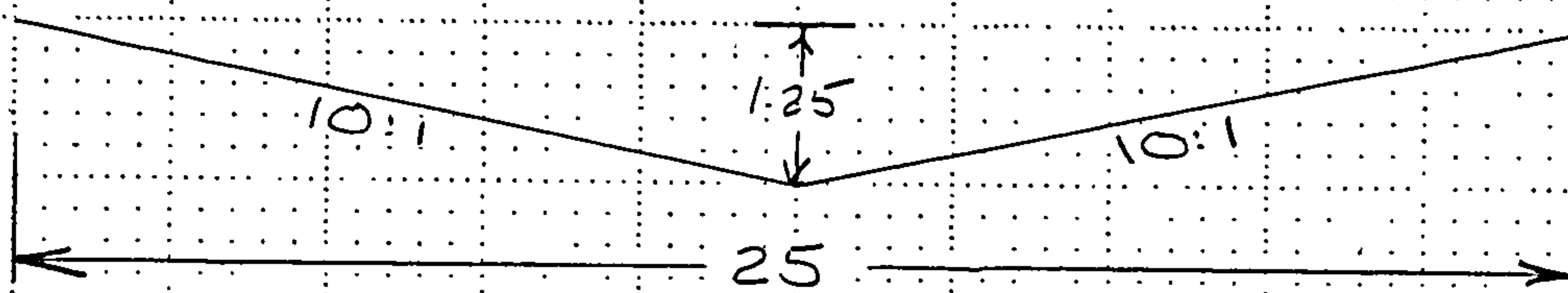
$$R = \frac{A}{WP} = \frac{18.8 \text{ FT}^2}{41.34 \text{ FT}} = 0.455 \text{ FT}$$

$$S = 0.005 \text{ FT/FT}$$

$$Q = \frac{1.49}{0.015} (18.8 \text{ FT}^2) (0.455)^{2/3} (0.005)^{1/2}$$

$$= 77.9 \text{ CFS}$$

CAPACITY OF MIAMI SWALE



$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

$$n = 0.015$$

$$A = 12.5(1.25) = 15.63 \text{ FT}^2$$

$$R = \frac{A}{WP} = \frac{15.63}{25.12} = 0.622$$

$$S = 0.005 \text{ FT/FT}$$

$$Q = \frac{1.49}{0.015} (15.63 \text{ FT}^2) (0.622)^{2/3} (0.005)^{1/2} = 80.0 \text{ CFS}$$

BASINS THAT DRAIN TO JUNIPER

1. BASIN C (SOUTH SECTION) - ASSUME FULLY DEVELOPED

4.75 ACRES = 0.00742 SQ. MI.

A 0%

B 10%

C 10%

D 80%

$T_p = 0.133$ HR

2. BASIN D SUMMER RAY SUBDIVISION

15.87 CFS (PER DRAINAGE PLAN FOR
SUMMER RAY SUBDIVISION)

3. BASIN F JUNIPER ROAD

1.72 AC = 0.0027 SQ MI

A 0

B 5%

C 5%

D 90%

$T_p = 0.133$ HR

4. BASIN J SITE 2 ADJACENT STREETS

6.9 AC = 0.0108 SQ MI

A 0%

B 10%

C 10%

D 80%

TIME=	.00
RAIN6=	2.210
PK BF =	1.00
PER IMP=	80.00
PER IMP=	90.00
PER IMP=	80.00

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/07/1996
START TIME (HR:MIN:SEC) = 12:21:44 USER NO.= BRASHERE.I01
INPUT FILE = 6079j.dat

*S DOS CAMINOS (6079JUNI.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S JUNIPER ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0014	.0029	.0043	.0059	.0074	.0090
.0106	.0123	.0140	.0157	.0175	.0193	.0212
.0232	.0252	.0272	.0294	.0316	.0339	.0362
.0387	.0412	.0439	.0466	.0495	.0525	.0557
.0590	.0625	.0663	.0715	.0771	.0831	.0961
.1249	.1694	.2331	.3202	.4347	.5806	.7622
.9839	1.1890	1.2748	1.3472	1.4117	1.4703	1.5243
1.5745	1.6213	1.6652	1.7065	1.7455	1.7824	1.8172
1.8502	1.8816	1.9113	1.9395	1.9662	1.9722	1.9779
1.9832	1.9883	1.9932	1.9978	2.0023	2.0066	2.0107
2.0147	2.0185	2.0223	2.0259	2.0294	2.0328	2.0361
2.0393	2.0425	2.0455	2.0485	2.0515	2.0543	2.0571
2.0599	2.0625	2.0652	2.0678	2.0703	2.0728	2.0752
2.0776	2.0800	2.0823	2.0845	2.0868	2.0890	2.0912
2.0933	2.0954	2.0975	2.0995	2.1015	2.1035	2.1055
2.1074	2.1093	2.1112	2.1131	2.1149	2.1167	2.1185
2.1203	2.1221	2.1238	2.1255	2.1272	2.1289	2.1305
2.1322	2.1338	2.1354	2.1370	2.1386	2.1401	2.1417
2.1432	2.1447	2.1462	2.1477	2.1492	2.1506	2.1521
2.1535	2.1549	2.1564	2.1577	2.1591	2.1605	2.1619
2.1632	2.1646	2.1659	2.1672	2.1685	2.1698	2.1711
2.1724	2.1736	2.1749	2.1762	2.1774	2.1786	2.1799
2.1811	2.1823	2.1835	2.1847	2.1858	2.1870	2.1882
2.1893	2.1905	2.1916	2.1928	2.1939	2.1950	2.1961
2.1972	2.1983	2.1994	2.2005	2.2016	2.2027	2.2037
2.2048	2.2058	2.2069	2.2079	2.2090	2.2100	

SEDIMENT BULK CODE=1 BULK FACTOR=1
* C (SOUTH SECTION)
COMPUTE NM HYD ID=1 HYD NO= C DA=0.00742 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 23.489 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .005936 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 3.9559 CFS UNIT VOLUME = .9970 B = 354.54 P60 = 1.9000
AREA = .001484 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	19.2	3.000	.2	4.500	.1	6.000	.1
.167	.0	1.667	9.8	3.167	.1	4.667	.1	6.167	.0
.333	.0	1.833	6.2	3.333	.1	4.833	.1	6.333	.0
.500	.0	2.000	4.4	3.500	.1	5.000	.1	6.500	.0
.667	.0	2.167	2.0	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	.9	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.6	4.000	.1	5.500	.1		
1.167	.0	2.667	.4	4.167	.1	5.667	.1		
1.333	5.2	2.833	.3	4.333	.1	5.833	.1		

RUNOFF VOLUME = 1.74787 INCHES = .6917 ACRE-Feet
PEAK DISCHARGE RATE = 19.25 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

* F
COMPUTE NM HYD ID=3 HYD NO= F DA=0.0027 SQ MI
PER A=0 PER B=5 PER C=5
PER D=90 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8373 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .002430 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .73635 CFS UNIT VOLUME = .9827 B = 354.54 P60 = 1.9000
AREA = .000270 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA F

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.2	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	7.4	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	2.4	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	1.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.8	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.4	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.86202 INCHES = .2681 ACRE-Feet
PEAK DISCHARGE RATE = 7.43 CFS AT 1.500 HOURS BASIN AREA = .0027 SQ. MI.

* J
COMPUTE NM HYD ID=4 HYD NO= J DA=.0108 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 34.977 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 1.9000
AREA = .008640 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 5.8908 CFS UNIT VOLUME = .9980 B = 354.54 P60 = 1.9000
AREA = .002160 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA J

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	28.3	3.000	.3	4.500	.1	6.000	.2
.167	.0	1.667	14.1	3.167	.2	4.667	.1	6.167	.1
.333	.0	1.833	8.9	3.333	.2	4.833	.1	6.333	.0
.500	.0	2.000	6.4	3.500	.2	5.000	.1	6.500	.0
.667	.0	2.167	2.8	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	1.3	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.8	4.000	.1	5.500	.1		
1.167	.0	2.667	.5	4.167	.1	5.667	.2		
1.333	7.9	2.833	.4	4.333	.1	5.833	.2		

RUNOFF VOLUME = 1.74786 INCHES = 1.0068 ACRE-FEET
PEAK DISCHARGE RATE = 28.32 CFS AT 1.500 HOURS BASIN AREA = .0108 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 12:21:45

TEMPORARY ROADSIDE SWALE (ESTANCIA)

1. BASIN C (SOUTH SECTION) ASSUME EXISTING CONDITIONS

$$4.75 \text{ ACRES} = 0.00742 \text{ SQ. MI.}$$

A 40%

B 10%

C 20%

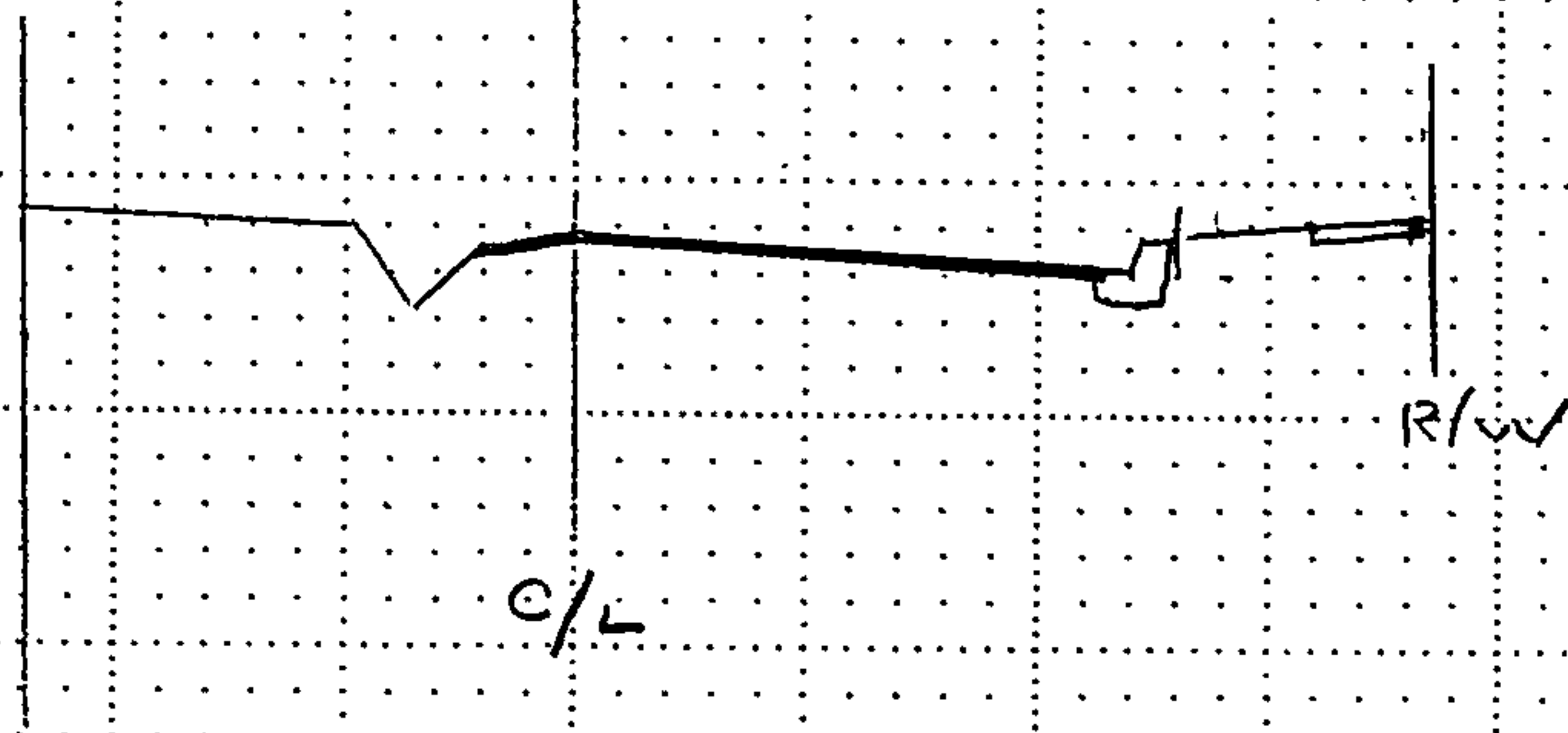
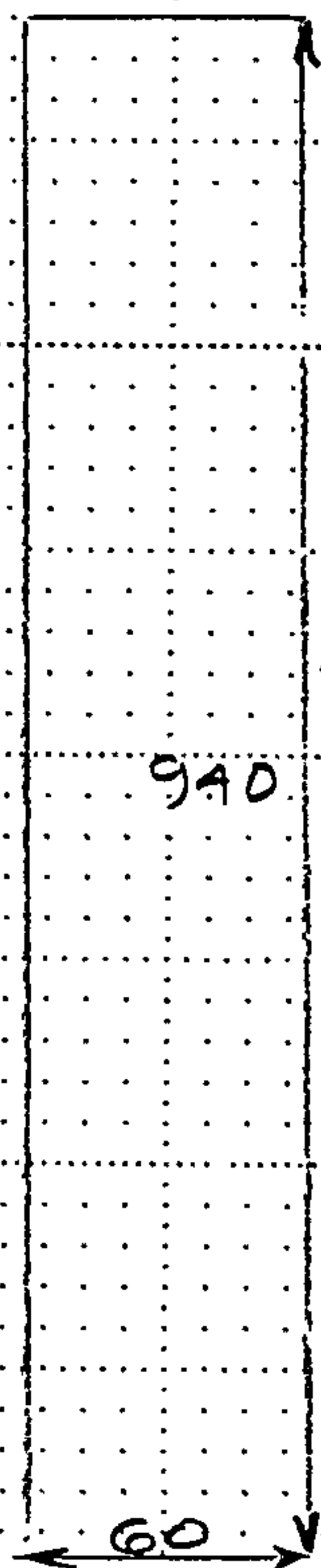
D 30%

$$\bar{T}_p = 0.133 \text{ HR}$$

$$Q_{100/6 \text{ HR}} = 12.4 \text{ CFS (FROM AHYMO)}$$

2. ESTANCIA R/W

$$1.3 \text{ ACRES} = 0.00203 \text{ SQ. MI.}$$



D 4 13%

C 12 40%

B 14 47%

A

$$Q_{100/6 \text{ HR}} = 3.6 \text{ CFS (FROM AHYMO)}$$

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH
Q - FLOWRATE

B - CHANNEL BOTTOM WIDTH
M - CHANNEL SIDE SLOPE

S - CHANNEL SLOPE
N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y,Q,B,M,S OR N) ? Y

Q (CFS) ? 16
B (FT) ? 0
M (FT/FT) ? 3
S (FT/FT) ? .005
N (FT^{-1/6}) ? .03

RESULTS

=====

Y=	1.41 FT
A=	5.97 SF
P=	8.92 FT
V=	2.68 FPS
F=	0.56

SUB-CRITICAL FLOW

<Shift> <Prt Sc> print <Return> repeat <Space Bar> back to menu

RUN DATE (MON/DAY/YR) =11/07/1996
USER NO.= BRASHERE.I01

[illegible]

ABHYMO PROGRAM (ABHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/07/1996
START TIME (HR:MIN:SEC) = 15:48:58 USER NO. = BRASHERE.I01
INPUT FILE = 6079a.dat

*S DOS CAMINOS (6079JUNI.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S JUNIPER ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1

* C (SOUTH SECTION)

COMPUTE NM HYD

ID=1 HYD NO= 1 DA=0.00742 SQ MI
PER A=40 PER B=10 PER C=20
PER D=30 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.8082 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.9000
AREA = .002226 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141806HR TP = .133000HR K/TP RATIO = 1.066211 SHAPE CONSTANT, N = 3.312254
UNIT PEAK = 11.964 CFS UNIT VOLUME = .9989 B = 306.36 P60 = 1.9000
AREA = .005194 SQ MI IA = .54286 INCHES INF = 1.37000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

OUTFLOW HYDROGRAPH REACH 1.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.667	.2	4.000	.0	5.333	.0
.167	.0	1.500	12.4	2.833	.2	4.167	.0	5.500	.0
.333	.0	1.667	6.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	3.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.1	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.1	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.6	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.4	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.01983 INCHES = .4036 ACRE-FEET
PEAK DISCHARGE RATE = 12.36 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*ESTANCIA R/W
COMPUTE NM HYD

ID=2 HYD NO= 2 DA=0.00203 SQ MI
PER A=0 PER B=14 PER C=12
PER D=4 TP=0.133HR MASSRAIN=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR TOTAL AREA

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.0710 CFS UNIT VOLUME = .9883 B = 526.28 P60 = 1.9000
AREA = .000271 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119159HR TP = .133000HR K/TP RATIO = .895929 SHAPE CONSTANT, N = 3.956882
UNIT PEAK = 4.6601 CFS UNIT VOLUME = .9975 B = 352.29 P60 = 1.9000
AREA = .001759 SQ MI IA = .43077 INCHES INF = 1.05615 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

OUTFLOW HYDROGRAPH REACH 2.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.3	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	3.5	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.9	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.2	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0		
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = .97619 INCHES = .1057 ACRE-FEET
PEAK DISCHARGE RATE = 3.55 CFS AT 1.500 HOURS BASIN AREA = .0020 SQ. MI.

*
*
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:48:59

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/08/1996
START TIME (HR:MIN:SEC) = 15:39:52 USER NO. = BRASHERE.I01
INPUT FILE = 6079SITE.DAT

*S DOS CAMINOS (6079MIAM.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S MIAMI ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1
* 1 LOTS ON JUNIPER
COMPUTE NM HYD ID=1 HYD NO= 1 DA=0.0005 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.4169 CFS UNIT VOLUME = .9926 B = 526.28 P60 = 1.9000
AREA = .000350 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .40908 CFS UNIT VOLUME = .9690 B = 354.54 P60 = 1.9000
AREA = .000150 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

OUTFLOW HYDROGRAPH REACH 1.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.3	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	1.3	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.6	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.4	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.3	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.1	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.0	3.667	.0	5.000	.0		
1.167	.0	2.500	.0	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.63371 INCHES = .0436 ACRE-FEET
PEAK DISCHARGE RATE = 1.26 CFS AT 1.500 HOURS BASIN AREA = .0005 SQ. MI.

* 2 ESTANCIA DRIVE (DRAINING SOUTH)
COMPUTE NM HYD ID=2 HYD NO= 2 DA=0.0019 SQ MI
PER A=0 PER B=5 PER C=5
PER D=90 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.7664 CFS UNIT VOLUME = .9977 B = 526.28 P60 = 1.9000
AREA = .001710 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .50648 CFS UNIT VOLUME = .9729 B = 354.54 P60 = 1.9000
AREA = .000190 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

OUTFLOW HYDROGRAPH REACH 2.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.5	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	5.2	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	2.6	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	1.7	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	1.2	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.6	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.3	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.86202 INCHES = .1887 ACRE-FEET
PEAK DISCHARGE RATE = 5.18 CFS AT 1.500 HOURS BASIN AREA = .0019 SQ. MI.

* 3 LOTS ON ESTANCIA
COMPUTE NM HYD ID=3 HYD NO= 3 DA=0.0023 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.2626 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.9000
AREA = .001840 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118512HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.2232 CFS UNIT VOLUME = .9896 B = 354.54 P60 = 1.9000
AREA = .000460 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=3 CODE=5

OUTFLOW HYDROGRAPH REACH 3.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.6	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	6.0	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.0	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	1.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	1.4	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.6	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.3	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.74787 INCHES = .2144 ACRE-FEET
PEAK DISCHARGE RATE = 5.97 CFS AT 1.500 HOURS BASIN AREA = .0023 SQ. MI.

* 4 SOUTH INTERIOR STREET
COMPUTE NM HYD

ID=4 HYD NO= 4 DA=.0028 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.8414 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.9000
AREA = .002240 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118513HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.4891 CFS UNIT VOLUME = .9914 B = 354.54 P60 = 1.9000
AREA = .000560 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=4 CODE=5

OUTFLOW HYDROGRAPH REACH 4.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	7.3	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	2.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	1.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.8	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.4	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.74787 INCHES = .2610 ACRE-FEET
PEAK DISCHARGE RATE = 7.26 CFS AT 1.500 HOURS BASIN AREA = .0028 SQ. MI.

* 5 EAST INTERIOR STREET (SOUTH END)
COMPUTE NM HYD

ID=5 HYD NO= 5 DA=0.00326 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.294 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.9000
AREA = .002608 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118513HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.7337 CFS UNIT VOLUME = .9930 B = 354.54 P60 = 1.9000
AREA = .000652 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=5 CODE=5

OUTFLOW HYDROGRAPH REACH 5.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	8.5	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	4.3	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	2.7	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	1.9	3.500	.0	5.000	.0	6.500	.0
.667	.0	2.167	.9	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.4	3.833	.0	5.333	.0		
1.000	.0	2.500	.3	4.000	.0	5.500	.0		
1.167	.0	2.667	.2	4.167	.0	5.667	.0		
1.333	2.3	2.833	.1	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.74787 INCHES = .3039 ACRE-FEET
PEAK DISCHARGE RATE = 8.45 CFS AT 1.500 HOURS BASIN AREA = .0033 SQ. MI.

* 6 ESTANCIA DRIVE (DRAINING NORTH)
COMPUTE NM HYD

ID=6 HYD NO= 6 DA=0.0003 SQ MI
PER A=0 PER B=0 PER C=20
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = .94730 CFS UNIT VOLUME = .9881 B = 526.28 P60 = 1.9000
AREA = .000240 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .106231HR TP = .133333HR K/TP RATIO = .796738 SHAPE CONSTANT, N = 4.498737
UNIT PEAK = .17422 CFS UNIT VOLUME = .9290 B = 387.15 P60 = 1.9000
AREA = .000060 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=6 CODE=5

OUTFLOW HYDROGRAPH REACH 6.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.2	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	.8	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.4	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.3	3.167	.0	4.500	.0	5.833	.0

.667	.0	2.000	.2	3.333	.0	4.667	.0	6.167	.0
.833	.0	2.167	.1	3.500	.0	4.833	.0		
1.000	.0	2.333	.0	3.667	.0	5.000	.0		
1.167	.0	2.500	.0	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.78409 INCHES = .0285 ACRE-FEET
PEAK DISCHARGE RATE = .81 CFS AT 1.500 HOURS BASIN AREA = .0003 SQ. MI.

* 7 6 LOTS ON MIAMI
COMPUTE NM HYD ID=7 HYD NO= 7 DA=0.0010 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=0.13333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.7630 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.9000
AREA = .000700 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118512HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .79771 CFS UNIT VOLUME = .9831 B = 354.54 P60 = 1.9000
AREA = .000300 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=7 CODE=5

OUTFLOW HYDROGRAPH REACH 7.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.6	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	2.5	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.3	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.8	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.2	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.63371 INCHES = .0871 ACRE-FEET
PEAK DISCHARGE RATE = 2.48 CFS AT 1.500 HOURS BASIN AREA = .0010 SQ. MI.

* 8 EAST INTERIOR STREET (NORTH END)
COMPUTE NM HYD ID=8 HYD NO= 8 DA=.00358 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=.133HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.145 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .002506 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 2.9290 CFS UNIT VOLUME = .9957 B = 354.54 P60 = 1.9000
AREA = .001074 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=8 CODE=5

OUTFLOW HYDROGRAPH REACH 8.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	8.9	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	4.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	2.7	3.333	.0	4.833	.0	6.333	.0
.500	.0	2.000	1.9	3.500	.0	5.000	.0	6.500	.0
.667	.0	2.167	.9	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.4	3.833	.0	5.333	.0		
1.000	.0	2.500	.3	4.000	.0	5.500	.0		
1.167	.0	2.667	.2	4.167	.0	5.667	.0		
1.333	2.3	2.833	.1	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.63371 INCHES = .3119 ACRE-FEET
PEAK DISCHARGE RATE = 8.95 CFS AT 1.500 HOURS BASIN AREA = .0036 SQ. MI.

* 9 MIAMI ROAD
COMPUTE NM HYD ID=9 HYD NO= 9 DA=.0011 SQ MI
PER A=0 PER B=0 PER C=20
PER D=80 TP=.1333HR MASSRAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.4743 CFS UNIT VOLUME = .9961 B = 526.28 P60 = 1.9000
AREA = .000880 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .106205HR TP = .133300HR K/TP RATIO = .796738 SHAPE CONSTANT, N = 4.498737
UNIT PEAK = .63895 CFS UNIT VOLUME = .9801 B = 387.15 P60 = 1.9000
AREA = .000220 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=5

OUTFLOW HYDROGRAPH REACH 9.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.8	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	2.9	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.5	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.3	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.78409 INCHES = .1047 ACRE-FEET
PEAK DISCHARGE RATE = 2.93 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

* 10 MIAMI ROAD
COMPUTE NM HYD ID=10 HYD NO= 10 DA=.0008 SQ MI
PER A=0 PER B=43 PER C=43
PER D=14 TP=.1333HR MASSRAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = .44218 CFS UNIT VOLUME = .9751 B = 526.28 P60 = 1.9000
AREA = .000112 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118483HR TP = .133300HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.8299 CFS UNIT VOLUME = .9930 B = 354.54 P60 = 1.9000
AREA = .000688 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=10 CODE=5

OUTFLOW HYDROGRAPH REACH 10.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.1	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	1.4	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.8	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.4	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.2	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.1	3.500	.0	4.833	.0		
1.000	.0	2.333	.1	3.667	.0	5.000	.0		
1.167	.0	2.500	.0	3.833	.0	5.167	.0		

RUNOFF VOLUME = .99442 INCHES = .0424 ACRE-FEET
PEAK DISCHARGE RATE = 1.43 CFS AT 1.500 HOURS BASIN AREA = .0008 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:39:54

ABHYMO SUMMARY TABLE (ABHYMO194) - AMAFCA Hydrologic Model - January, 1994
INPUT FILE = 6079SITE.DAT

RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
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[illegible]



CITY OF
Albuquerque

December 17, 1996

Martin J. Chávez, Mayor

Dennis Lorenz
Brasher & Lorenz, Inc.
2201 San Pedro NE
Building #1 - Suite 210
Albuquerque, NM 87110

RE: DOS CAMINOS SUBDIVISION (H11-D55). DRAINAGE REPORT FOR PRELIMINARY PLAT APPROVAL. ENGINEER'S STAMP DATED 12-12-96.

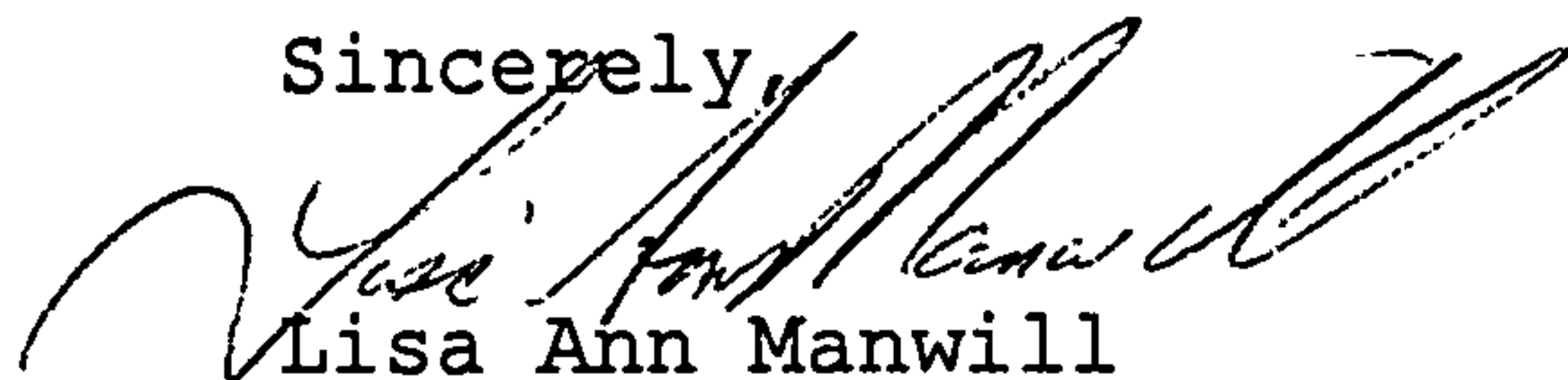
Dear Mr. Lorenz:

Based on the information provided on your December 12, 1996 submittal, City Hydrology has the following comments:

1. Preliminary Plat approval will require a commitment by AMAFCA to construct the storm drain and inlets in Miami Road to eliminate the floodplain encumbering this site. A Letter of Map Amendment (LOMR) must be obtained prior to release of Financial Guarantees.
2. Show roof drain locations. No developed flow can drain to the rear yard ponds. Show pad elevation to mean sea level.
3. The design of this project should be based on the ultimate storm drain in Miami Road. The Miami Road swale will not be considered with this plat action.
4. Prior to Final Plat, a Conditional Letter of Map Amendment (CLOMR) will be required.

If I can be of further assistance, please contact me at 768-3622.

Sincerely,



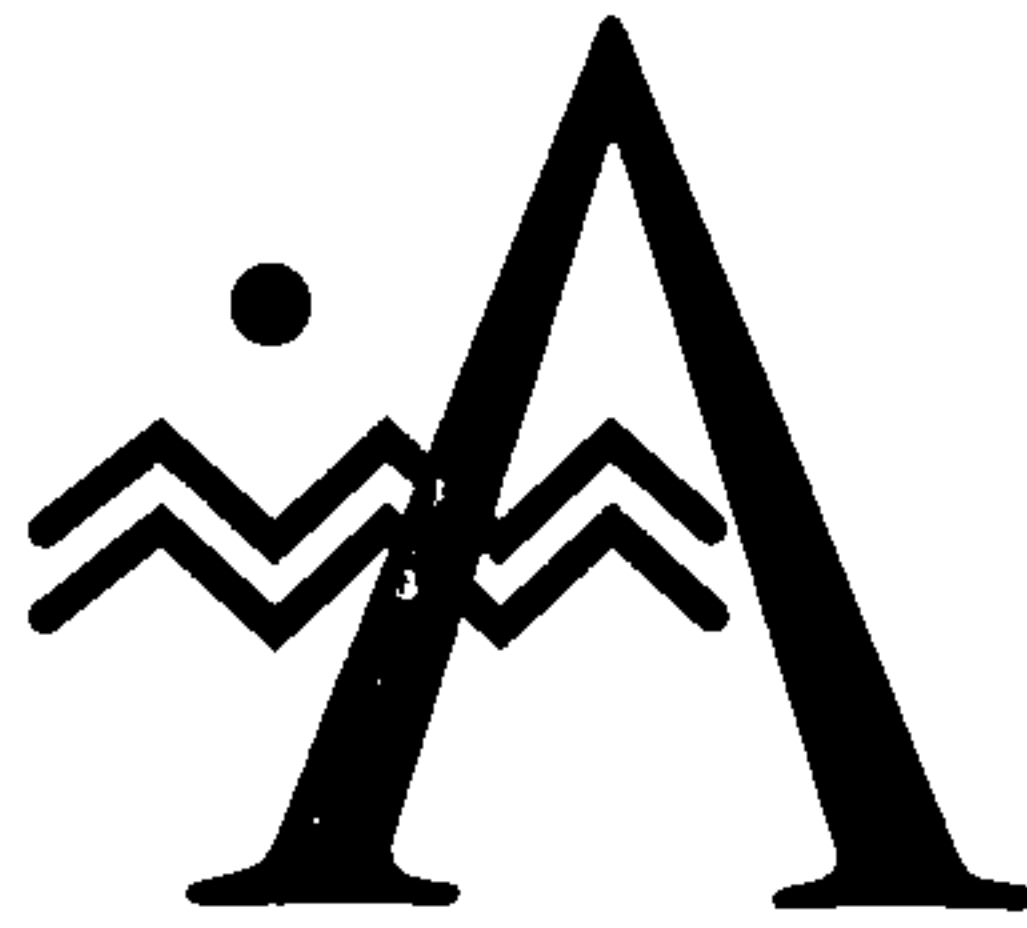
Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Kurt Browning - AMAFCA
Fred Aguirre - COA
Susan Calongne - COA
Andrew Garcia - COA

File

Good for You, Albuquerque!





CITY OF
Albuquerque

January 8, 1997

*Work
Release of Per Cons
will be conditioned
on storm drain
inlets @ Miami
Miami being
constructed*

Martin J. Chávez, Mayor

Dennis Lorenz
Brasher & Lorenz, Inc.
2201 San Pedro NE
Building #1 - Suite 210
Albuquerque, NM 87110

RE: DOS CAMINOS SUBDIVISION (H11-D55). DRAINAGE REPORT FOR PRELIMINARY PLAT APPROVAL. ENGINEER'S STAMP DATED 12-24-96.

Dear Mr. Lorenz:

Based on the information provided on your December 27, 1996 submittal, the above referenced project is approved for Preliminary Plat.

Prior to further approvals, please address the following comments:

1. Please discuss more thoroughly the drop inlet(s) from Miami Road to the AMAFCA stub-out. This inlet should be included on the infrastructure list.
2. Discuss the future inlets on Miami Road.
3. Please describe the entire Juniper storm drain system on the infrastructure list.
4. As clarification, no developed flows are allowed to enter rear yard ponds. This includes roofs.

If I can be of further assistance, please contact me at 768-3622.

Sincerely,

Lisa Ann Manwill
Engineering Assoc./Hyd.

c: Kurt Browning - AMAFCA
Fred Aguirre - COA
Andrew Garcia - COA
File

Good for You, Albuquerque!





Martin J. Chávez, Mayor

July 8, 1997

Robert E. Gurulé, Director

Dennis A. Lorenz, P.E.
Brasher & Lorenz, Inc.
2201 San Pedro NE, Building 1, Suite 210
Albuquerque, New Mexico 87110

**RE: Revised Grading and Drainage Plan for Dos Caminos Subdivision (H11/D55)
Submitted for Preliminary and Final Plat Approval, Engineer's Stamp Dated 7/3/97.**

Dear Mr. Lorenz:

City Hydrology has no objection to the above referenced amended Grading and Drainage Plan, however, this plan must be finalized by the DRB.

The Grading and Drainage Certification of the plan which is approved at DRB is required prior to release of Financial Guarantees for this project. The Letter of Map Revision from FEMA is also required for release of Financial Guarantees.

If you should have any questions, please feel free to call me at 924-3982.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Susan Calongne'.

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

c: Fred Aguirre (DRB-96-282)
Bo Johnson, Bokay Construction
File

Good for You, Albuquerque!

P.O. Box 1293, Albuquerque, New Mexico 87103



DRAINAGE INFORMATION SHEET

PROJECT TITLE: DOS CAMINOS SUBDIVISION ZONE ATLAS/DRNG. FILE #: H11-D55
 DRB #: 96-282 EPC #: _____ WORK ORDER #: _____
 LEGAL DESCRIPTION: UNIT 8, TOWN OF ATRISIO GRANTS, TRACTS 311, 312
 CITY ADDRESS: ESTANCIA DRIVE NW

ENGINEERING FIRM: Brasher & Lorenz, Inc. CONTACT: Dennis A. Lorenz
2201 San Pedro NE Bldg. 1 Suite 210
 ADDRESS: Albuquerque, New Mexico 87110 PHONE: 888-6088

OWNER: BORAY CONSTRUCTION CONTACT: BO. JOHNSON
 ADDRESS: 5905 AZVELO CT NW PHONE: 899-9656

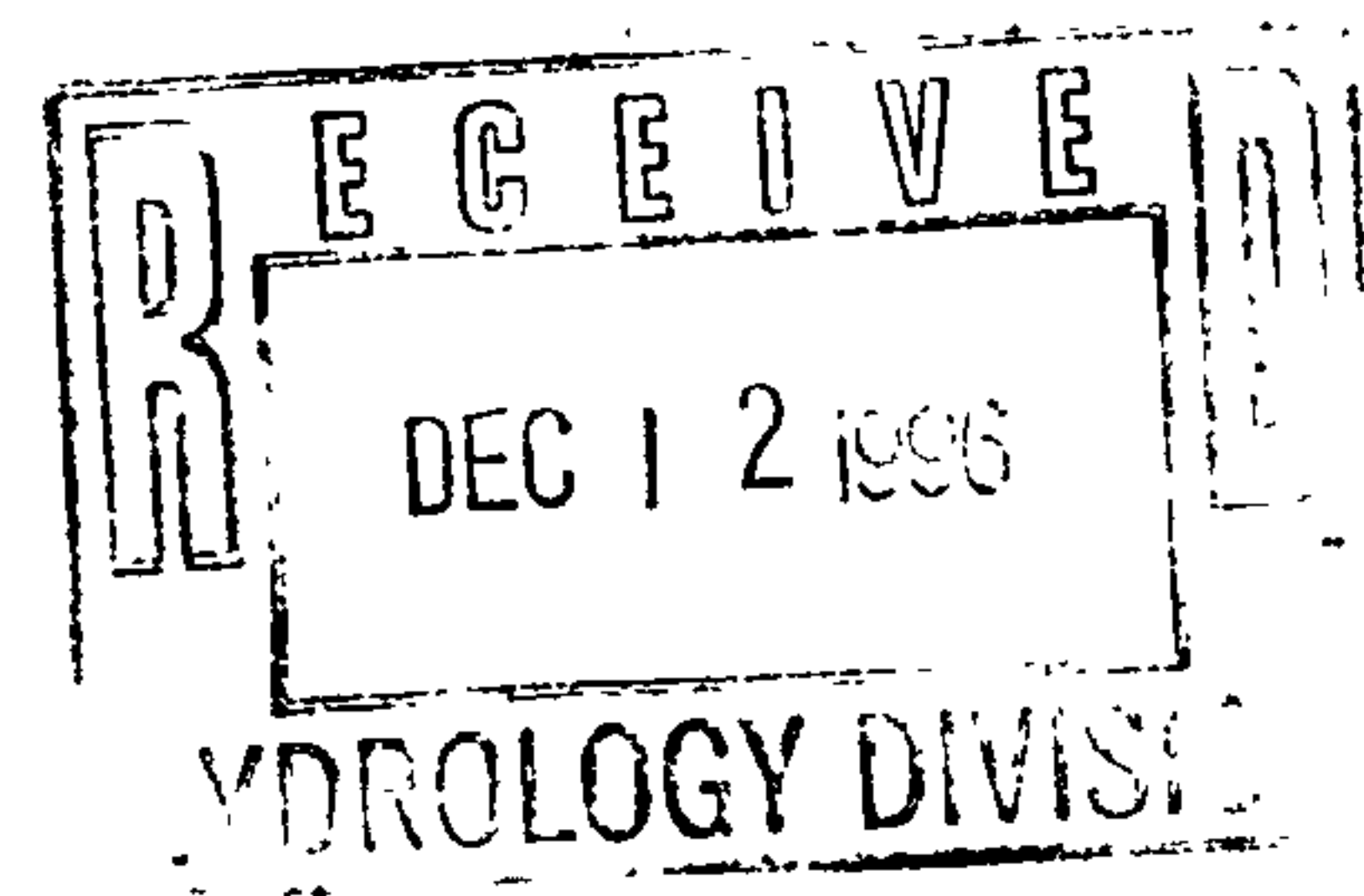
ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

SURVEYOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

- | | |
|--|--|
| <p>TYPE OF SUBMITTAL:</p> <p>☒ DRAINAGE REPORT</p> <p>☐ DRAINAGE PLAN</p> <p>☐ CONCEPTUAL GRADING & DRAINAGE PLAN</p> <p>☐ GRADING PLAN</p> <p>☐ EROSION CONTROL PLAN</p> <p>☐ ENGINEER'S CERTIFICATION</p> <p>☐ OTHER _____</p> <p>PRE-DESIGN MEETING:</p> <p>☐ YES</p> <p>☐ NO</p> <p>☐ COPY PROVIDED</p> | <p>CHECK TYPE OF APPROVAL SOUGHT:</p> <p>☐ SKETCH PLAT APPROVAL</p> <p>☒ PRELIMINARY PLAT APPROVAL</p> <p>☐ S. DEV. PLAN FOR SUB'D. APPROVAL</p> <p>☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL</p> <p>☐ SECTOR PLAN APPROVAL</p> <p>☐ FINAL PLAT APPROVAL</p> <p>☐ FOUNDATION PERMIT APPROVAL</p> <p>☐ BUILDING PERMIT APPROVAL</p> <p>☐ CERTIFICATE OF OCCUPANCY APPROVAL</p> <p>☐ GRADING PERMIT APPROVAL</p> <p>☐ PAVING PERMIT APPROVAL</p> <p>☐ S.A.D. DRAINAGE REPORT</p> <p>☐ DRAINAGE REQUIREMENTS</p> <p>☐ OTHER _____ (SPECIFY)</p> |
|--|--|

DATE SUBMITTED: 12-11-96
 BY: Dennis A. Lorenz



BRASHER & LORENZ, INC.
CONSULTING ENGINEERS

2201 SAN PEDRO NE BUILDING 1 SUITE 210 ALBUQUERQUE, NM 87110 PHONE (505) 888-6088 FAX (505) 888-6188

December 10, 1996

City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Attn: John P. Curtin, P.E., Civil Engineer, Hydrology

Re: Drainage Report for Dos Caminos Subdivision (H-11/D55)

Dear Mr. Curtin:

I addressed your comments (attached) as follows:

The DRB# for this subdivision is **96-282**. Copies of the proposed preliminary plat and infrastructure list are attached.

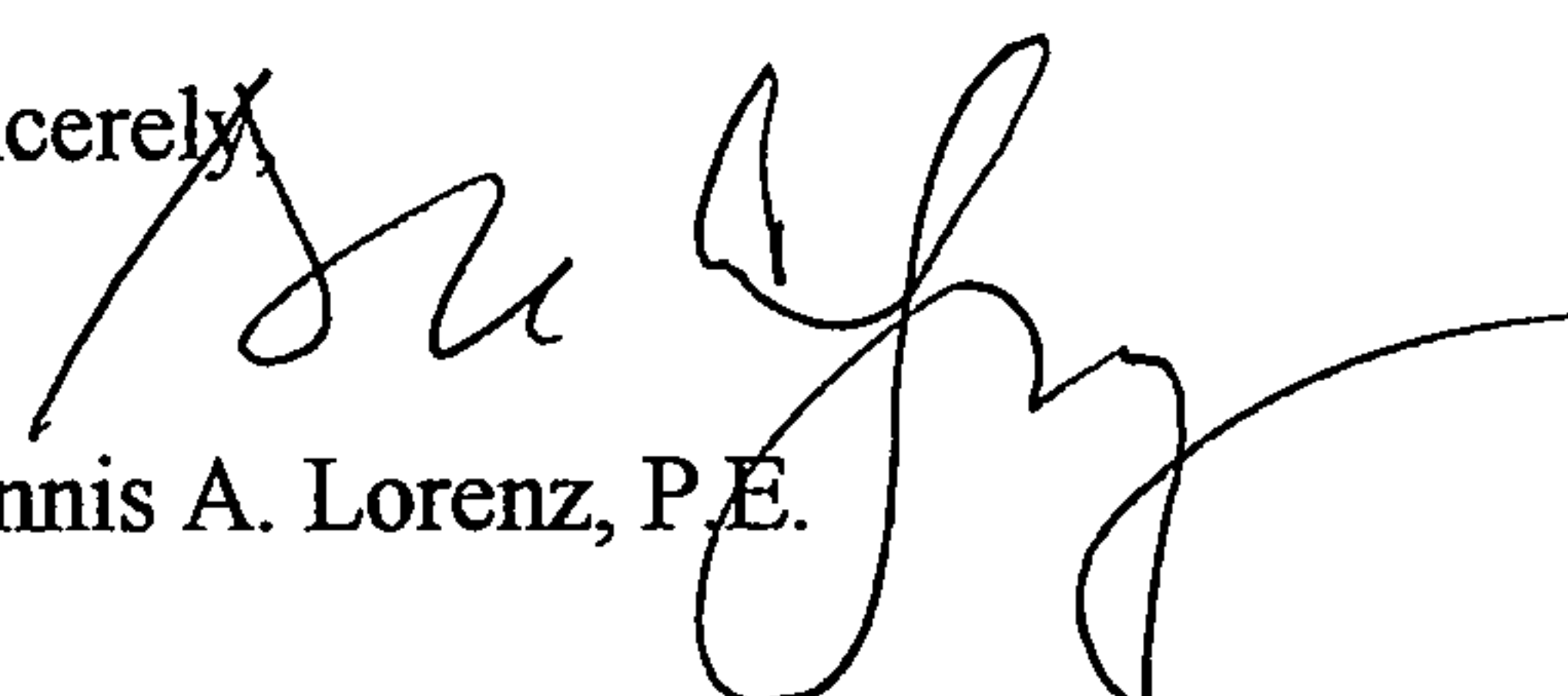
Existing and Developed Basin Maps are now labeled. Basin A will not flow south on Estancia Drive because we will construct a water block on Estancia with a high point 150 feet south of the Estancia/Miami intersection. There will be no bar ditch on the west side of Estancia Drive for 20 feet in the vicinity of the high point to prevent stormwater from flowing south in the bar ditch.

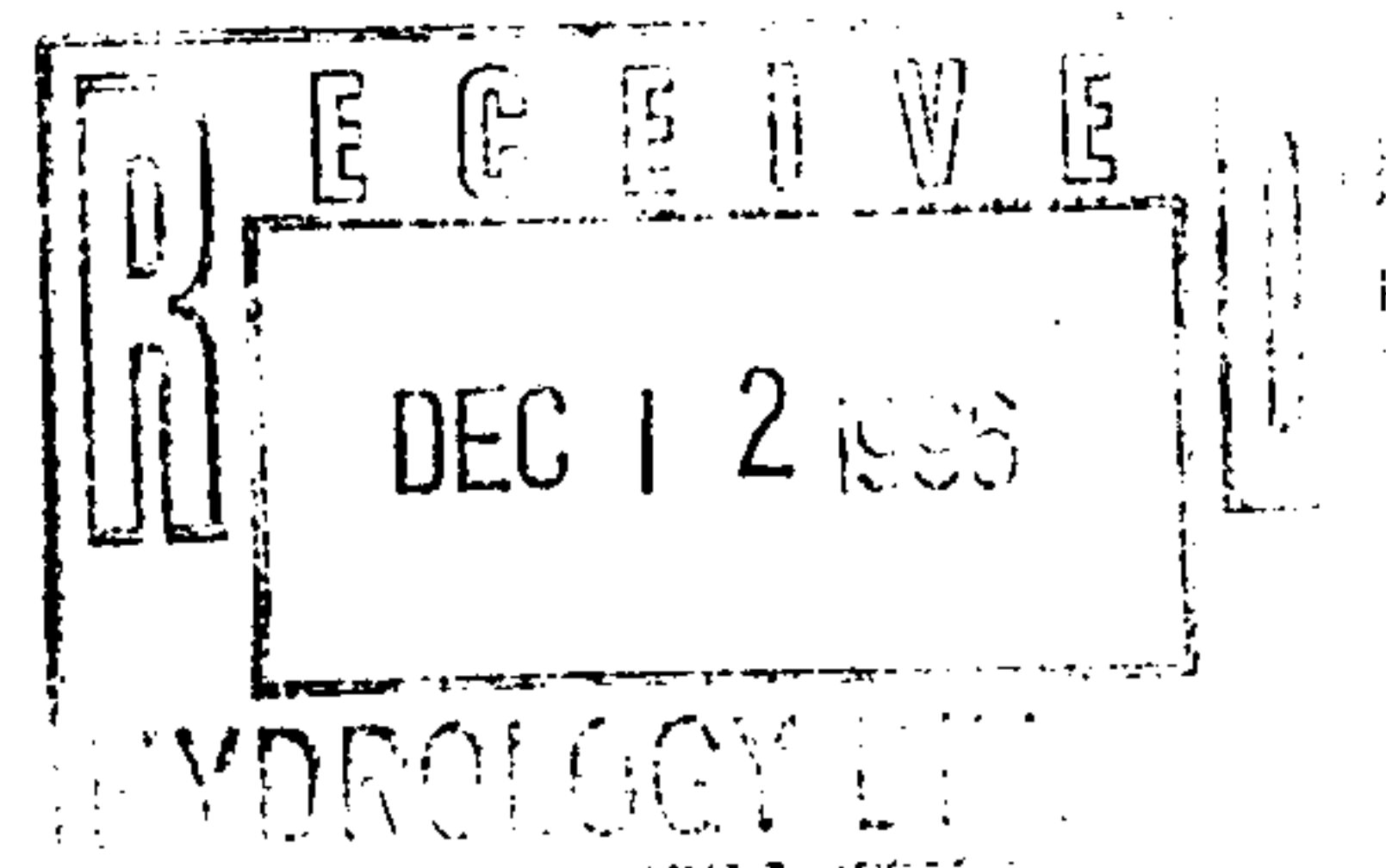
The Summer Ray 2 pond is not designed to retain any runoff from Basin A.

I corrected the AHYMO calculations for Basins A and E as you requested.

Thank you.

Sincerely,


Dennis A. Lorenz, P.E.





CITY OF
Albuquerque

P.O. Box 1293 Albuquerque, NM 87103

November 20, 1996

Martin J. Chávez, Mayor

Dennis A. Lorenz, PE
2201 San Pedro NE Bldg 1 Suite 210
Albuquerque, NM 87110

RE: DRAINAGE REPORT FOR DOS CAMINOS SUBDIVISION (H-11/D55)
RECEIVED NOVEMBER 12, 1996 FOR PRELIMINARY PLAT
ENGINEER'S STAMP DATED 11-5-96

Dear Mr. Lorenz:

Based on the information included in the submittal referenced above, City Hydrology has the following comments that must be addressed before preliminary plat:

What is the DRB number for this subdivision? Include a copy of the proposed preliminary plat & infrastructure list in the next submittal.

Label the Existing & Developed Basin Maps. What prevents basin A from flowing south on Estancia instead of flowing east on Miami? Was the Summer Ray 2 pond designed to retain any of the runoff from Basin A.

Table B-1 indicates that sheet flow is only applicable for the upper 400' (maximum) of the basin. Typically, a $K = 2$ is used for the reach between 400' and 2000'. This will effect the T_p for Basins A & E. For Basin A T_p will be 0.27 hr instead of 0.54 hr.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer, Hydrology

c: Andrew Garcia
Fred Aguirre, DRB ??-???
Bo Johnson, Bokay Construction/Mgt Inc, 5905 Azuelo Ct NW 87120

Good for You, Albuquerque!

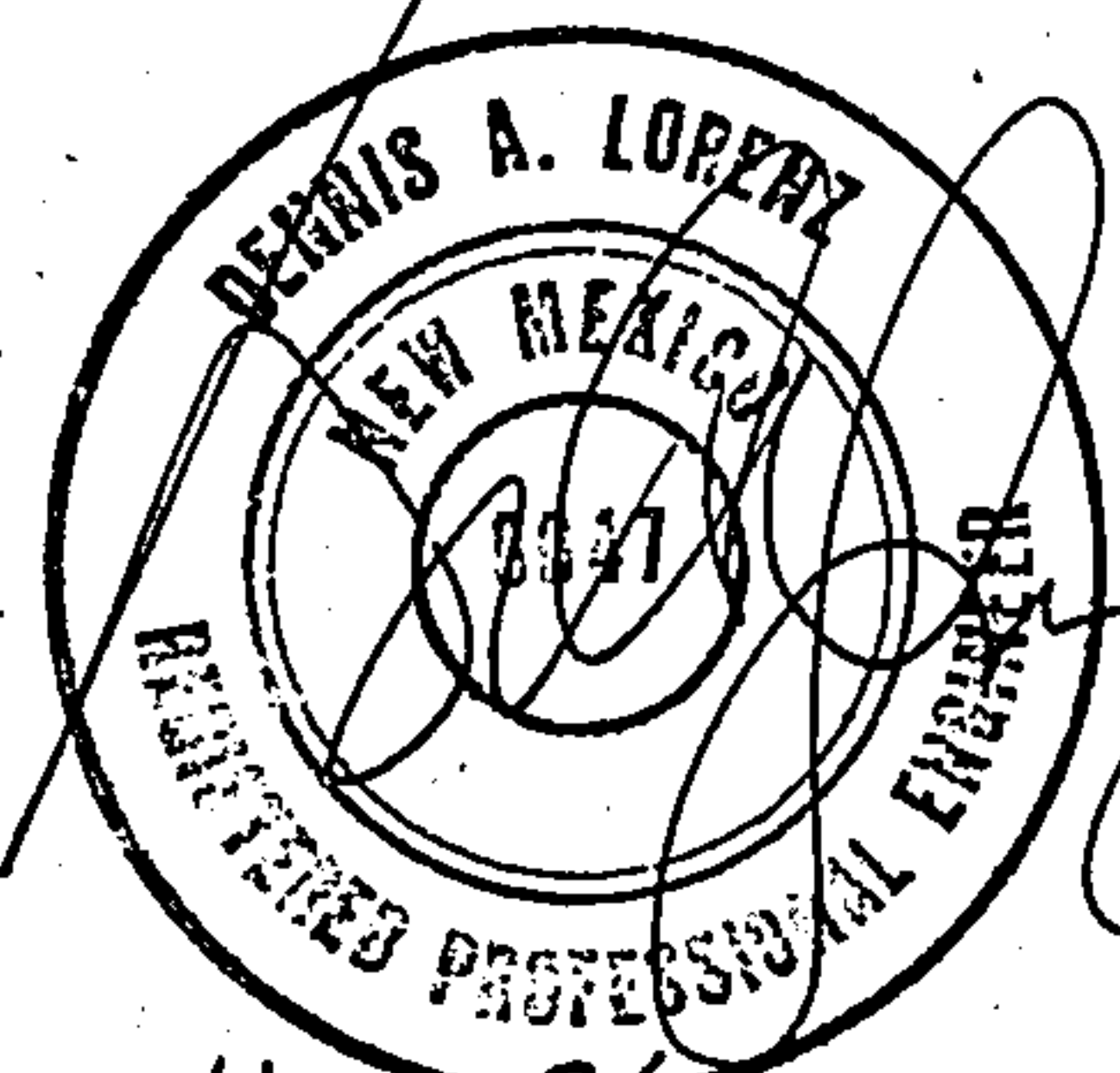
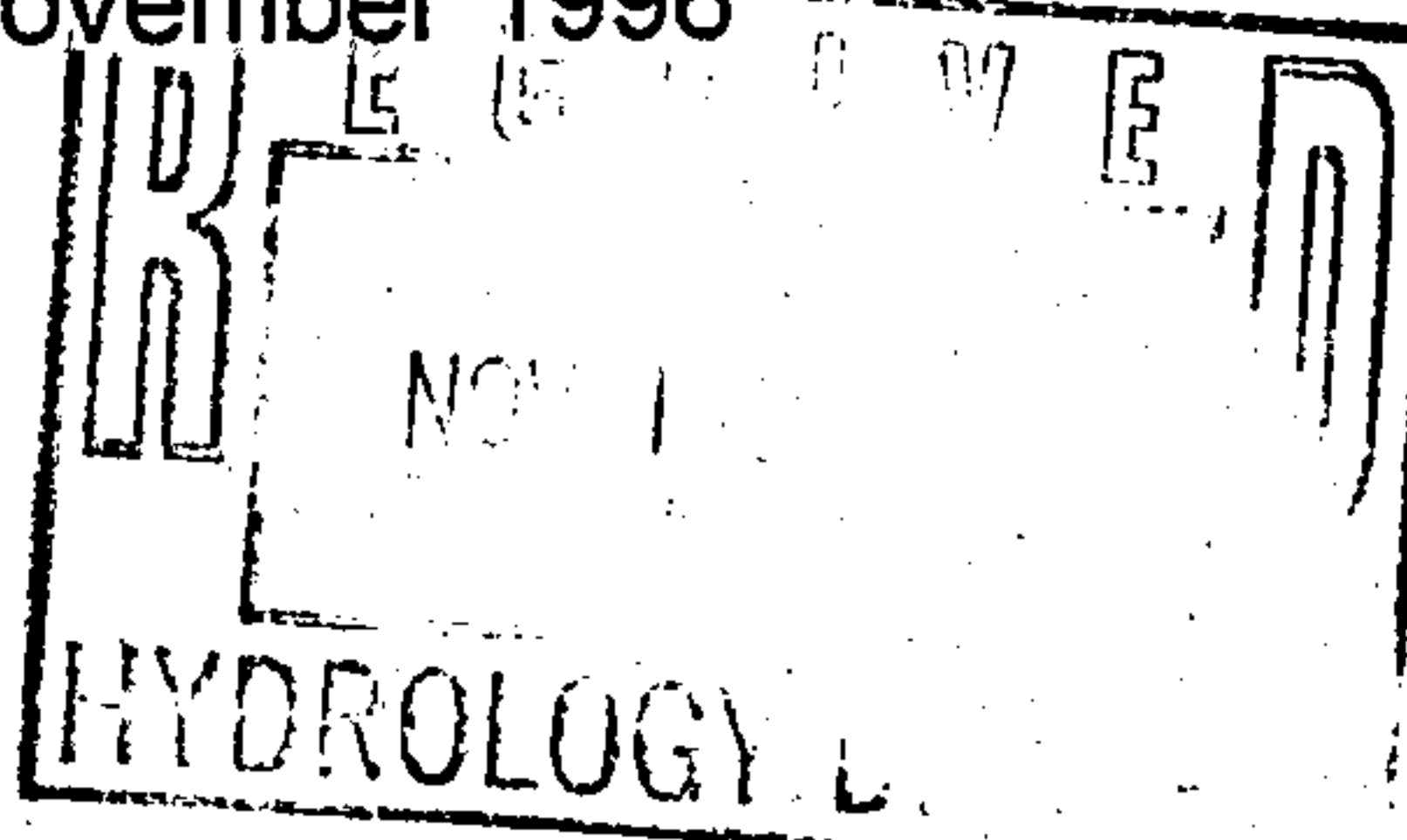


DRAINAGE REPORT
FOR
DOS CAMINOS SUBDIVISION
Albuquerque, New Mexico

Prepared by:

BRASHER & LORENZ, INC.
Consulting Engineers
2201 San Pedro NE Building 1, Suite 210
Albuquerque, New Mexico 87110

November 1996



11-5-96

DRAINAGE INFORMATION SHEET

PROJECT TITLE: DOS CAMINOS SUBDIV. ZONE ATLAS/DRNG. FILE #: H-11/455

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

LEGAL DESCRIPTION: REMAINING PORTION OF TRACTS 311 & 312, UNIT 8, TOWN OF ATRISCO GRANT

CITY ADDRESS: MIAMI ROAD NW & ESTANCIA DRIVE NW

ENGINEERING FIRM: Brasher & Lorenz, Inc. CONTACT: Dennis A. Lorenz
 2201 San Pedro NE Bldg. 1 Suite 210
 ADDRESS: Albuquerque, New Mexico 87110 PHONE: 888-6088

OWNER: BOKAY CONSTRUCTION/MGT., INC. CONTACT: BO K. JOHNSON
 ADDRESS: 5905 AZUELO CT. NW 87120 PHONE: 899-9656

ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

SURVEYOR: ALBUQUERQUE SURVEYING CO. CONTACT: VLADIMIR JIRIK
 ADDRESS: 2119 MENAUL BLVD NE PHONE: 884-2036
 87107

CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____

TYPE OF SUBMITTAL:

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

PRE-DESIGN MEETING:

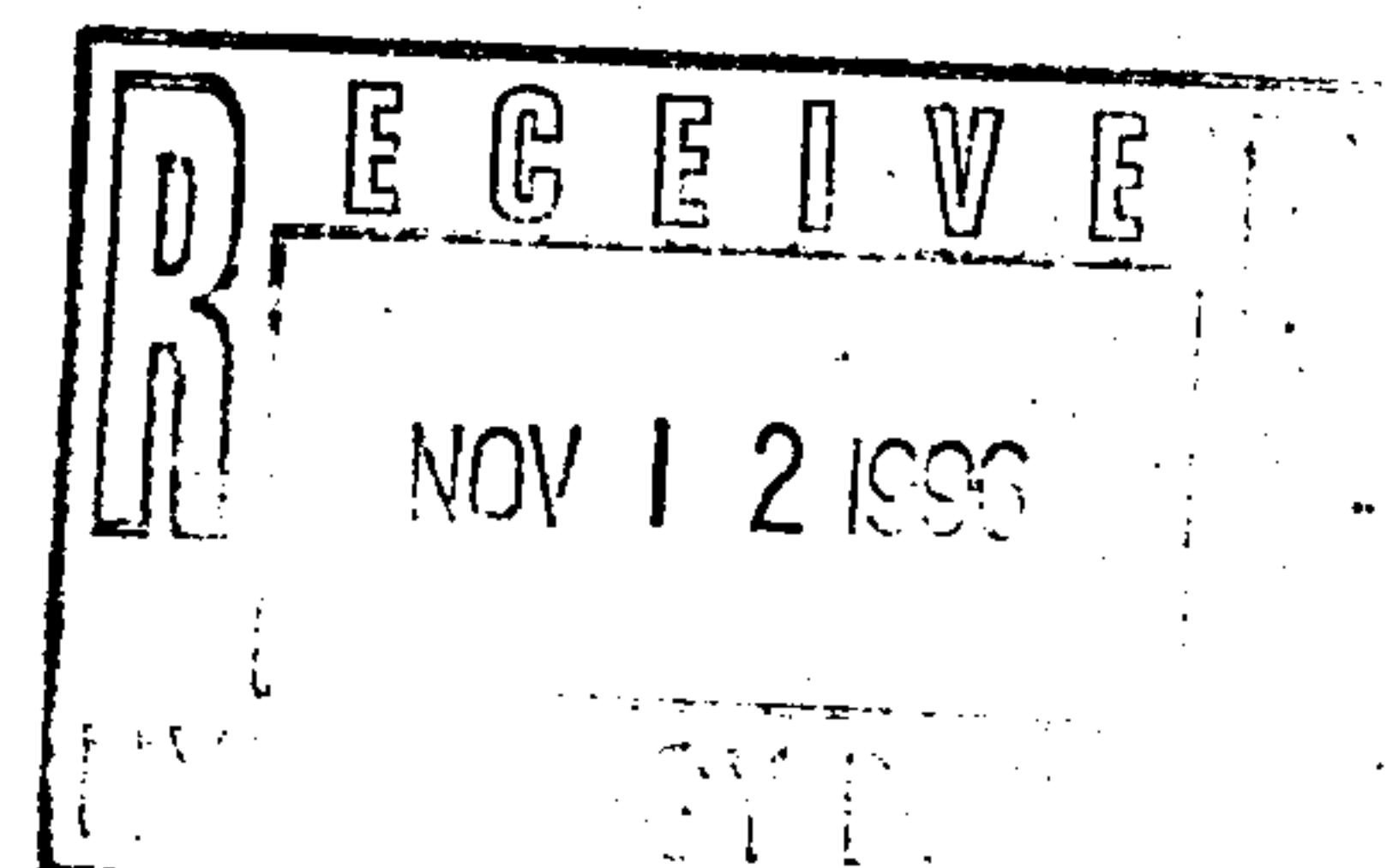
- ☒ YES
- ☐ NO
- ☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

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

DATE SUBMITTED: 11-5-96

BY: Dennis A. Lorenz





CITY OF
Albuquerque

P.O. Box 1293 Albuquerque, NM 87103

November 20, 1996

Martin J. Chávez, Mayor

Dennis A. Lorenz, PE
2201 San Pedro NE Bldg 1 Suite 210
Albuquerque, NM 87110

RE: DRAINAGE REPORT FOR DOS CAMINOS SUBDIVISION (H-11/D55)
RECEIVED NOVEMBER 12, 1996 FOR PRELIMINARY PLAT
ENGINEER'S STAMP DATED 11-5-96

Dear Mr. Lorenz:

Based on the information included in the submittal referenced above, City Hydrology has the following comments that must be addressed before preliminary plat:

What is the DRB number for this subdivision? Include a copy of the proposed preliminary plat & infrastructure list in the next submittal.

Label the Existing & Developed Basin Maps. What prevents basin A from flowing south on Estancia instead of flowing east on Miami? Was the Summer Ray 2 pond designed to retain any of the runoff from Basin A.

Table B-1 indicates that sheet flow is only applicable for the upper 400' (maximum) of the basin. Typically, a $K = 2$ is used for the reach between 400' and 2000'. This will effect the T_p for Basins A & E. For Basin A T_p will be 0.27 hr instead of 0.54 hr.

If you have any questions about this project, You may contact me at 768-2727.

Sincerely,

John P. Curtin, P.E.
Civil Engineer, Hydrology

c: Andrew Garcia
Fred Aguirre, DRB ??-???
Bo Johnson, Bokay Construction/Mgt Inc, 5905 Azuelo Ct NW 87120

Good for You, Albuquerque!



DRAINAGE INFORMATION SHEET

PROJECT TITLE: DOS CAMINOS ZONE ATLAS/DRNG. FILE #: H11/155
 DRB #: 96-282 EPC #: — WORK ORDER #: —
 LEGAL DESCRIPTION: TRACTS 311 + 312 UNIT 8 TOWN OF ATRISCO GRT
 CITY ADDRESS: ESTANCIA NW

ENGINEERING FIRM: Brasher & Lorenz, Inc. CONTACT: Dennis A. Lorenz
2201 San Pedro NE Bldg. 1 Suite 210
 ADDRESS: Albuquerque, New Mexico 87110 PHONE: 888-6088
 OWNER: BOKAY CONST. CONTACT: BO JOHNSON
 ADDRESS: 5905 AZUELO CT NW PHONE: 899-9656
 ARCHITECT: NA CONTACT: —
 ADDRESS: — PHONE: —
 SURVEYOR: ALBA SURVEYING CONTACT: V. JIRIK
 ADDRESS: 2119 MENAUL NE PHONE: 884-3796
 CONTRACTOR: NA CONTACT: —
 ADDRESS: — PHONE: —

TYPE OF SUBMITTAL:

☒ DRAINAGE REPORT
☐ DRAINAGE PLAN
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION
☐ OTHER Additional Info

PRE-DESIGN MEETING:

☒ YES
☐ NO
☐ COPY PROVIDED

*Talked to
 Dennis on 11-26-96
 This is a
 non-submittal.*

*APC
 11-20-96*

CHECK TYPE OF APPROVAL SOUGHT:

☐ SKETCH PLAT APPROVAL
☒ PRELIMINARY PLAT APPROVAL
☐ S. DEV. PLAN FOR SUB'D. APPROVAL
☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY APPROVAL
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ S.A.D. DRAINAGE REPORT
☐ DRAINAGE REQUIREMENTS
☐ OTHER — (SPECIFY)

DATE SUBMITTED:

BY: Dennis A. Lorenz

NOV 20 1996

HYDROLOGY

ATTN:

J. CURTIN

TABLE OF CONTENTS

TITLE	PAGE NO.
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EXISTING CONDITIONS	1
DEVELOPED CONDITIONS	3
Drainage Facilities	3
Basins that Drain to Miami Swale and Drop Inlet	4
Basins that Drain to Juniper Storm Drain Network	5
Analysis of On-Site Flows	6
TEMPORARY EROSION CONTROL	7

LIST OF FIGURES AND EXHIBITS

TITLE	PAGE NO.
MAPS	APPENDIX
CALCULATIONS	APPENDIX
GRADING AND DRAINAGE MASTER PLAN	POCKET

PURPOSE AND SCOPE

PURPOSE AND SCOPE

Pursuant to the established Drainage Ordinance for the City of Albuquerque and the Development Process Manual, this Drainage Report outlines the drainage management criteria for controlling developed runoff from the project site. The property is to be developed as Dos Caminos Subdivision, a 71 lot residential subdivision, with associated paving, landscaping, utility, grading and drainage improvements. The scope of this plan is to provide drainage criteria for the safe management of excess runoff, and design detail for the construction of the required grading, paving and drainage improvements.

EXISTING CONDITIONS

7.7 Du/AC

The project site is approximately 9.2 acres and is located northwest of the I-40-Coors Rd. interchange. It is bounded by Miami Road on the north, Juniper Road on the south, Estancia Drive on the west and an undeveloped tract to the east. Presently the site is undeveloped. The site is sparsely vegetated with native grasses and shrubs.

The site is the west half of an undrained playa that drains tracts from the north and west. These offsite flows cross the existing pavement on Estancia Drive and Miami Road to enter the site. Most of the site lies in a FEMA designated 100 year flood zone with a base flood elevation of 5195. Most of the site drains from west to east at a 1 percent slope. The north quarter of the site drains from north to south at a 2 percent slope. Elevations are about 5196 along the north and west tract lines. The site slopes gently to undrained depressions along the east tract line. These depressions have elevations of about 5191.

Adjacent properties that are drained by the subject site:

(See "Existing Conditions" map)

1. **Basin A:** 35 (approx.) acre undeveloped basin roughly bounded by Estancia Drive, Juniper Road, 64th. Street and Ouray Road. It generates a peak 100 year/6 hour discharge of 14.9 cfs. Water from the tract flows at a 1 percent slope in a southeasterly direction. It flows freely across the Estancia Drive/Miami Road intersection into the subject site.

2. **Basin B:** 5.3 (approx.) acre tract containing a school, parking lot and playground owned by the Seventh Day Adventist Church. The site generates about 16 cfs in the 100 year/6 hour flood. Water from this tract flows along the west side of Estancia Drive and crosses into the subject site across the Estancia Drive/Miami Road intersection.

3. **Basin C:** 5.3 (approx.) acre tract containing the Seventh Day Adventist Church building and parking lot. About half the tract is undeveloped. It generates 12.6 cfs in the 100 year/6 hour flood. Water from this tract flows freely across the existing temporary pavement on Estancia Drive into the subject site.

4. Site (Including Adjacent Streets) The undeveloped site and surrounding streets generate 17.2 cfs in the 100 year/6 hour flood.

5. Summary of Existing Basins

Basin	Description	100 yr/6 hr peak flow
A	vacant 35 acre tract nw of site	14.9 cfs
B	5.3 acre school and playground	16.0 cfs
C	5.3 acre church tract	12.6 cfs
Site	11.6 acres. Site and adjacent streets	17.2 cfs
	total	60.7 cfs

Adjacent land that is not drained by the subject site:
(See "Existing Conditions" map)

1. City Reservoir (under construction) This project will drain to Ouray Road.

2. Summer Ray Subdivision: The subdivision currently drains to a storm drain on 64th Street and temporary retention ponds on the east side of the tract. One retention pond will be replaced by a future connection to the proposed Miami Road stormdrain (not part of this project). The other pond will be replaced by a storm drain system on Juniper Road to be constructed as part of this project.

3. Tompiro Subdivision: The subdivision currently drains to a retention pond near Miami Road. This pond will be replaced by a connection to the proposed Miami Road storm drain. An isolated section of the 54" storm drain has already been constructed between Estancia Drive and the east boundary of the subject site.

5. Summary

DEVELOPED CONDITIONS

All of the stormwater from the Dos Caminos Subdivision will drain to the AMAFCA West Bluff Outfall, a 14'x14' concrete box culvert, currently under construction, that will drain to the Rio Grande.

The site will drain to two stubouts from the West Bluff Outfall: 1) a 36" stubout at Juniper Road and 2) a 72" stubout at Miami Road.

Drainage Facilities

1. Juniper Road Storm Drain Network

A permanent storm drain network will be constructed as part of this project. Drop inlets near the Juniper Road/Estancia Drive intersection will carry storm water to a drain that will lead to the 36" Juniper Road stubout from the AMAFCA West Bluff Outfall.

2. Miami Road Swale and Drop Inlet

A temporary 24' wide asphalt swale will be constructed along the centerline of Miami Road (currently unpaved) from the project to the AMAFCA West Bluff Outfall 72" Miami Road stubout. The swale will serve a dual purpose.

In addition to draining stormwater from the site, it will provide nearby residents with an improved driving surface. Miami Road is currently a poorly drained, muddy road. The swale will also provide neighbors with the opportunity to provide better drainage for their lots which currently lie in a 100-year flood plain.

The swale will drain to a drop inlet that will also be constructed as part of this project. The drop inlet will drain to the AMAFCA stub-out.

When the city completes the future Miami Road storm drain the subject site will be drained by drop inlets on Miami Road.

Basins that will Drain to Miami Swale and Drop Inlet

1. Basin A

Basin A is a 35 acre undeveloped tract that currently drains across the Estancia/Miami intersection to the subject site. Its 100 year/6 hour peak flow is 14.9 cfs. The flow from this Basin will be channeled into the temporary Miami swale by completion of the south side of Miami Road. The north side of Miami Road was already constructed as part of another project. The south side will be constructed as part of this project and will include standard curb and gutter.

It will produce considerable more runoff in the developed condition. The drainage plan for the adjacent Summer Ray Subdivision includes a low point in Miami Road that will capture all the runoff from Basin A. The drainage plan states that drop inlets at the low point will transport Basin A storm water into the future Miami Road storm drain.

The temporary Miami swale proposed here will be designed to handle existing flows only.

2. Basin B

Basin B is a 5.3 acre site occupied by the Seventh Day Adventist School and playground. It currently drains across the Estancia/Miami intersection to the subject site. Its 100 year/6 hour peak flow is 16 cfs. Flow from this basin will be channeled to the Miami Swale in the same manner as that of Basin A.

3. Basin C (North Section)

Basin C is a 5.3 acre tract occupied by the Seventh Day Adventist Church and parking lot. It currently drains across Estancia Drive into the subject site. This project includes reconstruction of Estancia Drive into an urban section with curb and gutter. Estancia Drive is currently a 20 foot wide paved street with unpaved shoulders and no drainage ditches.

The improved Estancia Drive will have a high point about 100 feet south of the intersection with Miami Road. This will divide Basin C so that the north 0.55 acres drain to Miami Road and the south 4.75 acres will drain to Juniper Road. the north 0.55 acres will only produce 0.7 cfs in the 100 year/6 hour storm.

4. Basin E

Basin E is a 20.2 acre undeveloped tract north of Miami Road that will drain into the Miami swale. It produces 13.5 cfs in the 100 year/6 hour storm. The swale will be sized to accomodate this flow.

5. Basin M

Basin M includes the portion of the proposed subdivision and adjacent streets that will drain to the Miami swale and drop inlet. It contains about 4.7 acres and generates 18.1 cfs.

6. Summary of Basins that will Drain to Miami Swale and Drop Inlet

Basin	Description	100 yr/6 hr peak flow
A	vacant 29 acre tract nw of site	14.9 cfs
B	5.3 acre school and playground	16.0 cfs
C	0.55 acres at north end of church tract	0.7 cfs
E	20.2 acre vacant tract ne of site	13.5 cfs
M	portion of subdivision to drain to Miami	18.1 cfs
	total	63.2 cfs
	capacity of proposed Miami Swale	65.5 cfs

Basins that will Drain to Juniper Storm Drain Network

1. Basin C (South Section)

As mentioned in the previous section, the reconstruction of Estancia Drive will divide Basin C into two basins, one flowing into the Miami Swale and one flowing to the Juniper Storm Drain Network. The south 4.75 acres will drain into the Juniper Storm Drain and will generate a 100 year/6 hour peak flow of 19.4 cfs. This analysis assumes full development of the property by the church.

2. Basin D

According to the Drainage Plan for the Summer Ray Subdivision, part of the subdivision generates a 100 year/6 hour peak flow of 15.87 cfs. This runoff is

drained by a temporary retention pond near the southwest corner of Basin C. The Juniper Storm Drain Network must be designed to accomodate this flow

3. Basin F

Basin F includes all of the Juniper Street right-of-way from 68th Street to the proposed end of Juniper Street near the proposed subdivision. Future plans call for Juniper Street to be a forty foot wide urban street with curb and gutter between 64th. Street and Estancia Drive. Currently the north side of Juniper Street is paved with standard curb and gutter from 64th Street to the west property line of the church tract (Basin C). A fully constructed Juniper Street will contain 1.7 acres and will generate a 100 year/6 hour peak runoff of 7.4 cfs.

4. Basin J

This is that portion of the proposed subdivision and adjacent streets that will drain to the Juniper Storm Drain Network. It contains 6.9 acres and will generate a 100 year/6 hour peak flow of 28.3 cfs.

5. Summary of Basins Draining to Juniper Storm Drain Network

Basin	Description	100 yr/6 hr peak flow
C	4.75 acre portion of church property	19.3 cfs
D	Summer Ray Subdivision	15.9 cfs
F	Future fully constructed Juniper Road	7.4 cfs
J	Portion of subdivision to drain to Juniper	28.3 cfs
	total	70.9 cfs

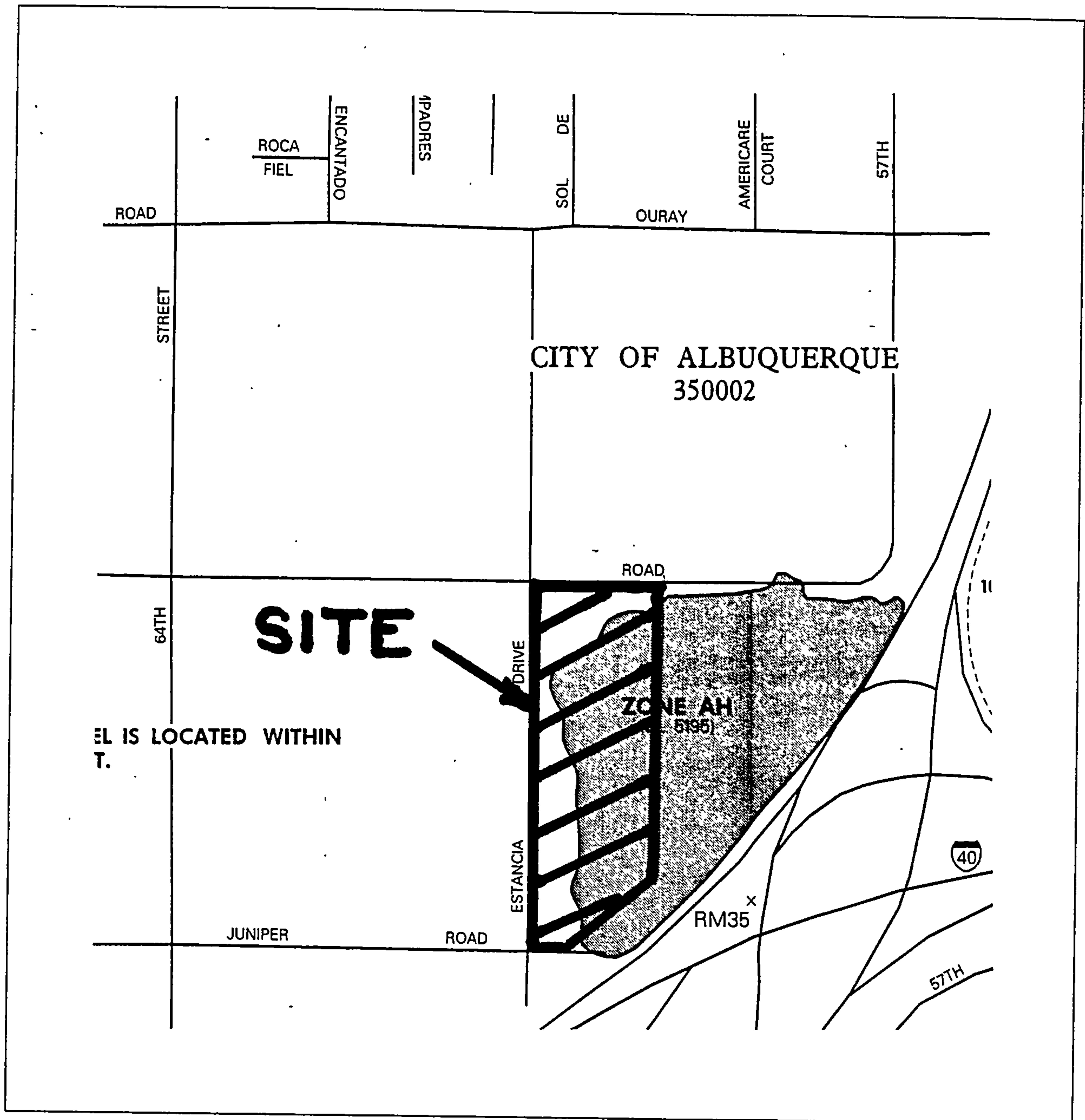
Analysis of On-Site Flows (See On-Site Flows Map)

The site was divided into 10 sub-basins to determine curb type and swale sizes.

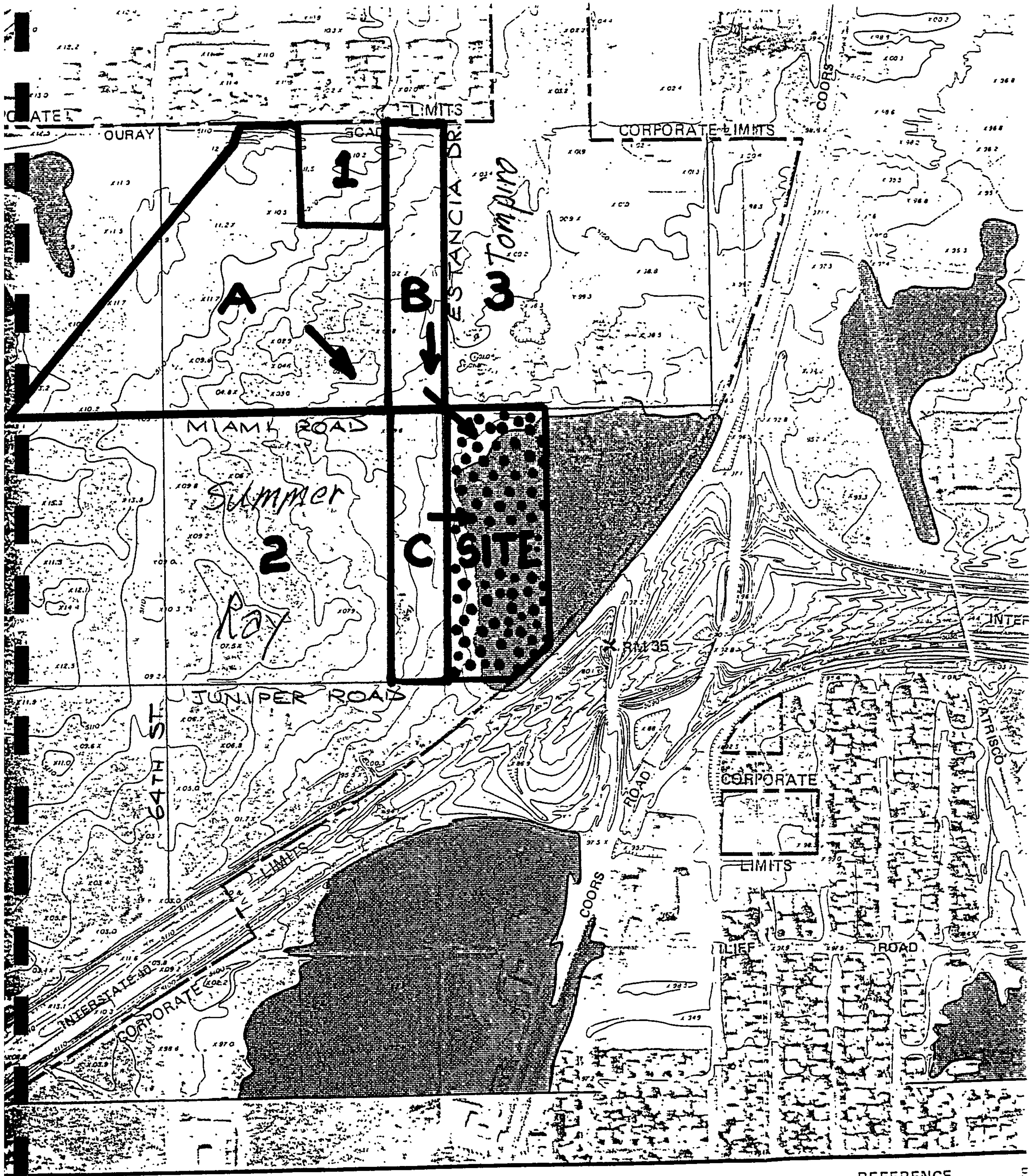
Basin	Description	100 yr/6 hr peak flow
1	Lots on Juniper	1.3 cfs
2	Estancia Drive (Draining South)	5.2 cfs
3	Lots on Estancia	6.0 cfs
4	South Interior Street	7.3 cfs
5	East Interior Street (South End)	8.5 cfs
6	Estancia Drive (Draining North)	0.8 cfs
7	Lots on Miami	2.5 cfs
8	East Interior Street (North End)	9.0 cfs
9	Miami Road	2.9 cfs
10	Backyard Swale	1.4 cfs



SOILS MAP
Figure 2



FLOOD INSURANCE RATE MAP
Figure 3



REFERENCE
MARK

ELEVATION
(FT. NGVD)

DESCRIPTION OF LOCATION

REFERENCE
MARK

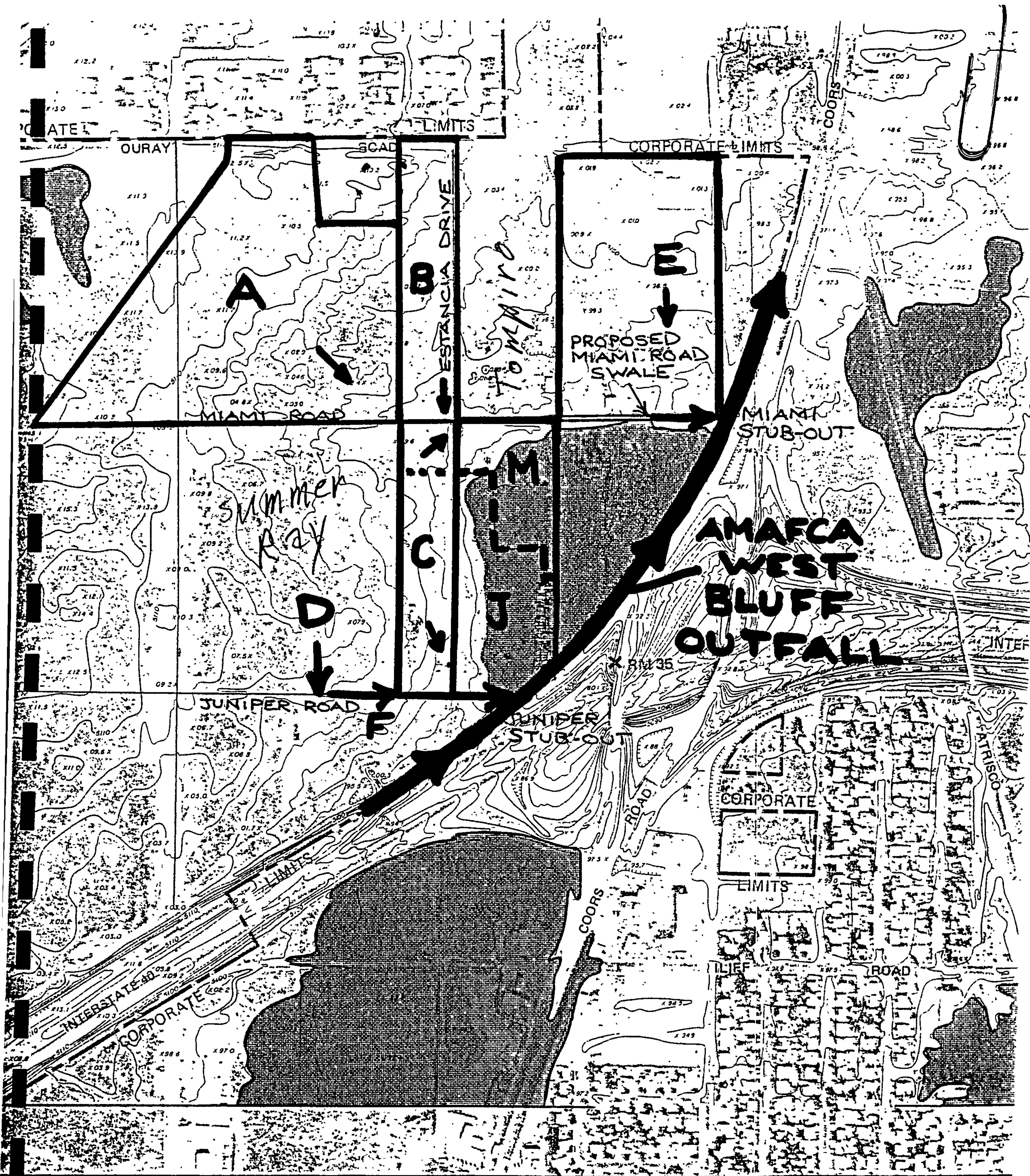
RM 33

5142.74

Existing

A 60-penny nail in power pole No. 1556, located approximately 120' southwest of the southeast corner of the Plains Electric Co-op substation, 5500' northwest of the Interstate 40 and Coors Road interchange.

RM 34



REFERENCE
MARK

ELEVATION
(FT. NGVD)

DESCRIPTION OF LOCATION

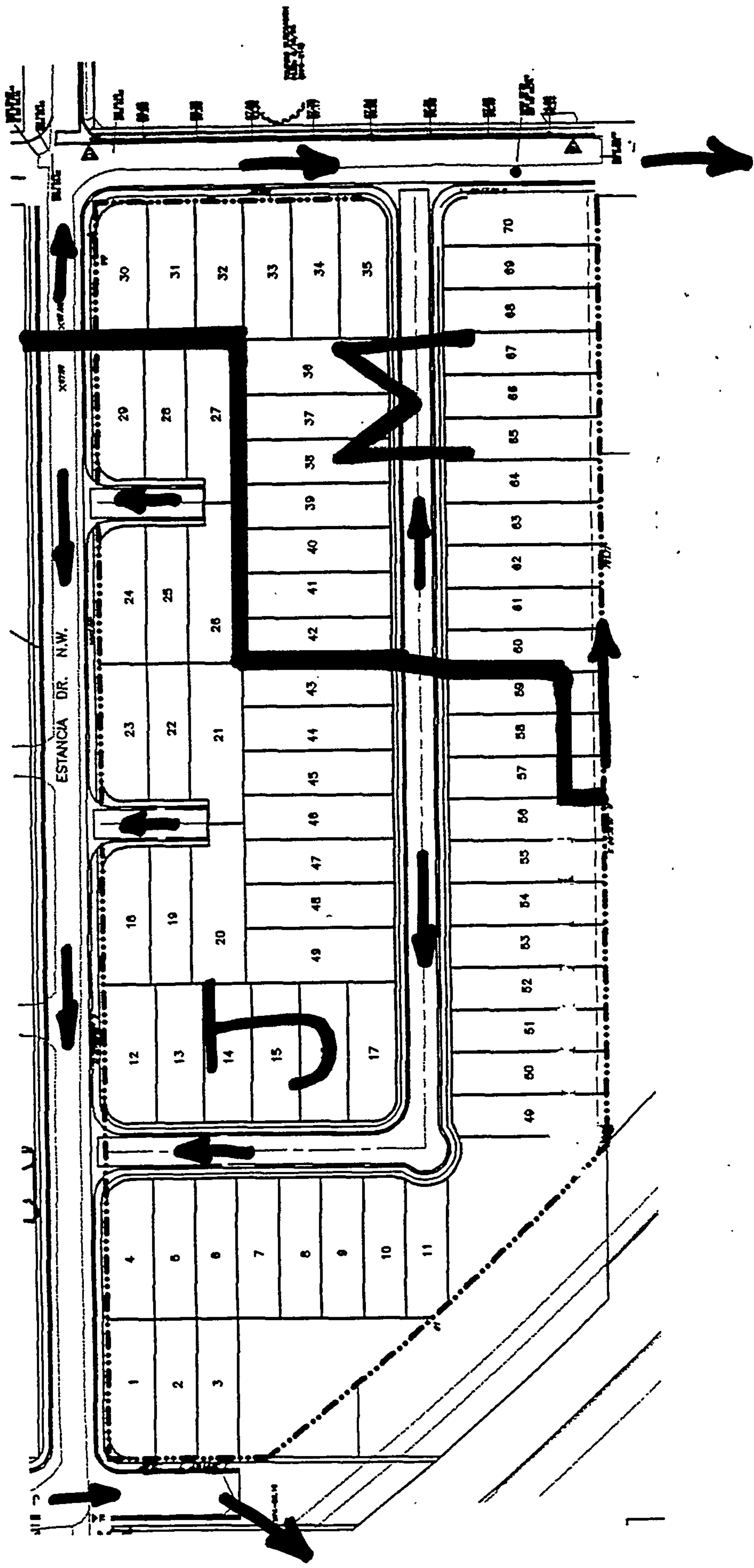
REFERENCE
MARK

RM 33

5142.74

Developed
A 60-penny nail in power pole No. 1556, located approximately 120' southwest of the southeast corner of the Plains Electric Co-op substation, 5500' northwest of the Interstate 40 and Coors Road interchange.

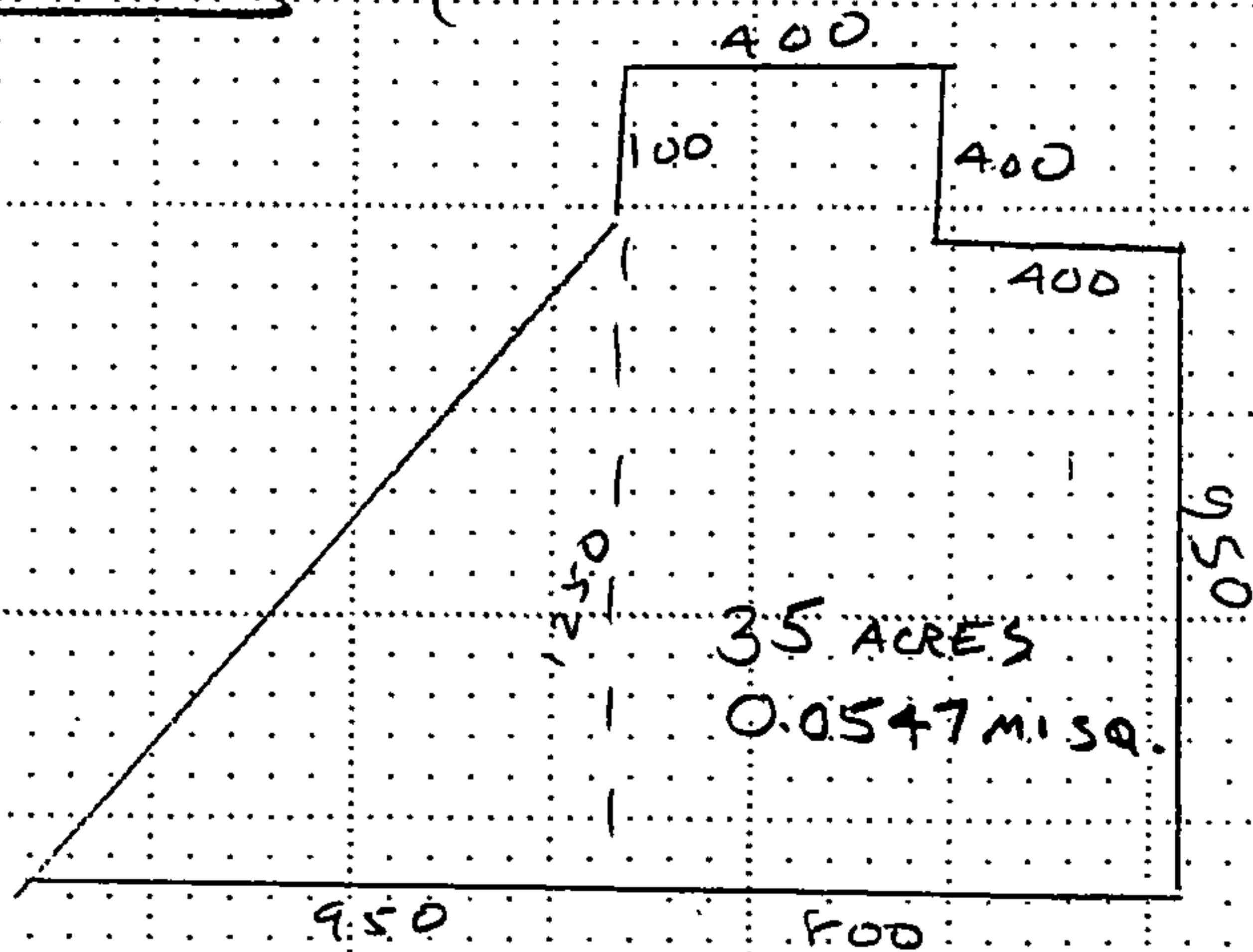
RM 34



CALCULATIONS

EXISTING BASINS

BASIN A (NORTHWEST VACANT TRACT)



80% A
10% B
10% C

$$T_p = \frac{2}{3} T_c$$

$$T_c = \frac{L}{V}$$

$$L = 1700 \text{ FT}$$

$$V = K\sqrt{S}$$

$$K = 0.7$$

$$S = 0.7$$

$$V = 0.7\sqrt{0.7}$$

$$= 0.59 \text{ FT/S}$$

$$K = \frac{1700}{(400/0.7) + (1300/2)} = 1.39 \quad T_c = \frac{1700}{0.59} \left(\frac{1}{3600} \right)$$

$$V = 1.39\sqrt{0.7} = 1.16 \text{ fps}$$

$$= 0.8 \text{ HRS}$$

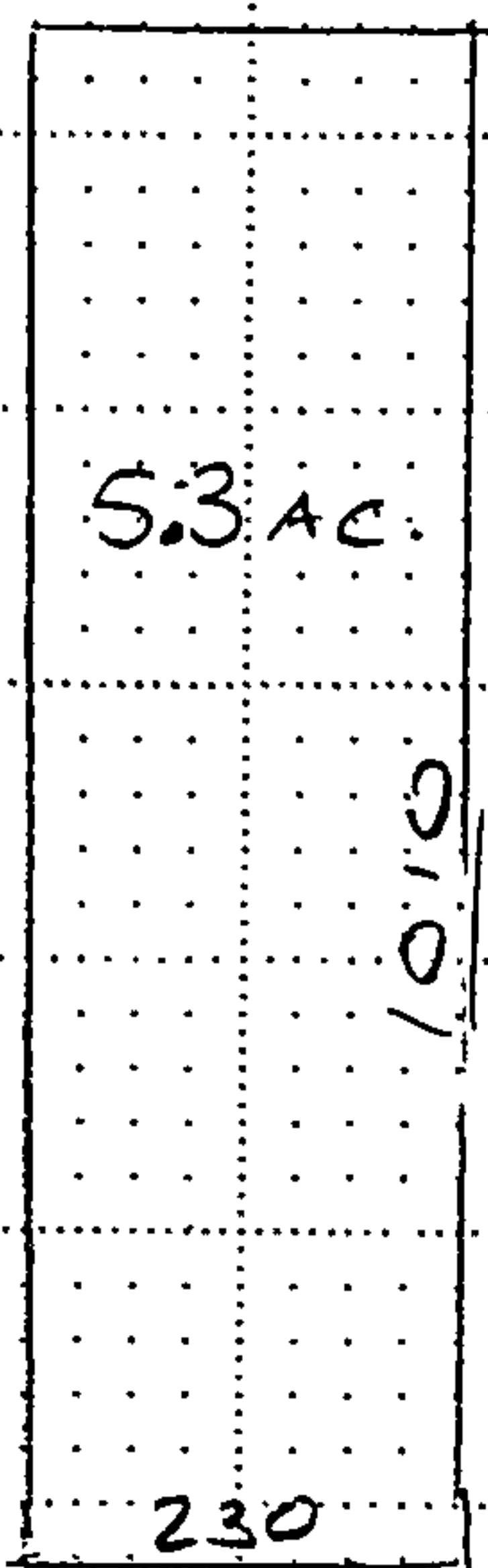
$$T_c = 0.41 \text{ hr}$$

$$T_p = \frac{2}{3}(0.8) = 0.54 \text{ HRS}$$

$$T_p = 0.27 \text{ hr}$$

EXISTING BASINS

BASIN B (SCHOOL)



- A 10%
- B 20%
- C 40%
- D 30%

$$T_p = \frac{2}{3} T_c$$

$$T_c = \frac{L}{V}$$

$$L = 1000 \text{ FT} > 400$$

$$V = K \sqrt{S}$$

$$5.3 \text{ AC} = 0.00828 \text{ SQ MI}$$

$$S = 1\%$$

$$K = 3 \text{ (STREET FLOW)}$$

$$V = 3 \sqrt{1} = 3$$

$$T_c = \frac{1000}{3} \left(\frac{1}{3600} \right) = 0.09$$

$$T_p = T_{p \text{ min}} = 0.133 \text{ HR}$$

EXISTING BASINS

3. BASIN C (CHURCH)

5.3 AC A 50%
0.00828 SQ. MI. B 10%
 C 15%
 D 25%

4. SITE

11.6 AC A = 95%
0.01813 SQ. MI. B = 0
 C = 0
 D = 5%

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	PAGE = 1
*S EXISTING CONDITIONS										
*S 100-YEAR 6 HOUR RAINFALL										
START										
RAINFALL TYPE= 1										
SEDIMENT BULK										
COMPUTE NM HYD	A	-	1	.05470	14.86	1.501	.51449	1.933	.425	PER IMP= .00
COMPUTE NM HYD	B	-	2	.00828	16.00	.513	1.16121	1.500	3.019	PER IMP= 2.210
COMPUTE NM HYD	C	-	3	.00828	12.55	.406	.91945	1.500	2.368	PER IMP= 1.00
COMPUTE NM HYD	SITE	-	4	.01813	17.16	.511	.52812	1.533	1.479	PER IMP= .00
FINISH										

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/06/1996
START TIME (HR:MIN:SEC) = 16:36:12 USER NO.= BRASHERE.I01
INPUT FILE = 6079EXST.DAT

*S EXISTING CONDITIONS
*S 100-YEAR 6 HOUR RAINFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1

* A
COMPUTE NM HYD ID=1 HYD NO= A DA=0.0547 SQ MI
PER A=80 PER B=10 PER C=10
PER D=0 TP=0.54HR MASSRAIN=-1

K = .624012HR TP = .540000HR K/TP RATIO = 1.155578 SHAPE CONSTANT, N = 3.066574
UNIT PEAK = 29.093 CFS UNIT VOLUME = .9995 B = 287.21 P60 = 1.9000
AREA = .054700 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA A

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.833	4.5	5.667	.5	8.500	.1	11.333	.0
.167	.0	3.000	3.5	5.833	.4	8.667	.1	11.500	.0
.333	.0	3.167	2.6	6.000	.4	8.833	.1	11.667	.0
.500	.0	3.333	2.0	6.167	.4	9.000	.1	11.833	.0
.667	.0	3.500	1.6	6.333	.3	9.167	.1	12.000	.0
.833	.0	3.667	1.3	6.500	.3	9.333	.1	12.167	.0
1.000	.0	3.833	1.2	6.667	.3	9.500	.1	12.333	.0
1.167	.0	4.000	1.1	6.833	.2	9.667	.1	12.500	.0
1.333	.0	4.167	1.0	7.000	.2	9.833	.0	12.667	.0
1.500	3.3	4.333	.9	7.167	.2	10.000	.0	12.833	.0
1.667	10.4	4.500	.9	7.333	.2	10.167	.0	13.000	.0
1.833	14.3	4.667	.8	7.500	.2	10.333	.0	13.167	.0
2.000	14.6	4.833	.7	7.667	.2	10.500	.0	13.333	.0
2.167	12.7	5.000	.7	7.833	.1	10.667	.0	13.500	.0
2.333	10.1	5.167	.6	8.000	.1	10.833	.0	13.667	.0
2.500	7.7	5.333	.6	8.167	.1	11.000	.0	13.833	.0
2.667	5.9	5.500	.5	8.333	.1	11.167	.0	14.000	.0

RUNOFF VOLUME = .51449 INCHES = 1.5009 ACRE-FEET
PEAK DISCHARGE RATE = 14.86 CFS AT 1.933 HOURS BASIN AREA = .0547 SQ. MI.

* B
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
PER A=10 PER B=20 PER C=40
PER D=30 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8045 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.9000
AREA = .002484 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .121354HR TP = .133333HR K/TP RATIO = .910159 SHAPE CONSTANT, N = 3.891264
UNIT PEAK = 15.121 CFS UNIT VOLUME = .9995 B = 347.85 P60 = 1.9000
AREA = .005796 SQ MI IA = .43571 INCHES INF = 1.07000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

HYDROGRAPH FROM AREA B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	16.0	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	8.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	4.3	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	2.6	3.500	.1	5.000	.0	6.500	.0
.667	.0	2.167	1.3	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.7	3.833	.0	5.333	.0		
1.000	.0	2.500	.4	4.000	.0	5.500	.0		
1.167	.0	2.667	.3	4.167	.0	5.667	.0		
1.333	2.4	2.833	.2	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.16121 INCHES = .5128 ACRE-FEET
PEAK DISCHARGE RATE = 16.00 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* C
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00828 SQ MI
PER A=50 PER B=10 PER C=15
PER D=25 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.1704 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.9000
AREA = .002070 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .147331HR TP = .133333HR K/TP RATIO = 1.104982 SHAPE CONSTANT, N = 3.199571
UNIT PEAK = 13.866 CFS UNIT VOLUME = .9991 B = 297.71 P60 = 1.9000
AREA = .006210 SQ MI IA = .57000 INCHES INF = 1.44600 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.8	2.667	.3	4.000	.0	5.333	.0
.167	.0	1.500	12.5	2.833	.2	4.167	.0	5.500	.0
.333	.0	1.667	6.8	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	3.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.1	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.1	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.6	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.4	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = .91945 INCHES = .4060 ACRE-FEET
PEAK DISCHARGE RATE = 12.55 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* SITE

COMPUTE NM HYD ID=4 HYD NO= SITE DA=0.01813 SQ MI
PER A=95 PER B=0 PER C=0
PER D=5 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.5780 CFS UNIT VOLUME = .9960 B = 526.28 P60 = 1.9000
AREA = .000907 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .162968HR TP = .133333HR K/TP RATIO = 1.222262 SHAPE CONSTANT, N = 2.911962
UNIT PEAK = 35.467 CFS UNIT VOLUME = .9993 B = 274.56 P60 = 1.9000
AREA = .017223 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA SITE

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.8	2.667	.4	4.000	.0	5.333	.0
.167	.0	1.500	16.9	2.833	.3	4.167	.0	5.500	.0
.333	.0	1.667	9.7	3.000	.2	4.333	.0	5.667	.0
.500	.0	1.833	3.9	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.0	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.3	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.8	3.667	.1	5.000	.0	6.333	.0
1.167	.0	2.500	.6	3.833	.0	5.167	.0		

RUNOFF VOLUME = .52812 INCHES = .5107 ACRE-FEET
PEAK DISCHARGE RATE = 17.16 CFS AT 1.533 HOURS BASIN AREA = .0181 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 16:36:13

BASINS THAT DRAIN TO MIAMI

1. BASIN A (NW VACANT TRACT) - UNDEVELOPED

SAME AS FOR EXISTING CONDITIONS

35 ACRES = 0.0547 SQ MI

A 80%

B 10%

C 10%

D 0%

$T_p = \frac{0.54}{0.27} \text{ HRS}$

2. BASIN B (SCHOOL)

SAME AS EXISTING CONDITIONS

5.3 AC = 0.00828 SQ MI

$T_p = 0.133 \text{ HR}$

A 10%

B 20%

C 40%

D 30%

3. BASIN C (NORTH)

0.55 AC = 0.00086 SQ MI

$T_p = 0.133 \text{ HR}$

A = 100%

B = 0%

C = 0%

D = 0%

BASINS THAT DRAIN TO MIAMI (CONT'D)

4. BASIN E

$$20.2 \text{ AC} = 0.03156 \text{ SQ MI}$$

$$T_p = \frac{2}{3} T_c$$

$$T_c = \frac{L}{V}$$

$$L = 1100 \text{ FT} > 400'$$

$$V = K\sqrt{S}$$

$$K_1 = 0.7 \quad K_2 = 2$$

$$S = 0.7$$

$$V = 0.59 \text{ FT/S}$$

$$T_c = \frac{1100 \left(\frac{\text{HR}}{3600 \text{ S}} \right)}{0.59} = 0.5 \text{ HRS}$$

$$T_p = \frac{2}{3} T_c = \frac{2}{3} (0.5) = 0.34 \text{ HRS}$$

A 80%

B 10%

C 10%

D 0%

5. BASIN M

$$4.7 \text{ ACRES} = 0.00734 \text{ SQ MI}$$

$$T_p = 0.133 \text{ HRS}$$

A —

B 15%

C 15%

D 70%

		FROM	TO			PEAK	RUNOFF			CFS	PAGE = 1
COMMAND	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	PER ACRE	NOTATION	
*S	DOS CAMINOS (6079MIAM.DAT)										
*S	100-YEAR 6 HOUR RAINFALL										
*S	MIAMI ROAD OUTFALL										
START											
RAINFALL TYPE= 1										TIME=	.00
SEDIMENT BULK										RAIN6=	2.210
										PK BF =	1.00
COMPUTE NM HYD	A	-	1	.05470	14.86	1.501	.51449	1.933	.425	PER IMP=	.00
COMPUTE NM HYD	B	-	2	.00828	16.03	.513	1.16121	1.500	3.024	PER IMP=	30.00
COMPUTE NM HYD	C	-	3	.00086	.74	.021	.45191	1.533	1.347	PER IMP=	.00
COMPUTE NM HYD	E	-	4	.03156	13.46	.866	.51449	1.733	.666	PER IMP=	.00
COMPUTE NM HYD	M	-	5	.00734	18.12	.640	1.63371	1.500	3.857	PER IMP=	70.00
FINISH											

K = .162561HR TP = .133000HR K/TP RATIO = 1.222262 SHAPE CONSTANT, N = 2.911962
UNIT PEAK = 1.7754 CFS UNIT VOLUME = .9917 B = 274.56 P60 = 1.9000
AREA = .000860 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.833	.0	1.667	.4	2.500	.0	3.333	.0
.167	.0	1.000	.0	1.833	.2	2.667	.0		
.333	.0	1.167	.0	2.000	.1	2.833	.0		
.500	.0	1.333	.0	2.167	.0	3.000	.0		
.667	.0	1.500	.7	2.333	.0	3.167	.0		

RUNOFF VOLUME = .45191 INCHES = .0207 ACRE-FEET
PEAK DISCHARGE RATE = .74 CFS AT 1.533 HOURS BASIN AREA = .0009 SQ. MI.

* E NORTH VANCANT TRACT

COMPUTE NM HYD ID=4 HYD NO= E DA=.03156 SQ MI
PER A=80 PER B=10 PER C=10
PER D=0 TP=0.34HR MASSRAIN=-1

K = .392897HR TP = .340000HR K/TP RATIO = 1.155578 SHAPE CONSTANT, N = 3.066574
UNIT PEAK = 26.659 CFS UNIT VOLUME = .9994 B = 287.21 P60 = 1.9000
AREA = .031560 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA E

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	8.8	4.000	.5	6.000	.1	8.000	.0
.167	.0	2.167	5.8	4.167	.4	6.167	.1	8.167	.0
.333	.0	2.333	3.8	4.333	.3	6.333	.1	8.333	.0
.500	.0	2.500	2.5	4.500	.3	6.500	.1	8.500	.0
.667	.0	2.667	1.6	4.667	.3	6.667	.0	8.667	.0
.833	.0	2.833	1.2	4.833	.2	6.833	.0	8.833	.0
1.000	.0	3.000	1.1	5.000	.2	7.000	.0	9.000	.0
1.167	.0	3.167	.9	5.167	.2	7.167	.0	9.167	.0
1.333	.0	3.333	.8	5.333	.1	7.333	.0		
1.500	5.9	3.500	.7	5.500	.1	7.500	.0		
1.667	12.9	3.667	.6	5.667	.1	7.667	.0		
1.833	12.4	3.833	.5	5.833	.1	7.833	.0		

RUNOFF VOLUME = .51449 INCHES = .8660 ACRE-FEET
PEAK DISCHARGE RATE = 13.46 CFS AT 1.733 HOURS BASIN AREA = .0316 SQ. MI.

* M SITE

COMPUTE NM HYD ID=5 HYD NO= M DA=0.00734 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 20.331 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .005138 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 5.8699 CFS UNIT VOLUME = .9983 B = 354.54 P60 = 1.9000
AREA = .002202 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=5

HYDROGRAPH FROM AREA M

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	18.1	3.000	.2	4.500	.1	6.000	.1
.167	.0	1.667	9.3	3.167	.1	4.667	.1	6.167	.0
.333	.0	1.833	5.7	3.333	.1	4.833	.1	6.333	.0
.500	.0	2.000	4.0	3.500	.1	5.000	.1	6.500	.0
.667	.0	2.167	1.8	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	.9	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.5	4.000	.1	5.500	.1		
1.167	.0	2.667	.3	4.167	.1	5.667	.1		
1.333	4.6	2.833	.2	4.333	.1	5.833	.1		

RUNOFF VOLUME = 1.63371 INCHES = .6395 ACRE-FEET
PEAK DISCHARGE RATE = 18.12 CFS AT 1.500 HOURS BASIN AREA = .0073 SQ. MI.

*

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 17:08:37

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/06/1996
START TIME (HR:MIN:SEC) = 17:08:35 USER NO.= BRASHERE.I01
INPUT FILE = 6079M.DAT

*S DOS CAMINOS (6079MIAM.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S MIAMI ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1
* A NORTHWEST VACANT TRACT
COMPUTE NM HYD ID=1 HYD NO= A DA=0.0547 SQ MI
PER A=80 PER B=10 PER C=10
PER D=0 TP=0.54HR MASSRAIN=-1

K = .624012HR TP = .540000HR K/TP RATIO = 1.155578 SHAPE CONSTANT, N = 3.066574
UNIT PEAK = 29.093 CFS UNIT VOLUME = .9995 B = 287.21 P60 = 1.9000
AREA = .054700 SQ MI IA = .60500 INCHES INF = 1.54400 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA A

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.833	4.5	5.667	.5	8.500	.1	11.333	.0
.167	.0	3.000	3.5	5.833	.4	8.667	.1	11.500	.0
.333	.0	3.167	2.6	6.000	.4	8.833	.1	11.667	.0
.500	.0	3.333	2.0	6.167	.4	9.000	.1	11.833	.0
.667	.0	3.500	1.6	6.333	.3	9.167	.1	12.000	.0
.833	.0	3.667	1.3	6.500	.3	9.333	.1	12.167	.0
1.000	.0	3.833	1.2	6.667	.3	9.500	.1	12.333	.0
1.167	.0	4.000	1.1	6.833	.2	9.667	.1	12.500	.0
1.333	.0	4.167	1.0	7.000	.2	9.833	.0	12.667	.0
1.500	3.3	4.333	.9	7.167	.2	10.000	.0	12.833	.0
1.667	10.4	4.500	.9	7.333	.2	10.167	.0	13.000	.0
1.833	14.3	4.667	.8	7.500	.2	10.333	.0	13.167	.0
2.000	14.6	4.833	.7	7.667	.2	10.500	.0	13.333	.0
2.167	12.7	5.000	.7	7.833	.1	10.667	.0	13.500	.0
2.333	10.1	5.167	.6	8.000	.1	10.833	.0	13.667	.0
2.500	7.7	5.333	.6	8.167	.1	11.000	.0	13.833	.0
2.667	5.9	5.500	.5	8.333	.1	11.167	.0	14.000	.0

RUNOFF VOLUME = .51449 INCHES = 1.5009 ACRE-FEET
PEAK DISCHARGE RATE = 14.86 CFS AT 1.933 HOURS BASIN AREA = .0547 SQ. MI.

* B SCHOOL
COMPUTE NM HYD ID=2 HYD NO= B DA=0.00828 SQ MI
PER A=10 PER B=20 PER C=40
PER D=30 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8291 CFS UNIT VOLUME = .9983 B = 526.28 P60 = 1.9000
AREA = .002484 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .121051HR TP = .133000HR K/TP RATIO = .910159 SHAPE CONSTANT, N = 3.891264
UNIT PEAK = 15.159 CFS UNIT VOLUME = .9996 B = 347.85 P60 = 1.9000
AREA = .005796 SQ MI IA = .43571 INCHES INF = 1.07000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

HYDROGRAPH FROM AREA B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	16.0	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	8.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	4.3	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	2.6	3.500	.1	5.000	.0	6.500	.0
.667	.0	2.167	1.3	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.7	3.833	.0	5.333	.0		
1.000	.0	2.500	.4	4.000	.0	5.500	.0		
1.167	.0	2.667	.3	4.167	.0	5.667	.0		
1.333	2.4	2.833	.2	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.16121 INCHES = .5128 ACRE-FEET
PEAK DISCHARGE RATE = 16.03 CFS AT 1.500 HOURS BASIN AREA = .0083 SQ. MI.

* C (NORTH SECTION)
COMPUTE NM HYD ID=3 HYD NO= C DA=0.00086 SQ MI
PER A=100 PER B=0 PER C=0
PER D=0 TP=0.133HR MASSRAIN=-1

BASINS THAT DRAIN TO JUNIPER

1. BASIN C (SOUTH SECTION) - ASSUME FULLY DEVELOPED

4.75 ACRES = 0.00742 SQ. MI.

A 0%

B 10%

C 10%

D 80%

$T_p = 0.133$ HR

2. BASIN D SUMMER RAY SUBDIVISION

15.87 CFS (PER DRAINAGE PLAN FOR
SUMMER RAY SUBDIVISION)

3. BASIN F JUNIPER ROAD

1.72 AC = 0.0027 SQ MI

A 0

B 5%

C 5%

D 90%

$T_p = 0.133$ HR

4. BASIN J SITE 2 ADJACENT STREETS

6.9 AC = 0.0108 SQ MI

A 0%

B 10%

C 10%

D 80%

```

TIME=          .00
RAIN6=        2.210
PK BF =        1.00
PER IMP=      80.00
PER IMP=      90.00
PER IMP=      80.00

```

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/07/1996
START TIME (HR:MIN:SEC) = 12:21:44 USER NO.= BRASHERE.I01
INPUT FILE = 6079j.dat

*S DOS CAMINOS (6079JUNI.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S JUNIPER ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1
* C (SOUTH SECTION)
COMPUTE NM HYD ID=1 HYD NO= C DA=0.00742 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 23.489 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .005936 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 3.9559 CFS UNIT VOLUME = .9970 B = 354.54 P60 = 1.9000
AREA = .001484 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

HYDROGRAPH FROM AREA C

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	19.2	3.000	.2	4.500	.1	6.000	.1
.167	.0	1.667	9.8	3.167	.1	4.667	.1	6.167	.0
.333	.0	1.833	6.2	3.333	.1	4.833	.1	6.333	.0
.500	.0	2.000	4.4	3.500	.1	5.000	.1	6.500	.0
.667	.0	2.167	2.0	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	.9	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.6	4.000	.1	5.500	.1		
1.167	.0	2.667	.4	4.167	.1	5.667	.1		
1.333	5.2	2.833	.3	4.333	.1	5.833	.1		

RUNOFF VOLUME = 1.74787 INCHES = .6917 ACRE-Feet
PEAK DISCHARGE RATE = 19.25 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

* F
COMPUTE NM HYD ID=3 HYD NO= F DA=0.0027 SQ MI
PER A=0 PER B=5 PER C=5
PER D=90 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.8373 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .002430 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .73635 CFS UNIT VOLUME = .9827 B = 354.54 P60 = 1.9000
AREA = .000270 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=5

HYDROGRAPH FROM AREA F

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.2	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	7.4	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	2.4	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	1.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.8	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.4	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.86202 INCHES = .2681 ACRE-Feet
PEAK DISCHARGE RATE = 7.43 CFS AT 1.500 HOURS BASIN AREA = .0027 SQ. MI.

* J
COMPUTE NM HYD ID=4 HYD NO= J DA=.0108 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 34.977 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 1.9000
AREA = .008640 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 5.8908 CFS UNIT VOLUME = .9980 B = 354.54 P60 = 1.9000
AREA = .002160 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=5

HYDROGRAPH FROM AREA J

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	28.3	3.000	.3	4.500	.1	6.000	.2
.167	.0	1.667	14.1	3.167	.2	4.667	.1	6.167	.1
.333	.0	1.833	8.9	3.333	.2	4.833	.1	6.333	.0
.500	.0	2.000	6.4	3.500	.2	5.000	.1	6.500	.0
.667	.0	2.167	2.8	3.667	.1	5.167	.1	6.667	.0
.833	.0	2.333	1.3	3.833	.1	5.333	.1	6.833	.0
1.000	.0	2.500	.8	4.000	.1	5.500	.1		
1.167	.0	2.667	.5	4.167	.1	5.667	.2		
1.333	7.9	2.833	.4	4.333	.1	5.833	.2		

RUNOFF VOLUME = 1.74786 INCHES = 1.0068 ACRE-FEET
PEAK DISCHARGE RATE = 28.32 CFS AT 1.500 HOURS BASIN AREA = .0108 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 12:21:45

TEMPORARY ROADSIDE SWALE (ESTANCIA)

1. BASIN C (SOUTH SECTION) ASSUME EXISTING CONDITIONS

$$4.75 \text{ ACRES} = 0.00742 \text{ SQ. MI.}$$

A 40%

B 10%

C 20%

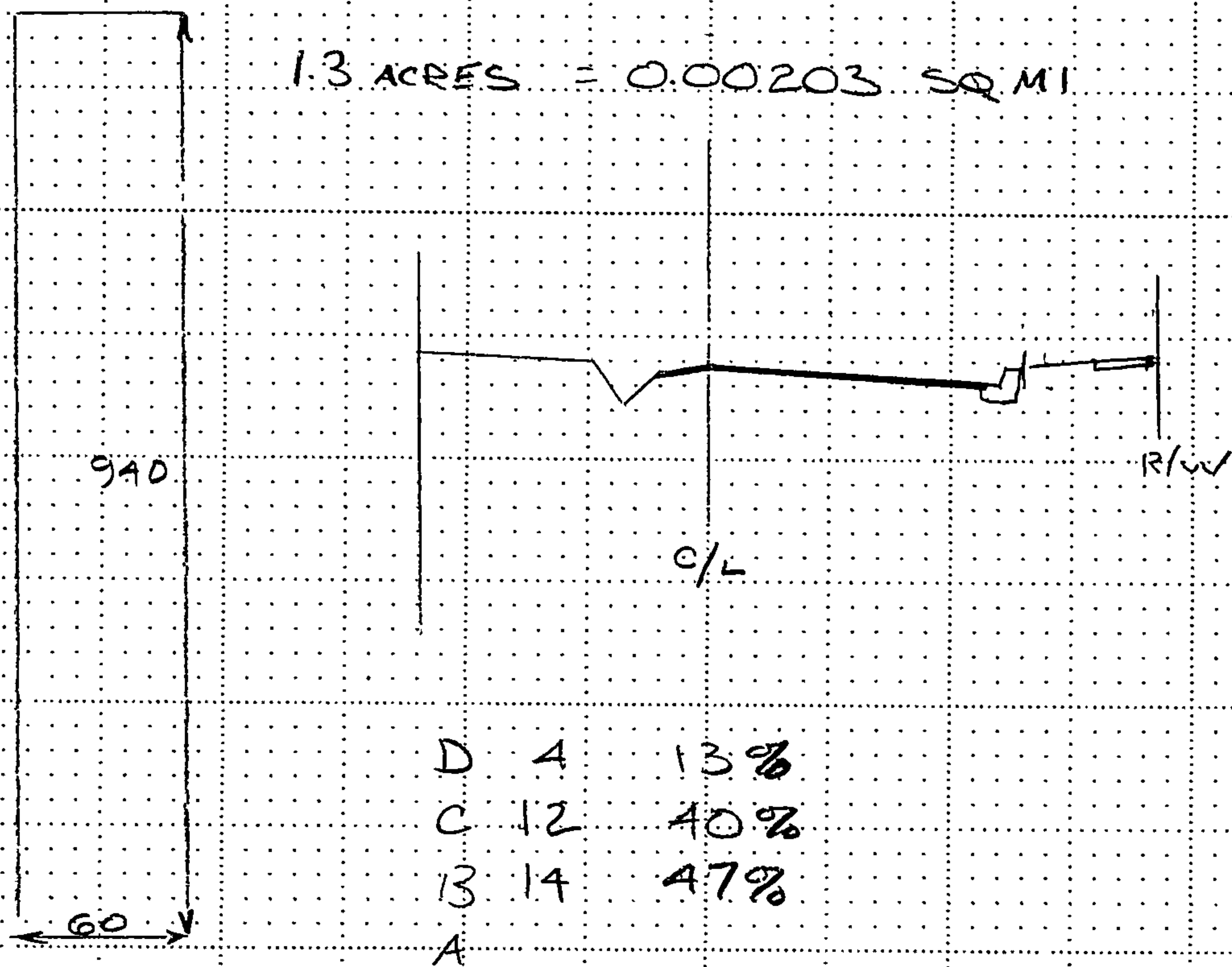
D 30%

$$\bar{T}_p = 0.133 \text{ HR}$$

$$Q_{100/6 \text{ HR}} = 12.4 \text{ CFS (FROM ANYMO)}$$

2. ESTANCIA R/W

$$1.3 \text{ ACRES} = 0.00203 \text{ SQ. MI.}$$



D 4 13%

C 12 40%

B 14 47%

A

$$Q_{100/6 \text{ HR}} = 3.6 \text{ CFS (FROM ANYMO)}$$

MAN-MADE CHANNELS

VARIABLES LIST:

Y - FLOW DEPTH
Q - FLOWRATE

B - CHANNEL BOTTOM WIDTH
M - CHANNEL SIDE SLOPE

S - CHANNEL SLOPE
N - CHANNEL ROUGHNESS

VARIABLE TO BE SOLVED (Y,Q,B,M,S OR N) ? Y

Q (CFS) ? 16
B (FT) ? 0
M (FT/FT) ? 3
S (FT/FT) ? .005
N (FT^{-1/6}) ? .03

RESULTS

=====

Y=	1.41 FT
A=	5.97 SF
P=	8.92 FT
V=	2.68 FPS
F=	0.56

< 3

SUB-CRITICAL FLOW

<Shift> <Prt Sc> print

<Return> repeat

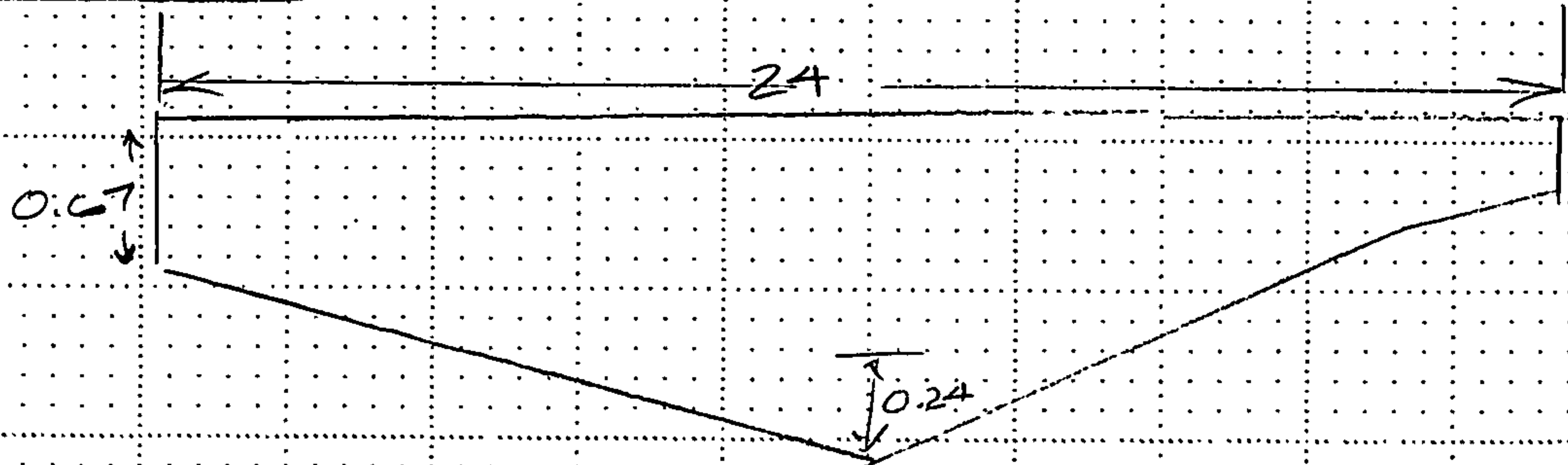
<Space Bar> back to menu

$$Q = 12.4 + 3.6 = 16$$

6079

MIAMI SWALE

TOTAL 100 YR/6 HR FLOW

8" TEMP CURB

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

$$A = 18.96 \text{ FT}^2$$

$$P = 25.34 \text{ FT}$$

$$R = \frac{A}{P} = \frac{18.96}{25.34} = 0.748$$

$$Q = \frac{1.49}{.017} (18.96) (0.748)^{2/3} (0.005)^{1/2} = 96.73 \text{ CFS}$$

6" TEMP CURB

$$A = 14.88 \text{ SQ. FT.}$$

$$P = 25 \text{ FT}$$

$$R = \frac{14.88}{25} = 0.60$$

$$Q = \frac{1.49}{.017} (14.88) (0.6)^{2/3} (0.005)^{1/2} = 65.5 \text{ CFS}$$

$$V = 4.4 \text{ FPS}$$

$$\frac{V^2}{2g} = 0.30'$$

RUN DATE (MON/DAY/YR) =11/07/1996
USER NO.= BRASHERE.I01

[illegible]

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/07/1996
START TIME (HR:MIN:SEC) = 15:48:58 USER NO.= BRASHERE.I01
INPUT FILE = 6079a.dat

*S DOS CAMINOS (6079JUNI.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S JUNIPER ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.

DT = .033333 HOURS END TIME = 5.999940 HOURS
.0000 .0014 .0029 .0043 .0059 .0074 .0090
.0106 .0123 .0140 .0157 .0175 .0193 .0212
.0232 .0252 .0272 .0294 .0316 .0339 .0362
.0387 .0412 .0439 .0466 .0495 .0525 .0557
.0590 .0625 .0663 .0715 .0771 .0831 .0961
.1249 .1694 .2331 .3202 .4347 .5806 .7622
.9839 1.1890 1.2748 1.3472 1.4117 1.4703 1.5243
1.5745 1.6213 1.6652 1.7065 1.7455 1.7824 1.8172
1.8502 1.8816 1.9113 1.9395 1.9662 1.9722 1.9779
1.9832 1.9883 1.9932 1.9978 2.0023 2.0066 2.0107
2.0147 2.0185 2.0223 2.0259 2.0294 2.0328 2.0361
2.0393 2.0425 2.0455 2.0485 2.0515 2.0543 2.0571
2.0599 2.0625 2.0652 2.0678 2.0703 2.0728 2.0752
2.0776 2.0800 2.0823 2.0845 2.0868 2.0890 2.0912
2.0933 2.0954 2.0975 2.0995 2.1015 2.1035 2.1055
2.1074 2.1093 2.1112 2.1131 2.1149 2.1167 2.1185
2.1203 2.1221 2.1238 2.1255 2.1272 2.1289 2.1305
2.1322 2.1338 2.1354 2.1370 2.1386 2.1401 2.1417
2.1432 2.1447 2.1462 2.1477 2.1492 2.1506 2.1521
2.1535 2.1549 2.1564 2.1577 2.1591 2.1605 2.1619
2.1632 2.1646 2.1659 2.1672 2.1685 2.1698 2.1711
2.1724 2.1736 2.1749 2.1762 2.1774 2.1786 2.1799
2.1811 2.1823 2.1835 2.1847 2.1858 2.1870 2.1882
2.1893 2.1905 2.1916 2.1928 2.1939 2.1950 2.1961
2.1972 2.1983 2.1994 2.2005 2.2016 2.2027 2.2037
2.2048 2.2058 2.2069 2.2079 2.2090 2.2100

SEDIMENT BULK CODE=1 BULK FACTOR=1

* C (SOUTH SECTION)

COMPUTE NM HYD

ID=1 HYD NO= 1 DA=0.00742 SQ MI
PER A=40 PER B=10 PER C=20
PER D=30 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.8082 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.9000
AREA = .002226 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141806HR TP = .133000HR K/TP RATIO = 1.066211 -SHAPE CONSTANT, N = 3.312254
UNIT PEAK = 11.964 CFS UNIT VOLUME = .9989 B = 306.36 P60 = 1.9000
AREA = .005194 SQ MI IA = .54286 INCHES INF = 1.37000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

OUTFLOW HYDROGRAPH REACH 1.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.667	.2	4.000	.0	5.333	.0
.167	.0	1.500	12.4	2.833	.2	4.167	.0	5.500	.0
.333	.0	1.667	6.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	3.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	2.1	3.333	.1	4.667	.0	6.000	.0
.833	.0	2.167	1.1	3.500	.1	4.833	.0	6.167	.0
1.000	.0	2.333	.6	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.4	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.01983 INCHES = .4036 ACRE-Feet
PEAK DISCHARGE RATE = 12.36 CFS AT 1.500 HOURS BASIN AREA = .0074 SQ. MI.

*ESTANCIA R/W
COMPUTE NM HYD

ID=2 HYD NO= 2 DA=0.00203 SQ MI
PER A=0 PER B=14 PER C=12
PER D=4 TP=0.133HR MASSRAIN=-1

*****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR TOTAL AREA

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.0710 CFS UNIT VOLUME = .9883 B = 526.28 P60 = 1.9000
AREA = .000271 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119159HR TP = .133000HR K/TP RATIO = .895929 SHAPE CONSTANT, N = 3.956882
UNIT PEAK = 4.6601 CFS UNIT VOLUME = .9975 B = 352.29 P60 = 1.9000
AREA = .001759 SQ MI IA = .43077 INCHES INF = 1.05615 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

OUTFLOW HYDROGRAPH REACH 2.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.3	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	3.5	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.9	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.2	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0		
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = .97619 INCHES = .1057 ACRE-Feet
PEAK DISCHARGE RATE = 3.55 CFS AT 1.500 HOURS BASIN AREA = .0020 SQ. MI.

*
*
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:48:59

HYMO PROGRAM (HYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 11/08/1996
START TIME (HR:MIN:SEC) = 15:39:52 USER NO. = BRASHERE.I01
INPUT FILE = 6079SITE.DAT

*S DOS CAMINOS (6079MIAM.DAT)
*S 100-YEAR 6 HOUR RAINFALL
*S MIAMI ROAD OUTFALL
START TIME=0.0 PUNCH CODE=0 PRINT LINE=0
RAINFALL TYPE=1 RAIN QUARTER=0 RAIN ONE=1.90
RAIN SIX=2.21 RAIN DAY=2.68 DT=0.033333

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0014	.0029	.0043	.0059	.0074	.0090
.0106	.0123	.0140	.0157	.0175	.0193	.0212
.0232	.0252	.0272	.0294	.0316	.0339	.0362
.0387	.0412	.0439	.0466	.0495	.0525	.0557
.0590	.0625	.0663	.0715	.0771	.0831	.0961
.1249	.1694	.2331	.3202	.4347	.5806	.7622
.9839	1.1890	1.2748	1.3472	1.4117	1.4703	1.5243
1.5745	1.6213	1.6652	1.7065	1.7455	1.7824	1.8172
1.8502	1.8816	1.9113	1.9395	1.9662	1.9722	1.9779
1.9832	1.9883	1.9932	1.9978	2.0023	2.0066	2.0107
2.0147	2.0185	2.0223	2.0259	2.0294	2.0328	2.0361
2.0393	2.0425	2.0455	2.0485	2.0515	2.0543	2.0571
2.0599	2.0625	2.0652	2.0678	2.0703	2.0728	2.0752
2.0776	2.0800	2.0823	2.0845	2.0868	2.0890	2.0912
2.0933	2.0954	2.0975	2.0995	2.1015	2.1035	2.1055
2.1074	2.1093	2.1112	2.1131	2.1149	2.1167	2.1185
2.1203	2.1221	2.1238	2.1255	2.1272	2.1289	2.1305
2.1322	2.1338	2.1354	2.1370	2.1386	2.1401	2.1417
2.1432	2.1447	2.1462	2.1477	2.1492	2.1506	2.1521
2.1535	2.1549	2.1564	2.1577	2.1591	2.1605	2.1619
2.1632	2.1646	2.1659	2.1672	2.1685	2.1698	2.1711
2.1724	2.1736	2.1749	2.1762	2.1774	2.1786	2.1799
2.1811	2.1823	2.1835	2.1847	2.1858	2.1870	2.1882
2.1893	2.1905	2.1916	2.1928	2.1939	2.1950	2.1961
2.1972	2.1983	2.1994	2.2005	2.2016	2.2027	2.2037
2.2048	2.2058	2.2069	2.2079	2.2090	2.2100	

SEDIMENT BULK CODE=1 BULK FACTOR=1
* 1 LOTS ON JUNIPER
COMPUTE NM HYD ID=1 HYD NO= 1 DA=0.0005 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=0.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.4169 CFS UNIT VOLUME = .9926 B = 526.28 P60 = 1.9000
AREA = .000350 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .40908 CFS UNIT VOLUME = .9690 B = 354.54 P60 = 1.9000
AREA = .000150 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=5

OUTFLOW HYDROGRAPH REACH 1.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.3	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	1.3	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.6	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.4	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.3	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.1	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.0	3.667	.0	5.000	.0		
1.167	.0	2.500	.0	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.63371 INCHES = .0436 ACRE-FEET
PEAK DISCHARGE RATE = 1.26 CFS AT 1.500 HOURS BASIN AREA = .0005 SQ. MI.

* 2 ESTANCIA DRIVE (DRAINING SOUTH)
COMPUTE NM HYD ID=2 HYD NO= 2 DA=0.0019 SQ MI
PER A=0 PER B=5 PER C=5
PER D=90 TP=0.133HR MASSRAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.7664 CFS UNIT VOLUME = .9977 B = 526.28 P60 = 1.9000
AREA = .001710 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118216HR TP = .133000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .50648 CFS UNIT VOLUME = .9729 B = 354.54 P60 = 1.9000
AREA = .000190 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=5

OUTFLOW HYDROGRAPH REACH 2.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.5	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	5.2	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	2.6	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	1.7	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	1.2	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.6	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.3	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.86202 INCHES = .1887 ACRE-FEET
PEAK DISCHARGE RATE = 5.18 CFS AT 1.500 HOURS BASIN AREA = .0019 SQ. MI.

* 3 LOTS ON ESTANCIA
COMPUTE NM HYD ID=3 HYD NO= 3 DA=0.0023 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.2626 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.9000
AREA = .001840 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118512HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.2232 CFS UNIT VOLUME = .9896 B = 354.54 P60 = 1.9000
AREA = .000460 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=3 CODE=5

OUTFLOW HYDROGRAPH REACH 3.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	1.6	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	6.0	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.0	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	1.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	1.4	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.6	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.3	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.74787 INCHES = .2144 ACRE-Feet
PEAK DISCHARGE RATE = 5.97 CFS AT 1.500 HOURS BASIN AREA = .0023 SQ. MI.

* 4 SOUTH INTERIOR STREET

COMPUTE NM HYD ID=4 HYD NO= 4 DA=.0028 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.8414 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.9000
AREA = .002240 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118513HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.4891 CFS UNIT VOLUME = .9914 B = 354.54 P60 = 1.9000
AREA = .000560 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=4 CODE=5

OUTFLOW HYDROGRAPH REACH 4.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	2.0	2.667	.1	4.000	.0	5.333	.0
.167	.0	1.500	7.3	2.833	.1	4.167	.0	5.500	.0
.333	.0	1.667	3.7	3.000	.1	4.333	.0	5.667	.0
.500	.0	1.833	2.3	3.167	.1	4.500	.0	5.833	.0
.667	.0	2.000	1.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.8	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.4	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.2	3.833	.0	5.167	.0	6.500	.0

RUNOFF VOLUME = 1.74787 INCHES = .2610 ACRE-Feet
PEAK DISCHARGE RATE = 7.26 CFS AT 1.500 HOURS BASIN AREA = .0028 SQ. MI.

* 5 EAST INTERIOR STREET (SOUTH END)

COMPUTE NM HYD ID=5 HYD NO= 5 DA=0.00326 SQ MI
PER A=0 PER B=10 PER C=10
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072667HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.294 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1.9000
AREA = .002608 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118513HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.7337 CFS UNIT VOLUME = .9930 B = 354.54 P60 = 1.9000
AREA = .000652 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=5 CODE=5

OUTFLOW HYDROGRAPH REACH 5.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	8.5	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	4.3	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	2.7	3.333	.1	4.833	.0	6.333	.0
.500	.0	2.000	1.9	3.500	.0	5.000	.0	6.500	.0
.667	.0	2.167	.9	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.4	3.833	.0	5.333	.0		
1.000	.0	2.500	.3	4.000	.0	5.500	.0		
1.167	.0	2.667	.2	4.167	.0	5.667	.0		
1.333	2.3	2.833	.1	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.74787 INCHES = .3039 ACRE-Feet
PEAK DISCHARGE RATE = 8.45 CFS AT 1.500 HOURS BASIN AREA = .0033 SQ. MI.

* 6 ESTANCIA DRIVE (DRAINING NORTH)

COMPUTE NM HYD ID=6 HYD NO= 6 DA=0.0003 SQ MI
PER A=0 PER B=0 PER C=20
PER D=80 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = .94730 CFS UNIT VOLUME = .9881 B = 526.28 P60 = 1.9000
AREA = .000240 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .106231HR TP = .133333HR K/TP RATIO = .796738 SHAPE CONSTANT, N = 4.498737
UNIT PEAK = .17422 CFS UNIT VOLUME = .9290 B = 387.15 P60 = 1.9000
AREA = .000060 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=6 CODE=5

OUTFLOW HYDROGRAPH REACH 6.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.2	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	.8	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.4	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.3	3.167	.0	4.500	.0	5.833	.0

.667	.0	2.000	.2	3.333	.0	4.833	.0	6.167	.0
.833	.0	2.167	.1	3.500	.0	5.000	.0		
1.000	.0	2.333	.0	3.667	.0	5.167	.0		
1.167	.0	2.500	.0	3.833	.0				

RUNOFF VOLUME = 1.78409 INCHES = .0285 ACRE-Feet
PEAK DISCHARGE RATE = .81 CFS AT 1.500 HOURS BASIN AREA = .0003 SQ. MI.

* 7 6 LOTS ON MIAMI
COMPUTE NM HYD ID=7 HYD NO= 7 DA=0.0010 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=0.133333HR MASSRAIN=-1

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.7630 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.9000
AREA = .000700 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118512HR TP = .133333HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = .79771 CFS UNIT VOLUME = .9831 B = 354.54 P60 = 1.9000
AREA = .000300 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=7 CODE=5

OUTFLOW HYDROGRAPH REACH 7.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.6	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	2.5	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.3	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.8	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.5	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.2	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.63371 INCHES = .0871 ACRE-Feet
PEAK DISCHARGE RATE = 2.48 CFS AT 1.500 HOURS BASIN AREA = .0010 SQ. MI.

* 8 EAST INTERIOR STREET (NORTH END)
COMPUTE NM HYD ID=8 HYD NO= 8 DA=.00358 SQ MI
PER A=0 PER B=15 PER C=15
PER D=70 TP=.13HR MASSRAIN=-1

K = .070850HR TP = .130000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.145 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.9000
AREA = .002506 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .115550HR TP = .130000HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 2.9290 CFS UNIT VOLUME = .9957 B = 354.54 P60 = 1.9000
AREA = .001074 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=8 CODE=5

OUTFLOW HYDROGRAPH REACH 8.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.500	8.9	3.000	.1	4.500	.0	6.000	.0
.167	.0	1.667	4.5	3.167	.1	4.667	.0	6.167	.0
.333	.0	1.833	2.7	3.333	.0	4.833	.0	6.333	.0
.500	.0	2.000	1.9	3.500	.0	5.000	.0	6.500	.0
.667	.0	2.167	.9	3.667	.0	5.167	.0	6.667	.0
.833	.0	2.333	.4	3.833	.0	5.333	.0		
1.000	.0	2.500	.3	4.000	.0	5.500	.0		
1.167	.0	2.667	.2	4.167	.0	5.667	.0		
1.333	2.3	2.833	.1	4.333	.0	5.833	.0		

RUNOFF VOLUME = 1.63371 INCHES = .3119 ACRE-Feet
PEAK DISCHARGE RATE = 8.95 CFS AT 1.500 HOURS BASIN AREA = .0036 SQ. MI.

* 9 MIAMI ROAD
COMPUTE NM HYD ID=9 HYD NO= 9 DA=.0011 SQ MI
PER A=0 PER B=0 PER C=20
PER D=80 TP=.1333HR MASSRAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.4743 CFS UNIT VOLUME = .9961 B = 526.28 P60 = 1.9000
AREA = .000880 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .106205HR TP = .133300HR K/TP RATIO = .796738 SHAPE CONSTANT, N = 4.498737
UNIT PEAK = .63895 CFS UNIT VOLUME = .9801 B = 387.15 P60 = 1.9000
AREA = .000220 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=5

OUTFLOW HYDROGRAPH REACH 9.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.8	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	2.9	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	1.5	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.9	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.7	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.3	3.500	.0	4.833	.0	6.167	.0
1.000	.0	2.333	.1	3.667	.0	5.000	.0	6.333	.0
1.167	.0	2.500	.1	3.833	.0	5.167	.0		

RUNOFF VOLUME = 1.78409 INCHES = .1047 ACRE-Feet
PEAK DISCHARGE RATE = 2.93 CFS AT 1.500 HOURS BASIN AREA = .0011 SQ. MI.

* 10 MIAMI ROAD
COMPUTE NM HYD ID=10 HYD NO= 10 DA=.0008 SQ MI
PER A=0 PER B=43 PER C=43
PER D=14 TP=.1333HR MASSRAIN=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420

UNIT PEAK = .44218 CFS UNIT VOLUME = .9751 B = 526.28 P60 = 1.9000
AREA = .000112 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118483HR TP = .133300HR K/TP RATIO = .888844 SHAPE CONSTANT, N = 3.990548
UNIT PEAK = 1.8299 CFS UNIT VOLUME = .9930 B = 354.54 P60 = 1.9000
AREA = .000688 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD

ID=10 CODE=5

OUTFLOW HYDROGRAPH REACH 10.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.1	2.667	.0	4.000	.0	5.333	.0
.167	.0	1.500	1.4	2.833	.0	4.167	.0	5.500	.0
.333	.0	1.667	.8	3.000	.0	4.333	.0	5.667	.0
.500	.0	1.833	.4	3.167	.0	4.500	.0	5.833	.0
.667	.0	2.000	.2	3.333	.0	4.667	.0	6.000	.0
.833	.0	2.167	.1	3.500	.0	4.833	.0		
1.000	.0	2.333	.1	3.667	.0	5.000	.0		
1.167	.0	2.500	.0	3.833	.0	5.167	.0		

RUNOFF VOLUME = .99442 INCHES = .0424 ACRE-FEET
PEAK DISCHARGE RATE = 1.43 CFS AT 1.500 HOURS BASIN AREA = .0008 SQ. MI.

*
FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 15:39:54

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	PAGE = 1	NOTATION
*S	DOS CAMINOS (6079MIAM.DAT)										
*S	100-YEAR 6 HOUR RAINFALL										
*S	MIAMI ROAD OUTFALL										
START											
RAINFALL TYPE= 1											
SEDIMENT BULK											
COMPUTE NM HYD	1.00	-	1	.00050	1.26	.044	1.63371	1.500	3.947	PER IMP=	70.00
COMPUTE NM HYD	2.00	-	2	.00190	5.18	.189	1.86202	1.500	4.259	PER IMP=	90.00
COMPUTE NM HYD	3.00	-	3	.00230	5.97	.214	1.74787	1.500	4.055	PER IMP=	80.00
COMPUTE NM HYD	4.00	-	4	.00280	7.26	.261	1.74787	1.500	4.054	PER IMP=	80.00
COMPUTE NM HYD	5.00	-	5	.00326	8.45	.304	1.74787	1.500	4.052	PER IMP=	80.00
COMPUTE NM HYD	6.00	-	6	.00030	.81	.029	1.78409	1.500	4.217	PER IMP=	80.00
COMPUTE NM HYD	7.00	-	7	.00100	2.48	.087	1.63371	1.500	3.874	PER IMP=	70.00
COMPUTE NM HYD	8.00	-	8	.00358	8.95	.312	1.63371	1.500	3.906	PER IMP=	70.00
COMPUTE NM HYD	9.00	-	9	.00110	2.93	.105	1.78409	1.500	4.156	PER IMP=	80.00
COMPUTE NM HYD	10.00	-	10	.00080	1.43	.042	.99442	1.500	2.785	PER IMP=	14.00
FINISH											

TIME= .00
 RAIN6= 2.210
 PK BF = 1.00
 3.947 PER IMP= 70.00
 4.259 PER IMP= 90.00
 4.055 PER IMP= 80.00
 4.054 PER IMP= 80.00
 4.052 PER IMP= 80.00
 4.217 PER IMP= 80.00
 3.874 PER IMP= 70.00
 3.906 PER IMP= 70.00
 4.156 PER IMP= 80.00
 2.785 PER IMP= 14.00

Post or reflections

dutch - church property

too deep & wide

- Loyalty

traffic flow on Esplanade - school

Dean McCann

831.1487

Dos Caminos

Grandview Church

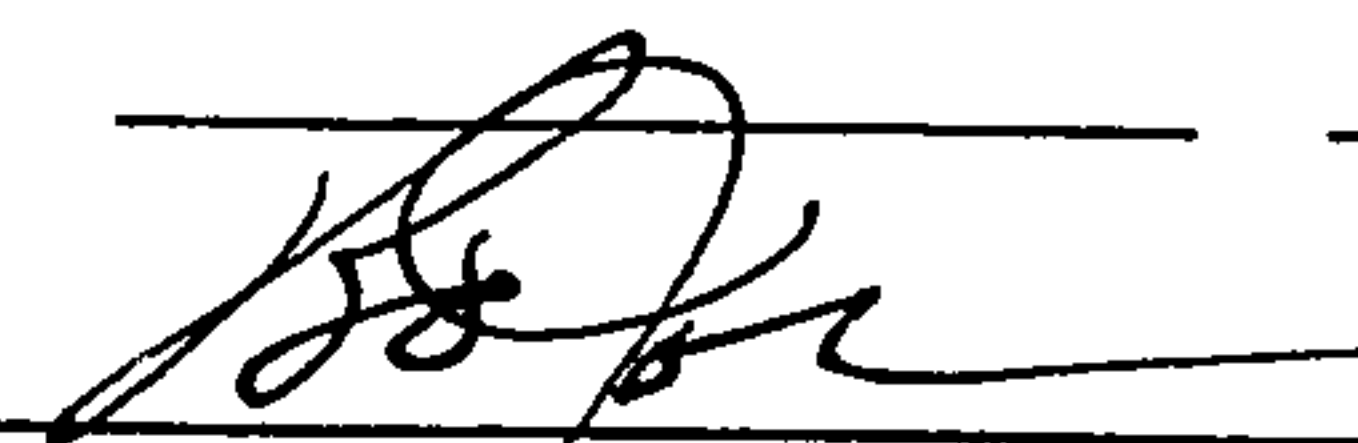
Called Bo Johnson 11-25-97

EXHIBIT A
TO SUBDIVISION IMPROVEMENT AGREEMENT
DEVELOPMENT REVIEW BOARD
REQUIRED INFRASTRUCTURE LISTING
DOS CAMINOS SUBDIVISION

DRB Case No.: 96-282
DRC Project No.: _____
Prelim. Plat Approved: _____
Prelim. Plat Expires: _____
Site Plan Approved: _____
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<u>SIZE</u>	<u>IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>4'</u>	<u>SIDEWALK (E. SIDE)</u>	<u>ESTANCIA</u>	<u>MIAMI</u>	<u>JUNIPER</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)</u>	<u>"A" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)</u>	<u>"B" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)</u>	<u>"C" STREET</u>	<u>ESTANCIA</u>	<u>"D" STREET</u>
<u>4'</u>	<u>SIDEWALK (S. SIDE)</u>	<u>MIAMI</u>	<u>ESTANCIA</u>	<u>E. SUB'D. BOUND.</u>
<u>4'</u>	<u>SIDEWALK (BOTH SIDES)</u>	<u>"D" STREET</u>	<u>MIAMI</u>	<u>"C" STREET</u>
<u>20' FC/EP</u>	<u>PVM'T, C&G (EAST SIDE)</u>	<u>ESTANCIA</u>	<u>MIAMI</u>	<u>JUNIPER</u>
<u>22' FC/FC</u>	<u>PVM'T, C & G</u>	<u>"A" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>

Signed By: 
Print Name: Bo K. Johnson, P.E.
Firm: Bokay Construction, Inc.

DEVELOPMENT REVIEW BOARD MEMBER APPROVALS

<u>Traffic</u>	<u>Date</u>	<u>Utility Dev.</u>	<u>Date</u>	<u>Parks & G.S.</u>	<u>Date</u>
<u>City Engineer</u>	<u>Date</u>	<u>AMAFCA</u>	<u>Date</u>	<u>DRB Chairman</u>	<u>Date</u>
<u>BCPWD DRE</u>	<u>Date</u>	<u>BCPWD DRAN</u>	<u>Date</u>		

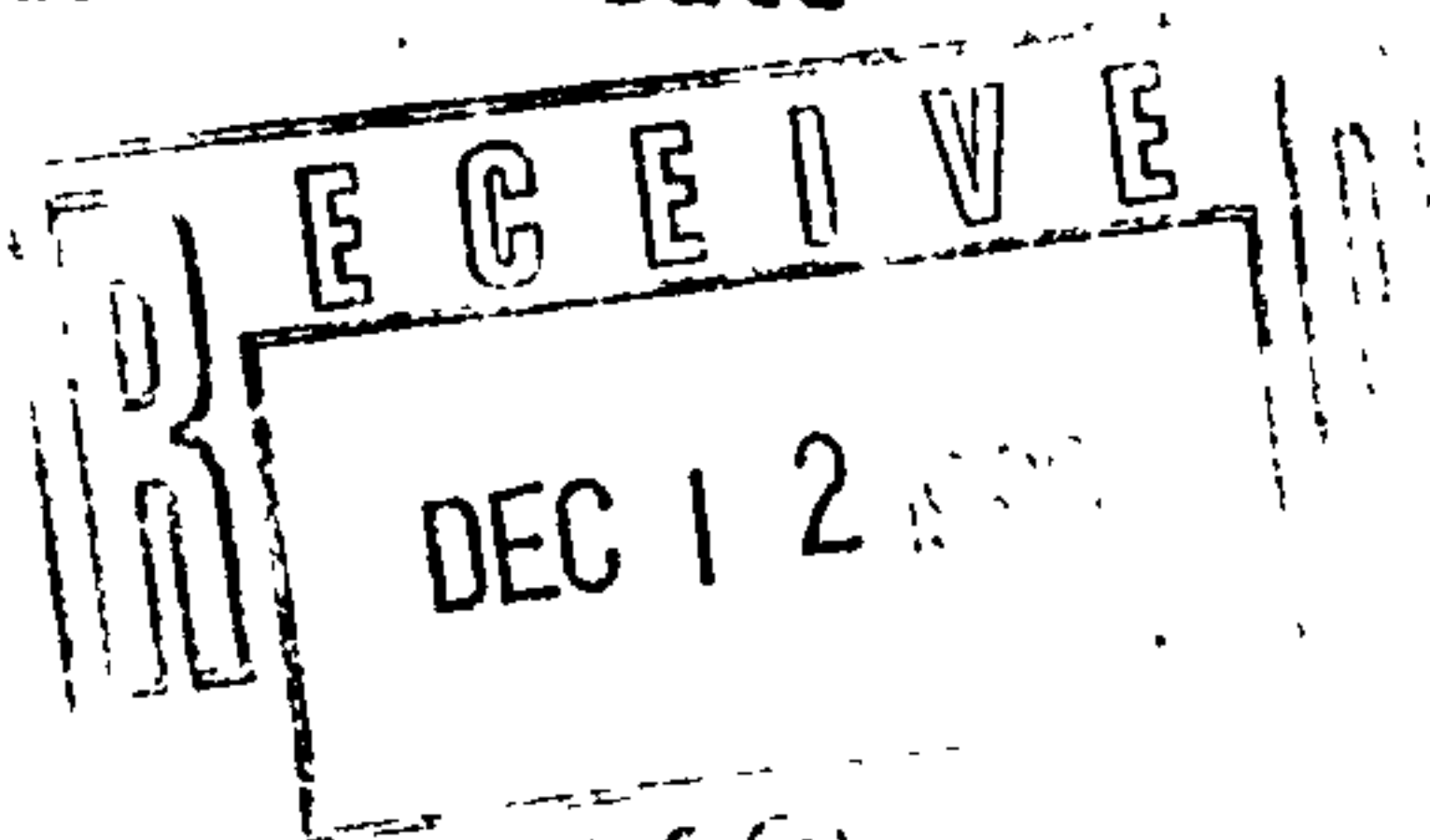
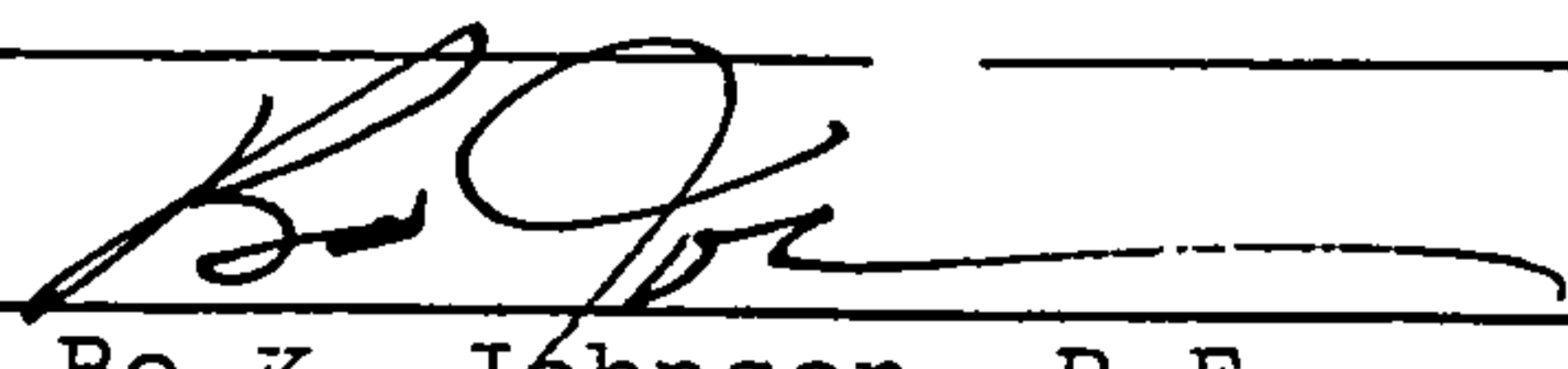


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<u>SIZE</u>	<u>IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
RESIDENTIAL STREETLIGHTS PER D.P.M.				
<u>22' F/F</u>	<u>PVM'T, C & G</u>	<u>"B" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>28' F/F</u>	<u>PVM'T, C & G</u>	<u>"C" STREET</u>	<u>ESTANCIA</u>	<u>"D" STREET</u>
<u>28' F/F</u>	<u>PVM'T, C & G</u>	<u>"D" STREET</u>	<u>MIAMI</u>	<u>"C" STREET</u>
<u>20' FC/EP</u>	<u>PVM'T, C & G</u>	<u>MIAMI(S.SIDE)</u>	<u>ESTANCIA</u>	<u>E.SUB'D BOUND.</u>
<u>20' FC/EP</u>	<u>PVM'T, C & G</u>	<u>JUNIPER(N.SIDE)</u>	<u>ESTANCIA</u>	<u>E.SUB'D BOUND.</u>
<u>30"</u>	<u>STORM DRAIN</u>	<u>JUNIPER</u>	<u>W. PL LOT 1</u>	<u>BOX CULV.@I-40</u>

Signed By: 
Print Name: Bo K. Johnson, P.E.
Firm: Bokay Construction, Inc.

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<u>City Engineer</u>	<u>Date</u>	<u>AMAFCA</u>	<u>Date</u>	<u>DRB Chairman</u>	<u>Date</u>
<u>BCPWD DRE</u>	<u>Date</u>	<u>BCPWD DRAN</u>	<u>Date</u>		

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<u>SIZE</u>	<u>IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>ESTANCIA</u>	<u>"A" STREET</u>	<u>JUNIPER</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>"A" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>"B" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>"C" STREET</u>	<u>ESTANCIA</u>	<u>"D" STREET</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>"D" STREET</u>	<u>MIAMI</u>	<u>"C" STREET</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>JUNIPER</u>	<u>ESTANCIA</u>	<u>W. APPROX. 440'</u>
<u>8"</u>	<u>SANITARY SEWER</u>	<u>JUNIPER</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>

Signed By: 
Print Name: Bo K. Johnson, P.E.
Firm: Bokay Construction, Inc.

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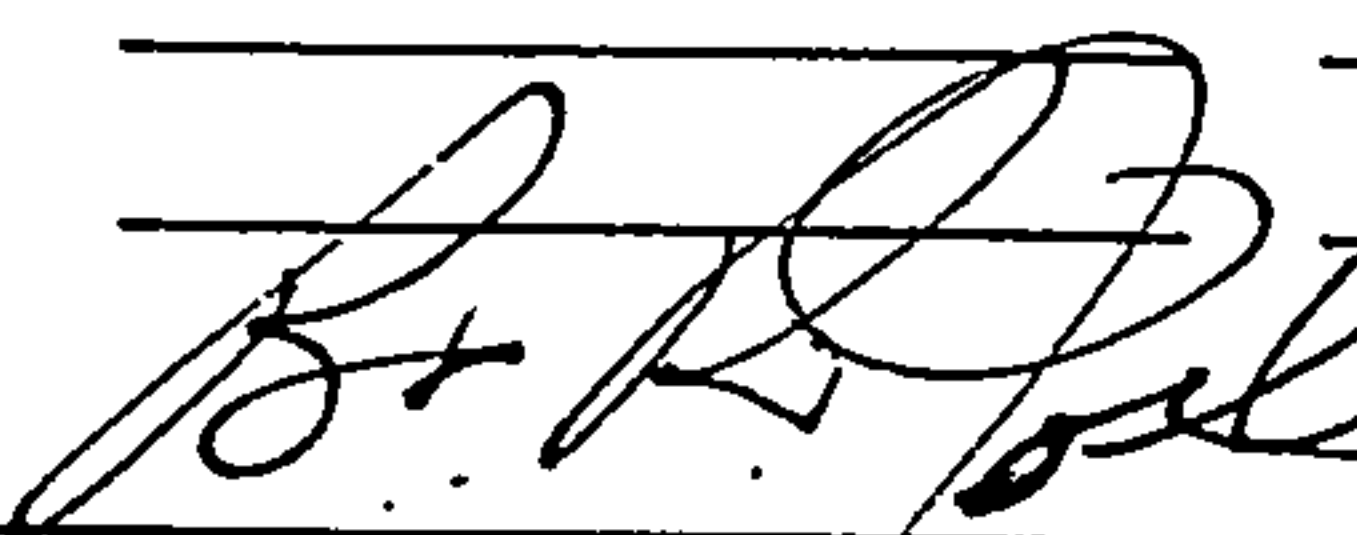
<u>Traffic</u>	<u>Date</u>	<u>Utility Dev.</u>	<u>Date</u>	<u>Parks & G.S.</u>	<u>Date</u>
<u>City Engineer</u>	<u>Date</u>	<u>AMAFCA</u>	<u>Date</u>	<u>DRB Chairman</u>	<u>Date</u>
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<u>SIZE</u>	<u>IMPROVEMENT</u>	<u>LOCATION</u>	<u>FROM</u>	<u>TO</u>
<u>10"</u>	<u>WATERLINE</u>	<u>ESTANCIA</u>	<u>MIAMI</u>	<u>JUNIPER</u>
<u>6"</u>	<u>WATERLINE</u>	<u>"A" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>6"</u>	<u>WATERLINE</u>	<u>"B" STREET</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>
<u>6"</u>	<u>WATERLINE</u>	<u>"C" STREET</u>	<u>ESTANCIA</u>	<u>"D" STREET</u>
<u>6"</u>	<u>WATERLINE</u>	<u>"D" STREET</u>	<u>MIAMI</u>	<u>"C" STREET</u>
<u>6"</u>	<u>WATERLINE</u>	<u>JUNIPER</u>	<u>ESTANCIA</u>	<u>E. TERMINUS</u>

Signed By: 
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