CITY OF ALBUQUERQUE

January 31, 2007

Ronald Ray Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: Walgreen's at Ladera Industrial Park Conceptual Grading and Drainage Plan

Engineer's Stamp dated 12-27-06 (H10/D6A2)

Dear Mr. Bohannan,

Based upon the information provided in your submittal received 12-28-06, the above referenced plan is approved for Grading Permit. This project requires a National Pollutant Discharge Elimination System (NPDES) permit.

However, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

- The rundown on the southeast corner of Lot 1D must be sized to convey the runoff from Lots 1B, 1C, and 1D. Provide build notes and calculations.
- State there is a drainage easement on the plan or in the report.
- COA STD DWG 2202 does not contain a type "E" inlet. It looks like the inlets are on the curb. Are they supposed to be in the gutter?
- Provide pipe flow calculations.
- The single cleanout, manhole and pipe running north-south on Lot 1D should be moved west to this lot.
- Owners of Lot 1C will be responsible for maintenance of the storm drain piping on Lot 1D. A maintenance agreement stating so is required.
- The plan should not be entitled "Conceptual...." when submitting for Building Permit.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, E.I.
Engineering Associate, Planning Dept.
Development and Building Services

C: file
Sertil Kanbar, DMD

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

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

PROJECT TITLE: **Walgreens @ Ladera Industrial Park** ZONE MAP/DRG. FILE #: ~~H-9~~ H-10/D6A1

DRB #: ***1002404*** EPC #: ***03EPC-01211*** WORK ORDER #:

LEGAL DESCRIPTION **LOT 1C OF LADERA INDUSTRIAL PARK**

CITY ADDRESS: **UNSER BOULEVARD NW BETWEEN OLD OURAY ROAD NW AND VISTA ORIENTE STREET NW**

ENGINEERING FIRM:	TIERRA WEST, LLC	CONTACT:	JOEL HERNANDEZ
ADDRESS:	5571 MIDWAY PARK PLACE NE	PHONE:	(505) 858-3100
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87109
OWNER:	CAP, II - C/O GEORGE RAINHART ARCHITECTS	CONTACT:	JON STERN
ADDRESS:	2325 SAN PEDRO NE, SUITE 2-B	PHONE:	(505) 884-9110 Ext. 110
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87110
ARCHITECT:	GEORGE RAINHART ARCHITECTS & ASSOCIATES	CONTACT:	JON STERN
ADDRESS:	2325 SAN PEDRO NE, SUITE 2-B	PHONE:	(505) 884-9110 Ext. 110
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87110
SURVEYOR:	SURV-TEK, INC	CONTACT:	RUSS HUGG
ADDRESS:	9384 VALLEY VIEW DRIVE	PHONE:	(505) 897-3366
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87114
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

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

CHECK TYPE OF APPROVAL SOUGHT:

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

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- X NO
- ___ COPY PROVIDED

RECEIVED
DEC 2 8 2006
HYDROLOGY SECTION

DATE SUBMITTED: **12/28/2006** BY: **JOEL HERNANDEZ**

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

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

DRAINAGE REPORT

for

Ladera Industrial Center Lot 1
Northeastern Corner of
Unser Boulevard and Vista Oriente Street
Albuquerque, New Mexico

Prepared by:

Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, New Mexico 87109

April, 2004
Revised December, 2006

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

RONALD RAY BOHANNAN
NEW MEXICO
7868
REGISTERED PROFESSIONAL ENGINEER

12/27/06

Ronald R. Bohannan
PE NO. 7868

Job No 24086

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Map Pockets

Site Grading and Drainage Plan, Map Pocket A ..... A

Developed Conditions Basin, Map Pocket B ..... B

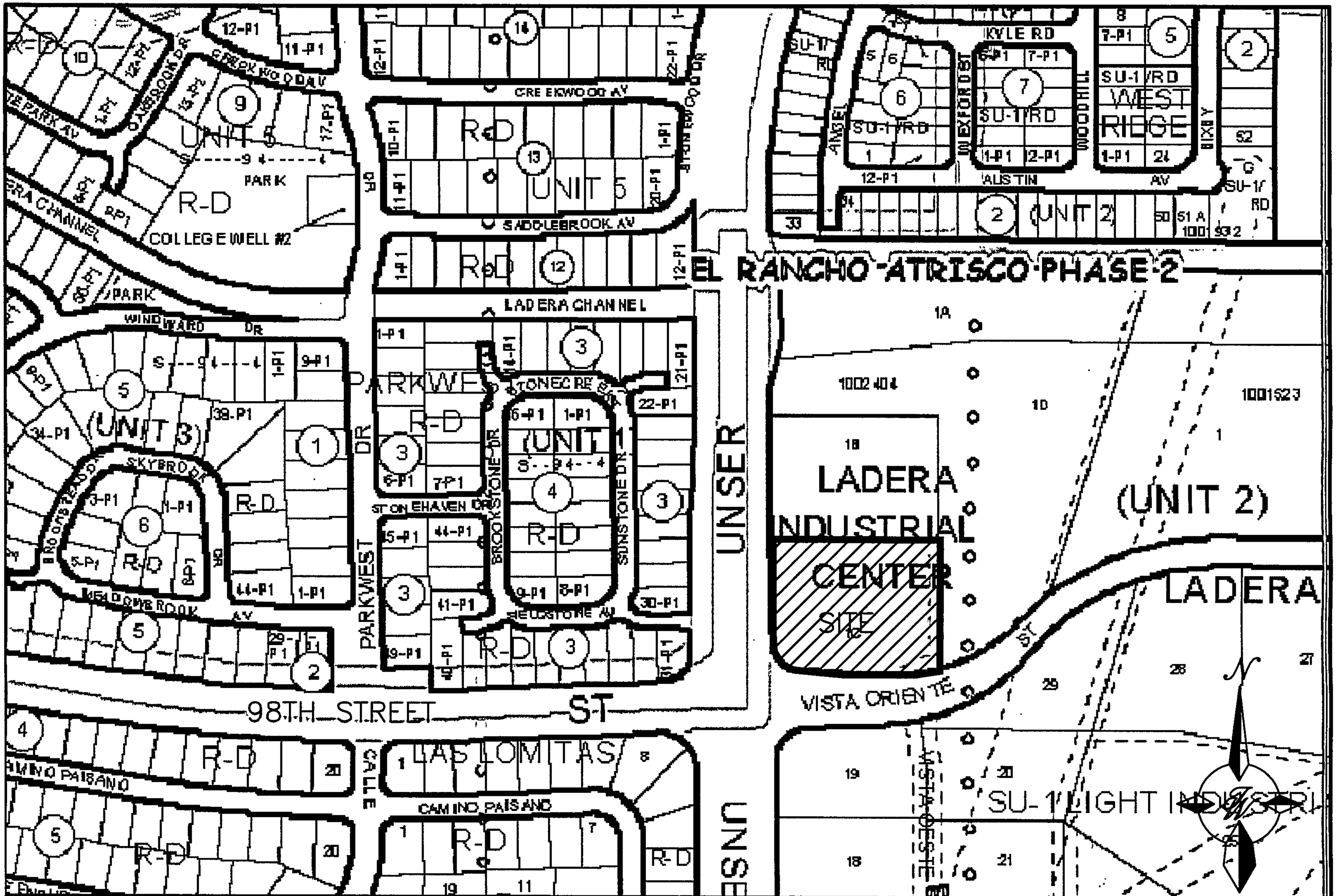
PURPOSE

The purpose of this report is to provide the drainage management plan for the development of Ladera Industrial Center Lot 1. This plan will be utilized for the development of a Walgreens retail building within Lot 1C, however, this analysis includes the adjacent Lots 1A through 1D of the subject 11.94-acre property. The specific future uses of the Lots 1B and Lots 1D are currently undetermined. This plan is in accordance with the DPM, Chapter 22, Hydrology Section. The purpose of this report is to provide the drainage analysis and management plan for the new site.

INTRODUCTION

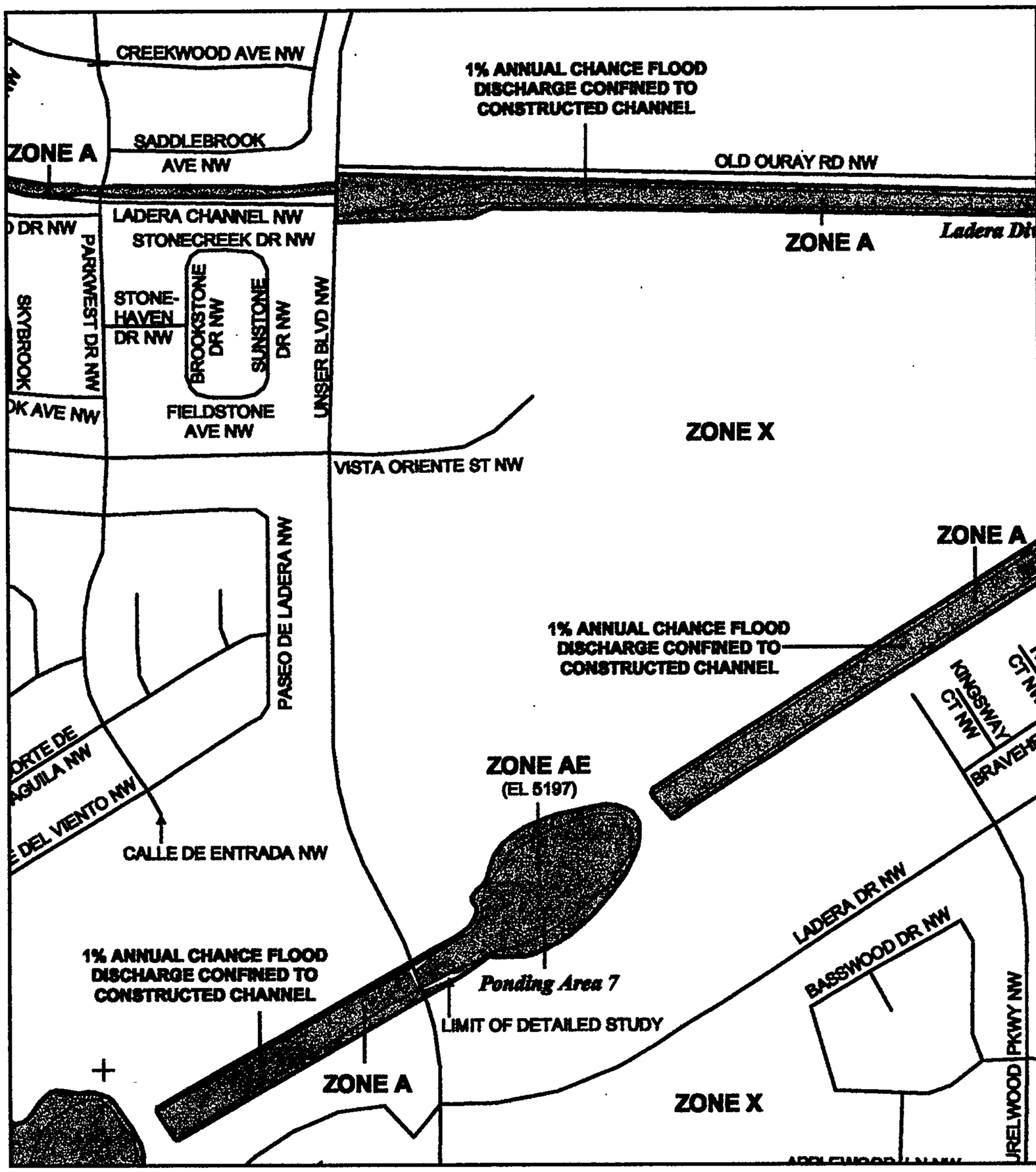
The subject of this report, as shown on the Exhibit A vicinity map, is a 11.94-acre parcel of land located at the northeast corner of Unser Boulevard and Vista Oriente Street, zone atlas page H-9. The site is in the City of Albuquerque, Bernalillo County, New Mexico and is currently undeveloped, although Vista Oriente Street has been completed. The legal description of the property is Lot 1, Ladera Industrial Center. The property has been split into four lots, 1-A through 1-D. As shown on FIRM map 35001C0326D, Lot 1-A lies within a flood zone. Lot 1-A consists of the Ladera Diversion Channel. No development is proposed for this lot. A previous drainage report was done by Mark Goodwin and Associates in Nov. 2002 for the Ladera Business Park. The drainage report states that this Lot 1 has free discharge to Vista Oriente. A subsequent drainage report was completed by this firm as part of the Site Plan for Subdivision application.

Exhibit A- Vicinity Map



VICINITY MAP: H-9-Z

Exhibit B – FIRM Map



MAP SCALE 1" = 500'

500 1000 FEET

METERS

PANEL 0326E

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO
AND INCORPORATED AREAS

PANEL 326 OF 825

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF	360002	0326	E

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
35001C0326E

MAP REVISED
NOVEMBER 19, 2003

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

EXISTING CONDITIONS

The site is currently undeveloped and slopes from west to east. The 11.94-acre site, is bounded on the north by the Ladera Diversion Channel and on the south by Vista Oriente street improvements. Currently the site drains to the confluence of the Ladera and Mirehaven channels.

PROPOSED CONDITIONS

Lot 1-A currently consists of the Ladera channel No improvements are planned for this lot. Lot 1-B is anticipated to be developed as a restaurant, Lot 1-C is to be developed as a retail store, and an enclosed/RV storage business is planned for Lot 1-D. The site has been split into 4 basins corresponded to each lot. The storm water runoff will freely discharge into Vista Oriente.

Basin 1A includes the entire portion of the Ladera Channel that is on this site. No improvements are planned for this section of the channel and all the runoff that is generated by this basin is handled by the channel.

Basin 1B includes the proposed restaurant, associated parking lot, and generates 7.6cfs. The runoff from the building and the east parking lot will flow east to a curb cut that is located east of the Retail building. The runoff will continue in a concrete rundown into the storage center entrance and out into Vista Oriente. A land treatment of 23%B and 77%D was used to generate the runoff numbers for basin 1B.

Basin 1C includes the proposed Retail building, associated parking lot, and generates 8cfs. The runoff from the west half of the parking lot will flow west to two inlets, the storm drain system will daylight at the edge of the storage facility and discharge into Vista Oriente. A land treatment of 22%B and 78%D was used to generate the runoff numbers for basin 1C.

90 D 1.92a x 4.37 = 8.4

10 B .21 x 2.03 0.43

8.8 cfs

Basin 1D includes the proposed storage facility, and generates 20cfs. The runoff from the facility will sheet flow to the entrance and into Vista Oriente. A land treatment of 16%B and 84%D was used to generate the runoff numbers for basin 1C.

According to the drainage report by Mark Goodwin and Associates Lot 1 may discharge 36cfs into Vista Oriente. Lots 1B-D discharges a total of 36 cfs. A basin calculation sheet is included in the calculations section of this report.

SUMMARY AND RECOMMENDATIONS

Per the pervious drainage report this site has free discharge into Vista Oriente. The development of this site is consistent with the DPM, Chapter 22, Hydrology section. It is recommended this development be approved for rough grading and Site Plan for Building Permit.

CALCULATIONS

EXISTING CONDITION

Total Area	=	520,093 sf
Impervious Area	=	520,093 sf
Pervious Area	=	0 sf

DEVELOPED CONDITION

Total Area	=	520,093 sf
Impervious Area	=	325,829 sf
Pervious Area	=	194,264 sf

Basin 1A

Total Area	=	118,170 sf
Impervious Area	=	0 sf
Pervious Area	=	118,170 sf

Basin 1B

Total Area	=	86,331 sf
Impervious Area	=	66,473 sf 23% B
Pervious Area	=	19,858 sf

Basin 1C

2.13 ac

Total Area	=	93,022 sf
Impervious Area	=	72,571 sf 22% B
Pervious Area	=	20,451 sf

= 17 ch

Basin 1D

Total Area	=	222,570 sf = 4.3 ac } 4.37 ac
Impervious Area	=	186,960 sf 16% B
Pervious Area	=	35,610 sf 20 ch

MAP POCKET A

SITE GRADING AND DRAINAGE PLAN

Ladera Industrial Center Lot 1

MAP POCKET B

Proposed Basin Map

Ladera Industrial Center Lot 1

[redacted]

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NOV 22 2002
HYDROLOGY SECTION

MARK GOODWIN & ASSOCIATES

dmg

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

December 27, 2002

John MacKenzie PE
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, NM 87199

Re: Ladera Business Park Drainage Report
Engineers stamp date 11-21-02 (H10/D6A)

Dear Mr. MacKenzie,

Based on information contained in your resubmittal dated 11-22-02, the above referenced report is approved for Preliminary Plat and Site Plan for Subdivision action by the DRB and Work Order action by the DRC.

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

Sincerely,

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

C: file

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV.1/11/2002)

PROJECT TITLE: Ladera Business Park ZONE MAP/DRB.FILE#: H-10/D6A

DRB#: 1001523 EPC# _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lot 2, Ladera Industrial Center

CITY ADDRESS: Unser Blvd. NW, Albuquerque NM

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: John MacKenzie

ADDRESS: P.O. Box 90606 PHONE: 828-2200

CITY, STATE: Albuquerque NM ZIP CODE: 87119

OWNER: Unser- 98th Street Partnership LLC CONTACT:

ADDRESS: P.O. Box 90598 PHONE: 821-1034

CITY, STATE: Albuquerque NM ZIP CODE: 87199

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

RECEIVED
NOV 22 2002
HYDROLOGY SECTION

TYPE OF SUBMITTAL:

- ✔ DRAINAGE REPORT
- ✔ DRAINAGE PLAN
- ✔ CONCEPTUAL GRADING & DRAINAGE PLAN
- ✔ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERTIFICATION (TCL)
- ___ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- ___ NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANCIAL GUARANTY RELEASE
- ✔ PRELIMINARY PLAT APRROVAL
- ✔ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TEMP)
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ✔ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY)

DATE SUBMITTED: 11/22/02 BY: John M. MacKenzie

John M. MacKenzie, PE

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

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5).
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5).

f:\\forms\drainingf tbl

MASTER DRAINAGE REPORT
for
LADERA BUSINESS PARK

Prepared for:

Unser - 98th Street Partnership
8900 Washington, NE
Albuquerque, NM 87113

Prepared by:

John M. MacKenzie, PE
Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199

April 5, 2002

Revised May 24, 2002

Revised November 21, 2002

D. Mark Goodwin & Associates, P.A.
Consulting Engineers

P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

November 21, 2002

Mr. Brad Bingham, PE
Hydrology Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Ladera Business Park (DRB Project # 1001523 & Drainage File # H10/D6A)

Dear Mr. Bingham:

A revised drainage report for this project was received by your office on June 21, 2002. Subsequently, the report plan was approved subject to combining the latest changes with the original report and then resubmitting all the revised information. The review and revision has been completed, resulting in the report is being resubmitted with the following changes:

- *The hydraulics for the two storm drains flowing into the Mirehaven Channel have been reevaluated, leading to an enlargement of some of the run legs. The hydraulic grade lines generated from the analyses have been placed on the plan and profile drawings which are to be reviewed by DRC on December 4th.*
- *A storm drain inlet and street flow summary has been created for the Vista Oriente and La Morada to help explain how much each inlet accepts and how much corresponding flow is conveyed in the storm drain and in the street.*
- *The AHYMO run has been revised according to your previous comment on the ID error. The report's flow exhibit has also been revised and new flow values have been displayed in a table format for AREA II and AREA III.*
- *The on-site private swales have been widened to twenty-feet and sized to carry the required runoff. The swale draining the large tracts along the Mirehaven Channel now dumps into a new drop inlet just SW of the La Morada cul-de-sac.*
- *The storm drain outfalls to the Mirehaven Channel are now lined by rip-rap stilling basins, similar to what has been employed at other unlined AMAFCA facilities.*
- *Construction of the decel lane along Unser Blvd. at La Morada involves the removal and replacement of two inlets that now exist along the curb face. The new locations for these inlets will be 12' east of their present location so that they will continue to be backed by a curb and contain a curb opening.*
- *The Grading & Drainage plan has been revised to reflect the latest changes discussed herein.*

Please contact me if I can be of further assistance.

Sincerely,

MARK GOODWIN & ASSOCIATES, PA

John M. MacKenzie, PE
Vice President

JMM/bm

f.\\ladera business park\plan changes

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I. INTRODUCTION 1

II. DRAINAGE DESIGN CRITERIA AND ASSUMPTIONS 1

III. EXISTING DRAINAGE CONDITIONS 1

IV. PROPOSED DRAINAGE CONCEPT 2

V. STREET INLETS AND STORM DRAIN SUMMARY 3

VI. DEVELOPMENT IMPLEMENTATION 4

FIGURE 1: VICINITY MAP

FIGURE 2: FEMA MAP

EXHIBIT A: DRAINAGE BASIN AREA PLAN

EXHIBIT B: DRAINAGE BASIN ANALYSIS POINTS

APPENDIX A: AHYMO HYDROLOGY

APPENDIX B: HYDRAULICS

POCKET 1: EXISTING CONDITIONS MAP

POCKET 2: LADERA BUSINESS PARK MASTER GRADING AND DRAINAGE PLAN

I. INTRODUCTION

The Ladera Industrial Center ("LIC") presently consists of Lots 1 and 2 covering an area of approximately 120 acres located east of Unser Blvd. between Ladera Drive and Old Ouray Road. More specifically, the Ladera and Mirehaven channels form the north and south boundaries of the site while the area directly to the east of the site is the Ladera Golf Course Ponding Area No. 14. Unser Blvd. was improved to a four-lane, divided, limited-access arterial more than ten years ago. With the subdivision of Lots 1 and 2, a 660-foot long section of public right-of-way called Vista Oriente running east into the subdivision was created but not built. A decel lane, pedestrian islands, a partial median, and a traffic signal were installed incidental to the Unser Blvd. improvements at the intersection (98th Street is the west leg of the intersection).

This Master Drainage Report is being prepared in response to the proposed subdivision and development of the property into thirty-one tracts, which has been renamed the Ladera Business Park ("LBP"). Lot 1 of the LIC is not a part of the platting action associated with this report, although it is included in this report due to its proximity to the LBP development and the fact that it drains east into Lot 2 of the LIC.

Lot 1 of the LIC and the northwest portion of Lot 2 were previously considered for the location of a new City of Albuquerque Transit Facility several years ago. In conjunction with that effort a Master Drainage Plan that covering all of Lots 1 and 2 was prepared by Bohannan-Huston and approved by the City of Albuquerque Hydrology Division in 1998.

Lot 1 is presently zoned SU-1 for a Transit Facility and Lot 2 is SU-1 for Light Industrial. On November 15, 2001, the city's Environmental Planning Commission approved a Site Plan for Subdivision on the latter. One of the conditions associated with that Site Development Plan approval was that all subsequent building permit applications must go through review and approval by the city's Development Review Board. The requested approval for Preliminary Plat will be accompanied by the Site Plan for Subdivision at the DRB hearing in association with this plan. The Preliminary Plat will exhibit a two-unit development plan with interim measures designated for the area covering the proposed Unit II (see "IMPLEMENTATION MEASURES" at the end of this report).

Being adjacent to a PNM substation, the LIC is encumbered by numerous above ground high-tension power lines that include public easements. The property is also encumbered by a blanket drainage easement and other drainage easements for the previously mentioned channels, which are owned and maintained by AMAFCA.

According to the previously approved drainage report, the proposed development will be afforded free discharge to the Ladera Drainage system due to its proximity to the bottom of the drainage basin.

The attached FEMA map 350002 0021 shows the AMAFCA's Ladera and Mirehaven channels within the site fully containing the 100-year floodplain. These easements are proposed to be dedicated to AMAFCA in fee simple.

II. DRAINAGE DESIGN CRITERIA AND ASSUMPTIONS

The design criteria used in this report was in accordance with Section 22.2 Hydrology of the Development Process Manual, Volume 2, Design Criteria, January 1993 edition. The Drainage Management Plan for this site is a modification of the previously approved Ladera Industrial Center Master Drainage Plan, dated September 28, 1998.

III. EXISTING DRAINAGE CONDITION

The Ladera Business Park is presently undeveloped open rangeland that was occupied by grazing cattleup until its recent sale. The topography is sloping down to the east at a grade of approximately 4 to 4.5 percent and sparsely covered by various native grasses and bushes. Numerous small on-site swales have developed over the years that appear to die out as they continue from west to east through the site. There are also several small vehicular trails that cross the site in all directions.

As displayed on the Existing Conditions Map (Pocket 1) there are six existing drainage basins, two of which are defined by the channels and three that discharge directly into the Mirehaven Channel at three existing diversion dikes. These dikes intercept west to east flow and are integrated into the channel's construction. The eastern portion of the Mirehaven contains drop structures that were placed to prevent head-cutting, dissipate energy and otherwise minimize erosion. The last remaining basin covering most of the north half of the site flows directly east and into the Ladera Dam 14. Both the Mirehaven and Ladera channels contain well-defined embankments built during their construction that are elevated four to six feet above the surrounding on-site area.

Upon closer examination it has been discovered that a small portion (approximately 0.91 acres) of the Unser Blvd. - Vista Oriente intersection actually drains into the unimproved Vista Oriente right-of-way and then into the site. All other runoff within Unser Blvd. and the area west of Unser Blvd. is either directed into the Unser Blvd. storm drain system or into the Mirehaven and Ladera channels. No other off-site discharge enters the site.

IV. PROPOSED DRAINAGE CONCEPT

Each of the individual tracts will be required to develop a site-specific grading and drainage plan that allows free discharge to either a street, an underground pipe, or a paved private swale in accordance with this plan. It will be the responsibility of each end user to design a suitable connection to the tract's permanent outfall.

The proposed drainage scheme for the LBP starts by dividing the entire site into three distinct ***Areas****, as identified on Exhibit A, each with its individual principal conveyance path. Outfalls for the drainage are internal streets and storm drains that ultimately discharge to the Mirehaven Channel. Flow in streets is generally east and then south into the channel via storm drain. All lots are to take advantage of the free-discharge allowance with no permanent on-site ponds planned.*

The new internal street network, as identified on the plan, will extend Vista Oriente east to where it will intersection with a new street named La Morada Place. La Morada Place extends east from a new right-in/right-out driveway on Unser Blvd. approximately 1,000 feet south of the Vista Oriente intersection. Three-hundred feet east of and running parallel to Unser Blvd. is a new private street called Vista Oeste that was created to connect La Morada Place with Vista Oriente. Lots fronting Vista Oeste are considerably smaller than lots within other areas of the site. All street rights-of-way are 60 feet and all face to face dimensions are 40 feet.

Area I *will include Lot 1 of the LIC (not a part of the proposed development) and a majority of the site area north of La Morada Place.* ***Area II*** *will cover all of the area south of La Morada Place except for tracts directly south of the La Morada-Vista Oeste intersection. The balance of the site (****Area III****) covers Tracts 12-19 and Tracts 21-23.*

Runoff from ***Area I*** *will be conveyed in Vista Oriente and La Morada to the cul-de-sac at the east end of La Morada. Thirty-six-inch storm sewer beginning just north of the La Morada-Vista Oriente intersection accepts and conveys most of the streets' surface flow up to the cul-de-sac, at which time all the flow from* ***Area I*** *and*

__Area II__ will be combined and carried in a 60" RCP to the Mirehaven Channel. A maintenance drive/emergency overflow channel extending from the cul-de-sac to the Mirehaven Channel will be built to provide for channel maintenance on the Mirehaven and maintenance of sanitary sewer manhole near the channel. The maintenance drive will also serve as an emergency overflow for the cul-de-sac should the capacity of the cul-de-sac inlets be exceeded. A pole gate will be built at the driveway entrance to restrict public access.

Tracts within __Area I__ discharging directly to streets at various locations are Lot 1 (LIC), Tract 1, Tracts 4 – 6, 24 and 25. Tracts 20, and 27 – 29 are to discharge into the paved private swale along the north side of Tract 25. Tracts 2, 3 and 26 discharge into subsurface storm drain stub outs designed specifically for those lots.

Each of the tracts within __Area II__ (8-11) will freely-discharge to a new private paved swale along the south side of Tracts 8 – 10. The swale is designed to discharge into a new NMSHTD median inlet just SW of the La Morada cul-de-sac. Another 36" storm drain collects and conveys this runoff into the 60" storm drain described above. The __Area II__ runoff includes Tract 7, which is east of the La Morada cul-de-sac. Tract 7 will free-discharge directly east to the Ladera Dam No. 14. A site specific outfall design must be designed and approved by the City Hydrology Division and AMAFCA in conjunction with the site development of Tract 7.

__Area III__ covers smaller lots fronting on Vista Oeste and the west end of La Morada Place. Runoff from Tracts 15 – 19 is to be accepted by Vista Oeste and then turned east in La Morada to a series of in-street drop inlets at the west boundary of Tract 12. Tracts 21 – 23 will discharge east into a private paved swale located along their east boundary. This private paved swale flows south and discharges into a double "D" drop inlet that is combined with the flow identified above. The street flow from Tracts 15 – 19 is combined with Tract 21- 23 flow and then carried in a 36" storm drain along the east boundary of Tract 12 to the SE corner of Tract 12. Private runoff from Tracts 12 –14 is conveyed in another paved swale along the west boundary of Tract 12 and then directed south into another double "D" inlet at the SE corner of Tract 12. At this point all __Area III__ flows are combined before outfalling into the Mirehaven Channel in a 42" storm drain.

Both of the Mirehaven Channel outfalls are underlain by a below-grade pad consisting of type M rip-rap. Native fill is to be placed over the pad to the existing FL grade of the channel.

The hydrologic analysis utilizing AHYMO is provided in Appendix A. Nomographs and drainage calculations for street, swale, and catch basin capacities, including the storm drain's hydraulic analysis, are provided in Appendix B.

V. STREET INLETS AND STORM DRAIN SUMMARY

Vista Orienta Street

On Vista Oriente at __AP-2__, the flow is 60 cfs with a grade of 2.25%. At first set of drop inlets, with the street generating an additional 2 cfs, 13 cfs will be collected in each of the two inlets (26 cfs total), resulting in a bypass of 36 cfs reaching Vista Oriente's intersection with La Morada at __AP-11__. The 36" storm drain in lower Vista Oriente accepts 26 cfs from the inlets, 15 cfs directly from the pipe stubbed-out to Tract 2 and 11 cfs from the pipe stubbed-out to Tract 26 (52 cfs total).

La Morada Street

On La Morada Street just before its intersection with Vista Oriente (__AP-10__), there is 62 cfs of flow. With the 4 inlets on La Morada, each receiving 12.5 cfs, there remains 12 cfs in the street bypassing to __AP-11__. Combined with the 36 cfs of bypass from Vista Oriente, and the 1.6 cfs generated within the R/W (Basin AHYMO ID=29), there remains 49.6 cfs flowing in La Morada just east of the Vista Oriente intersection (__AP-12__). The 36" storm drain at this location now carries the 50 cfs just collected from the La Morada inlets and the 52 cfs caried by the 36" pipe in Vista Oriente (102 cfs total – see storm drain's hydraulic analysis in

Appendix B)

*With a single inlet at **AP-12** intercepting an additional 11 cfs, there remains 38.6 cfs of bypass flow in La Morada. The 11 cfs from above inlet is combined with the 11 cfs from Tract 3 (pipe stubbed-out to Tract 3) to increase the storm drain's flow by 22 cfs to a total 124 cfs.*

*At **AP-13** the additional 11 cfs from the area associated with Tract 4 increases the street flow in La Morada to 49.6 cfs. Another pair of inlets just above AP-14 intercepts an additional 22 cfs from the street (11 cfs for each inlet) and directs it into the storm drain, resulting in 27.6 cfs of bypass flow and 149 cfs in the 42" storm drain.*

*With the additional 20 cfs from both Tracts 5 and 6 (including street flow), La Morada brings approximately 48 cfs into its east cul-de-sac (**AP-15**) where a pair of double "C" inlets in a sump condition deliver the remaining flow into the cul-de-sac's SD manhole.*

An additional 90 cfs is delivered in a 36" storm drain to the cul-de-sac from the NMSHTD median inlet positioned at the east end of the Tracts 8-11 swale, SW of the La Morada cul-de-sac.

The total of 285 cfs is run through a Stormceptor water-quality manhole, before being conveyed in a 60" storm drain extending east of La Morada to an outfall in the Mirehaven Channel.

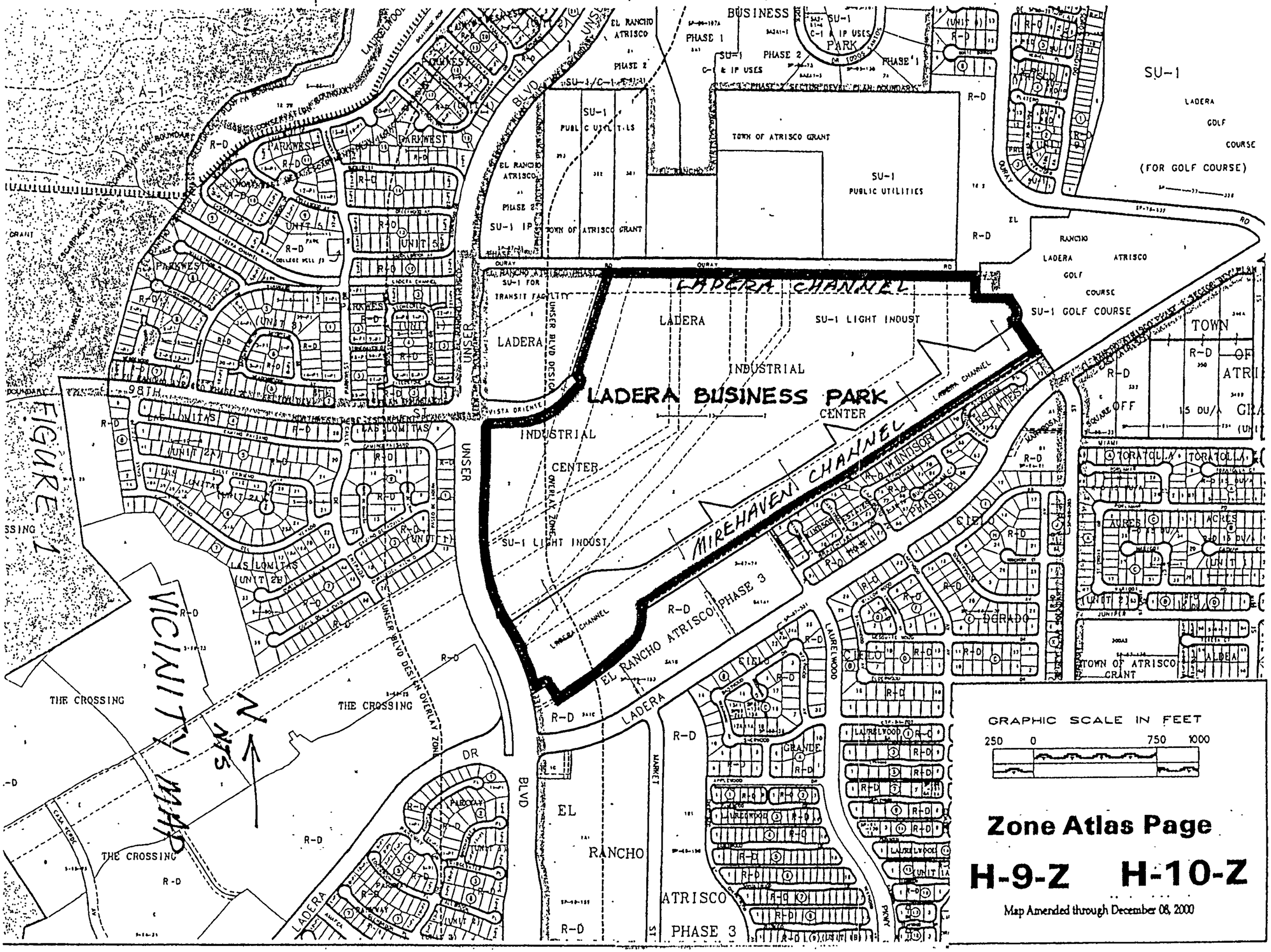
*In **Area III**, There is a point on La Morada at sta. 18+00 where there are two "A" inlets and then two double "C" inlets in a sump condition that collect 40 cfs. This is combined with 14 cfs of flow from a double "D" inlet at the end of the paved private swale along the west side of Tract 24. From La Morada the 54 cfs is conveyed in a 36" storm drain to the SE corner of Tract 12 where an additional 17 cfs is collected in a another double "D" drop inlet that drains tract 12-14. At the SE corner of Tract 12 another Stormceptor manhole is used before the entire 71 cfs is discharged into the Mirehaven Channel.*

VI. DEVELOPMENT IMPLEMENTATION

INTERIM CONDITIONS

The first step in the development of the property will be to rough-grade proposed public roads and then install utilities, streets and drainage-related infrastructure with Unit I. In conjunction with the Unit I utility work (and ultimately Unit II), there will not be any on-lot grading of individual pads other than the placement of temporary earthen berms on the downstream sides of the undeveloped lots to keep silt-laden runoff from entering the improved streets and paved drainage swales. All public infrastructure will be ready for an end user to enter a site, perform site-specific grading and then construct the individual buildings. The intent is for any one given tract to stand-alone relative to an undeveloped neighbor. Temporary berms separating a developed site from an undeveloped site must be preserved or the developed site will be required to accept runoff from off-site tract and then route it through the developed site to the permanent outfall.

As previously discussed, the proposed LBP will be phased in two units that will create the necessity for an interim condition to exist on the second unit. The intent would be to capture all the existing undeveloped runoff in Unit II flowing east and direct it into a temporary desilting pond located at the Vista Oriente stub street just west of its connection to La Morada Place. The pond is to be fitted with a spillway that would carry runoff at the existing, undeveloped rate from the eastern bermed limits of the pond to the southeast corner of Tract 2,where it would then discharge into the improved Vista Oriente Street. The spillway and temporary channel are sized for conveyance of the peak 100-year, six-hour storm from the undeveloped Unit II area.


LADERA CHANNEL
LADERA BUSINESS PARK
MIREHAVEN CHANNEL
LADERA INDUSTRIAL CENTER
SU-1 LIGHT INDUST
SU-1 GOLF COURSE
SU-1 (FOR GOLF COURSE)
SU-1 PUBLIC UTILITIES
TOWN OF ATRISCO GRANT
EL RANCHO ATRISCO PHASE 3
LADERA GOLF COURSE
UNSER BLVD DESIGN OVERLAY ZONE
VICINITY MAP
N
NTS
GRAPHIC SCALE IN FEET
250 0 750 1000
Zone Atlas Page
H-9-Z H-10-Z
Map Amended through December 08, 2000

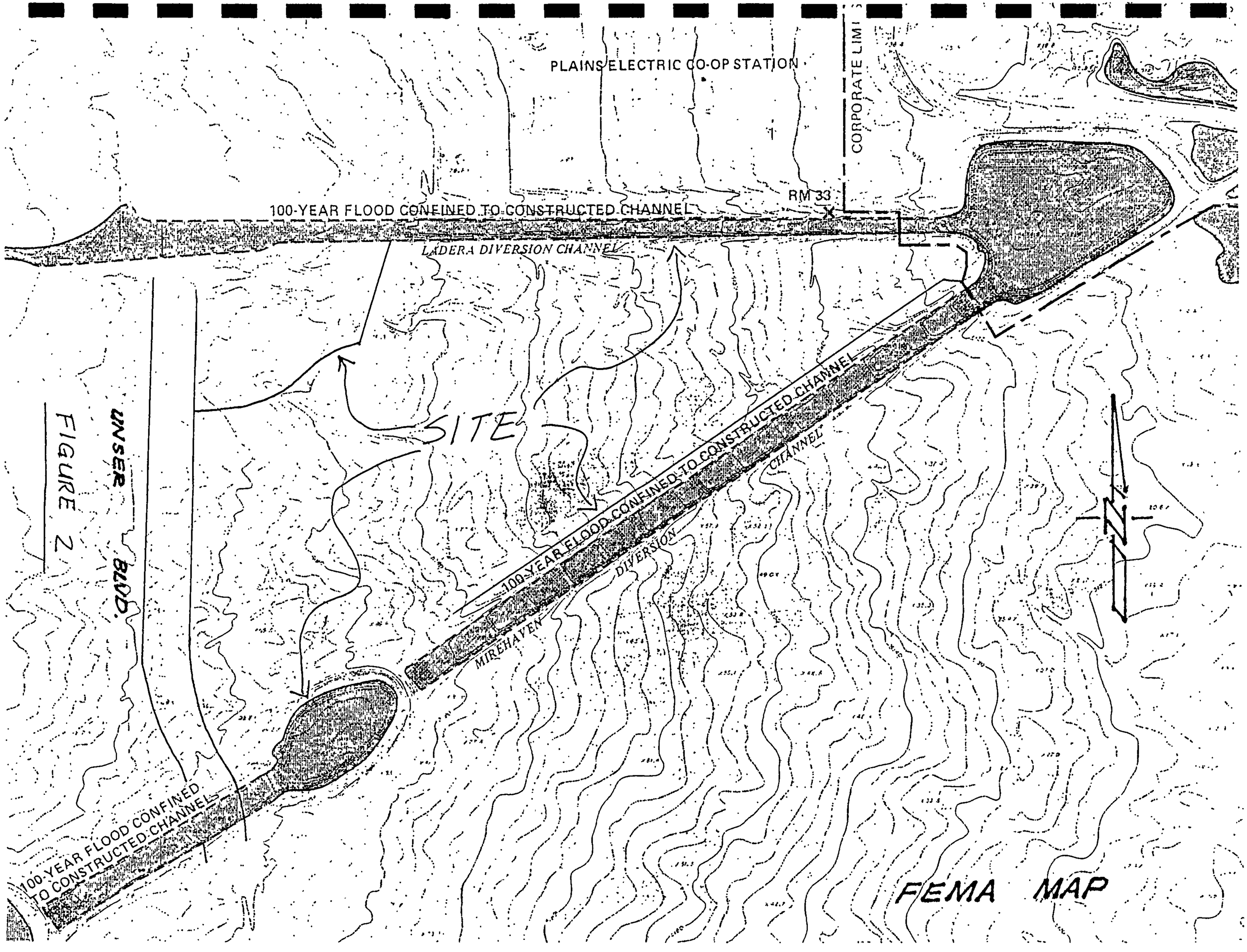
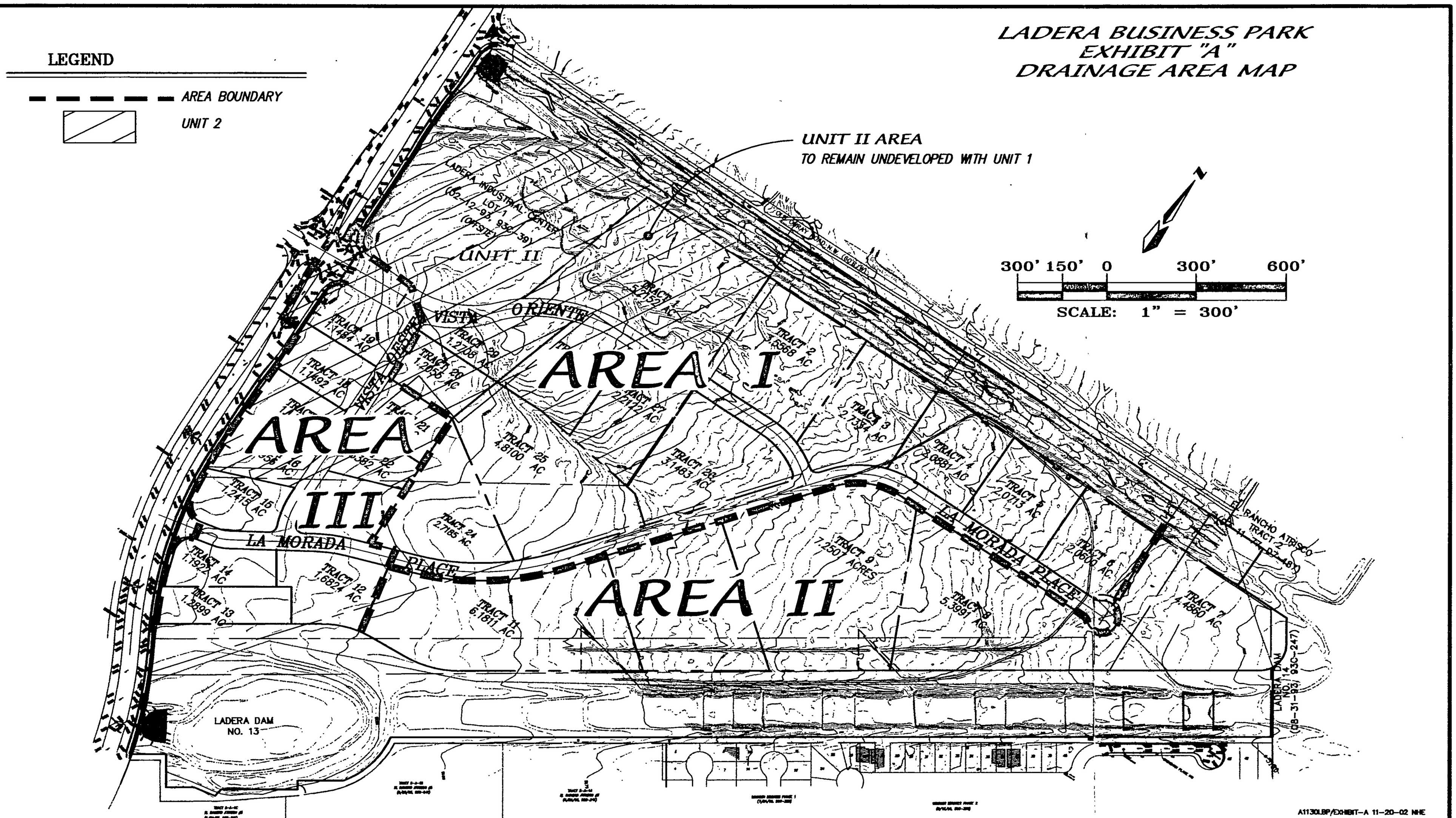

PLAINS ELECTRIC CO-OP STATION
CORPORATE LIMI
RM 33
100-YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL
LADERA DIVERSION CHANNEL
SITE
100-YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL
MIREHAVEN DIVERSION CHANNEL
100-YEAR FLOOD CONFINED TO CONSTRUCTED CHANNEL
WINSER BLVD.
N
FEMA MAP

FIGURE 2

LADERA BUSINESS PARK
EXHIBIT "A"
DRAINAGE AREA MAP



LADERA BUSINESS PARK
EXHIBIT "B"
DRAINAGE BASIN PLAN MAP

AREA III SUMMARY

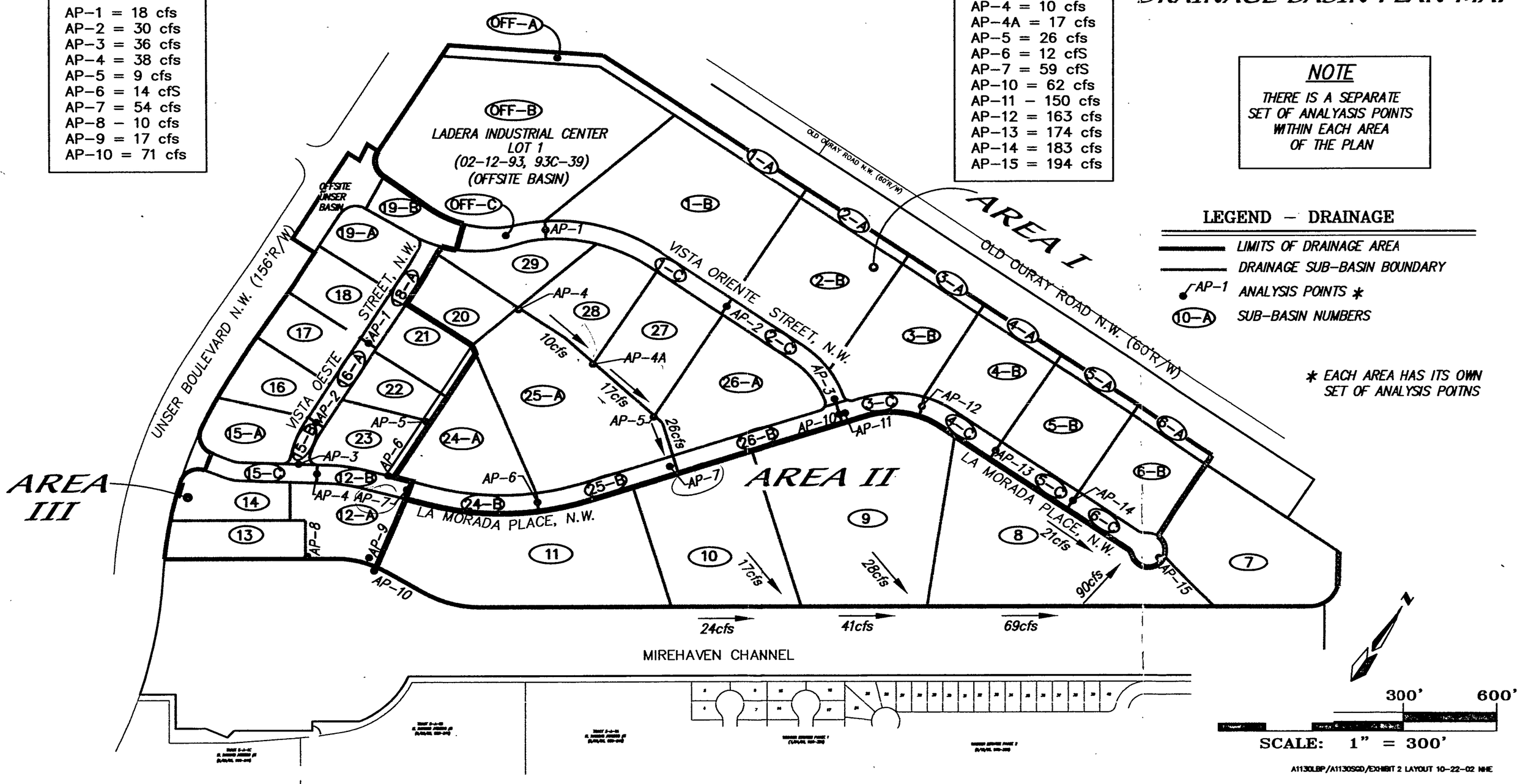
AP–1	= 18 cfs
AP–2	= 30 cfs
AP–3	= 36 cfs
AP–4	= 38 cfs
AP–5	= 9 cfs
AP–6	= 14 cfS
AP–7	= 54 cfs
AP–8	– 10 cfs
AP–9	= 17 cfs
AP–10	= 71 cfs

AREA I SUMMARY

AP–1	= 36 cfs
AP–2	= 60 cfs
AP–3	= 88 cfs
AP–4	= 10 cfs
AP–4A	= 17 cfs
AP–5	= 26 cfs
AP–6	= 12 cfS
AP–7	= 59 cfS
AP–10	= 62 cfs
AP–11	– 150 cfs
AP–12	= 163 cfs
AP–13	= 174 cfs
AP–14	= 183 cfs
AP–15	= 194 cfs

NOTE

THERE IS A SEPARATE SET OF ANALYASIS POINTS WITHIN EACH AREA OF THE PLAN



LEGEND – DRAINAGE

- LIMITS OF DRAINAGE AREA
- DRAINAGE SUB–BASIN BOUNDARY
- AP–1 ANALYSIS POINTS *
- 10–A SUB–BASIN NUMBERS

* EACH AREA HAS ITS OWN SET OF ANALYSIS POITNS

A1130LBP/A1130SCD/EXHIBIT 2 LAYOUT 10–22–02 NHE

APPENDIX A

AHYMO HYDROLOGY

AREA I - LADERA BUSINESS PARK (SUMMARY @ END)

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
        RUN DATE (MON/DAY/YR) = 10/22/2002
        START TIME (HR:MIN:SEC) = 09:19:14     USER NO.= M_GOODWN.I01
        INPUT FILE = LADBP1RE.TXT


          START            TIME=0 0
  *****LADERA BUSINESS PARK - AREA I  JOHN\AHYMO\LADBP1RE.TXT
  *****APRIL 4, 2002 (REVISED 6/18/02, AND THEN AGAIN ON 10/22/02)
  RAINFALL          TYPE=1 RAIN QUARTER=0.0 IN
                RAIN ONE=1.87 IN RAIN SIX=2.19 IN
                RAIN DAY=2.62 IN DT=0.0333 HR


            COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
            DT =    .033300 HOURS       END TIME =     5.994000 HOURS
              .0000   .0015   .0031   .0047   .0063   .0080   .0097
              .0114   .0132   .0151   .0169   .0189   .0209   .0229
              .0250   .0271   .0294   .0317   .0340   .0365   .0390
              .0417   .0444   .0473   .0502   .0533   .0566   .0600
              .0636   .0673   .0713   .0765   .0820   .0879   .1000
              .1280   .1711   .2330   .3177   .4291   .5713   .7484
              .9647  1.1723  1.2575  1.3292  1.3929  1.4508  1.5041
             1.5535  1.5997  1.6430  1.6838  1.7222  1.7586  1.7929
             1.8255  1.8564  1.8857  1.9135  1.9399  1.9471  1.9528
             1.9582  1.9633  1.9682  1.9729  1.9774  1.9818  1.9859
             1.9900  1.9939  1.9977  2.0013  2.0049  2.0083  2.0117
             2.0150  2.0182  2.0213  2.0243  2.0273  2.0302  2.0331
             2.0359  2.0386  2.0413  2.0439  2.0465  2.0490  2.0515
             2.0539  2.0563  2.0587  2.0610  2.0633  2.0656  2.0678
             2.0699  2.0721  2.0742  2.0763  2.0784  2.0804  2.0824
             2.0844  2.0863  2.0883  2.0902  2.0921  2.0939  2.0958
             2.0976  2.0994  2.1012  2.1029  2.1046  2.1064  2.1081
             2.1097  2.1114  2.1131  2.1147  2.1163  2.1179  2.1195
             2.1211  2.1226  2.1242  2.1257  2.1272  2.1287  2.1302
             2.1316  2.1331  2.1346  2.1360  2.1374  2.1388  2.1402
             2.1416  2.1430  2.1444  2.1457  2.1471  2.1484  2.1497
             2.1510  2.1523  2.1536  2.1549  2.1562  2.1575  2.1587
             2.1600  2.1612  2.1625  2.1637  2.1649  2.1661  2.1673
             2.1685  2.1697  2.1709  2.1720  2.1732  2.1743  2.1755
             2.1766  2.1778  2.1789  2.1800  2.1811  2.1822  2.1833
             2.1844  2.1855  2.1866  2.1877  2.1887  2.1898

****** PROPOSED CONDITIONS - LOT 1-A  (OFF-SITE) TO BE DIVIDED
****** INTO UNDEVELOPED CHANNEL EMBANKMENT WITH 3:1 SLOPES AND
****** DEVELOPED ON-SITE AREA
****** ------------------------------------------------
****** BASIN OFF-A (OFFSITE LOT 1 - MIREHAVEN CHANNEL EMBANKMENT)
****** CHANNEL EMBANKMENT TO REMAIN "AS-IS" IN DEVELOPED
****** CONDITION
COMPUTE NM HYD      ID=1 HYD NO=100.1 AREA=0.0011 SQ MI
                PER A=0 PER B=0 PER C=100 PER D=0
                TP=0.1333 HR MASS RAINFALL=-1

  K =  .105867HR    TP =  .133300HR    K/TP RATIO =  .794199    SHAPE CONSTANT, N =  4.514851
  UNIT PEAK =  3.2030    CFS   UNIT VOLUME =    .9962       B =  388.14      P60 = 1 8700
  AREA =      .001100 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
  RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD          ID=1 CODE=24

                        PARTIAL HYDROGRAPH   100.10

   TIME     FLOW        TIME     FLOW        TIME     FLOW        TIME     FLOW        TIME     FLOW
    HRS     CFS          HRS     CFS          HRS     CFS          HRS     CFS          HRS     CFS
    .000     .0         .666      .0        1.332      .1        1.998      3        2.664      .0

  RUNOFF VOLUME =      .99109 INCHES     =       .0581 ACRE-FEET
  PEAK DISCHARGE RATE =       2.02 CFS  AT   1.499 HOURS   BASIN AREA =   .0011 SQ. MI.
```

****** BASIN OFF-B (LOT 1) FUTURE DEVELOPED AREA OF LOT 1, LADERA
****** INDUSTRIAL PARK - NET AREA OF 8.21 ACRES
COMPUTE NM HYD ID=2 HYD NO=100.2 AREA=0.0127 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 40.112 CFS UNIT VOLUME = .9991 B = 526.28 P60 = 1.8700
AREA = .010160 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 6.2326 CFS UNIT VOLUME = .9981 B = 327.09 P60 = 1.8700
AREA = .002540 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2 CODE=24

PARTIAL HYDROGRAPH 100.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	7.4	3.996	.2	5.994	.2		
.666	.0	2.664	.7	4.662	.2	6.660	.0		
1.332	8.7	3.330	.2	5.328	.2				

RUNOFF VOLUME = 1.69760 INCHES = 1.1498 ACRE-FEET
PEAK DISCHARGE RATE = 31.68 CFS AT 1.499 HOURS BASIN AREA = .0127 SQ. MI.

****** COMBINE HYDROGRAPHS - BASINS OFF-A & OFF-B
ADD HYD ID=1 HYD NO=101.1 ID=1 ID=2
PRINT HYD ID=1 CODE=24

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	7.6	3.996	.2	5 994	.2		
.666	.0	2.664	.7	4.662	.2	6.660	.0		
1.332	8.8	3.330	.2	5.328	.2				

RUNOFF VOLUME = 1.64125 INCHES = 1.2080 ACRE-FEET
PEAK DISCHARGE RATE = 33.71 CFS AT 1.499 HOURS BASIN AREA = .0138 SQ. MI.

****BASIN OFF-C DEVELOPED R/W AREA IN FRONT OF LOT 1, LIP(0.45 AC)
COMPUTE NM HYD ID=3 HYD NO=100.3 AREA=0.0007 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.4873 CFS UNIT VOLUME = .9948 B = 526.28 P60 = 1.8700
AREA = .000630 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .17176 CFS UNIT VOLUME = .9232 B = 327.09 P60 = 1.8700
AREA = .000070 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 100 30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.5	2.664	.0	3.996	.0	5.328	.0
.666	.0	1.998	.5	3.330	.0	4.662	.0	5.994	.0

RUNOFF VOLUME = 1.82677 INCHES = .0682 ACRE-FEET
PEAK DISCHARGE RATE = 1.87 CFS AT 1.499 HOURS BASIN AREA = .0007 SQ. MI.

****** COMBINE HYDROGRAPHS: BASIN OFF & R/W AREAS @
****** ANALYSIS POINT 1
ADD HYD ID=3 HYD NO=101.2 ID=1 ID=3
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	8.1	3.996	.2	5.994	.2		
.666	.0	2.664	.7	4.662	.2	6.660	.0		
1.332	9.3	3.330	.2	5.328	.2				

RUNOFF VOLUME = 1.65019 INCHES = 1.2761 ACRE-FEET
PEAK DISCHARGE RATE = 35.57 CFS AT 1.499 HOURS BASIN AREA = .0145 SQ. MI.

****** _____

****** BASIN 1 - TRACT 1
****** BASIN 1-A (MIREHAVEN CHANNEL EMBANKMENT)
****** CHANNEL EMBANKMENT TO REMAIN IN"AS-IS" CONDITION
****** WITH 3:1 EMBANKMENT SLOPES (OFF-SITE)
COMPUTE NM HYD ID=4 HYD NO=100.4 AREA=0 0004 SQ MI
PER A=0 PER B=0 PER C=100 PER D=0
TP=0.1333 HR MASS RAINFALL=-1

K = .105867HR TP = .133300HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = 1.1647 CFS UNIT VOLUME = .9897 B = 388.14 P60 = 1.8700
AREA = .000400 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=4 CODE=24

PARTIAL HYDROGRAPH 100.40

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.1	2.664	.0

RUNOFF VOLUME = .99109 INCHES = .0211 ACRE-FEET
PEAK DISCHARGE RATE = .74 CFS AT 1.499 HOURS BASIN AREA = .0004 SQ. MI.

****** BASIN 1-B DEVELOPED ONSITE AREA - 5.15 ACRES
COMPUTE NM HYD ID=5 HYD NO=100.5 AREA=0.008046 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 25.413 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006437 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 3.9486 CFS UNIT VOLUME = .9970 B = 327.09 P60 = 1.8700

AREA = .001609 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=5 CODE=24

PARTIAL HYDROGRAPH 100.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	4.7	3.996	.1	5.994	.1		
.666	.0	2.664	.4	4.662	.1	6.660	.0		
1.332	5.5	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.69760 INCHES = .7285 ACRE-FEET
PEAK DISCHARGE RATE = 20.08 CFS AT 1.499 HOURS BASIN AREA = .0080 SQ. MI.

****** COMBINE HYDROGRAPHS - BASINS 1-A & 1-B
ADD HYD ID=4 HYD NO=101.3 ID=4 ID=5
PRINT HYD ID=4 CODE=24

PARTIAL HYDROGRAPH 101.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	4.8	3.996	.1	5.994	.1		
.666	.0	2.664	.4	4.662	.1	6.660	.0		
1.332	5.5	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.66409 INCHES = .7496 ACRE-FEET
PEAK DISCHARGE RATE = 20.82 CFS AT 1.499 HOURS BASIN AREA = .0084 SQ. MI.

****** _____

****** BASIN 1-C DEVELOPED R/W AREA IN FRONT OF TRACT 1
****** (0.935 ACRES)
COMPUTE NM HYD ID=6 HYD NO=100.6 AREA=0.0015 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 5.3299 CFS UNIT VOLUME = .9972 B = 526.28 P60 = 1.8700
AREA = .001350 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .36807 CFS UNIT VOLUME = .9643 B = 327.09 P60 = 1.8700
AREA = .000150 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=6 CODE=24

PARTIAL HYDROGRAPH 100.60

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.1	2.664	.1	3.996	.0	5.328	.0
.666	.0	1.998	1.0	3.330	.0	4 662	.0	5.994	.0

RUNOFF VOLUME = 1.82677 INCHES = .1461 ACRE-FEET
PEAK DISCHARGE RATE = 3.98 CFS AT 1.499 HOURS BASIN AREA = .0015 SQ. MI.

****** COMBINE HYDROGRAPHS FOR BASIN 1
ADD HYD ID=4 HYD NO=101.4 ID=4 ID=6

PRINT HYD ID=4 CODE=24

PARTIAL HYDROGRAPH 101.40

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	5.7	3.996	.1	5.994	.2		
.666	.0	2.664	.5	4.662	.1	6.660	.0		
1.332	6.7	3.330	.2	5.328	.1				

RUNOFF VOLUME = 1.68860 INCHES = .8957 ACRE-FEET
PEAK DISCHARGE RATE = 24.80 CFS AT 1.499 HOURS BASIN AREA = .0099 SQ. MI.

****** COMBINE HYDROGRAPHS FOR BASIN 1 & AP-1
****** (ANALYSIS POINT 2)
ADD HYD ID=3 HYD NO=101.5 ID=3 ID=4
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	13.8	3.996	.3	5.994	.4		
.666	.0	2.664	1.2	4.662	.3	6.660	.0		
1.332	16.0	3.330	.4	5.328	.3				

RUNOFF VOLUME = 1.66581 INCHES = 2.1719 ACRE-FEET
PEAK DISCHARGE RATE = 60.37 CFS AT 1.499 HOURS BASIN AREA = .0244 SQ. MI.

****** ----------

****** BASIN 2 - TRACT 2- 3.55 ACRES

****** BASIN 2-A
****** CHANNEL EMBANKMENT TO REMAIN IN "AS-IS" CONDITION
****** (OFF-SITE)
COMPUTE NM HYD ID=7 HYD NO=100.7 AREA=0.0003 SQ MI
PER A=0 PER B=0 PER C=100 PER D=0
TP=0.1333 HR MASS RAINFALL=-1

K= .105867HR TP= .133300HR K/TP RATIO= .794199 SHAPE CONSTANT, N= 4.514851
UNIT PEAK= .87354 CFS UNIT VOLUME= .9857 B= 388.14 P60= 1.8700
AREA= .000300 SQ MI IA= .35000 INCHES INF= .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033300

PRINT HYD ID=7 CODE=24

PARTIAL HYDROGRAPH 100.70

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.1	2.664	.0

RUNOFF VOLUME = .99109 INCHES = .0159 ACRE-FEET
PEAK DISCHARGE RATE = .56 CFS AT 1.499 HOURS BASIN AREA = .0003 SQ. MI.

****** BASIN 2-B DEVELOPED ONSITE AREA
COMPUTE NM HYD ID=8 HYD NO=100.8 AREA=0.0056 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 17.687 CFS UNIT VOLUME= .9987 B= 526.28 P60= 1.8700
AREA= .004480 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 2.7482 CFS UNIT VOLUME = .9952 B = 327.09 P60 = 1 8700
AREA = .001120 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=8 CODE=24

PARTIAL HYDROGRAPH 100.80

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	3.3	3.996	.1	5.994	.1		
.666	.0	2.664	.3	4.662	.1	6 660	.0		
1.332	3.8	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.69760 INCHES = .5070 ACRE-FEET
PEAK DISCHARGE RATE = 13.98 CFS AT 1.499 HOURS BASIN AREA = .0056 SQ. MI.

****** COMBINE HYDROGRAPHS FOR BASINS 2-A & 2-B
ADD HYD ID=7 HYD NO=101.6 ID=7 ID=8
PRINT HYD ID=7 CODE=24

PARTIAL HYDROGRAPH 101.60

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	3.3	3.996	.1	5.994	.1		
.666	.0	2.664	.3	4.662	.1	6 660	.0		
1.332	3 9	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.66160 INCHES = .5228 ACRE-FEET
PEAK DISCHARGE RATE = 14.54 CFS AT 1.499 HOURS BASIN AREA = .0059 SQ. MI.

****** BASIN 2-C DEVELOPED R/W AREA IN FRONT OF TRACT 2
****** (0 523 AC.)
COMPUTE NM HYD ID=6 HYD NO=100.9 AREA=0 0008 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.8426 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.8700
AREA = .000720 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .19630 CFS UNIT VOLUME = .9294 B = 327.09 P60 = 1.8700
AREA = .000080 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=6 CODE=24

PARTIAL HYDROGRAPH 100.90

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.6	2.664	.0	3.996	.0	5.328	.0
.666	.0	1.998	.5	3.330	.0	4.662	.0	5.994	.0

RUNOFF VOLUME = 1.82677 INCHES = .0779 ACRE-FEET
PEAK DISCHARGE RATE = 2.13 CFS AT 1.499 HOURS BASIN AREA = .0008 SQ. MI.

****** COMBINE HYDROGRAPHS FOR BASIN 2
ADD HYD ID=6 HYD NO=101.7 ID=6 ID=7
PRINT HYD ID=6 CODE=24

PARTIAL HYDROGRAPH 101.70

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	3.8	3.996	.1	5.994	.1		
.666	.0	2.664	.3	4.662	.1	6.660	.0		
1.332	4.5	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.68128 INCHES = .6008 ACRE-FEET
PEAK DISCHARGE RATE = 16.67 CFS AT 1.499 HOURS BASIN AREA = .0067 SQ. MI.

****** COMBINE HYDROGRAPHS FOR BASINS 2 & BASINS ABOVE AP-2
ADD HYD ID=3 HYD NO=101.8 ID=3 ID=6
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.80

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	17.7	3.996	.4	5.994	.5		
.666	.0	2.664	1.5	4.662	.4	6.660	.0		
1.332	20.5	3.330	.5	5.328	.4				

RUNOFF VOLUME = 1.66914 INCHES = 2.7726 ACRE-FEET
PEAK DISCHARGE RATE = 77.04 CFS AT 1.499 HOURS BASIN AREA = .0311 SQ. MI.

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****** BASIN 26-A DEVELOPED CONDITION - TRACT 26- 3.15 ACRES
COMPUTE NM HYD ID=9 HYD NO=100.10 AREA=0.0049 SQ MI
PER A=10 PER B=20 PER C=00 PER D=70
TP=0.1333 HR MASS RAINFALL=-1

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 13.542 CFS UNIT VOLUME= .9985 B= 526.28 P60= 1.8700
AREA= .003430 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033300

K= .141889HR TP= .133300HR K/TP RATIO= 1.064435 SHAPE CONSTANT, N= 3.317659
UNIT PEAK= 3.3830 CFS UNIT VOLUME= .9959 B= 306.77 P60= 1.8700
AREA= .001470 SQ MI IA= .55000 INCHES INF= 1.39000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033300

PRINT HYD ID=9 CODE=24

PARTIAL HYDROGRAPH 100.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2.5	3.996	.1	5.994	.1		
.666	.0	2.664	.2	4.662	.1	6.660	.0		
1.332	2.9	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.54315 INCHES = .4033 ACRE-FEET
PEAK DISCHARGE RATE = 11.24 CFS AT 1.499 HOURS BASIN AREA = .0049 SQ. MI.

****** COMBINE HYDROGRAPHS FOR BASINS 2, 26-A & BASINS ABOVE
****** AP-2 (ANALYSIS POINT 3)
ADD HYD ID=3 HYD NO=101.9 ID=3 ID=9

PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.90

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	20.2	3.996	.4	5.994	.5		
.666	.0	2.664	1.8	4.662	.4	6.660	.0		
1.332	23.4	3.330	.6	5 328	.5				

RUNOFF VOLUME = 1.65200 INCHES = 3.1759 ACRE-FEET
PEAK DISCHARGE RATE = 88 28 CFS AT 1.499 HOURS BASIN AREA = .0360 SQ. MI.

******_____

****** BASIN 20 DEVELOPED CONDITION - TRACT 20 - 1.20 ACRES
COMPUTE NM HYD ID=11 HYD NO=100.11 AREA=0.0019 SQ MI
PER A=0 PER B=20 PER C=00 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.0010 CFS UNIT VOLUME = .9975 B = 526.28 P60 = 1.8700
AREA = .001520 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .93243 CFS UNIT VOLUME = .9862 B = 327.09 P60 = 1.8700
AREA = .000380 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=11 CODE=24

PARTIAL HYDROGRAPH 100.11

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.3	2.664	.1	3.996	.0	5.328	.0
.666	.0	1.998	1.1	3.330	.0	4.662	.0	5 994	.0

RUNOFF VOLUME = 1.69760 INCHES = .1720 ACRE-FEET
PEAK DISCHARGE RATE = 4 75 CFS AT 1.499 HOURS BASIN AREA = .0019 SQ. MI.

****** BASIN 29 DEVELOPED CONDITIONS - TRACT 29 - 1.30 ACRES
COMPUTE NM HYD ID=13 HYD NO=100.12 AREA=0.0020 SQ MI
PER A=0 PER B=20 PER C=00 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.3169 CFS UNIT VOLUME = .9975 B = 526.28 P60 = 1 8700
AREA = .001600 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .98151 CFS UNIT VOLUME = .9862 B = 327.09 P60 = 1.8700
AREA = .000400 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=13 CODE=24

PARTIAL HYDROGRAPH 100.12

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.4	2.664	.1	3.996	.0	5.328	.0
.666	.0	1.998	1.2	3.330	.0	4.662	.0	5 994	.0

RUNOFF VOLUME = 1.69760 INCHES = .1811 ACRE-FEET
PEAK DISCHARGE RATE = 5.00 CFS AT 1.499 HOURS BASIN AREA = .0020 SQ. MI.

****** COMBINE HYDROGRAPHS BASINS 20 & 29 (ANALYSIS POINT 4)
ADD HYD ID=11 HYD NO=101.10 ID=11 ID=13
PRINT HYD ID=11 CODE=24

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	2.7	2.664	.2	3.996	.0	5.328	.1
.666	.0	1.998	2.3	3.330	.1	4 662	.0	5.994	.1

RUNOFF VOLUME = 1.69744 INCHES = .3531 ACRE-FEET
PEAK DISCHARGE RATE = 9.75 CFS AT 1.499 HOURS BASIN AREA = .0039 SQ. MI.

****** BASIN 28 DEVELOPED CONDITIONS - TRACT 28- 1.97 ACRES

COMPUTE NM HYD ID=15 HYD NO=100.13 AREA=0.0030 SQ MI
PER A=0 PER B=20 PER C=00 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.4753 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1 8700
AREA = .002400 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 1.4723 CFS UNIT VOLUME = .9911 B = 327.09 P60 = 1.8700
AREA = .000600 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=15 CODE=24

PARTIAL HYDROGRAPH 100.13

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	1.7	3.996	.0	5.994	.0		
.666	.0	2.664	.2	4.662	.0	6.660	.0		
1.332	2.0	3.330	.0	5.328	.0				

RUNOFF VOLUME = 1.69760 INCHES = .2716 ACRE-FEET
PEAK DISCHARGE RATE = 7.50 CFS AT 1.499 HOURS BASIN AREA = .0030 SQ. MI.

****** COMBINE HYDROGRAPHS - BASIN 28 & RUNOFF ABOVE AP-4
ADD HYD ID=11 HYD NO=101.11 ID=11 ID=15
PRINT HYD ID=11 CODE=24

PARTIAL HYDROGRAPH 101.11

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	4.0	3.996	.1	5 994	.1		
.666	.0	2.664	.3	4.662	.1	6.660	.0		
1.332	4.7	3.330	.1	5 328	.1				

RUNOFF VOLUME = 1.69747 INCHES = .6247 ACRE-FEET
PEAK DISCHARGE RATE = 17.25 CFS AT 1.499 HOURS BASIN AREA = .0069 SQ. MI. AP-4A

****** (ANALYSIS POINT 4-A)

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****** BASIN 27 - DEVELOPED CONDITIONS - TRACT 27- 2.21 ACRES
COMPUTE NM HYD ID=17 HYD NO=100.14 AREA=0.0035 SQ MI
PER A=0 PER B=20 PER C=00 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.055 CFS UNIT VOLUME = .9984 B = 526 28 P60 = 1.8700
AREA = .002800 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 1.7176 CFS UNIT VOLUME = .9925 B = 327.09 P60 = 1.8700
AREA = .000700 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=17 CODE=24

PARTIAL HYDROGRAPH 100.14

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2 0	3.996	.0	5.994	.1		
.666	.0	2.664	.2	4.662	.0	6.660	.0		
1.332	2.4	3.330	.1	5.328	.0				

RUNOFF VOLUME = 1.69760 INCHES = .3169 ACRE-FEET
PEAK DISCHARGE RATE = 8.74 CFS AT 1.499 HOURS BASIN AREA = .0035 SQ. MI.

****** COMBINE HYDROGRAPHS - BASINS 27 & BASINS ABOVE AP-4-A
*** (ANALSIS POINT 5)-FLOW IN PROPOSED CHANNEL N. SIDE TR. 25
ADD HYD ID=11 HYD NO=101.12 ID=11 ID=17
PRINT HYD ID=11 CODE=24

PARTIAL HYDROGRAPH 101.12

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	6.1	3.996	.1	5.994	.2		
.666	.0	2.664	.5	4.662	.1	6.660	.0		
1.332	7.1	3.330	.2	5 328	.1				

RUNOFF VOLUME = 1.69748 INCHES = .9415 ACRE-FEET
PEAK DISCHARGE RATE = 25.99 CFS AT 1.499 HOURS BASIN AREA = .0104 SQ. MI.

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****** BASIN 24-A - DEVELOPED CONDITIONS TR. 24 (2.439 ACRES)

COMPUTE NM HYD ID=21 HYD NO=100.15 AREA=0.0038 SQ MI
PER A=0 PER B=20 PER C=00 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 12.002 CFS UNIT VOLUME = .9984 B = 526.28 P60 = 1.8700
AREA = .003040 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 1.8649 CFS UNIT VOLUME = .9931 B = 327.09 P60 = 1.8700
AREA = .000760 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=21 CODE=24

PARTIAL HYDROGRAPH 100.15

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2.2	3 996	.0	5.994	.1		
.666	.0	2.664	.2	4.662	.0	6.660	.0		
1.332	2.6	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.69760 INCHES = .3440 ACRE-FEET
PEAK DISCHARGE RATE = 9.49 CFS AT 1.499 HOURS BASIN AREA = .0038 SQ. MI.

****** BASIN 24-B - DEVELOPED R/W AREA IN FRONT OF TRACT 24
COMPUTE NM HYD ID=23 HYD NO=100.16 AREA=0.0009 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.1979 CFS UNIT VOLUME = .9960 B = 526 28 P60 = 1.8700
AREA = .000810 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .22084 CFS UNIT VOLUME = .9405 B = 327.09 P60 = 1.8700
AREA = .000090 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=23 CODE=24

PARTIAL HYDROGRAPH 100.16

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.7	2.664	.0	3.996	.0	5.328	.0
.666	.0	1.998	.6	3.330	.0	4.662	.0	5.994	.0

RUNOFF VOLUME = 1.82676 INCHES = .0877 ACRE-FEET
PEAK DISCHARGE RATE = 2.40 CFS AT 1.499 HOURS BASIN AREA = .0009 SQ. MI.

****** COMBINE HYDROGRAPHS-BASINS 24-A & B
****** (ANALYSIS POINT 6)
ADD HYD ID=21 HYD NO=101.14 ID=21 ID=23
PRINT HYD ID=21 CODE=24

PARTIAL HYDROGRAPH 101.14

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2.8	3.996	.1	5.994	.1		
.666	.0	2.664	.2	4.662	.1	6.660	.0		
1.332	3.3	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.72221 INCHES = .4317 ACRE-FEET
PEAK DISCHARGE RATE = 11.89 CFS AT 1.499 HOURS BASIN AREA = .0047 SQ. MI.

****** ----------

****** BASIN 25-B: DEVELOPED R/W AREA IN FRONT OF TRACT 25
COMPUTE NM HYD ID=24 HYD NO=100.17 AREA=0 0010 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90

TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.5532 CFS UNIT VOLUME = .9960 B = 526 28 P60 = 1.8700
AREA = .000900 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .24538 CFS UNIT VOLUME = .9454 B = 327.09 P60 = 1.8700
AREA = .000100 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=24 CODE=24

PARTIAL HYDROGRAPH 100.17

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.8	2.664	.0	3.996	.0	5.328	.0
.666	.0	1.998	.6	3.330	.0	4.662	.0	5.994	.0

RUNOFF VOLUME = 1.82676 INCHES = .0974 ACRE-FEET
PEAK DISCHARGE RATE = 2.66 CFS AT 1.499 HOURS BASIN AREA = .0010 SQ. MI.

****** BASIN 25-A DEVELOPED CONDITIONS TRACT 25: 4.83 ACRES
COMPUTE NM HYD ID=19 HYD NO=100.18 AREA=0.0075 SQ MI
PER A=0 PER B=20 PER C=00 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 23.688 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006000 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 3.6807 CFS UNIT VOLUME = .9967 B = 327.09 P60 = 1.8700
AREA = .001500 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=19 CODE=24

PARTIAL HYDROGRAPH 100.18

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	4.4	3.996	.1	5.994	.1		
.666	.0	2.664	.4	4.662	.1	6.660	.0		
1.332	5.1	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.69760 INCHES = .6790 ACRE-FEET
PEAK DISCHARGE RATE = 18.72 CFS AT 1.499 HOURS BASIN AREA = .0075 SQ. MI.

****** COMBINE HYDROGRAPHS-BASINS 25-A & B
ADD HYD ID=19 HYD NO=101.13 ID=19 ID=24
PRINT HYD ID=19 CODE=24

PARTIAL HYDROGRAPH 101.13

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	5 0	3.996	.1	5.994	.1		
.666	.0	2.664	.4	4.662	.1	6.660	.0		
1.332	5.9	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.71273 INCHES = .7764 ACRE-FEET

PEAK DISCHARGE RATE = 21.38 CFS AT 1.499 HOURS BASIN AREA = .0085 SQ. MI.

****** COMBINE HYDROGRAPHS - BASINS 24 & 25
ADD HYD ID=19 HYD NO=101.14 ID=19 ID=21
PRINT HYD ID=19 CODE=24

PARTIAL HYDROGRAPH 101.14

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	7.8	3.996	.2	5.994	.2		
.666	.0	2.664	.7	4.662	.2	6.660	.0		
1.332	9.2	3.330	.2	5.328	.2				

RUNOFF VOLUME = 1.71611 INCHES = 1.2081 ACRE-FEET
PEAK DISCHARGE RATE = 33.26 CFS AT 1.499 HOURS BASIN AREA = .0132 SQ. MI.

****** COMBINE HYDROGRAPHS ADD AP-5 TO FLOW ABOVE AP-7
ADD HYD ID=11 HYD NO=101.15 ID=11 ID=19
PRINT HYD ID=11 CODE=24

PARTIAL HYDROGRAPH 101.15

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	13.8	3.996	.3	5.994	.4		
.666	.0	2.664	1.2	4.662	.3	6.660	.0		
1.332	16.2	3.330	.4	5.328	.3				

RUNOFF VOLUME = 1.70790 INCHES = 2.1497 ACRE-FEET
→ PEAK DISCHARGE RATE = 59.25 CFS AT 1.499 HOURS BASIN AREA = .0236 SQ. MI.
(ANALYSIS POINT 7)

****** BASIN 26-B: DEVELOPED R/W AREA IN FRONT OF TRACT 26
COMPUTE NM HYD ID=25 HYD NO=100.19 AREA=0.0011 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.9086 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 1.8700
AREA = .000990 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .26991 CFS UNIT VOLUME = .9498 B = 327.09 P60 = 1.8700
AREA = .000110 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=25 CODE=24

PARTIAL HYDROGRAPH 100.19

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.8	2 664	.1	3.996	.0	5.328	.0
.666	.0	1.998	.7	3.330	.0	4.662	.0	5.994	.0

RUNOFF VOLUME = 1.82677 INCHES = .1072 ACRE-FEET
PEAK DISCHARGE RATE = 2.92 CFS AT 1.499 HOURS BASIN AREA = .0011 SQ. MI.

****** COMBINE HYDROGRAPHS - BASIN 26-B & BASINS ABOVE AP-7

```
ADD HYD          ID=11 HYD NO=101.17 ID=11 ID=25
PRINT HYD         ID=11 CODE=24

                    PARTIAL HYDROGRAPH   101.17

   TIME    FLOW       TIME    FLOW       TIME    FLOW       TIME    FLOW       TIME    FLOW
    HRS    CFS        HRS     CFS        HRS     CFS        HRS     CFS        HRS     CFS
   .000     .0       1.998    14.6       3.996     .3       5.994     .4
   .666     .0       2 664     1.3       4.662     .3       6.660     .0
  1.332    17.1       3.330     .4       5.328     .3

  RUNOFF VOLUME =    1.71318 INCHES    =     2.2568 ACRE-FEET
  PEAK DISCHARGE RATE =    62.18 CFS  AT   1.499 HOURS   BASIN AREA =   .0247 SQ. MI.
  (ANALYSIS POINT 10)


****** COMBINE HYDROGRAPHS - AP-10 & AP-3 ANALYSIS POINT 11
ADD HYD          ID=3 HYD NO=101.18 ID=3 ID=11
PRINT HYD         ID=3 CODE=24

                    PARTIAL HYDROGRAPH   101.18

   TIME    FLOW       TIME    FLOW       TIME    FLOW       TIME    FLOW       TIME    FLOW
    HRS    CFS        HRS     CFS        HRS     CFS        HRS     CFS        HRS     CFS
   .000     .0       1.998    34.8       3.996     .7       5.994     .9
   .666     .0       2.664     3.0       4.662     .7       6.660     .0
  1.332    40.5       3.330     1.0       5.328     .8

  RUNOFF VOLUME =    1.67688 INCHES    =     5.4327 ACRE-FEET
  PEAK DISCHARGE RATE =    150.46 CFS  AT   1.499 HOURS   BASIN AREA =   .0607 SQ. MI.
  (ANALYSIS POINT 11)


****** BASIN 3-A: DEVELOPED CONDITIONS TRACT 3 - 2.73 ACRES

****** CHANNEL EMBANKMENT TO REMAIN IN "AS-IS" CONDITION
****** WITH 3:1 EMBANKMENT SLOPES (OFF-SITE)
COMPUTE NM HYD     ID=26 HYD NO=100.20 AREA=0.0003 SQ MI
             PER A=0 PER B=0 PER C=100 PER D=0
             TP=0.1333 HR MASS RAINFALL=-1

  K =  .105867HR    TP =  .133300HR    K/TP RATIO =  .794199    SHAPE CONSTANT, N =  4.514851
  UNIT PEAK =  .87354    CFS   UNIT VOLUME =   .9857      B =  388.14      P60 = 1.8700
  AREA =     .000300 SQ MI    IA =   .35000 INCHES    INF =   .83000 INCHES PER HOUR
  RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD         ID=26 CODE=24

                    PARTIAL HYDROGRAPH   100 20

   TIME    FLOW       TIME    FLOW       TIME    FLOW       TIME    FLOW       TIME    FLOW
    HRS    CFS        HRS     CFS        HRS     CFS        HRS     CFS        HRS     CFS
   .000     .0        .666      .0       1.332     .0       1.998     .1       2.664     .0

  RUNOFF VOLUME =     .99109 INCHES    =      .0159 ACRE-FEET
  PEAK DISCHARGE RATE =      .56 CFS  AT   1.499 HOURS   BASIN AREA =   .0003 SQ. MI


****** BASIN 3-B - DEVELOPED ONSITE AREA
COMPUTE NM HYD     ID=27 HYD NO=100.21 AREA=0.0043 SQ MI
             PER A=0 PER B=20 PER C=0 PER D=80
             TP=0.1333 HR MASS RAINFALL=-1

  K =  .072649HR    TP =  .133300HR    K/TP RATIO =  .545000    SHAPE CONSTANT, N =  7.106420
  UNIT PEAK =  13.581    CFS   UNIT VOLUME =   .9985      B =  526.28      P60 = 1.8700
  AREA =     .003440 SQ MI    IA =   .10000 INCHES    INF =   .04000 INCHES PER HOUR
  RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300
```

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 2.1102 CFS UNIT VOLUME = .9937 B = 327.09 P60 = 1.8700
AREA = .000860 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=27 CODE=24

PARTIAL HYDROGRAPH 100 21

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2.5	3.996	.1	5.994	.1		
.666	.0	2.664	.2	4.662	.1	6.660	.0		
1.332	2.9	3.330	.1	5.328	.1				

RUNOFF VOLUME = 1.69760 INCHES = .3893 ACRE-FEET
PEAK DISCHARGE RATE = 10.74 CFS AT 1.499 HOURS BASIN AREA = .0043 SQ. MI.

****** COMBINE HYDROGRAPHS BASINS 3-A & 3-B
ADD HYD ID=26 HYD NO=101.19 ID=26 ID=27
PRINT HYD ID=26 CODE=24

PARTIAL HYDROGRAPH 101.19

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2.6	3.996	.1	5.994	.1		
.666	.0	2.664	.2	4.662	.1	6.660	.0		
1.332	3.0	3 330	.1	5.328	.1				

RUNOFF VOLUME = 1.65143 INCHES = .4051 ACRE-FEET
PEAK DISCHARGE RATE = 11.30 CFS AT 1.499 HOURS BASIN AREA = .0046 SQ. MI.

****** BASIN 3-C DEVELOPED R/W AREA IN FRONT OF TRACT 3
COMPUTE NM HYD ID=29 HYD NO=100.22 AREA=0.0006 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.1319 CFS UNIT VOLUME = .9941 B = 526 28 P60 = 1.8700
AREA = .000540 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3 593448
UNIT PEAK = .14723 CFS UNIT VOLUME = .9089 B = 327.09 P60 = 1.8700
AREA = .000060 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=29 CODE=24

PARTIAL HYDROGRAPH 100.22

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.5	2.664	.0	3.996	.0	5.328	.0
.666	.0	1.998	.4	3.330	.0	4.662	.0	5 994	.0

RUNOFF VOLUME = 1.82676 INCHES = .0585 ACRE-FEET
PEAK DISCHARGE RATE = 1.60 CFS AT 1.499 HOURS BASIN AREA = .0006 SQ. MI.

****** COMBINE HYDROGRAPHS: BASIN 3-C & FLOW ABOVE AP-11
ADD HYD ID=3 HYD NO=101 20 ID=3 ID=29
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	35.1	3 996	.7	5.994	.9		
.666	.0	2.664	3.1	4.662	.7	6.660	.0		
1.332	40.9	3.330	1.0	5.328	.8				

RUNOFF VOLUME = 1.67834 INCHES = 5.4911 ACRE-FEET
PEAK DISCHARGE RATE = 152.06 CFS AT 1.499 HOURS BASIN AREA = . .0613 SQ. MI.

****** COMBINE HYDROGRAPHS FLOW ABOVE AP-12 & BASIN 3 A/B
****** (ANALYSIS POINT 12)
ADD HYD ID=3 HYD NO=101.21 ID=3 ID=26
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.21

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	37.7	3.996	.8	5.994	1.0		
.666	.0	2.664	3 3	4.662	.8	6.660	.0		
1.332	43.9	3.330	1.1	5.328	.9				

RUNOFF VOLUME = 1.67646 INCHES = 5.8963 ACRE-FEET
PEAK DISCHARGE RATE = 163.36 CFS AT 1.499 HOURS BASIN AREA = .0659 SQ. MI.

****** BASIN 4 DEVELOPED CONDITIONS: TRACT 4 - 2.11 ACRES
****** BASIN 4-A
****** CHANNEL EMBANKMENT TO REMAIN IN "AS-IS" CONDITION
****** WITH 3:1 EMBANKMENT SLOPES (OFF-SITE)
COMPUTE NM HYD ID=29 HYD NO=100.23 AREA=0.0003 SQ MI
PER A=0 PER B=0 PER C=100 PER D=0
TP=0.1333 HR MASS RAINFALL=-1

K = .105867HR TP = .133300HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = .87354 CFS UNIT VOLUME = .9857 B = 388.14 P60 = 1.8700
AREA = .000300 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=29 CODE=24

PARTIAL HYDROGRAPH 100 23

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.1	2.664	.0

RUNOFF VOLUME = .99109 INCHES = .0159 ACRE-FEET
PEAK DISCHARGE RATE = .56 CFS AT 1.499 HOURS BASIN AREA = .0003 SQ. MI.

****** BASIN 4-B DEVELOPED ONSITE AREA
COMPUTE NM HYD ID=30 HYD NO=100.24 AREA=0.0033 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.423 CFS UNIT VOLUME = .9982 B = 526 28 P60 = 1.8700
AREA = .002640 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448

UNIT PEAK = 1.6195 CFS UNIT VOLUME = .9918 B = 327.09 P60 = 1.8700
AREA = .000660 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=30 CODE=24

PARTIAL HYDROGRAPH 100.24

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	1.9	3.996	.0	5 994	.1		
.666	.0	2.664	.2	4.662	.0	6.660	.0		
1.332	2.2	3.330	.1	5.328	.0				

RUNOFF VOLUME = 1.69760 INCHES = .2988 ACRE-FEET
PEAK DISCHARGE RATE = 8.24 CFS AT 1.499 HOURS BASIN AREA = .0033 SQ. MI.

****** COMBINE HYDROGRAPHS - BASINS 4-A & 4-B
ADD HYD ID=29 HYD NO=101.22 ID=29 ID=30
PRINT HYD ID=29 CODE=24

PARTIAL HYDROGRAPH 101.22

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2.0	3.996	.0	5.994	.1		
.666	.0	2 664	.2	4.662	.0	6.660	.0		
1.332	2 3	3.330	.1	5.328	.0				

RUNOFF VOLUME = 1.63861 INCHES = .3146 ACRE-FEET
PEAK DISCHARGE RATE = 8.80 CFS AT 1.499 HOURS BASIN AREA = .0036 SQ. MI.

****** BASIN 4-C DEVELOPED R/W AREA IN FRONT OF TRACT 4
COMPUTE NM HYD ID=31 HYD NO=100.25 AREA=0.0006 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1
ID=31 CODE=24

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.1319 CFS UNIT VOLUME = .9941 B = 526.28 P60 = 1.8700
AREA = .000540 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .14723 CFS UNIT VOLUME = .9089 B = 327.09 P60 = 1.8700
AREA = .000060 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

****** COMBINE HYDROGRAPHS: 4-C AND FLOW ABOVE AP-12

ADD HYD ID=3 HYD NO=101.23 ID=3 ID=31
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.23

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	38.1	3.996	.8	5.994	1.0		
.666	.0	2.664	3.3	4.662	.8	6 660	.0		
1.332	44.4	3.330	1.1	5.328	.9				

RUNOFF VOLUME = 1.67781 INCHES = 5.9547 ACRE-FEET
PEAK DISCHARGE RATE = 164.96 CFS AT 1.499 HOURS BASIN AREA = .0665 SQ. MI.

******COMBINE HYDROGRAPHS: BASIN 4 RUNOFF & FLOW ABOVE AP-13
ADD HYD ID=3 HYD NO=101.24 ID=3 ID=29
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.24

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	40.1	3.996	.8	5.994	1.1		
.666	.0	2.664	3.5	4.662	.8	6.660	.0		
1.332	46.6	3 330	1.1	5 328	.9				

RUNOFF VOLUME = 1.67580 INCHES = 6.2693 ACRE-FEET
PEAK DISCHARGE RATE = 173.76 CFS AT 1.499 HOURS BASIN AREA = .0701 SQ. MI.
(ANALYSIS POINT 13)

****** BASIN 5 DEVELOPED CONDITIONS - TRACT 5 - 2.10 ACRES
****** BASIN 5-A
****** CHANNEL EMBANKMENT TO REMAIN IN "AS-IS" CONDITION
****** WITH 3:1 EMBANKMENT SLOPES (OFF-SITE)
COMPUTE NM HYD ID=32 HYD NO=100.26 AREA=0.0003 SQ MI
PER A=0 PER B=0 PER C=100 PER D=0
TP=0.1333 HR MASS RAINFALL=-1

K = .105867HR TP = .133300HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = .87354 CFS UNIT VOLUME = .9857 B = 388.14 P60 = 1 8700
AREA = .000300 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=32 CODE=24

PARTIAL HYDROGRAPH 100.26

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.1	2.664	.0

RUNOFF VOLUME = .99109 INCHES = .0159 ACRE-FEET
PEAK DISCHARGE RATE = .56 CFS AT 1.499 HOURS BASIN AREA = .0003 SQ. MI.

****** BASIN 5-B DEVELOPED ONSITE AREA
COMPUTE NM HYD ID=33 HYD NO=100.27 AREA=0.0032 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10.107 CFS UNIT VOLUME = .9982 B = 526 28 P60 = 1.8700
AREA = .002560 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 1.5704 CFS UNIT VOLUME = .9918 B = 327.09 P60 = 1.8700
AREA = .000640 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=33 CODE=24

PARTIAL HYDROGRAPH 100 27

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	1.9	3.996	.0	5.994	.1		
.666	.0	2.664	.2	4.662	.0	6.660	.0		
1.332	2.2	3.330	.1	5.328	.0				

RUNOFF VOLUME = 1.69760 INCHES = .2897 ACRE-FEET
PEAK DISCHARGE RATE = 7.99 CFS AT 1.499 HOURS BASIN AREA = .0032 SQ. MI.

****** COMBINE HYDROGRAPHS BASINS 5-A & 5-B
ADD HYD ID=32 HYD NO=101 25 ID=32 ID=33
PRINT HYD ID=32 CODE=24

PARTIAL HYDROGRAPH 101.25

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	1.9	3 996	.0	5.994	.1		
.666	.0	2.664	.2	4.662	.0	6.660	.0		
1.332	2.2	3.330	.1	5.328	.0				

RUNOFF VOLUME = 1.63693 INCHES = .3056 ACRE-FEET
PEAK DISCHARGE RATE = 8.55 CFS AT 1.499 HOURS BASIN AREA = .0035 SQ. MI.

****** BASIN 5-C DEVELOPED R/W AREA IN FRONT OF TRACT 5
COMPUTE NM HYD ID=35 HYD NO=100.28 AREA=0.0004 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.4213 CFS UNIT VOLUME = .9910 B = 526.28 P60 = 1.8700
AREA = .000360 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .98151E-01CFS UNIT VOLUME = .8720 B = 327.09 P60 = 1.8700
AREA = .000040 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=35 CODE=24

PARTIAL HYDROGRAPH 100.28

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.3	2.664	.0	3.996	.0	5.328	.0
.666	.0	1.998	.3	3.330	.0	4.662	.0	5.994	.0

RUNOFF VOLUME = 1.82676 INCHES = .0390 ACRE-FEET
PEAK DISCHARGE RATE = 1.07 CFS AT 1.499 HOURS BASIN AREA = .0004 SQ. MI.

****** COMBINE HYDROGRAPHS: BASIN 5-C & FLOW ABOVE AP-13

ADD HYD ID=3 HYD NO=101.26 ID=3 ID=35
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101 26

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	40 3	3 996	.9	5.994	1.1		
.666	.0	2.664	3.5	4.662	.8	6 660	.0		
1.332	47.0	3.330	1.2	5.328	.9				

RUNOFF VOLUME = 1.67666 INCHES = 6.3083 ACRE-FEET
PEAK DISCHARGE RATE = 174 84 CFS AT 1.499 HOURS BASIN AREA = .0705 SQ. MI.

****** COMBINE HYDROGRAPHS: BASIN 5 A/B & FLOW ABOVE AP14
****** (ANALYSIS POINT ~~15~~ 14)
ADD HYD ID=3 HYD NO=101.27 ID=3 ID=32
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101 27

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	42.3	3.996	.9	5.994	1.1		
.666	.0	2.664	3.7	4 662	.9	6.660	.0		
1.332	49 2	3.330	1.2	5.328	1.0				

RUNOFF VOLUME = 1.67478 INCHES = 6.6139 ACRE-FEET
PEAK DISCHARGE RATE = 183.39 CFS AT 1.499 HOURS BASIN AREA = .0740 SQ. MI.

******----------

****** BASIN 6 DEVELOPED CONDITIONS - TRACT 6 - 2.08 ACRES
****** BASIN 6-A
****** CHANNEL EMBANKMENT TO REMAIN IN "AS-IS" CONDITION
****** WITH 3:1 EMBANKMENT SLOPES (OFF-SITE)
COMPUTE NM HYD ID=36 HYD NO=100.29 AREA=0.0003 SQ MI
PER A=0 PER B=0 PER C=100 PER D=0
TP=0.1333 HR MASS RAINFALL=-1

K = .105867HR TP = .133300HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = .87354 CFS UNIT VOLUME = .9857 B = 388.14 P60 = 1.8700
AREA = .000300 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=36 CODE=24

PARTIAL HYDROGRAPH 100.29

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	.666	.0	1.332	.0	1.998	.1	2.664	.0

RUNOFF VOLUME = .99109 INCHES = .0159 ACRE-FEET
PEAK DISCHARGE RATE = .56 CFS AT 1.499 HOURS BASIN AREA = .0003 SQ. MI.

****** BASIN 6-B DEVELOPED ONSITE AREA
COMPUTE NM HYD ID=37 HYD NO=100.30 AREA=0.00325 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 10 265 CFS UNIT VOLUME = .9982 B = 526.28 P60 = 1 8700
AREA = .002600 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 1.5949 CFS UNIT VOLUME = .9918 B = 327.09 P60 = 1.8700
AREA = .000650 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=37 CODE=24

PARTIAL HYDROGRAPH 100 30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	1.9	3.996	.0	5.994	.1		

.666	.0	2.664	.2	4.662	.0	6.660	.0
1.332	2.2	3.330	.1	5.328	.0		

RUNOFF VOLUME = 1.69760 INCHES = .2942 ACRE-FEET
PEAK DISCHARGE RATE = 8.12 CFS AT 1.499 HOURS BASIN AREA = .0033 SQ. MI.

****** COMBINE HYDROGRAPHS - BASINS 6-A & 6-B
ADD HYD ID=36 HYD NO=101 28 ID=36 ID=37
PRINT HYD ID=36 CODE=24

PARTIAL HYDROGRAPH 101.28

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	2.0	3.996	.0	5.994	.1		
.666	.0	2.664	.2	4.662	.0	6.660	.0		
1.332	2.3	3.330	.1	5.328	.0				

RUNOFF VOLUME = 1.63778 INCHES = .3101 ACRE-FEET
PEAK DISCHARGE RATE = 8.68 CFS AT 1.499 HOURS BASIN AREA = .0036 SQ. MI.

****** BASIN 6-C DEVELOPED R/W AREA IN FRONT OF TRACT 6
COMPUTE NM HYD ID=39 HYD NO=100.31 AREA=0.0008 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1
ID=39 CODE=24

K= .072649HR TP= .133300HR K/TP RATIO= .545000 SHAPE CONSTANT, N= 7.106420
UNIT PEAK= 2.8426 CFS UNIT VOLUME= .9955 B= 526.28 P60= 1.8700
AREA= .000720 SQ MI IA= .10000 INCHES INF= .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033300

K= .130992HR TP= .133300HR K/TP RATIO= .982685 SHAPE CONSTANT, N= 3.593448
UNIT PEAK= .19630 CFS UNIT VOLUME= .9294 B= 327.09 P60= 1.8700
AREA= .000080 SQ MI IA= .50000 INCHES INF= 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT= .033300

****** COMBINE HYDROGRAPHS FOR BASIN 6-C & FLOW ABOVE AP-14
ADD HYD ID=3 HYD NO=101.29 ID=3 ID=39
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.29

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	42.8	3.996	.9	5.994	1.2		
.666	.0	2.664	3 7	4.662	.9	6.660	.0		
1.332	49.8	3.330	1.2	5.328	1.0				

RUNOFF VOLUME = 1.67640 INCHES = 6.6918 ACRE-FEET
PEAK DISCHARGE RATE = 185.52 CFS AT 1.499 HOURS BASIN AREA = .0748 SQ. MI.

***** COMBINE HYDROGRAPHS AREA ABOVE AP-15 & BASIN 6
***** (ANALYSIS POINT 15)

ADD HYD ID=3 HYD NO=101.30 ID=3 ID=36
PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 101.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS

.000	.0	1.998	44.7	3.996	.9	5.994	1.2
.666	.0	2.664	3.9	4.662	.9	6.660	.0
1.332	52.0	3.330	1.3	5.328	1.0		

RUNOFF VOLUME = 1.67465 INCHES = 7.0019 ACRE-FEET
PEAK DISCHARGE RATE = 194.20 CFS AT 1.499 HOURS BASIN AREA = .0784 SQ. MI.

FINISH

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =10/22/2002
INPUT FILE = LADBP1RE.TXT USER NO.= M_GOODWN.I01

AREA I SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
RAINFALL TYPE= 1										RAIN6= 2.190
COMPUTE NM HYD	100.10	-	1	.00110	2.02	.058	.99109	1.499	2.876	PER IMP= .00
COMPUTE NM HYD	100.20	-	2	.01270	31.68	1.150	1.69760	1.499	3.898	PER IMP= 80.00
ADD HYD	101.10	1& 2	1	.01380	33.71	1.208	1.64125	1.499	3.816	
COMPUTE NM HYD	100.30	-	3	.00070	1.87	.068	1.82677	1.499	4.167	PER IMP= 90.00
ADD HYD	101.20	1& 3	3	.01450	→ 35.57 AP-1	1.276	1.65019	1.499	3.833	
COMPUTE NM HYD	100.40	-	4	.00040	.74	.021	.99109	1.499	2.895	PER IMP= .00
COMPUTE NM HYD	100.50	-	5	.00805	20.08	.728	1.69760	1.499	3.899	PER IMP= 80.00
ADD HYD	101.30	4& 5	4	.00845	20.82	.750	1.66409	1.499	3.851	
COMPUTE NM HYD	100.60	-	6	.00150	3.98	.146	1.82677	1.499	4.148	PER IMP= 90.00
ADD HYD	101.40	4& 6	4	.00995	24.80	.896	1.68860	1.499	3.896	
ADD HYD	101.50	3& 4	3	.02445	→ 60.37 AP-2	2.172	1.66581	1.499	3.859	
COMPUTE NM HYD	100.70	-	7	.00030	.56	.016	.99109	1.499	2.906	PER IMP= .00
COMPUTE NM HYD	100.80	-	8	.00560	13.98	.507	1.69760	1.499	3.900	PER IMP= 80.00
ADD HYD	101.60	7& 8	7	.00590	14.54	.523	1.66160	1.499	3.850	
COMPUTE NM HYD	100.90	-	6	.00080	2.13	.078	1.82677	1.499	4.163	PER IMP= 90.00
ADD HYD	101.70	6& 7	6	.00670	16.67	.601	1.68128	1.499	3.887	
ADD HYD	101.80	3& 6	3	.03115	77.04	2.773	1.66914	1.499	3.865	
COMPUTE NM HYD	100.10	-	9	.00490	11.24	.403	1.54315	1.499	3.584	PER IMP= 70.00
ADD HYD	101.90	3& 9	3	.03605	→ 88.28 AP-3	3.176	1.65200	1.499	3.827	
COMPUTE NM HYD	100.11	-	11	.00190	4.75	.172	1.69760	1.499	3.908	PER IMP= 80.00
COMPUTE NM HYD	100.12	-	13	.00200	5.00	.181	1.69760	1.499	3.908	PER IMP= 80.00
ADD HYD	101.10	11&13	11	.00390	→ 9.75 AP-4	.353	1.69744	1.499	3.908	
COMPUTE NM HYD	100.13	-	15	.00300	7.50	.272	1.69760	1.499	3.904	PER IMP= 80.00
ADD HYD	101.11	11&15	11	.00690	→ 17.25 AP-4A	.625	1.69747	1.499	3.906	
COMPUTE NM HYD	100.14	-	17	.00350	8.74	.317	1.69760	1.499	3.903	PER IMP= 80.00
ADD HYD	101.12	11&17	11	.01040	→ 25.99 AP-5	.942	1.69748	1.499	3.905	
COMPUTE NM HYD	100.15	-	21	.00380	9.49	.344	1.69760	1.499	3.902	PER IMP= 80.00
COMPUTE NM HYD	100.16	-	23	.00090	2.40	.088	1.82676	1.499	4.158	PER IMP= 90.00
ADD HYD	101.14	21&23	21	.00470	→ 11.89 AP-6	.432	1.72221	1.499	3.951	
COMPUTE NM HYD	100.17	-	24	.00100	2.66	.097	1.82676	1.499	4.157	PER IMP= 90.00
COMPUTE NM HYD	100.18	-	19	.00750	18.72	.679	1.69760	1.499	3.899	PER IMP= 80.00
ADD HYD	101.13	19&24	19	.00850	21.38	.776	1.71273	1.499	3.929	
ADD HYD	101.14	19&21	19	.01320	33.26	1.208	1.71611	1.499	3.937	
ADD HYD	101.15	11&19	11	.02360	→ 59.25 AP-7	2.150	1.70790	1.499	3.923	
COMPUTE NM HYD	100.19	-	25	.00110	2.92	.107	1.82677	1.499	4.154	PER IMP= 90.00
ADD HYD	101.17	11&25	11	.02470	→ 62.18 AP-10	2.257	1.71318	1.499	3.933	
ADD HYD	101.18	3&11	3	.06075	→ 150.46 AP-11	5.433	1.67688	1.499	3.870	
COMPUTE NM HYD	100.20	-	26	.00030	.56	.016	.99109	1.499	2.906	PER IMP= .00
COMPUTE NM HYD	100.21	-	27	.00430	10.74	.389	1.69760	1.499	3.902	PER IMP= 80.00
ADD HYD	101.19	26&27	26	.00460	11.30	.405	1.65143	1.499	3.837	
COMPUTE NM HYD	100.22	-	29	.00060	1.60	.058	1.82676	1.499	4.173	PER IMP= 90.00
ADD HYD	101.20	3&29	3	.06135	152.06	5.491	1.67834	1.499	3.873	
ADD HYD	101.21	3&26	3	.06595	→ 163.36 AP-12	5.896	1.67646	1.499	3.871	
COMPUTE NM HYD	100.23	-	29	.00030	.56	.016	.99109	1.499	2.906	PER IMP= .00
COMPUTE NM HYD	100.24	-	30	.00330	8.24	.299	1.69760	1.499	3.903	PER IMP= 80.00
ADD HYD	101.22	29&30	29	.00360	8.80	.315	1.63861	1.499	3.820	
COMPUTE NM HYD	100.25	-	31	.00060	1.60	.058	1.82676	1.499	4.173	PER IMP= 90.00
ADD HYD	101.23	3&31	3	.06655	164.96	5.955	1.67781	1.499	3.873	

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	101.24	3&29	3	.07015	→173.76 AP-13	6.269	1.67580	1.499	3.871	
COMPUTE NM HYD	100.26	-	32	.00030	.56	.016	.99109	1.499	2.906	PER IMP= .00
COMPUTE NM HYD	100.27	-	33	.00320	7.99	.290	1.69760	1.499	3.903	PER IMP= 80.00
ADD HYD	101.25	32&33	32	.00350	8.55	.306	1.63693	1.499	3.818	
COMPUTE NM HYD	100.28	-	35	.00040	1.07	.039	1.82676	1.499	4.195	PER IMP= 90.00
ADD HYD	101.26	3&35	3	.07055	174.84	6.308	1.67666	1.499	3.872	
ADD HYD	101.27	3&32	3	.07405	→ 183.39 AP-14	6.614	1.67478	1.499	3.870	
COMPUTE NM HYD	100.29	-	36	.00030	.56	.016	.99109	1.499	2.906	PER IMP= .00
COMPUTE NM HYD	100.30	-	37	.00325	8.12	.294	1.69760	1.499	3.903	PER IMP= 80.00
ADD HYD	101.28	36&37	36	.00355	8.68	.310	1.63778	1.499	3.819	
COMPUTE NM HYD	100.31	-	39	.00080	2.13	.078	1.82677	1.499	4.163	PER IMP= 90.00
ADD HYD	101.29	3&39	3	.07485	185.52	6.692	1.67640	1.499	3.873	
ADD HYD	101.30	3&36	3	.07840	→194.20 AP-15	7.002	1.67465	1.499	3.871	
FINISH										

AREA II LADERA BP (SUMMARY @ THE END)

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AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 06/20/2002
     START TIME (HR:MIN:SEC) = 10:48:32     USER NO.= M_GOODWN.I01
     INPUT FILE = LADBP2RE.TXT

   START                    TIME=0.0
***** LADERA BUSINESS PARK - AREA II  AHYMO\LADERATWO.DAT
***** MARCH 19, 2002 (REVISED 6/20/02)
RAINFALL              TYPE=1 RAIN QUARTER=0.0 IN
                      RAIN ONE=1.87 IN RAIN SIX=2.19 IN
                      RAIN DAY=2.62 IN DT=0.0333 HR
```

AT 1.40 HR.

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK

DT = .033300 HOURS END TIME = 5.994000 HOURS

.0000	.0015	.0031	.0047	.0063	.0080	.0097
.0114	.0132	.0151	.0169	.0189	.0209	.0229
.0250	.0271	.0294	.0317	.0340	.0365	.0390
.0417	.0444	.0473	.0502	.0533	.0566	.0600
.0636	.0673	.0713	.0765	.0820	.0879	.1000
.1280	.1711	.2330	.3177	.4291	.5713	.7484
.9647	1.1723	1.2575	1.3292	1.3929	1.4508	1.5041
1.5535	1.5997	1.6430	1.6838	1.7222	1.7586	1.7929
1.8255	1.8564	1.8857	1.9135	1.9399	1.9471	1.9528
1.9582	1.9633	1.9682	1.9729	1.9774	1.9818	1.9859
1.9900	1.9939	1.9977	2.0013	2.0049	2.0083	2.0117
2.0150	2.0182	2.0213	2.0243	2.0273	2.0302	2.0331
2.0359	2.0386	2.0413	2.0439	2.0465	2.0490	2.0515
2.0539	2.0563	2.0587	2.0610	2.0633	2.0656	2.0678
2.0699	2.0721	2.0742	2.0763	2.0784	2.0804	2.0824
2.0844	2.0863	2.0883	2.0902	2.0921	2.0939	2.0958
2.0976	2.0994	2.1012	2.1029	2.1046	2.1064	2.1081
2.1097	2.1114	2.1131	2.1147	2.1163	2.1179	2.1195
2.1211	2.1226	2.1242	2.1257	2.1272	2.1287	2.1302
2.1316	2.1331	2.1346	2.1360	2.1374	2.1388	2.1402
2.1416	2.1430	2.1444	2.1457	2.1471	2.1484	2.1497
2.1510	2.1523	2.1536	2.1549	2.1562	2.1575	2.1587
2.1600	2.1612	2.1625	2.1637	2.1649	2.1661	2.1673
2.1685	2.1697	2.1709	2.1720	2.1732	2.1743	2.1755
2.1766	2.1778	2.1789	2.1800	2.1811	2.1822	2.1833
2.1844	2.1855	2.1866	2.1877	2.1887	2.1898	

```
****** TRACTS 7-11 - FLOW TO MIREHAVEN CHANNEL
****** LOT AREAS EXCLUDE DRAINAGE EASEMENTS

****** DEVELOPED CONDITIONS - TRACT 11 - 6.18 ACRES
COMPUTE NM HYD        ID=1 HYD NO=100.1 AREA=0.0097  SQ MI
                      PER A=0 PER B=20 PER C=0 PER D=80
                      TP=0.1333 HR MASS RAINFALL=-1

         K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE
CONSTANT, N =  7.106420
         UNIT PEAK =   30.637    CFS   UNIT VOLUME =    .9990       B =   526.28
P60 = 1.8700
         AREA =      .007760 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES
PER HOUR
         RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300
```

```
        K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE
CONSTANT, N =  3.593448
        UNIT PEAK =    4.7603    CFS   UNIT VOLUME =    .9975       B =   327.09
P60 = 1.8700
        AREA =       .001940 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES
PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300

     PRINT HYD            ID=1 CODE=24

                                          PARTIAL HYDROGRAPH   100.10

          TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME      FLOW            TIME      FLOW
           HRS       CFS             HRS       CFS             HRS       CFS
HRS       CFS             HRS       CFS
         .000        .0          1.998       5.6          3.996        .1
5.994       .2
         .666        .0          2.664        .5          4.662        .1
6.660       .0
        1.332       6.6          3.330        .2          5.328        .1

        RUNOFF VOLUME =     1.69760 INCHES     =        .8782 ACRE-FEET
        PEAK DISCHARGE RATE =      24.20 CFS  AT   1.499 HOURS   BASIN AREA =    .0097
SQ. MI.


     ****** DEVELOPED ONSITE AREA OF TRACT 10 (4.33 ACS.)
     COMPUTE NM HYD       ID=3 HYD NO=100.3 AREA=0.0068 SQ MI
                          PER A=0 PER B=20 PER C=0 PER D=80
                          TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE
CONSTANT, N =  7.106420
        UNIT PEAK =    21.477    CFS   UNIT VOLUME =    .9988       B =   526.28
P60 = 1.8700
        AREA =       .005440 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES
PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300

        K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE
CONSTANT, N =  3.593448
        UNIT PEAK =    3.3371    CFS   UNIT VOLUME =    .9964       B =   327.09
P60 = 1.8700
        AREA =       .001360 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES
PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300

     PRINT HYD            ID=3 CODE=24

                                          PARTIAL HYDROGRAPH   100.30

          TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME      FLOW            TIME      FLOW
           HRS       CFS             HRS       CFS             HRS       CFS
HRS       CFS             HRS       CFS
```

```
          .000        .0          1.998       4.0          3.996        .1
5.994       .1
          .666        .0          2.664        .4          4.662        .1
6.660       .0
         1.332       4.6          3.330        .1          5.328        .1

        RUNOFF VOLUME =     1.69760 INCHES     =        .6157 ACRE-FEET
        PEAK DISCHARGE RATE =      16.97 CFS  AT   1.499 HOURS   BASIN AREA =   .0068
SQ. MI.


     ****** COMBINE HYDROGRAPHS BASINS 10 & 11
     ADD HYD              ID=1 HYD NO=101.1 ID=1 ID=3
     PRINT HYD            ID=1 CODE=24

                                  PARTIAL HYDROGRAPH   101.10

          TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME      FLOW            TIME      FLOW
           HRS       CFS             HRS       CFS             HRS       CFS
HRS       CFS             HRS       CFS
          .000        .0          1.998        9.6          3.996        .2
5.994       .3
          .666        .0          2.664        .9          4.662        .2
6.660       .0
         1.332      11.2          3.330        .3          5.328        .2

        RUNOFF VOLUME =     1.69756 INCHES     =       1.4938 ACRE-FEET
        PEAK DISCHARGE RATE =      41.17 CFS  AT   1.499 HOURS   BASIN AREA =   .0165
SQ. MI.


     ****** DEVELOPED CONDITIONS - TRACT 9 - 7.25 ACRES
     COMPUTE NM HYD       ID=5 HYD NO=100.5 AREA=0.0113 SQ MI
                          PER A=0 PER B=20 PER C=0 PER D=80
                          TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE
CONSTANT, N =  7.106420
        UNIT PEAK =   35.690    CFS   UNIT VOLUME =    .9990       B =   526.28
P60 = 1.8700
        AREA =       .009040 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES
PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300


        K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE
CONSTANT, N =  3.593448
        UNIT PEAK =    5.5455    CFS   UNIT VOLUME =    .9979       B =   327.09
P60 = 1.8700
        AREA =       .002260 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES
PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300

     PRINT HYD            ID=5 CODE=24
```

PARTIAL HYDROGRAPH 100.50

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
5.994	.000	.0	1.998	6.6	3.996 .1
6.660	.2				
	.666	.0	2.664	.6	4.662 .1
	.0				
	1.332	7.7	3.330	.2	5.328 .2

RUNOFF VOLUME = 1.69760 INCHES = 1.0231 ACRE-FEET
PEAK DISCHARGE RATE = 28.19 CFS AT 1.499 HOURS BASIN AREA = .0113 SQ. MI.

****** COMBINE HYDROGRAPHS BASINS 9 & 10/11
ADD HYD ID=1 HYD NO=101.2 ID=1 ID=5
PRINT HYD ID=1 CODE=24

PARTIAL HYDROGRAPH 101.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
5.994	.000	.0	1.998	16.2	3.996 .3
6.660	.4				
	.666	.0	2.664	1.4	4.662 .3
	.0				
	1.332	18.9	3.330	.5	5.328 .4

RUNOFF VOLUME = 1.69757 INCHES = 2.5169 ACRE-FEET
PEAK DISCHARGE RATE = 69.36 CFS AT 1.499 HOURS BASIN AREA = .0278 SQ. MI.

****** DEVELOPED CONDITIONS - TRACT 8 - 5.40 ACRES
COMPUTE NM HYD ID=9 HYD NO=100.6 AREA=0.0084 SQ MI
PER A=0 PER B=20 PER C=0 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.531 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.8700
AREA = .006720 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = 4.1223 CFS UNIT VOLUME = .9970 B = 327.09 P60 = 1.8700

AREA = .001680 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR

RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=9 CODE=24

PARTIAL HYDROGRAPH 100.60

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	4.9	3.996	.1
5.994	.1				
.666	.0	2.664	.4	4.662	.1
6.660	.0				
1.332	5.7	3.330	.1	5.328	.1

RUNOFF VOLUME = 1.69760 INCHES = .7605 ACRE-FEET

PEAK DISCHARGE RATE = 20.96 CFS AT 1.499 HOURS BASIN AREA = .0084 SQ. MI.

****** COMBINE HYDROGRAPHS BASINS 8 & 9/10/11

ADD HYD ID=1 HYD NO=101.7 ID=1 ID=9

PRINT HYD ID=1 CODE=24

PARTIAL HYDROGRAPH 101.70

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.998	21.0	3.996	.5
5.994	.6				
.666	.0	2.664	1.9	4.662	.4
6.660	.0				
1.332	24.7	3.330	.6	5.328	.5

RUNOFF VOLUME = 1.69757 INCHES = 3.2774 ACRE-FEET

PEAK DISCHARGE RATE = 90.33 CFS AT 1.499 HOURS BASIN AREA = .0362 SQ. MI.

COMBINED TRACTS 8-11 TO LA MORADA CUL-DE-SAC

****** DEVELOPED CONDITION - TRACT 7 - 4.49 ACRES

COMPUTE NM HYD ID=10 HYD NO=100.10 AREA=0.0070 SQ MI
PER A=0 PER B=20 PER C=00 PER D=80
TP=0.1333 HR MASS RAINFALL=-1

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

UNIT PEAK = 22.109 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.8700

AREA = .005600 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR

```
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300

        K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE
CONSTANT, N =  3.593448
        UNIT PEAK =   3.4353   CFS   UNIT VOLUME =    .9964       B =   327.09
P60 = 1.8700
        AREA =       .001400 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES
PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =
.033300

     PRINT HYD           ID=10 CODE=24

                                        PARTIAL HYDROGRAPH   100.10

        TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME      FLOW            TIME      FLOW
         HRS       CFS             HRS       CFS             HRS       CFS
HRS      CFS             HRS      CFS
         .000       .0            1.998       4.1           3.996       .1
5.994      .1
         .666       .0            2.664        .4           4.662       .1
6.660      .0
        1.332      4.8            3.330        .1           5.328       .1

        RUNOFF VOLUME =     1.69760 INCHES     =        .6338 ACRE-FEET
        PEAK DISCHARGE RATE =      17.47 CFS  AT   1.499 HOURS   BASIN AREA =   .0070
SQ. MI.


     FINISH

        NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 10:48:32
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =10/22/2002

INPUT FILE = LADBP2RE.TXT USER NO.= M_GOODWN.I01

AREA II SUMMARY

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
RAINFALL TYPE= 1										RAIN6= 2.190
COMPUTE NM HYD	100.10	-	1	.00970	24.20	.878	1.69760	1.499	3.899	PER IMP= 80.00
COMPUTE NM HYD	100.30	-	3	.00680	16.97	.616	1.69760	1.499	3.899	PER IMP= 80.00
ADD HYD	101.10	1& 3	1	.01650	41.17	1.494	1.69756	1.499	3.899	
COMPUTE NM HYD	100.50	-	5	.01130	28.19	1.023	1.69760	1.499	3.898	PER IMP= 80.00
ADD HYD	101.20	1& 5	1	.02780	69.36	2.517	1.69757	1.499	3.899	
COMPUTE NM HYD	100.60	-	9	.00840	20.96	.761	1.69760	1.499	3.899	PER IMP= 80.00
ADD HYD	101.70	1& 9	1	.03620	90.33	3.277	1.69757	1.499	3.899	
COMPUTE NM HYD	100.10	-	10	.00700	17.47	.634	1.69760	1.499	3.899	PER IMP= 80.00
FINISH										

Discharge off Tract 7 to east of site.

Discharge to La Morada Cul-de-Sac.

AREA III (SUMMARY @ END)

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 04/02/2002
     START TIME (HR:MIN:SEC) = 15:23:18      USER NO.= M_GOODWN.I01
     INPUT FILE = LADERTHR.TXT

START                TIME=0.0
****** LADERA BUSINESS PARK -AREA III  AHYMO\LADERTHR.TXT

****** APRIL 2, 2002

RAINFALL             TYPE=1 RAIN QUARTER=0.0 IN
                     RAIN ONE=1.87 IN RAIN SIX=2.19 IN
                     RAIN DAY=2.62 IN DT=0.0333 HR

          COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033300 HOURS        END TIME =     5.994000 HOURS
             .0000   .0015   .0031   .0047   .0063   .0080   .0097
             .0114   .0132   .0151   .0169   .0189   .0209   .0229
             .0250   .0271   .0294   .0317   .0340   .0365   .0390
             .0417   .0444   .0473   .0502   .0533   .0566   .0600
             .0636   .0673   .0713   .0765   .0820   .0879   .1000
             .1280   .1711   .2330   .3177   .4291   .5713   .7484
             .9647  1.1723  1.2575  1.3292  1.3929  1.4508  1.5041
            1.5535  1.5997  1.6430  1.6838  1.7222  1.7586  1.7929
            1.8255  1.8564  1.8857  1.9135  1.9399  1.9471  1.9528
            1.9582  1.9633  1.9682  1.9729  1.9774  1.9818  1.9859
            1.9900  1.9939  1.9977  2.0013  2.0049  2.0083  2.0117
            2.0150  2.0182  2.0213  2.0243  2.0273  2.0302  2.0331
            2.0359  2.0386  2.0413  2.0439  2.0465  2.0490  2.0515
            2.0539  2.0563  2.0587  2.0610  2.0633  2.0656  2.0678
            2.0699  2.0721  2.0742  2.0763  2.0784  2.0804  2.0824
            2.0844  2.0863  2.0883  2.0902  2.0921  2.0939  2.0958
            2.0976  2.0994  2.1012  2.1029  2.1046  2.1064  2.1081
            2.1097  2.1114  2.1131  2.1147  2.1163  2.1179  2.1195
            2.1211  2.1226  2.1242  2.1257  2.1272  2.1287  2.1302
            2.1316  2.1331  2.1346  2.1360  2.1374  2.1388  2.1402
            2.1416  2.1430  2.1444  2.1457  2.1471  2.1484  2.1497
            2.1510  2.1523  2.1536  2.1549  2.1562  2.1575  2.1587
            2.1600  2.1612  2.1625  2.1637  2.1649  2.1661  2.1673
            2.1685  2.1697  2.1709  2.1720  2.1732  2.1743  2.1755
            2.1766  2.1778  2.1789  2.1800  2.1811  2.1822  2.1833
            2.1844  2.1855  2.1866  2.1877  2.1887  2.1898

****** AREA III-A
****** TRACTS 12 - 19 & 21-23 (COMMERCIAL LOTS)-NO PONDING
****** VISTA ORIENTE & UNSER BLVD.-OFFSITE
****** BASIN UNSER & OFFSITE DEVELOPED R/W AREA IN FRONT OF TR 19 & LOT 1-A
****** (0.91139 ACS)

****** UNSER BASIN (OFF-SITE)
COMPUTE NM HYD       ID=23 HYD NO=100.23 AREA=0.001424 SQ MI
                     PER A=00 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000    SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   5.0598    CFS   UNIT VOLUME =    .9972       B =   526.28       P60 = 1.8700
    AREA =       .001282 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

    K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685    SHAPE CONSTANT, N =  3.593448
    UNIT PEAK =    .34942    CFS   UNIT VOLUME =    .9612       B =   327.09       P60 = 1.8700
    AREA =       .000142 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=23 CODE=1

                                   PARTIAL HYDROGRAPH   100.23

    RUNOFF VOLUME =      1.82677 INCHES      =        .1387 ACRE-FEET
    PEAK DISCHARGE RATE =        3.78 CFS  AT   1.499 HOURS   BASIN AREA =    .0014 SQ. MI.

****** BASIN 19-B
COMPUTE NM HYD       ID=24 HYD NO=100.24 AREA=0.00092975 SQ MI
                     PER A=00 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1
```

```
K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =    3.3036    CFS   UNIT VOLUME =    .9960       B =   526.28       P60 = 1.8700
AREA =       .000837 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
UNIT PEAK =    .22814    CFS   UNIT VOLUME =    .9405       B =   327.09       P60 = 1.8700
AREA =       .000093 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=24 CODE=1

                                   PARTIAL HYDROGRAPH   100.24

RUNOFF VOLUME =     1.82676 INCHES     =        .0906 ACRE-FEET
PEAK DISCHARGE RATE =      2.47 CFS  AT   1.499 HOURS   BASIN AREA =   .0009 SQ. MI.


****** COMBINE HYDROGRAPHS FOR BASINS UNSER & 19
ADD HYD              ID=23 HYD=101.24 ID=23 ID=24
PRINT HYD            ID=23 CODE=24

                                   PARTIAL HYDROGRAPH   101.24

          TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS       CFS            HRS       CFS            HRS       CFS
HRS       CFS
           .000       .0          1.332       1.8          2.664       .1          3.996       .0
5.328       .0
           .666       .0          1.998       1.5          3.330       .0          4.662       .0
5.994       .0

RUNOFF VOLUME =     1.82652 INCHES     =        .2293 ACRE-FEET
PEAK DISCHARGE RATE =      6.26 CFS  AT   1.499 HOURS   BASIN AREA =   .0024 SQ. MI.


****** BASIN 19-A - DEVELOPED CONDITIONS - TRACT 19 - 1.15  ACRES

COMPUTE NM HYD       ID=1 HYD NO=100.1 AREA=0.0017969 SQ MI
                     PER A=0 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =    6.3848    CFS   UNIT VOLUME =    .9975       B =   526.28       P60 = 1.8700
AREA =       .001617 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
UNIT PEAK =    .44092    CFS   UNIT VOLUME =    .9700       B =   327.09       P60 = 1.8700
AREA =       .000180 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=1 CODE=24

                                   PARTIAL HYDROGRAPH   100.10

          TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS       CFS            HRS       CFS            HRS       CFS
HRS       CFS
           .000       .0          1.332       1.4          2.664       .1          3.996       .0
5.328       .0
           .666       .0          1.998       1.2          3.330       .0          4.662       .0
5.994       .0

RUNOFF VOLUME =     1.82677 INCHES     =        .1751 ACRE-FEET
PEAK DISCHARGE RATE =      4.77 CFS  AT   1.499 HOURS   BASIN AREA =   .0018 SQ. MI.


****** COMBINE HYDROGRAPHS FOR BASINS UNSER & 19
ADD HYD              ID=23 HYD=101.24 ID=1 ID=23
PRINT HYD            ID=23 CODE=24
```

PARTIAL HYDROGRAPH 101.24

TIME FLOW HRS CFS		TIME FLOW HRS CFS		TIME FLOW HRS CFS		TIME FLOW HRS CFS		TIME FLOW HRS CFS	
	.000	.0	1.332	3.2	2.664	.2	3.996	.1
5.328	.1							
	.666	.0	1.998	2.7	3.330	.1	4.662	.1
5.994	.1							

RUNOFF VOLUME = 1.82656 INCHES = .4043 ACRE-FEET
PEAK DISCHARGE RATE = 11.02 CFS AT 1.499 HOURS BASIN AREA = .0042 SQ. MI.

****** BASIN 18 DEVELOPED CONDITIONS TRACT 18 -1.15 ACRES

COMPUTE NM HYD ID=2 HYD NO=100.2 AREA=0.0017969 SQ MI
PER A=0 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.3848 CFS UNIT VOLUME = .9975 B = 526.28 P60 = 1.8700
AREA = .001617 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .44092 CFS UNIT VOLUME = .9700 B = 327.09 P60 = 1.8700
AREA = .000180 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=2

PARTIAL HYDROGRAPH 100.20

TIME FLOW HRS CFS		TIME FLOW HRS CFS		TIME FLOW HRS CFS		TIME FLOW HRS CFS		TIME FLOW HRS CFS	
	.000	.0	1.332	1.4	2.664	.1	3.996	.0
5.328	.0							
	.033	.0	1.365	2.0	2.697	.1	4.029	.0
5.361	.0							
	.067	.0	1.399	2.7	2.731	.1	4.063	.0
5.395	.0							
	.100	.0	1.432	3.5	2.764	.1	4.096	.0
5.428	.0							
	.133	.0	1.465	4.3	2.797	.1	4.129	.0
5.461	.0							
	.167	.0	1.499	4.8	2.830	.1	4.162	.0
5.494	.0							
	.200	.0	1.532	4.6	2.864	.1	4.196	.0
5.528	.0							
	.233	.0	1.565	4.0	2.897	.1	4.229	.0
5.561	.0							
	.266	.0	1.598	3.3	2.930	.1	4.262	.0
5.594	.0							
	.300	.0	1.632	2.8	2.964	.1	4.296	.0
5.628	.0							
	.333	.0	1.665	2.4	2.997	.0	4.329	.0
5.661	.0							
	.366	.0	1.698	2.2	3.030	.0	4.362	.0
5.694	.0							
	.400	.0	1.732	2.0	3.064	.0	4.396	.0
5.728	.0							
	.433	.0	1.765	1.8	3.097	.0	4.429	.0
5.761	.0							
	.466	.0	1.798	1.7	3.130	.0	4.462	.0
5.794	.0							
	.500	.0	1.832	1.6	3.163	.0	4.495	.0
5.827	.0							
	.533	.0	1.865	1.5	3.197	.0	4.529	.0
5.861	.0							
	.566	.0	1.898	1.4	3.230	.0	4.562	.0
5.894	.0							
	.599	.0	1.931	1.3	3.263	.0	4.595	.0
5.927	.0							

	.633	.0	1.965	1.2	3.297	.0	4.629	.0
5.961	.0							
	.666	.0	1.998	1.2	3.330	.0	4.662	.0
5.994	.0							
	.699	.0	2.031	1.1	3.363	.0	4.695	.0
6.027	.0							
	.733	.0	2.065	1.0	3.397	.0	4.729	.0
6.061	.0							
	.766	.0	2.098	.8	3.430	.0	4.762	.0
6.094	.0							
	.799	.0	2.131	.7	3.463	.0	4.795	.0
6.127	.0							
	.832	.0	2.165	.5	3.496	.0	4.828	.0
6.160	.0							
	.866	.0	2.198	.4	3.530	.0	4.862	.0
6.194	.0							
	.899	.0	2.231	.4	3.563	.0	4.895	.0
6.227	.0							
	.932	.0	2.264	.3	3.596	.0	4.928	.0
6.260	.0							
	.966	.0	2.298	.3	3.630	.0	4.962	.0
6.294	.0							
	.999	.0	2.331	.2	3.663	.0	4.995	.0
6.327	.0							
	1.032	.0	2.364	.2	3.696	.0	5.028	.0
6.360	.0							
	1.066	.0	2.398	.2	3.730	.0	5.062	.0
6.394	.0							
	1.099	.0	2.431	.2	3.763	.0	5.095	.0
6.427	.0							
	1.132	.0	2.464	.2	3.796	.0	5.128	.0
6.460	.0							
	1.166	.0	2.497	.1	3.829	.0	5.161	.0
6.493	.0							
	1.199	.1	2.531	.1	3.863	.0	5.195	.0
6.527	.0							
	1.232	.2	2.564	.1	3.896	.0	5.228	.0
6.560	.0							
	1.265	.5	2.597	.1	3.929	.0	5.261	.0
6.593	.0							
	1.299	.9	2.631	.1	3.963	.0	5.295	.0

RUNOFF VOLUME = 1.82677 INCHES = .1751 ACRE-FEET
PEAK DISCHARGE RATE = 4.77 CFS AT 1.499 HOURS BASIN AREA = .0018 SQ. MI.

****** COMBINE HYDROGRAPHS FOR BASINS 18 & UNSER/19
ADD HYD ID=1 HYD=101.1 ID=2 ID=23
PRINT HYD ID=1 CODE=24

PARTIAL HYDROGRAPH 101.10

TIME HRS	TIME FLOW HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
	.000	.0	1.332	4.5	2.664	.3	3.996	.1
5.328	.1							
	.666	.0	1.998	3.8	3.330	.1	4.662	.1
5.994	.1							

RUNOFF VOLUME = 1.82658 INCHES = .5794 ACRE-FEET
PEAK DISCHARGE RATE = 15.79 CFS AT 1.499 HOURS BASIN AREA = .0059 SQ. MI.

****** BASIN 18-A DEVELOPED R/W AREA IN FRONT OF TRACTS 18 - 19

COMPUTE NM HYD ID=3 HYD NO=100.3 AREA=0.0008394 SQ MI
PER A=00 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.9826 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.8700
AREA = .000755 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .20597 CFS UNIT VOLUME = .9352 B = 327.09 P60 = 1.8700

```
AREA =       .000084 SQ MI    IA =     .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT. =    .033300

PRINT HYD            ID=3 CODE=1

                                PARTIAL HYDROGRAPH   100.30

RUNOFF VOLUME =      1.82676 INCHES      =         .0818 ACRE-FEET
PEAK DISCHARGE RATE =        2.24 CFS  AT   1.499 HOURS   BASIN AREA =   .0008 SQ. MI.


****** COMBINE HYDROGRAPH FOR R\W (BASINS 18, 19 & 18-A) - ANALYSIS POINT 1
ADD HYD              ID=1 HYD=101.2 ID=1 ID=3
PRINT HYD            ID=1 CODE=24

                                PARTIAL HYDROGRAPH   101.20

          TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
TIME      FLOW
           HRS      CFS             HRS      CFS             HRS      CFS             HRS      CFS
HRS       CFS
          .000       .0            1.332      5.2           2.664      .3            3.996       .1
5.328       .1
          .666       .0            1.998      4.4           3.330      .1            4.662       .1
5.994       .1

RUNOFF VOLUME =      1.82657 INCHES      =         .6612 ACRE-FEET
PEAK DISCHARGE RATE =       18.03 CFS  AT   1.499 HOURS   BASIN AREA =   .0068 SQ. MI.


******-------------------------------------------------------------
****** BASIN 17 DEVELOPED CONDITIONS TRACT 17-1.15 ACRES

COMPUTE NM HYD       ID=4 HYD NO=100.4 AREA=0.0017969 SQ MI
                     PER A=0 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =   6.3848    CFS   UNIT VOLUME =    .9975       B =   526.28      P60 = 1.8700
AREA =       .001617 SQ MI    IA =     .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


K =   .130992HR    TP =   .133300HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =  3.593448
UNIT PEAK =   .44092    CFS   UNIT VOLUME =    .9700       B =   327.09      P60 = 1.8700
AREA =       .000180 SQ MI    IA =     .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=4 CODE=24

                                PARTIAL HYDROGRAPH   100.40

          TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
TIME      FLOW
           HRS      CFS             HRS      CFS             HRS      CFS             HRS      CFS
HRS       CFS
          .000       .0            1.332      1.4           2.664      .1            3.996       .0
5.328       .0
          .666       .0            1.998      1.2           3.330      .0            4.662       .0
5.994       .0

RUNOFF VOLUME =      1.82677 INCHES      =         .1751 ACRE-FEET
PEAK DISCHARGE RATE =        4.77 CFS  AT   1.499 HOURS   BASIN AREA =   .0018 SQ. MI.


****** BASIN 16 DEVELOPED CONDITIONS TRACT 16 - 1.20 ACRES

COMPUTE NM HYD       ID=5 HYD NO=100.5 AREA=0.001875 SQ MI
                     PER A=0 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =   6.6623    CFS   UNIT VOLUME =    .9975       B =   526.28      P60 = 1.8700
AREA =       .001688 SQ MI    IA =     .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300
```

```
K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
UNIT PEAK =    .46008    CFS   UNIT VOLUME =    .9700       B =   327.09      P60 = 1.8700
AREA =       .000188 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=5 CODE=24

                                   PARTIAL HYDROGRAPH   100.50

          TIME      FLOW            TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME      FLOW
           HRS       CFS             HRS       CFS             HRS       CFS             HRS       CFS
HRS       CFS
          .000        .0           1.332       1.4           2.664        .1           3.996        .0
5.328       .0
          .666        .0           1.998       1.2           3.330        .0           4.662        .0
5.994       .0

RUNOFF VOLUME =      1.82677 INCHES      =        .1827 ACRE-FEET
PEAK DISCHARGE RATE =        4.97 CFS  AT   1.499 HOURS   BASIN AREA =    .0019 SQ. MI.


****** BASIN 16-A DEVELOPED R/W AREA IN FRONT OF TRACTS 16 - 17

COMPUTE NM HYD       ID=6 HYD NO=100.6 AREA=0.00072094 SQ MI
                     PER A=00 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =    2.5617    CFS   UNIT VOLUME =    .9948       B =   526.28      P60 = 1.8700
AREA =       .000649 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
UNIT PEAK =    .17690    CFS   UNIT VOLUME =    .9232       B =   327.09      P60 = 1.8700
AREA =       .000072 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=6 CODE=24

                                   PARTIAL HYDROGRAPH   100.60

          TIME      FLOW            TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME      FLOW
           HRS       CFS             HRS       CFS             HRS       CFS             HRS       CFS
HRS       CFS
          .000        .0           1.332        .6           2.664        .0           3.996        .0
5.328       .0
          .666        .0           1.998        .5           3.330        .0           4.662        .0
5.994       .0

RUNOFF VOLUME =      1.82676 INCHES      =        .0702 ACRE-FEET
PEAK DISCHARGE RATE =        1.92 CFS  AT   1.499 HOURS   BASIN AREA =    .0007 SQ. MI.


****** COMBINE HYDROGRAPHS FOR BASINS 17 & 16
ADD HYD              ID=4 HYD=101.3 ID=4 ID=5
PRINT HYD            ID=4 CODE=24

                                   PARTIAL HYDROGRAPH   101.30

          TIME      FLOW            TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME      FLOW
           HRS       CFS             HRS       CFS             HRS       CFS             HRS       CFS
HRS       CFS
          .000        .0           1.332       2.8           2.664        .2           3.996        .1
5.328       .1
          .666        .0           1.998       2.4           3.330        .1           4.662        .0
5.994       .1

RUNOFF VOLUME =      1.82662 INCHES      =       .3577 ACRE-FEET
PEAK DISCHARGE RATE =        9.74 CFS  AT   1.499 HOURS   BASIN AREA =    .0037 SQ. MI.
```

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****** COMBINE HYDROGRAPHS FOR BASINS 17/16 & 16-A
ADD HYD              ID=4 HYD=101.4 ID=4 ID=6
PRINT HYD            ID=4 CODE=24

                                PARTIAL HYDROGRAPH   101.40

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
          .000       .0           1.332      3.4          2.664       .2          3.996       .1
5.328       .1
          .666       .0           1.998      2.8          3.330       .1          4.662       .1
5.994       .1

        RUNOFF VOLUME =     1.82659 INCHES     =        .4279 ACRE-FEET
        PEAK DISCHARGE RATE =      11.67 CFS  AT   1.499 HOURS   BASIN AREA =   .0044 SQ. MI.


***** COMBINE HYDROGRAPHS BASINS 17/16/16-A & AREA BEFORE AP-1 ANALYSIS POINT 2
ADD HYD              ID=1 HYD=102.4 ID=1 ID=4
PRINT HYD.           ID=1 CODE=24

                                PARTIAL HYDROGRAPH   102.40

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
          .000       .0           1.332      8.6          2.664       .6          3.996       .2
5.328       .2
          .666       .0           1.998      7.2          3.330       .2          4.662       .2
5.994       .2

        RUNOFF VOLUME =     1.82657 INCHES     =       1.0891 ACRE-FEET
        PEAK DISCHARGE RATE =      29.69 CFS  AT   1.499 HOURS   BASIN AREA =   .0112 SQ. MI.


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****** BASIN 15-A DEVELOPED CONDITIONS TRACT 15 - 1.24 ACRES

COMPUTE NM HYD       ID=7 HYD NO=100.7 AREA=0.001937 SQ MI
                     PER A=0 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

        K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
        UNIT PEAK =    6.8826    CFS   UNIT VOLUME =    .9978       B =   526.28       P60 = 1.8700
        AREA =       .001743 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

        K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
        UNIT PEAK =    .47529    CFS   UNIT VOLUME =    .9724       B =   327.09       P60 = 1.8700
        AREA =       .000194 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=7 CODE=24

                                PARTIAL HYDROGRAPH   100.70

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
          .000       .0           1.332      1.5          2.664       .1          3.996       .0
5.328       .0
          .666       .0           1.998      1.2          3.330       .0          4.662       .0
5.994       .0

        RUNOFF VOLUME =     1.82676 INCHES     =        .1887 ACRE-FEET
        PEAK DISCHARGE RATE =       5.14 CFS  AT   1.499 HOURS   BASIN AREA =   .0019 SQ. MI.


****** BASIN 15-B DEVELOPED R/W AREA IN FRONT OF TRACT 15
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```
COMPUTE NM HYD       ID=8 HYD NO=100.8 AREA=0.0002583 SQ MI
                     PER A=00 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

     K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    .91780    CFS   UNIT VOLUME =    .9861       B =   526.28      P60 = 1.8700
     AREA =       .000232 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

     K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
     UNIT PEAK =    .63381E-01CFS   UNIT VOLUME =    .8720       B =   327.09      P60 = 1.8700
     AREA =       .000026 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=8 CODE=24

                                   PARTIAL HYDROGRAPH   100.80

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS           HRS       CFS           HRS       CFS           HRS       CFS
HRS       CFS
           .000      .0          1.332       .2          2.664       .0          3.996       .0
5.328       .0
           .666      .0          1.998       .2          3.330       .0          4.662       .0
5.994       .0

     RUNOFF VOLUME =     1.82677 INCHES     =        .0252 ACRE-FEET
     PEAK DISCHARGE RATE =        .70 CFS  AT   1.499 HOURS   BASIN AREA =   .0003 SQ. MI.


****** COMBINE HYDROGRAPHS TR. 15-A & 15-B
ADD HYD              ID=7 HYD NO=101.5 ID=8 ID=7
PRINT HYD            ID=7 CODE=24

                                   PARTIAL HYDROGRAPH   101.50

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS           HRS       CFS           HRS       CFS           HRS       CFS
HRS       CFS
           .000      .0          1.332       1.7         2.664       .1          3.996       .0
5.328       .0
           .666      .0          1.998       1.4         3.330       .0          4.662       .0
5.994       .0

     RUNOFF VOLUME =     1.82653 INCHES     =        .2139 ACRE-FEET
     PEAK DISCHARGE RATE =       5.83 CFS  AT   1.499 HOURS   BASIN AREA =   .0022 SQ. MI.


****** COMBINE HYDROGRAPHS TR. 15-A/15-B & AP 2 - ANALYSIS POINT 3
ADD HYD              ID=1 HYD NO=101.6 ID=1 ID=7
PRINT HYD            ID=1 CODE=24

                                   PARTIAL HYDROGRAPH   101.60

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS           HRS       CFS           HRS       CFS           HRS       CFS
HRS       CFS
           .000      .0          1.332      10.2         2.664       .7          3.996       .2
5.328       .2
           .666      .0          1.998       8.6         3.330       .2          4.662       .2
5.994       .2

     RUNOFF VOLUME =     1.82657 INCHES     =       1.3030 ACRE-FEET
     PEAK DISCHARGE RATE =      35.53 CFS  AT   1.499 HOURS   BASIN AREA =   .0134 SQ. MI.


******-------------------------------------------------------------
****** BASIN 15-C DEVELOPED R/W AREA BETWEEN TRACTS 15 & 14

COMPUTE NM HYD       ID=9 HYD NO=100.9 AREA=0.0007533 SQ MI.
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                    PER A=00 PER B=10 PER C=0 PER D=90
                    TP=0.1333 HR MASS RAINFALL=-1

     K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    2.6767    CFS   UNIT VOLUME =    .9948       B =   526.28      P60 = 1.8700
     AREA =       .000678 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


     K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
     UNIT PEAK =    .18484    CFS   UNIT VOLUME =    .9232       B =   327.09      P60 = 1.8700
     AREA =       .000075 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

  PRINT HYD           ID=9 CODE=24

                                   PARTIAL HYDROGRAPH   100.90

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
           .000       .0          1.332       .6          2.664       .0          3.996       .0
5.328       .0
           .666       .0          1.998       .5          3.330       .0          4.662       .0
5.994       .0

     RUNOFF VOLUME =     1.82676 INCHES     =        .0734 ACRE-FEET
     PEAK DISCHARGE RATE =       2.01 CFS  AT   1.499 HOURS   BASIN AREA =    .0008 SQ. MI.


  ******COMBINE HYDROGRAPHS FOR 15-C(R/W) & AREAS BEFORE AP-3 - ANALSIS POINT 4
  ADD HYD             ID=1 HYD NO=101.7 ID=9 ID=1
  PRINT HYD           ID=1 CODE=24

                                   PARTIAL HYDROGRAPH   101.70

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
           .000       .0          1.332      10.8          2.664       .7          3.996       .2
5.328       .2
           .666       .0          1.998       9.1          3.330       .3          4.662       .2
5.994       .3

     RUNOFF VOLUME =     1.82656 INCHES     =      1.3763 ACRE-FEET
     PEAK DISCHARGE RATE =      37.54 CFS  AT   1.499 HOURS   BASIN AREA =    .0141 SQ. MI.


  ******-------------------------------------------------------------
  ****** AREA III-B
  ****** BASIN 21 DEVELOPED CONDITIONS TRACT 21 - 1.17 ACRES

  COMPUTE NM HYD      ID=10 HYD NO=100.10 AREA=0.0018328 SQ MI
                      PER A=0 PER B=10 PER C=0 PER D=90
                      TP=0.1333 HR MASS RAINFALL=-1

     K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    6.5124    CFS   UNIT VOLUME =    .9975       B =   526.28      P60 = 1.8700
     AREA =       .001650 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


     K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
     UNIT PEAK =    .44973    CFS   UNIT VOLUME =    .9700       B =   327.09      P60 = 1.8700
     AREA =       .000183 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

  PRINT HYD           ID=10 CODE=24

                                   PARTIAL HYDROGRAPH   100.10

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
           .000       .0          1.332       1.4          2.664       .1          3.996       .0
```

```
5.328          .0
            .666        ..0          1.998        1.2          3.330        .0          4.662        .0
5.994          .0

      RUNOFF VOLUME =      1.82676 INCHES      =        .1786 ACRE-FEET
      PEAK DISCHARGE RATE =        4.86 CFS  AT   1.499 HOURS   BASIN AREA =   .0018 SQ. MI.


****** BASIN 22 DEVELOPED CONDITIONS TRACT 22 - 0.90 ACRES

COMPUTE NM HYD       ID=11 HYD NO=100.11 AREA=0.00140625 SQ MI
                     PER A=0 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

      K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =    4.9968    CFS   UNIT VOLUME =    .9969       B =   526.28       P60 = 1.8700
      AREA =       .001266 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


      K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
      UNIT PEAK =    .34506    CFS   UNIT VOLUME =    .9612       B =   327.09       P60 = 1.8700
      AREA =       .000141 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD            ID=11 CODE=24

                                        PARTIAL HYDROGRAPH   100.11

            TIME      FLOW            TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME        FLOW
             HRS       CFS             HRS       CFS             HRS       CFS             HRS       CFS
HRS         CFS
             .000        .0           1.332       1.1           2.664        .1           3.996        .0
5.328         .0
             .666        .0           1.998        .9           3.330        .0           4.662        .0
5.994         .0

      RUNOFF VOLUME =      1.82676 INCHES      =        .1370 ACRE-FEET
      PEAK DISCHARGE RATE =        3.74 CFS  AT   1.499 HOURS   BASIN AREA =   .0014 SQ. MI.


****** COMBINE HYDROGRAPHS FOR BASINS 21 & 22  - ANALYSIS POINT 5
ADD HYD              ID=10 HYD NO=101.8 ID=10 ID=11
PRINT HYD            ID=10 CODE=24

                                        PARTIAL HYDROGRAPH   101.80

            TIME      FLOW            TIME      FLOW            TIME      FLOW            TIME      FLOW
TIME        FLOW
             HRS       CFS             HRS       CFS             HRS       CFS             HRS       CFS
HRS         CFS
             .000        .0           1.332       2.5           2.664        .2           3.996        .0
5.328         .0
             .666        .0           1.998       2.1           3.330        .1           4.662        .0
5.994         .1

      RUNOFF VOLUME =      1.82660 INCHES      =        .3155 ACRE-FEET
      PEAK DISCHARGE RATE =        8.60 CFS  AT   1.499 HOURS   BASIN AREA =   .0032 SQ. MI.


***** BASIN 23 DEVELOPED CONDITIONS TRACT 23 - 1.392 ACRES

COMPUTE NM HYD       ID=12 HYD NO=100.12 AREA=0.0021745 SQ MI
                     PER A=0 PER B=10 PER C=0 PER D=90
                     TP=0.1333 HR MASS RAINFALL=-1

      K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
      UNIT PEAK =    7.7265    CFS   UNIT VOLUME =    .9978       B =   526.28       P60 = 1.8700
      AREA =       .001957 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
      RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300


      K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
      UNIT PEAK =    .53357    CFS   UNIT VOLUME =    .9747       B =   327.09       P60 = 1.8700
      AREA =       .000217 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
```

```
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD          ID=12 CODE=24

                                   PARTIAL HYDROGRAPH   100.12

          TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
TIME      FLOW
           HRS      CFS             HRS      CFS             HRS      CFS             HRS      CFS
HRS       CFS
          .000       .0            1.332      1.7           2.664       .1           3.996       .0
5.328       .0
          .666       .0            1.998      1.4           3.330       .0           4.662       .0
5.994       .0

RUNOFF VOLUME =      1.82677 INCHES      =        .2119 ACRE-FEET
PEAK DISCHARGE RATE =       5.77 CFS  AT   1.499 HOURS   BASIN AREA =   .0022 SQ. MI.


***** COMBINE HYDROGRAPHS FOR AREAS BEFORE AP-5 & TR. 23 - ANALYSIS POINT 6
ADD HYD            ID=10 HYD NO=101.9 ID=10 ID=12
PRINT HYD          ID=10 CODE=24

                                   PARTIAL HYDROGRAPH   101.90

          TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
TIME      FLOW
           HRS      CFS             HRS      CFS             HRS      CFS             HRS      CFS
HRS       CFS
          .000       .0            1.332      4.1           2.664       .3           3.996       .1
5.328       .1
          .666       .0            1.998      3.5           3.330       .1           4.662       .1
5.994       .1

RUNOFF VOLUME =      1.82662 INCHES      =        .5274 ACRE-FEET
PEAK DISCHARGE RATE =      14.37 CFS  AT   1.499 HOURS   BASIN AREA =   .0054 SQ. MI.


******-------------------------------------------------------------
****** BASIN 23-A DEVELOPED R/W AREA BETWEEN TRACTS 12 & 23

COMPUTE NM HYD     ID=14 HYD NO=100.14 AREA=0.000684 SQ MI
                   PER A=00 PER B=10 PER C=0 PER D=90
                   TP=0.1333 HR MASS RAINFALL=-1

K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000    SHAPE CONSTANT, N =  7.106420
UNIT PEAK =   2.4304    CFS   UNIT VOLUME =    .9948       B =   526.28      P60 = 1.8700
AREA =      .000616 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685    SHAPE CONSTANT, N =  3.593448
UNIT PEAK =    .16784    CFS   UNIT VOLUME =    .9163       B =   327.09      P60 = 1.8700
AREA =      .000068 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033300

PRINT HYD          ID=14 CODE=24

                                   PARTIAL HYDROGRAPH   100.14

          TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
TIME      FLOW
           HRS      CFS             HRS      CFS             HRS      CFS             HRS      CFS
HRS       CFS
          .000       .0            1.332       .5           2.664       .0           3.996       .0
5.328       .0
          .666       .0            1.998       .4           3.330       .0           4.662       .0
5.994       .0

RUNOFF VOLUME =      1.82677 INCHES      =        .0666 ACRE-FEET
PEAK DISCHARGE RATE =       1.82 CFS  AT   1.499 HOURS   BASIN AREA =   .0007 SQ. MI.


****** COMBINE HYDROGRAPHS - R/W & AREA BEFORE AP-4
ADD HYD            ID=1 HYD NO=101.10 ID=1 ID=14
PRINT HYD          ID=1 CODE=24
```

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	11.3	2.664	.7	3.996	.2
5.328	.2						
.666	.0	1.998	9.5	3.330	.3	4.662	.2
5.994	.3						

RUNOFF VOLUME = 1.82655 INCHES = 1.4430 ACRE-FEET
PEAK DISCHARGE RATE = 39.36 CFS AT 1.499 HOURS BASIN AREA = .0148 SQ. MI.

***** COMBINE HYDROGRAPHS AREA BEFORE AP-4 & BEFORE AP-6 - ANALSIS POINT 7
ADD HYD ID=1 HYD NO=101.10 ID=1 ID=10
PRINT HYD ID=1 CODE=24

PARTIAL HYDROGRAPH 101.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	15.5	2.664	1.0	3.996	.3
5.328	.3						
.666	.0	1.998	13.0	3.330	.4	4.662	.3
5.994	.4						

RUNOFF VOLUME = 1.82656 INCHES = 1.9703 ACRE-FEET
PEAK DISCHARGE RATE = 53.73 CFS AT 1.499 HOURS BASIN AREA = .0202 SQ. MI.

****** ----------
****** AREA III-C
****** TRACTS 14, 13 & 12 (IN THAT ORDER)

****** BASIN 14 DEVELOPED CONDITIONS- TRACT 14 (1.19 ACRES)

COMPUTE NM HYD ID=20 HYD NO=100.20 AREA=0.0018594 SQ MI
PER A=0 PER B=10 PER C=0 PER D=90
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.6069 CFS UNIT VOLUME = .9975 B = 526.28 P60 = 1.8700
AREA = .001673 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

K = .130992HR TP = .133300HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593448
UNIT PEAK = .45625 CFS UNIT VOLUME = .9700 B = 327.09 P60 = 1.8700
AREA = .000186 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=20 CODE=24

PARTIAL HYDROGRAPH 100.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.4	2.664	.1	3.996	.0
5.328	.0						
.666	.0	1.998	1.2	3.330	.0	4.662	.0
5.994	.0						

RUNOFF VOLUME = 1.82676 INCHES = .1812 ACRE-FEET
PEAK DISCHARGE RATE = 4.93 CFS AT 1.499 HOURS BASIN AREA = .0019 SQ. MI.

****** BASIN 13 DEVELOPED CONDITIONS - TRACT 13 - 1.28 ACRES
COMPUTE NM HYD ID=21 HYD NO=100.21 AREA=0.00200 SQ MI
PER A=0 PER B=10 PER C=0 PER D=90

```
                    TP=0.1333 HR MASS RAINFALL=-1

K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =   7.1065    CFS   UNIT VOLUME =    .9978       B =   526.28       P60 = 1.8700
AREA =       .001800 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
UNIT PEAK =    .49075    CFS   UNIT VOLUME =    .9724       B =   327.09       P60 = 1.8700
AREA =       .000200 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=21 CODE=24

                                PARTIAL HYDROGRAPH   100.21

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
           .000       .0          1.332      1.5          2.664       .1          3.996       .0
5.328       .0
           .666       .0          1.998      1.3          3.330       .0          4.662       .0
5.994       .0

RUNOFF VOLUME =     1.82677 INCHES     =        .1949 ACRE-FEET
PEAK DISCHARGE RATE =       5.30 CFS  AT   1.499 HOURS   BASIN AREA =    .0020 SQ. MI.


****** COMBINE HYDROGRAPHS - BASINS  14  & 13   - ANALYSIS  POINT  8
ADD HYD             ID=20 HYD NO=101.20  ID=20  ID=21
PRINT HYD           ID=20 CODE=24

                                PARTIAL HYDROGRAPH   101.20

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
           .000       .0          1.332      3.0          2.664       .2          3.996       .1
5.328       .1
           .666       .0          1.998      2.5          3.330       .1          4.662       .1
5.994       .1

RUNOFF VOLUME =     1.82662 INCHES     =        .3760 ACRE-FEET
PEAK DISCHARGE RATE =      10.24 CFS  AT   1.499 HOURS   BASIN AREA =    .0039 SQ. MI.


******-------------------------------------------------------------------
****** BASIN 12 DEVELOPED CONDITIONS TRACT 12 - 1.68 ACRES
COMPUTE NM HYD      ID=22 HYD NO=100.22   AREA=0.002625 SQ MI
                    PER A=0 PER B=10 PER C=0 PER D=90
                    TP=0.1333 HR MASS RAINFALL=-1

K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
UNIT PEAK =   9.3273    CFS   UNIT VOLUME =    .9982       B =   526.28       P60 = 1.8700
AREA =       .002363 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300


K =    .130992HR    TP =    .133300HR    K/TP RATIO =    .982685     SHAPE CONSTANT, N =  3.593448
UNIT PEAK =    .64411    CFS   UNIT VOLUME =    .9787       B =   327.09       P60 = 1.8700
AREA =       .000263 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033300

PRINT HYD           ID=22 CODE=24

                                PARTIAL HYDROGRAPH   100.22

          TIME      FLOW          TIME      FLOW          TIME      FLOW          TIME      FLOW
TIME      FLOW
           HRS      CFS            HRS      CFS            HRS      CFS            HRS      CFS
HRS       CFS
           .000       .0          1.998      1.7          3.996       .0          5.994       .0
           .666       .0          2.664       .1          4.662       .0          6.660       .0
          1.332      2.0          3.330       .0          5.328       .0
```

```
RUNOFF VOLUME =     1.82677 INCHES     =        .2557 ACRE-FEET
PEAK DISCHARGE RATE =       6.96 CFS  AT   1.499 HOURS   BASIN AREA =   .0026 SQ. MI.
```

```
****** COMBINE HYDROGRAPHS - BASIN 12 & AREA BEFORE AP-8 -ANALYSIS POINT 9
ADD HYD              ID=20 HYD NO=101.22 ID=20 ID=22
PRINT HYD            ID=20 CODE=24
```

PARTIAL HYDROGRAPH 101.22

TIME HRS	TIME FLOW HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
	.000	.0	1.998	4.2	3.996	.1	5.994	.1
	.666	.0	2.664	.3	4.662	.1	6.660	.0
	1.332	5.0	3.330	.1	5.328	.1		

```
RUNOFF VOLUME =     1.82663 INCHES     =        .6317 ACRE-FEET
PEAK DISCHARGE RATE =      17.20 CFS  AT   1.499 HOURS   BASIN AREA =   .0065 SQ. MI.
```

```
****** COMBINE HYDROGRAPHS -ANALYSIS POINTS 7 - 9 - ANALYSIS POINT 10
ADD HYD              ID=1 HYD NO=101.23 ID=1 ID=20
PRINT HYD            ID=1 CODE=24
```

PARTIAL HYDROGRAPH 101.23

TIME HRS	TIME FLOW HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
	.000	.0	1.998	17.1	3.996	.4	5.994	.5
	.666	.0	2.664	1.3	4.662	.4	6.660	.0
	1.332	20.4	3.330	.5	5.328	.4		

```
RUNOFF VOLUME =     1.82658 INCHES     =       2.6020 ACRE-FEET
PEAK DISCHARGE RATE =      70.92 CFS  AT   1.499 HOURS   BASIN AREA =   .0267 SQ. MI.
```

```
FINISH

NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 15:23:18
```

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =10/22/2002
INPUT FILE = laderthr.txt USER NO.= M_GOODWN.I01

AREA III SUMMARY

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.190
COMPUTE NM HYD	100.23	-	23	.00142	3.78	.139	1.82677	1.499	4.149	PER IMP= 90.00
COMPUTE NM HYD	100.24	-	24	.00093	2.47	.091	1.82676	1.499	4.158	PER IMP= 90.00
ADD HYD	101.24	23&24	23	.00235	6.26	.229	1.82652	1.499	4.153	
COMPUTE NM HYD	100.10	-	1	.00180	4.77	.175	1.82677	1.499	4.146	PER IMP= 90.00
ADD HYD	101.24	1&23	23	.00415	11.02	.404	1.82656	1.499	4.150	
COMPUTE NM HYD	100.20	-	2	.00180	4.77	.175	1.82677	1.499	4.146	PER IMP= 90.00
ADD HYD	101.10	2&23	1	.00595	15.79	.579	1.82658	1.499	4.148	
COMPUTE NM HYD	100.30	-	3	.00084	2.24	.082	1.82676	1.499	4.162	PER IMP= 90.00
ADD HYD	101.20	1& 3	1	.00679	18.03	.661	1.82657	1.499	4.150	
COMPUTE NM HYD	100.40	-	4	.00180	4.77	.175	1.82677	1.499	4.146	PER IMP= 90.00
COMPUTE NM HYD	100.50	-	5	.00188	4.97	.183	1.82677	1.499	4.146	PER IMP= 90.00
COMPUTE NM HYD	100.60	-	6	.00072	1.92	.070	1.82676	1.499	4.167	PER IMP= 90.00
ADD HYD	101.30	4& 5	4	.00367	9.74	.358	1.82662	1.499	4.146	
ADD HYD	101.40	4& 6	4	.00439	11.67	.428	1.82659	1.499	4.149	
ADD HYD	102.40	1& 4	1	.01118	29.69	1.089	1.82657	1.499	4.150	
COMPUTE NM HYD	100.70	-	7	.00194	5.14	.189	1.82676	1.499	4.144	PER IMP= 90.00
COMPUTE NM HYD	100.80	-	8	.00026	.70	.025	1.82677	1.499	4.215	PER IMP= 90.00
ADD HYD	101.50	8& 7	7	.00220	5.83	.214	1.82653	1.499	4.153	
ADD HYD	101.60	1& 7	1	.01338	35.53	1.303	1.82657	1.499	4.150	
COMPUTE NM HYD	100.90	-	9	.00075	2.01	.073	1.82676	1.499	4.167	PER IMP= 90.00
ADD HYD	101.70	9& 1	1	.01413	37.54	1.376	1.82656	1.499	4.151	
COMPUTE NM HYD	100.10	-	10	.00183	4.86	.179	1.82676	1.499	4.146	PER IMP= 90.00
COMPUTE NM HYD	100.11	-	11	.00141	3.74	.137	1.82676	1.499	4.150	PER IMP= 90.00
ADD HYD	101.80	10&11	10	.00324	8.60	.316	1.82660	1.499	4.148	
COMPUTE NM HYD	100.12	-	12	.00217	5.77	.212	1.82677	1.499	4.144	PER IMP= 90.00
ADD HYD	101.90	10&12	10	.00541	14.37	.527	1.82662	1.499	4.146	
COMPUTE NM HYD	100.14	-	14	.00068	1.82	.067	1.82677	1.499	4.169	PER IMP= 90.00
ADD HYD	101.10	1&14	1	.01481	39.36	1.443	1.82655	1.499	4.152	

```
    ADD HYD              101.10  1&10   1        .02023        53.73       1.970      1.82656    1.499    4.150
    COMPUTE NM HYD       100.20   -    20        .00186         4.93        .181      1.82676    1.499    4.146 PER IMP=
90.00
    COMPUTE NM HYD       100.21   -    21        .00200         5.30        .195      1.82677    1.499    4.144 PER IMP=
90.00
    ADD HYD              101.20 20&21  20        .00386        10.24        .376      1.82662    1.499    4.145
    COMPUTE NM HYD       100.22   -    22        .00263         6.96        .256      1.82677    1.499    4.141 PER IMP=
90.00
    ADD HYD              101.22 20&22  20        .00648        17.20        .632      1.82663    1.499    4.144
    ADD HYD              101.23  1&20   1        .02671        70.92       2.602      1.82658    1.499    4.149
    FINISH
```

INTERIM

```
AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
     RUN DATE (MON/DAY/YR) = 04/02/2002
     START TIME (HR:MIN:SEC) = 11:26:29     USER NO.= M_GOODWN.I01
     INPUT FILE = LADERUND.TXT


   START                    TIME=0.0

 ****** LADERA BUSINESS PARK-PHASE II UNDEVELOPED  INPUT FILE: AHYMO\LADERUN
D.TXT
 ****** (INTERIUM CONDITION)

 ******APRIL 2, 2002

 RAINFALL                 TYPE=1 RAIN QUARTER=0.0 IN

                          RAIN ONE=1.87 IN RAIN SIX=2.19 IN

                          RAIN DAY=2.62 IN DT=0.0333 HR


                     COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2
- PEAK AT 1.40 HR.
                     DT =     .033300 HOURS        END TIME =     5.994000 HOURS
                        .0000   .0015   .0031   .0047   .0063   .0080   .0097
                        .0114   .0132   .0151   .0169   .0189   .0209   .0229
                        .0250   .0271   .0294   .0317   .0340   .0365   .0390
                        .0417   .0444   .0473   .0502   .0533   .0566   .0600
                        .0636   .0673   .0713   .0765   .0820   .0879   .1000
                        .1280   .1711   .2330   .3177   .4291   .5713   .7484
                        .9647  1.1723  1.2575  1.3292  1.3929  1.4508  1.5041
                       1.5535  1.5997  1.6430  1.6838  1.7222  1.7586  1.7929
                       1.8255  1.8564  1.8857  1.9135  1.9399  1.9471  1.9528
                       1.9582  1.9633  1.9682  1.9729  1.9774  1.9818  1.9859
                       1.9900  1.9939  1.9977  2.0013  2.0049  2.0083  2.0117
                       2.0150  2.0182  2.0213  2.0243  2.0273  2.0302  2.0331
                       2.0359  2.0386  2.0413  2.0439  2.0465  2.0490  2.0515
                       2.0539  2.0563  2.0587  2.0610  2.0633  2.0656  2.0678
                       2.0699  2.0721  2.0742  2.0763  2.0784  2.0804  2.0824
                       2.0844  2.0863  2.0883  2.0902  2.0921  2.0939  2.0958
                       2.0976  2.0994  2.1012  2.1029  2.1046  2.1064  2.1081
                       2.1097  2.1114  2.1131  2.1147  2.1163  2.1179  2.1195
                       2.1211  2.1226  2.1242  2.1257  2.1272  2.1287  2.1302
                       2.1316  2.1331  2.1346  2.1360  2.1374  2.1388  2.1402
                       2.1416  2.1430  2.1444  2.1457  2.1471  2.1484  2.1497
                       2.1510  2.1523  2.1536  2.1549  2.1562  2.1575  2.1587
                       2.1600  2.1612  2.1625  2.1637  2.1649  2.1661  2.1673
                       2.1685  2.1697  2.1709  2.1720  2.1732  2.1743  2.1755
                       2.1766  2.1778  2.1789  2.1800  2.1811  2.1822  2.1833
                       2.1844  2.1855  2.1866  2.1877  2.1887  2.1898

 ****** BASIN A-1 EXIST.OFFSITE DEVELOPED R/W - UNSER BL. OFFSITE (0.91139 A
CS)
 COMPUTE NM HYD           ID=1 HYD NO=100.1 AREA=0.001424 SQ MI

                          PER A=00 PER B=10 PER C=00 PER D=90

                          TP=0.1333 HR MASS RAINFALL=-1
```

```
        K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000     SHAPE
CONSTANT, N =  7.106420
        UNIT PEAK =    5.0598     CFS    UNIT VOLUME =     .9972        B =    526.28
     P60 = 1.8700
        AREA =       .001282 SQ MI     IA =     .10000 INCHES     INF =     .04000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033300

        K =    .130992HR     TP =    .133300HR     K/TP RATIO =    .982685     SHAPE
CONSTANT, N =  3.593448
        UNIT PEAK =    .34942     CFS    UNIT VOLUME =     .9612        B =    327.09
     P60 = 1.8700
        AREA =       .000142 SQ MI     IA =     .50000 INCHES     INF =    1.25000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033300

     PRINT HYD              ID=1 CODE=24

                                        PARTIAL HYDROGRAPH    100.10

        TIME       FLOW          TIME       FLOW          TIME       FLOW          TIME       FLOW
       HRS        CFS           HRS        CFS           HRS        CFS           HRS        CFS
      .000         .0          1.332        1.1          2.664         .1          3.996         .0
      .666         .0          1.998         .9          3.330         .0          4.662         .0
      5.328         .0          5.994         .0

        RUNOFF VOLUME =      1.82677 INCHES      =          .1387 ACRE-FEET
        PEAK DISCHARGE RATE =        3.78 CFS   AT    1.499 HOURS    BASIN AREA =
.0014 SQ. MI.


     ****** ANALYSIS POINT 1


     ****** BASIN A-2 (1.408 ACS) LOT 1 - OFFSITE (UNDEVELOPED)

     ****** 3:1 & 5:1 SLOPE AREAS

     COMPUTE NM HYD       ID=2 HYD NO=100.2 AREA=0.0022 SQ MI

                          PER A=00 PER B=0 PER C=100 PER D=0

                          TP=0.1333 HR MASS RAINFALL=-1

        K =    .105867HR     TP =    .133300HR     K/TP RATIO =    .794199     SHAPE
CONSTANT, N =  4.514851
        UNIT PEAK =    6.4059     CFS    UNIT VOLUME =     .9984        B =    388.14
     P60 = 1.8700
        AREA =       .002200 SQ MI     IA =     .35000 INCHES     INF =     .83000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
```

= .033300

PRINT HYD ID=2 CODE=24

PARTIAL HYDROGRAPH 100.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.3	2.664	.0
.666	.0	1.998	.5	3.330	.0

RUNOFF VOLUME = .99109 INCHES = .1163 ACRE-FEET
PEAK DISCHARGE RATE = 4.04 CFS AT 1.499 HOURS BASIN AREA = .0022 SQ. MI.

****** BASIN A-3

****** REMAINING UNDEVELOPED AREA LOT 1 - OFFSITE (8.676 ACS)

COMPUTE NM HYD ID=3 HYD NO=100.3 AREA=0.01355625 SQ MI

PER A=100 PER B=0 PER C=0 PER D=0

TP=0.1333 HR MASS RAINFALL=-1

K = .163684HR TP = .133300HR K/TP RATIO = 1.227936 SHAPE CONSTANT, N = 2.899764
UNIT PEAK = 27.819 CFS UNIT VOLUME = .9991 B = 273.54
P60 = 1.8700
AREA = .013556 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033300

PRINT HYD ID=3 CODE=24

PARTIAL HYDROGRAPH 100.30

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	.0	2.664	.3
.666	.0	1.998	1.1	3.330	.1
3.996	.0				
4.662	.0				

RUNOFF VOLUME = .43624 INCHES = .3154 ACRE-FEET
PEAK DISCHARGE RATE = 11.20 CFS AT 1.532 HOURS BASIN AREA = .0136 SQ. MI.

```
****** COMBINE HYDROGRAPHS FOR BASINS A-2 & A-3,

ADD HYD                ID=2 HYD NO=101.1 ID=2 ID=3

PRINT HYD              ID=2 CODE=24

                                   PARTIAL HYDROGRAPH   101.10

      TIME       FLOW          TIME       FLOW          TIME       FLOW
TIME       FLOW       TIME       FLOW       TIME       FLOW
      HRS        CFS          HRS        CFS          HRS        CFS
 HRS        CFS       HRS        CFS
      .000        .0          1.332        .3          2.664        .3
3.996        .0       .666        .0          1.998       1.6          3.330        .1
4.662        .0

    RUNOFF VOLUME =       .51370 INCHES      =        .4317 ACRE-FEET
    PEAK DISCHARGE RATE =      15.17 CFS  AT   1.532 HOURS   BASIN AREA =
.0158 SQ. MI.


***** ANALYSIS POINT 2


****** COMBINE HYDROGRAPHS FOR BASINS A-1 & A-2/3,

ADD HYD                ID=1 HYD NO=101.2 ID=1 ID=2

PRINT HYD              ID=1 CODE=24

                                   PARTIAL HYDROGRAPH   101.20

      TIME       FLOW          TIME       FLOW          TIME       FLOW
TIME       FLOW       TIME       FLOW       TIME       FLOW
      HRS        CFS          HRS        CFS          HRS        CFS
 HRS        CFS       HRS        CFS
      .000        .0          1.332       1.4          2.664        .4
3.996        .0       .666        .0          5.328        .0
                                             1.998       2.5          3.330        .1
4.662        .0                             5.994        .0

    RUNOFF VOLUME =       .62252 INCHES      =        .5704 ACRE-FEET
    PEAK DISCHARGE RATE =      18.79 CFS  AT   1.532 HOURS   BASIN AREA =
.0172 SQ. MI.


****** BASIN A-4 EXISTING 3:1 CHANNEL & PROPOSED 5:1 SLOPES  (2.22 ACS)

COMPUTE NM HYD         ID=4 HYD NO=100.4 AREA=0.00346875 SQ MI
```

```
                    PER A=0 PER B=0 PER C=100 PER D=0

                    TP=0.1333 HR MASS RAINFALL=-1

        K =    .105867HR    TP =    .133300HR    K/TP RATIO =    .794199     SHAPE
 CONSTANT, N =  4.514851
        UNIT PEAK =    10.100    CFS   UNIT VOLUME =    .9991        B =    388.14
     P60 = 1.8700
        AREA =       .003469 SQ MI    IA =    .35000 INCHES    INF =    .83000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033300

     PRINT HYD            ID=4 CODE=24

                                   PARTIAL HYDROGRAPH   100.40

        TIME       FLOW            TIME       FLOW            TIME       FLOW
  TIME       FLOW            TIME       FLOW
        HRS        CFS             HRS        CFS             HRS        CFS
   HRS        CFS             HRS        CFS
        .000        .0            1.332        .4            2.664        .1
        .666        .0            1.998        .8            3.330        .0

        RUNOFF VOLUME =       .99109 INCHES     =        .1834 ACRE-FEET
        PEAK DISCHARGE RATE =       6.37 CFS  AT   1.499 HOURS   BASIN AREA =
.0035 SQ. MI.


     ****** BASIN A-5 REMAINING UNDEVELOPED CONDITION -  (8.717 ACS)

     COMPUTE NM HYD       ID=5 HYD NO=100.5 AREA=0.013620313 SQ MI

                          PER A=100 PER B=0 PER C=0 PER D=0

                          TP=0.1333 HR MASS RAINFALL=-1

        K =    .163684HR    TP =    .133300HR    K/TP RATIO =  1.227936     SHAPE
 CONSTANT, N =  2.899764
        UNIT PEAK =    27.950    CFS   UNIT VOLUME =    .9991        B =    273.54
     P60 = 1.8700
        AREA =       .013620 SQ MI    IA =    .65000 INCHES    INF =   1.67000 I
NCHES PER HOUR
        RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033300

     PRINT HYD            ID=5 CODE=24

                                   PARTIAL HYDROGRAPH   100.50

        TIME       FLOW            TIME       FLOW            TIME       FLOW
  TIME       FLOW            TIME       FLOW
        HRS        CFS             HRS        CFS             HRS        CFS
   HRS        CFS             HRS        CFS
        .000        .0            1.332        .0            2.664        .3
```

```
3.996          .0
      .666          .0          1.998        1.1          3.330        .1
4.662          .0

    RUNOFF VOLUME =       .43624 INCHES     =        .3169 ACRE-FEET
    PEAK DISCHARGE RATE =      11.25 CFS  AT   1.532 HOURS   BASIN AREA =
.0136 SQ. MI.


****** COMBINE HYDROGRAPHS - BASINS A-4 & A-5

ADD HYD              ID=4 HYD NO=101.3 ID=4 ID=5

PRINT HYD            ID=4 CODE=24

                                   PARTIAL HYDROGRAPH   101.30

     TIME       FLOW            TIME       FLOW            TIME       FLOW
TIME       FLOW            TIME       FLOW
      HRS        CFS             HRS        CFS             HRS        CFS
 HRS        CFS             HRS        CFS
      .000          .0          1.332        .4          2.664        .3
3.996          .0
      .666          .0          1.998        1.9          3.330        .1
4.662          .0

    RUNOFF VOLUME =       .54885 INCHES     =        .5002 ACRE-FEET
    PEAK DISCHARGE RATE =      17.51 CFS  AT   1.532 HOURS   BASIN AREA =
.0171 SQ. MI.


*** ANALYSIS POINT 3


****** COMBINE HYDROGRAPHS - BASINS A-1 - A-5

ADD HYD              ID=1 HYD NO=101.4 ID=1 ID=4

PRINT HYD            ID=1 CODE=24

                                   PARTIAL HYDROGRAPH   101.40

     TIME       FLOW            TIME       FLOW            TIME       FLOW
TIME       FLOW            TIME       FLOW
      HRS        CFS             HRS        CFS             HRS        CFS
 HRS        CFS             HRS        CFS
      .000          .0          1.332        1.8          2.664        .7
3.996          .1          5.328          .0
      .666          .0          1.998        4.3          3.330        .2
4.662          .0          5.994          .0

    RUNOFF VOLUME =       .58578 INCHES     =       1.0706 ACRE-FEET
    PEAK DISCHARGE RATE =      36.30 CFS  AT   1.532 HOURS   BASIN AREA =
```

```
.0343 SQ. MI.


      ****** BASIN A-6  PROPOSED 3:1 & 5:1 SLOPES (UNDEVELOPED) (0.676 ACS)

      COMPUTE NM HYD        ID=6 HYD NO=100.6 AREA=0.00105625 SQ MI
                            PER A=0 PER B=0 PER C=100 PER D=0
                            TP=0.1333 HR MASS RAINFALL=-1

          K =    .105867HR    TP =    .133300HR    K/TP RATIO =    .794199     SHAPE
 CONSTANT, N =  4.514851
          UNIT PEAK =    3.0756    CFS   UNIT VOLUME =    .9962        B =    388.14
       P60 = 1.8700
          AREA =       .001056 SQ MI    IA =    .35000 INCHES    INF =    .83000 I
NCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033300

      PRINT HYD             ID=6 CODE=24


                                          PARTIAL HYDROGRAPH   100.60

          TIME       FLOW            TIME       FLOW            TIME       FLOW
      TIME       FLOW            TIME       FLOW
            HRS        CFS             HRS        CFS             HRS        CFS
       HRS        CFS             HRS        CFS
            .000        .0             .666        .0            1.332        .1
      1.998        .2            2.664        .0

          RUNOFF VOLUME =       .99109 INCHES     =        .0558 ACRE-FEET
          PEAK DISCHARGE RATE =       1.94 CFS  AT   1.499 HOURS   BASIN AREA =
  .0011 SQ. MI.


      ****** BASIN A-7 REMAINING UNDEVELOPED CONDITIONS - OFFSITE & ONSITE

      ****** (11.080 ACS)

      COMPUTE NM HYD        ID=7 HYD NO=100.7 AREA=0.0173125 SQ MI
                            PER A=100 PER B=0 PER C=0 PER D=0
                            TP=0.1333 HR MASS RAINFALL=-1

          K =    .163684HR    TP =    .133300HR    K/TP RATIO =  1.227936     SHAPE
 CONSTANT, N =  2.899764
          UNIT PEAK =   35.527    CFS   UNIT VOLUME =    .9992        B =    273.54
       P60 = 1.8700
          AREA =       .017313 SQ MI    IA =    .65000 INCHES    INF =   1.67000 I
```

```
NCHES PER HOUR
          RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT
=    .033300

     PRINT HYD              ID=7 CODE=24

                                        PARTIAL HYDROGRAPH   100.70

          TIME       FLOW          TIME       FLOW          TIME       FLOW
TIME       FLOW       CFS      TIME       FLOW       CFS      TIME       CFS
 HRS       CFS                  HRS       CFS                 HRS
       .000          .0            1.332        .0            2.664        .3
3.996          .0
       .666          .0            1.998       1.3            3.330        .1
4.662          .0

          RUNOFF VOLUME =       .43624 INCHES     =        .4028 ACRE-FEET
          PEAK DISCHARGE RATE =      14.30 CFS  AT   1.532 HOURS   BASIN AREA =
.0173 SQ. MI.


     ****** COMBINE HYDROGRAPHS - BASINS A-6 & A-7

     ADD HYD                ID=6 HYD NO=101.5 ID=6  ID=7

     PRINT HYD              ID=6 CODE=24

                                        PARTIAL HYDROGRAPH   101.50

          TIME       FLOW          TIME       FLOW          TIME       FLOW
TIME       FLOW       CFS      TIME       FLOW       CFS      TIME       CFS
 HRS       CFS                  HRS       CFS                 HRS
       .000          .0            1.332        .1            2.664        .4
3.996          .0
       .666          .0            1.998       1.6            3.330        .1
4.662          .0

          RUNOFF VOLUME =       .46813 INCHES     =        .4586 ACRE-FEET
          PEAK DISCHARGE RATE =      16.21 CFS  AT   1.532 HOURS   .BASIN AREA =
.0184 SQ. MI.


     ****  ANALYSIS POINT 4


     ****** COMBINE HYDROGRAPHS - BASINS A-1 - A-7

     ADD HYD                ID=6 HYD NO=101.6 ID=1 ID=6

     PRINT HYD              ID=6 CODE=24

                                        PARTIAL HYDROGRAPH   101.60
```

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.332	1.9	2.664	1.1
3.996	.1	5.328	.0	3.330	.3
.666	.0	1.998	5.9		
4.662	.0	5.994	.0		

RUNOFF VOLUME = .54473 INCHES = 1.5292 ACRE-FEET
PEAK DISCHARGE RATE = 52.51 CFS AT 1.532 HOURS BASIN AREA = .0526 SQ. MI.

****** UNDEVELOPED RUNOFF TO BE DETAINED WITHIN POND

******ROUTE THROUGH PONDING AREA.

ROUTE RESERVOIR ID=10 HYD NO=102.1 INFLOW ID=6 CODE=24

OUTFLOW(CFS)	STORAGE(AC-FT)	ELEV(FT)
0.0	0.0	72.0
0.1	0.563	73.0
0.2	1.628	74.0
67.5	1.988	74.67

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	72.00	.000	.00
.80	.00	72.00	.000	.00
1.60	42.19	73.18	.755	.12
2.40	2.00	73.82	1.439	.18
3.20	.34	73.87	1.488	.19
4.00	.08	73.87	1.487	.19
4.80	.02	73.86	1.478	.19
5.59	.02	73.85	1.467	.18
6.39	.00	73.84	1.456	.18
7.19	.00	73.83	1.444	.18
7.99	.00	73.82	1.432	.18
8.79	.00	73.80	1.420	.18
9.59	.00	73.79	1.408	.18
10.39	.00	73.78	1.396	.18
11.19	.00	73.77	1.384	.18
11.99	.00	73.76	1.373	.18
12.79	.00	73.75	1.361	.17
13.59	.00	73.74	1.350	.17

```
      14.39        .00     73.73      1.338        .17
      15.18        .00     73.72      1.327        .17
      15.98        .00     73.71      1.315        .17
      16.78        .00     73.70      1.304        .17
      17.58        .00     73.69      1.293        .17
      18.38        .00     73.68      1.282        .17
      19.18        .00     73.66      1.271        .17
   PEAK DISCHARGE =          .187 CFS - PEAK OCCURS AT HOUR    3.50
   MAXIMUM WATER SURFACE ELEVATION =       73.870
   MAXIMUM STORAGE =        1.4895 AC-FT      INCREMENTAL TIME=    .033300HR
S

  PRINT HYD            ID=10 CODE=24

                                          PARTIAL HYDROGRAPH   102.10
      TIME       FLOW            TIME       FLOW            TIME       FLOW
 TIME       FLOW            TIME       FLOW
      HRS        CFS             HRS        CFS             HRS        CFS
  HRS        CFS             HRS        CFS
      .000        .0          3.996        .2            7.992        .2
 11.988        .2          15.984        .2
      .666        .0          4.662        .2            8.658        .2
 12.654        .2          16.650        .2
     1.332        .0          5.328        .2            9.324        .2
 13.320        .2          17.316        .2
     1.998        .2          5.994        .2            9.990        .2
 13.986        .2          17.982        .2
     2.664        .2          6.660        .2           10.656        .2
 14.652        .2          18.648        .2
     3.330        .2          7.326        .2           11.322        .2
 15.318        .2          19.314        .2

      RUNOFF VOLUME =      .09583 INCHES     =        .2690 ACRE-FEET
      PEAK DISCHARGE RATE =        .19 CFS  AT   3.497 HOURS   BASIN AREA =
.0526 SQ. MI.


  *****  ANALYSIS POINT 5


  FINISH

      NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 11:26:29
```

APPENDIX B

STREET CAPACITY NOMOGRAPHS

INLET CAPACITY CALCULATIONS

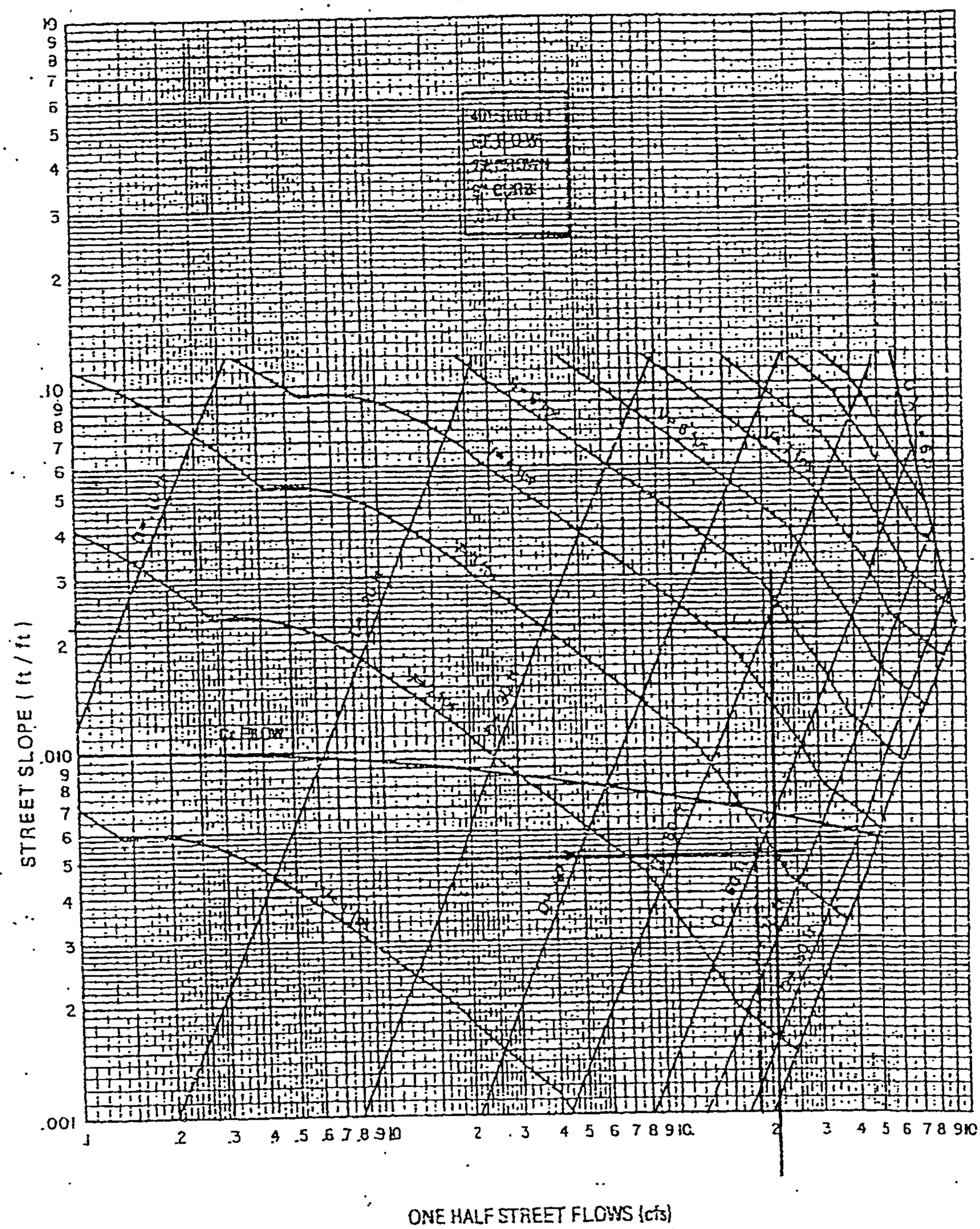
STORM DRAIN ANALYSES

PRIVATE DRIVEWAY CAPACITY CALCULATIONS

STREET CAPACITIES

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: VISTA ORIENTE ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: A.P.-1 AREA T

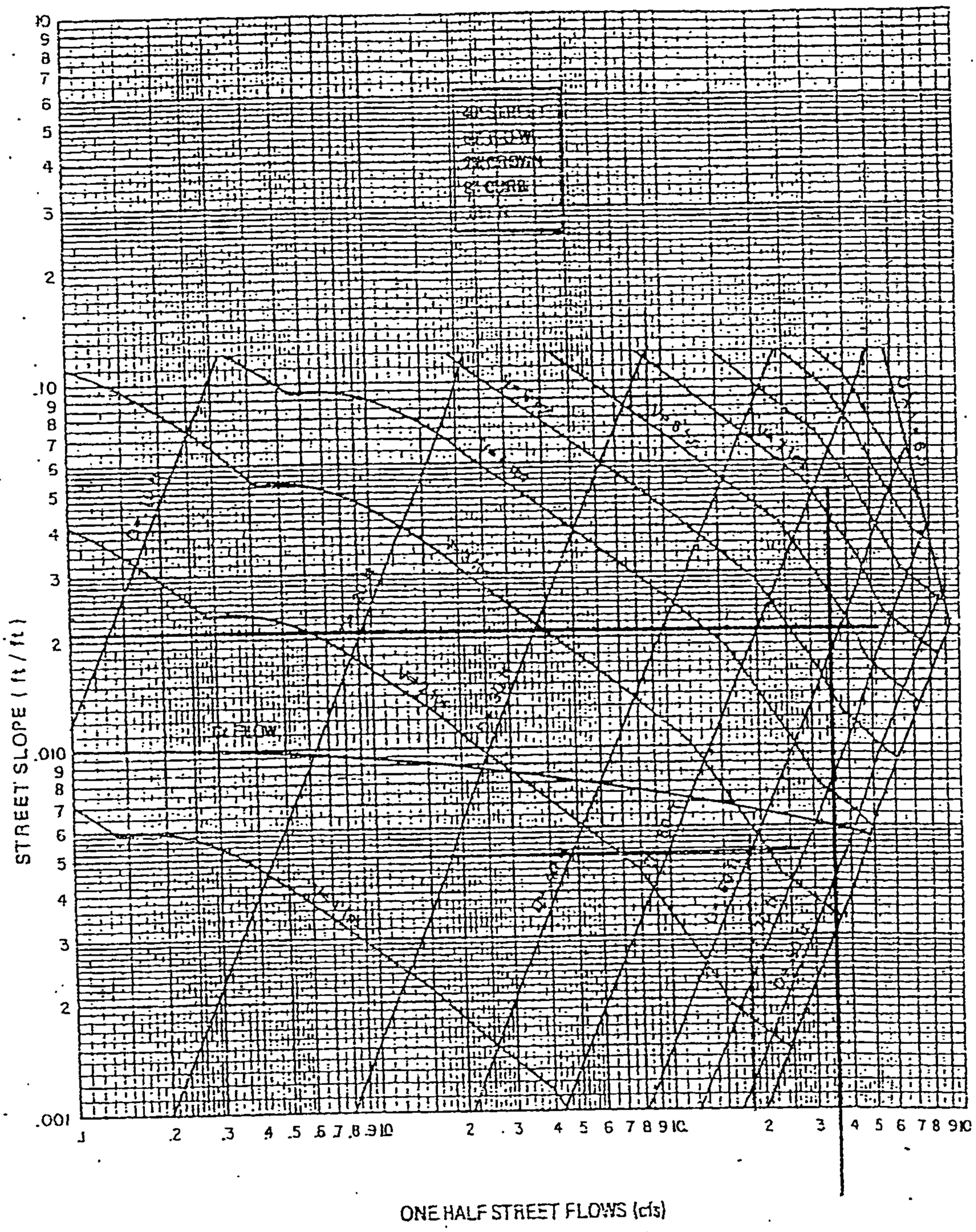
STREET GRADE = 2.2 %

"Q" = 21.21 C.F.S.

D = 0.51' (FULL ST.)

STREET · CAPACITY

40' C.F. TO C.F.



STREET NAME: VISTA ORIENTE ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: A.P.-2 AREA I

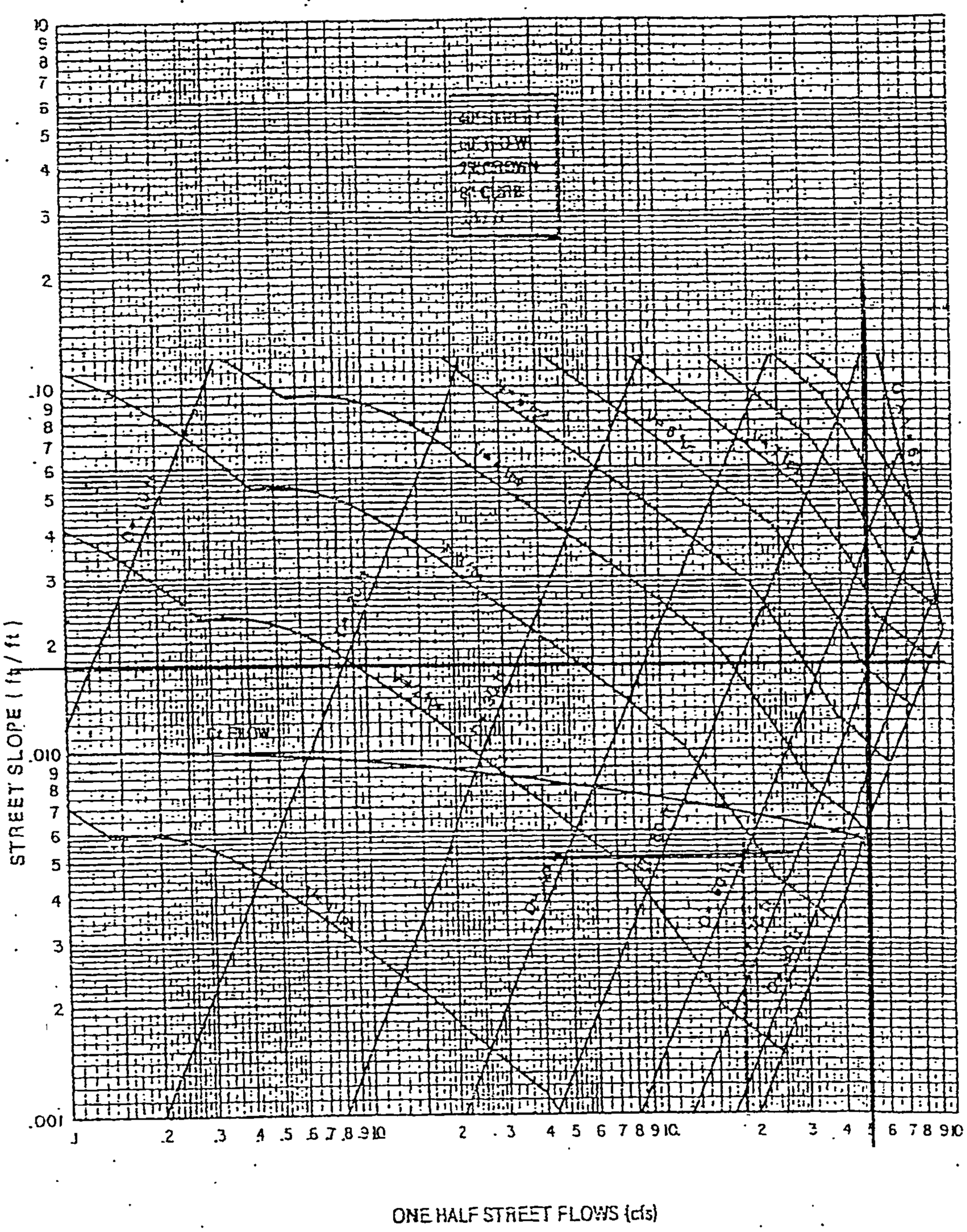
STREET GRADE = 2.08 %

"Q" = 35.63 C.F.S.

D = 0.585 (FULL ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: VISTA ORIENTE ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: A.P-3 AREA I

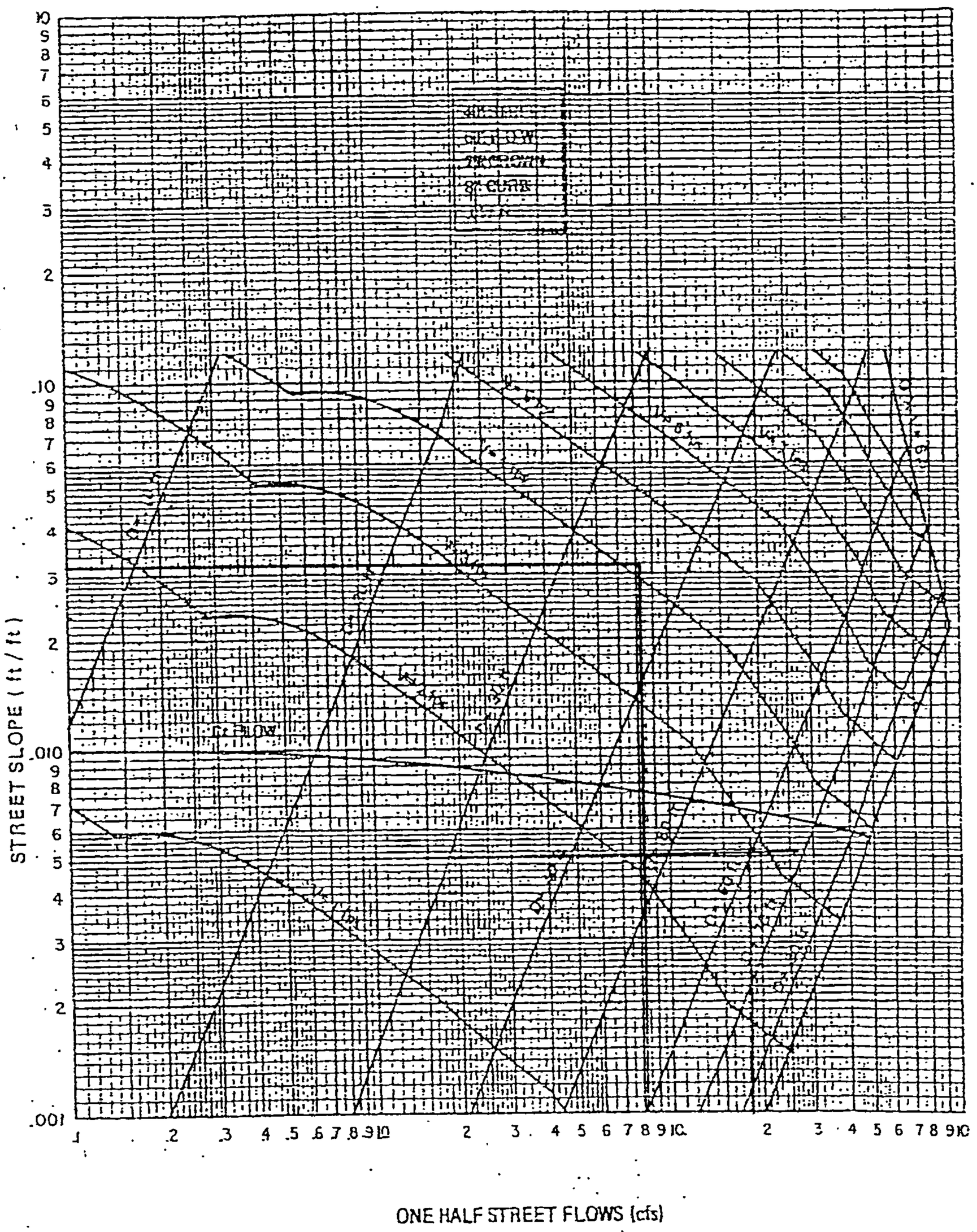
STREET GRADE = 1.74 %

"Q" = 50.16 C.F.S.

D = 0.70' (FULL ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: A.P.-7 AREA I

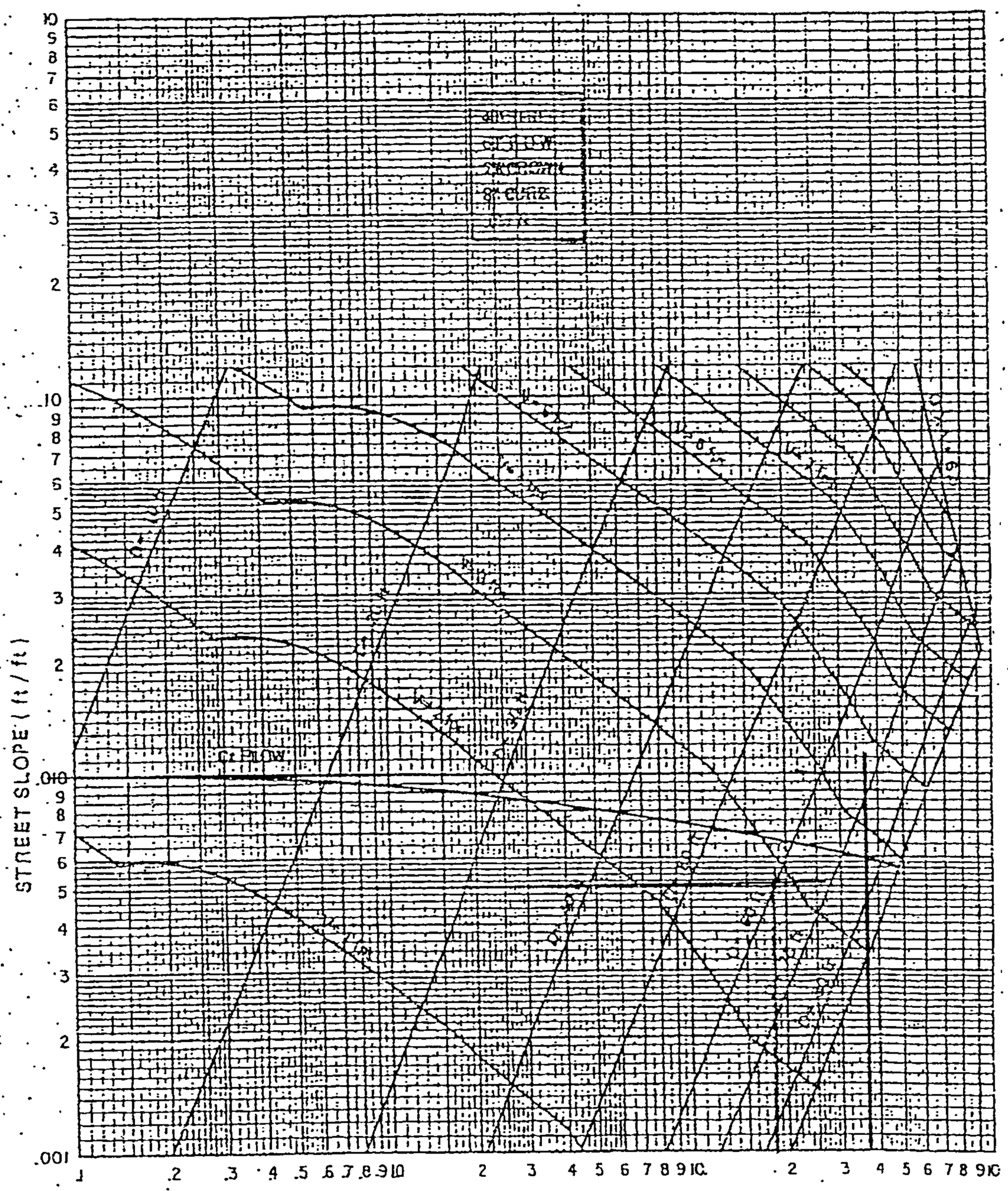
STREET GRADE = 3.22 %

"Q" = 8.20 C.F.S.

D = 0.36' (FULL ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: A.P.-9-A AREA I

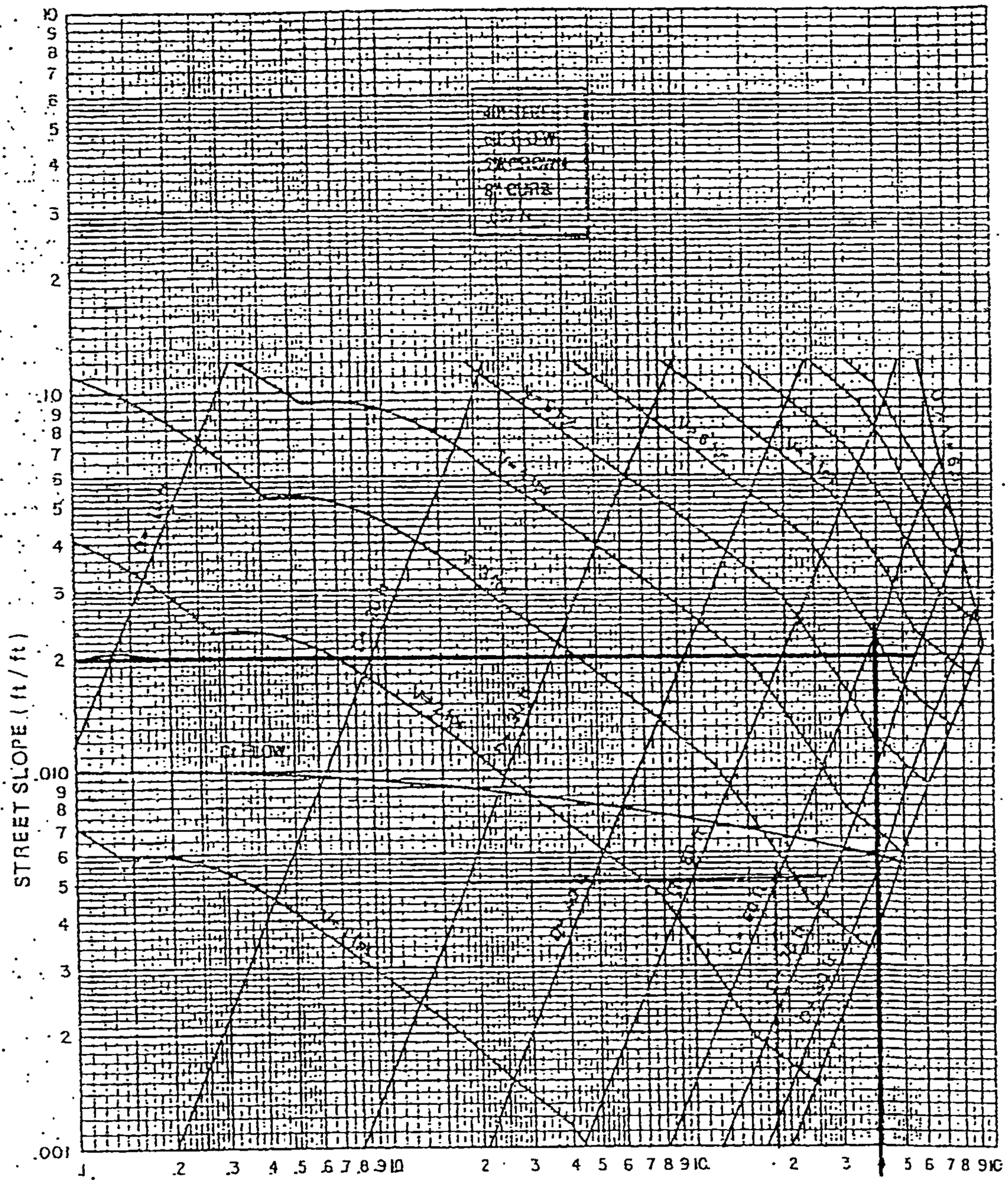
STREET GRADE = 1.00%

"Q" = 36.66 C.F.S.

D = 0.68' (FULL ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: A.P.-10 AREA I

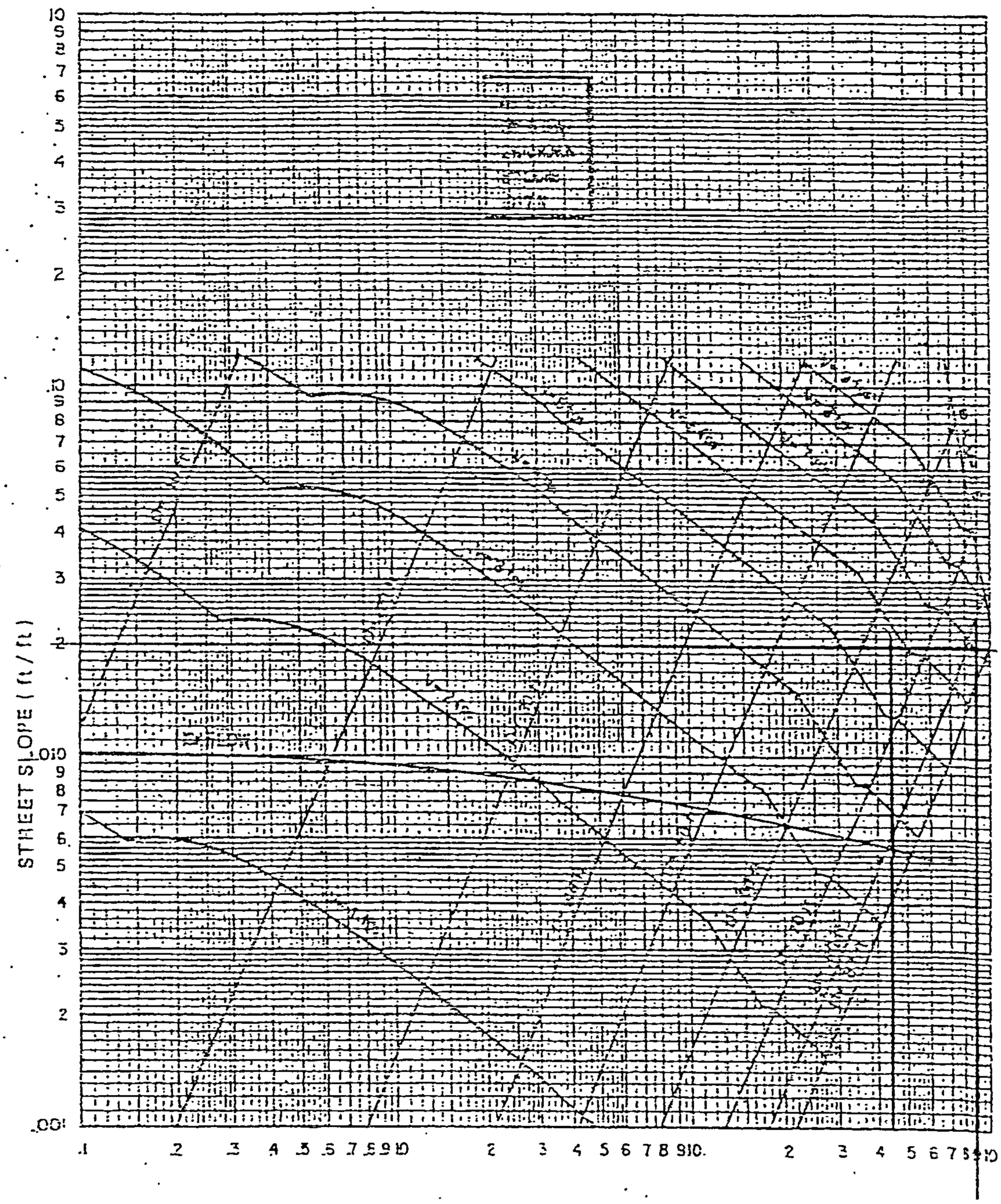
STREET GRADE = 2.00%

"Q" = 38.65 C.F.S.

D = 0.61' (FULL ST.)

STREET CAPACITY

48' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-3

ST. CROSS SECTION LOCATION: A.P.-11 AREA I

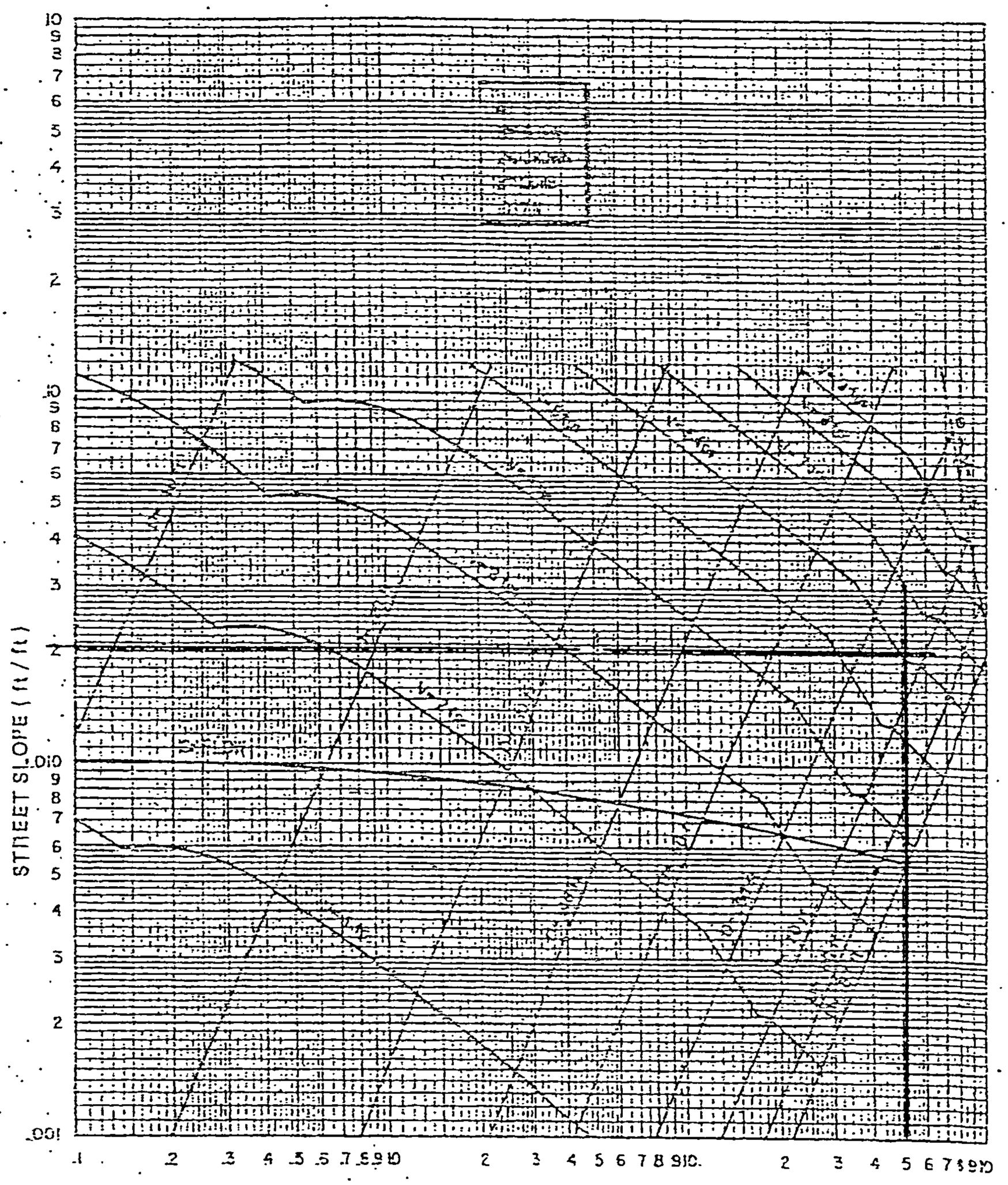
STREET GRADE = 2.00%

"Q" = 88.65 C.F.S. (44.325 HALF)

D = 0.64' (HALF ST.)

STREET CAPACITY

48' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-3

ST. CROSS SECTION LOCATION: E/O A.P.73 AREA I

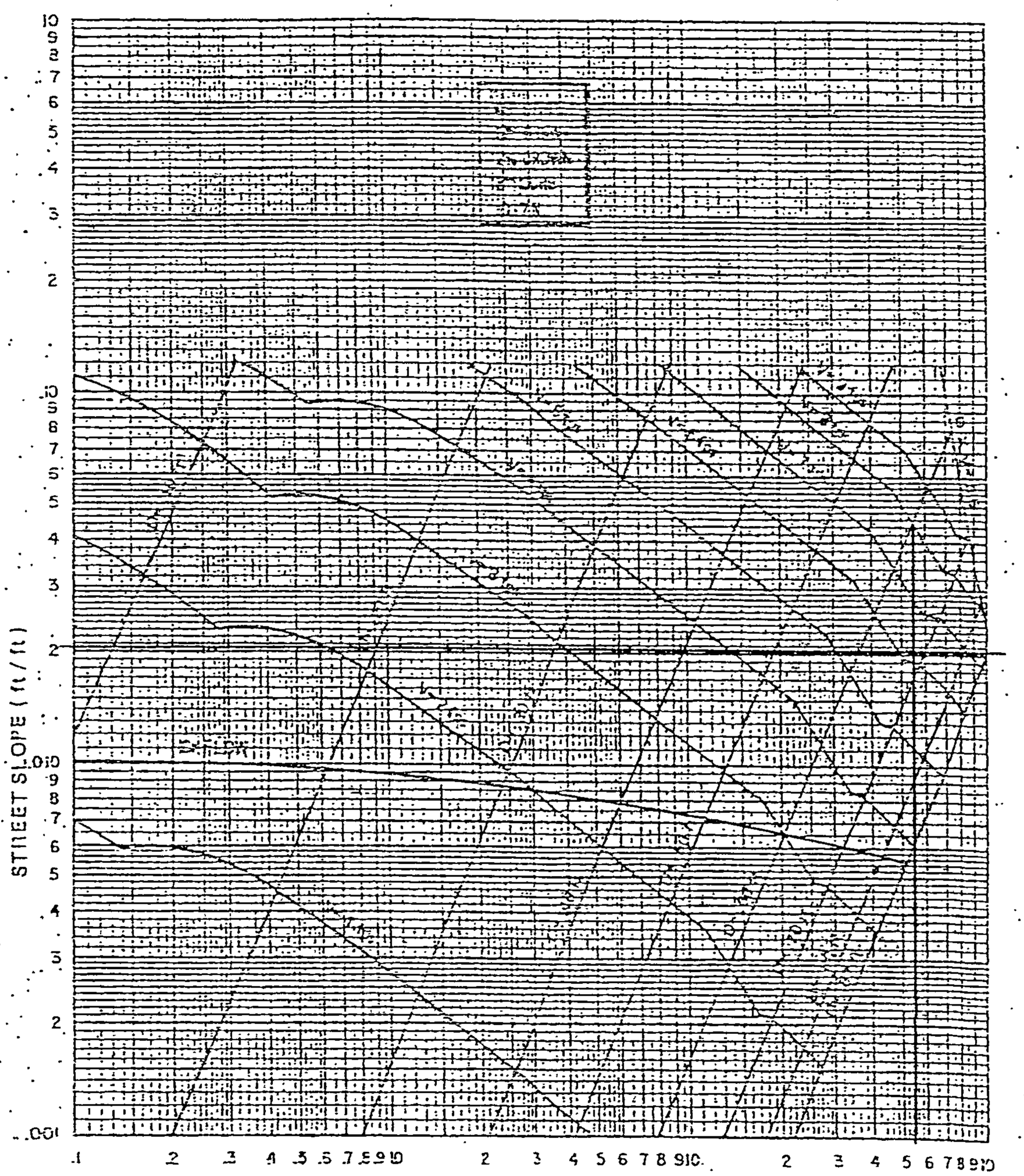
STREET GRADE = 2.16%

"Q" = 103.35 C.F.S. (51.67 HALF)

D = 0.67' (HALF ST.)

STREET CAPACITY

48' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-3

ST. CROSS SECTION LOCATION: A.P.-14 AREA I

NOTE: "O" CROWN @ THIS SECTION. SEE PLAN

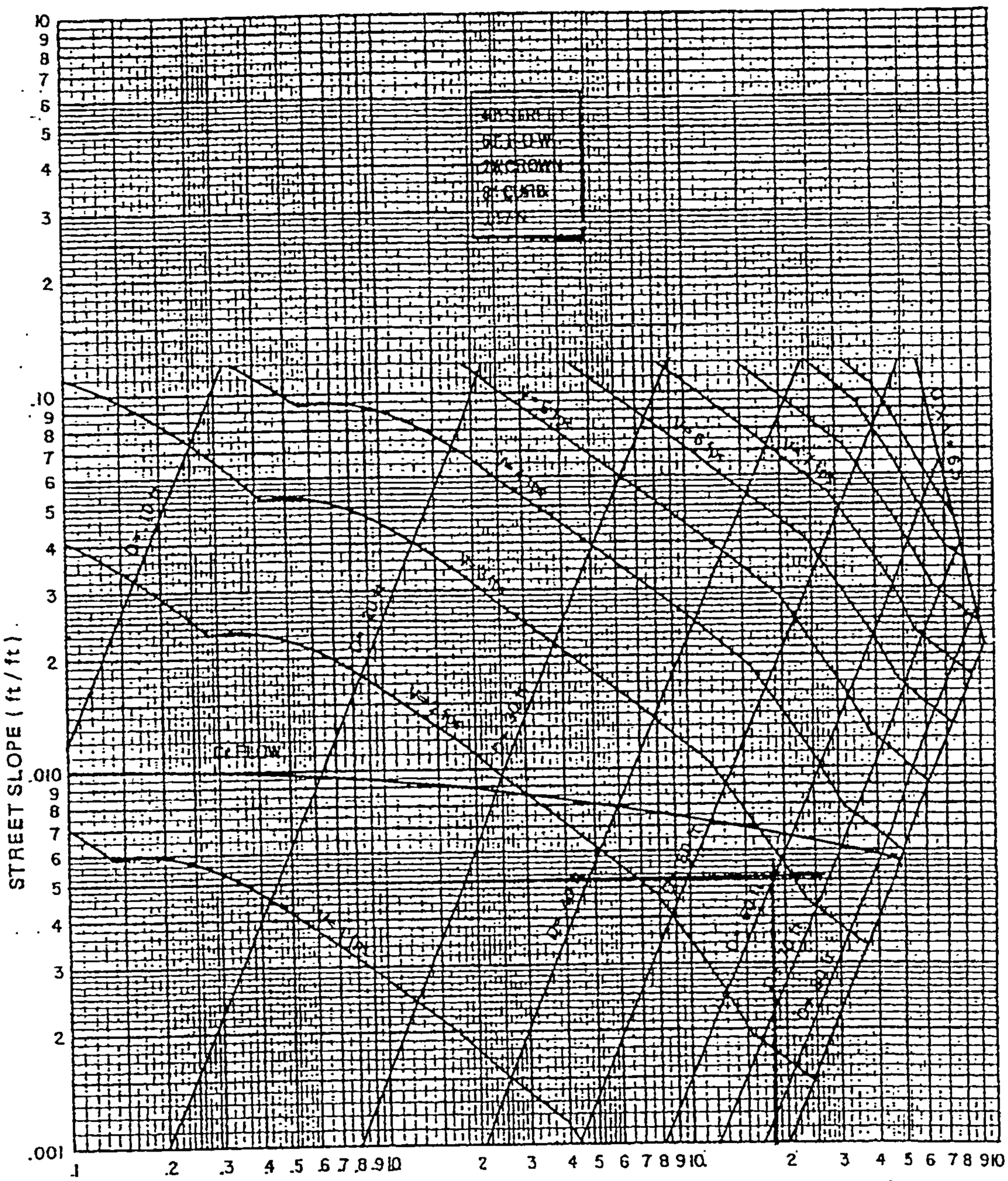
STREET GRADE = 2.15%

"Q" = 108.91 C.F.S. (54.455 HALF ST)

D = 0.82' (HALF ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: VISTA OESTE ST. (Private)

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: S/O AP-1 AREA III

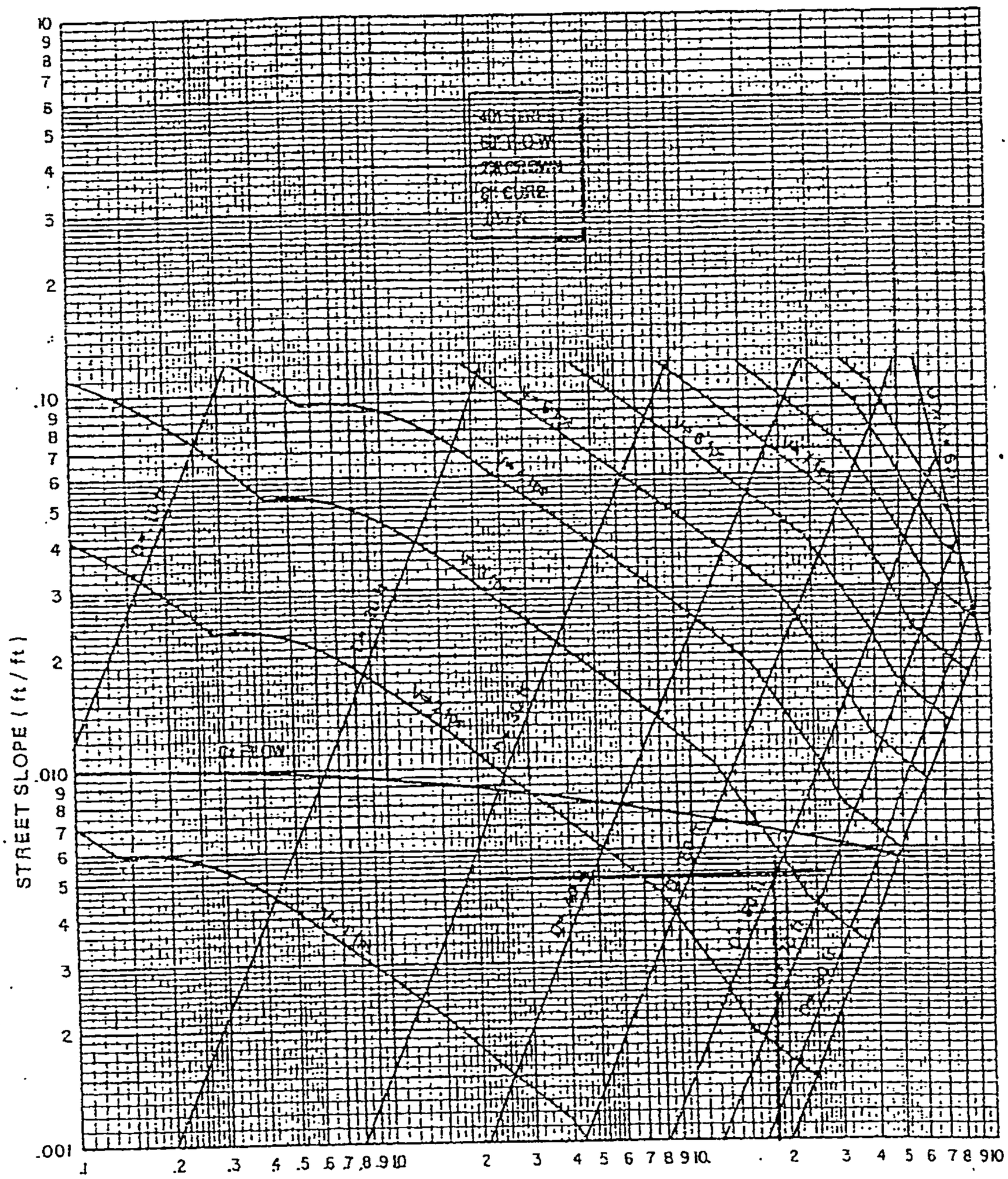
STREET GRADE = 0.5%

"Q"=. 18.03 C.F.S.

D = 0.60' (FULL ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: VISTA OESTE ST. (Private)

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: N/O A.P.-3 AREA III

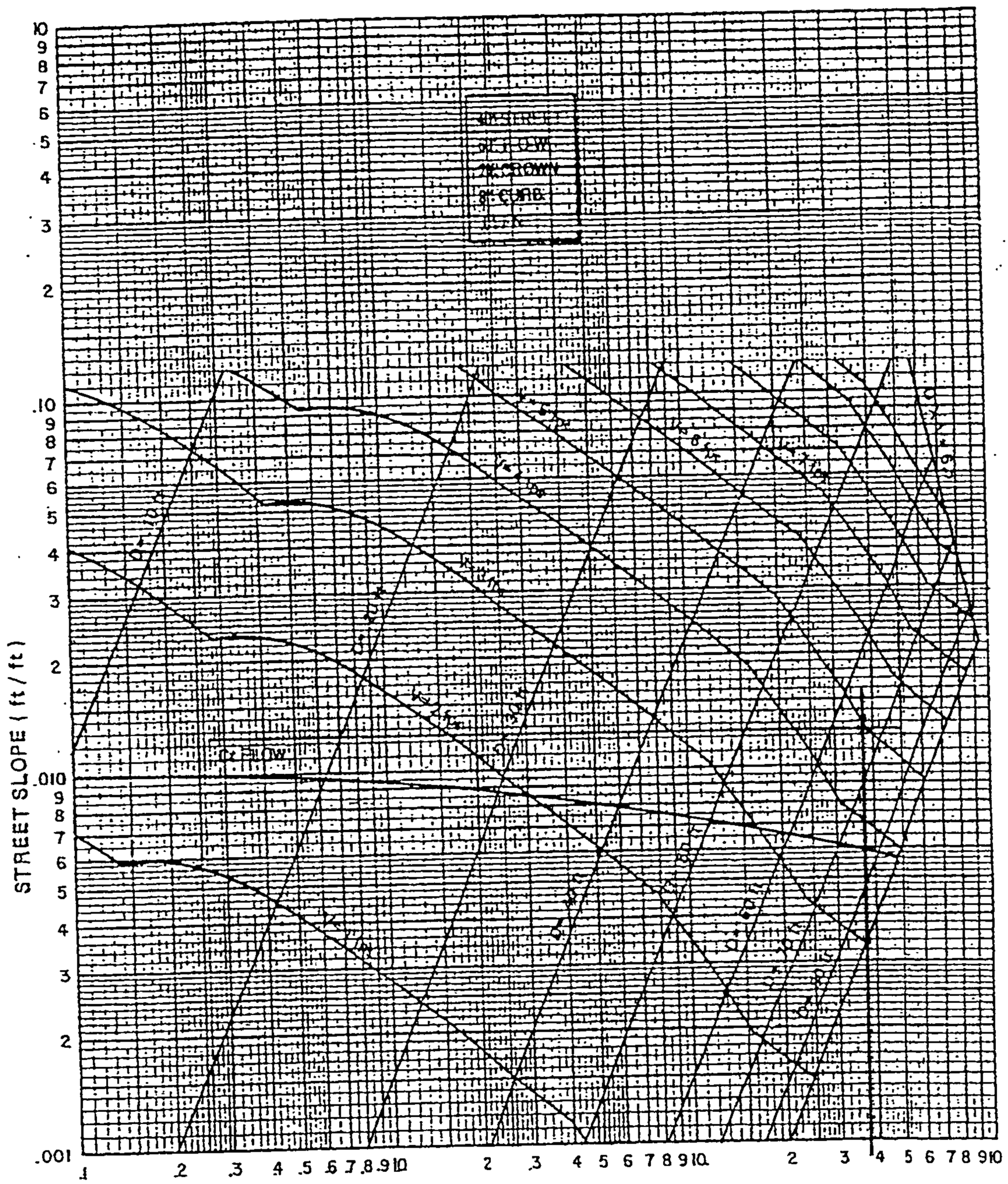
STREET GRADE = 0.5%

"Q"= 35.53 C.F.S.

D = 0.76' (FULL ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: E/O A.P.-4 AREA-III

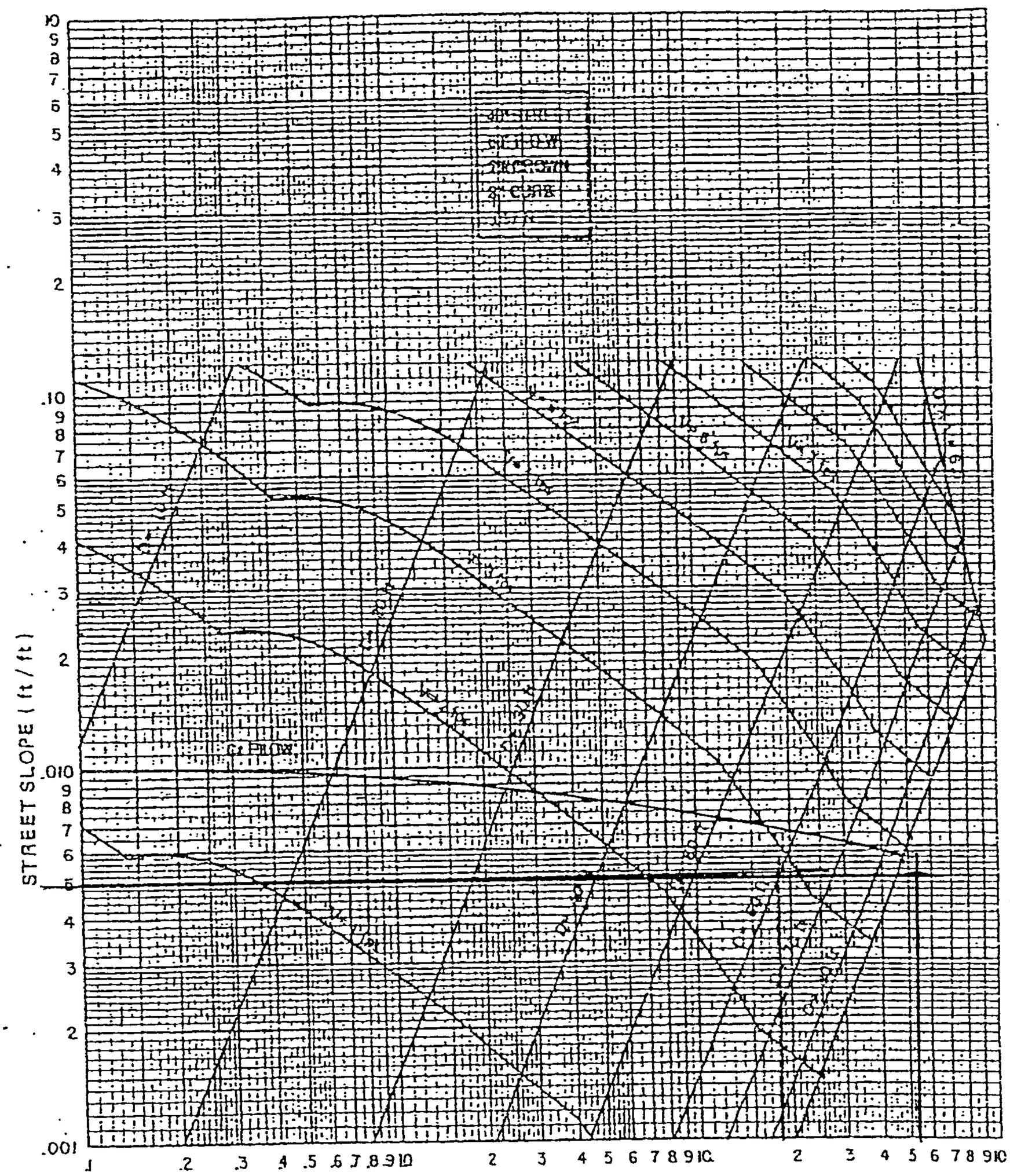
STREET GRADE = 1.25% MIN.

"Q" = 37.54 C.F.S.

D = 0.66' (FULL ST.)

STREET CAPACITY

40' C.F. TO C.F.



STREET NAME: LA MIRADA ST.

PLATE 22.3 D-2

ST. CROSS SECTION LOCATION: A.P.-7 AREA III

STREET GRADE = 1% TAN. - SUMP

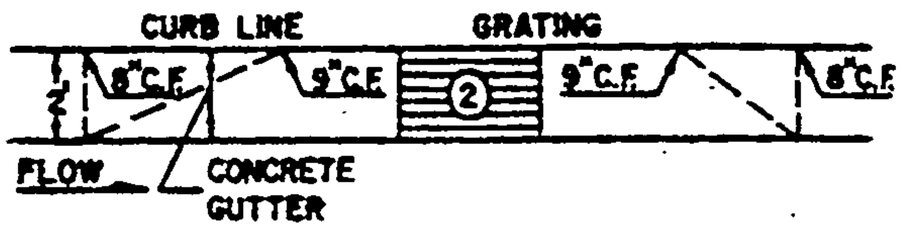
"Q" = 53.73 C.F.S.

D = 1.2± (FULL ST.)

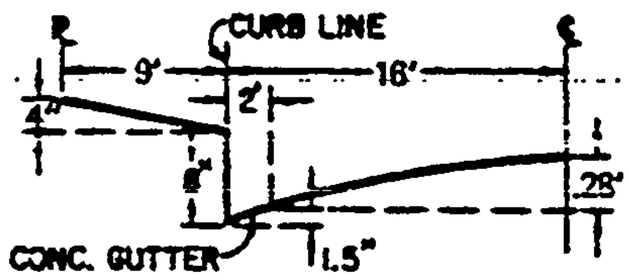
INLET CAPACITIES

Vista Oriente St.

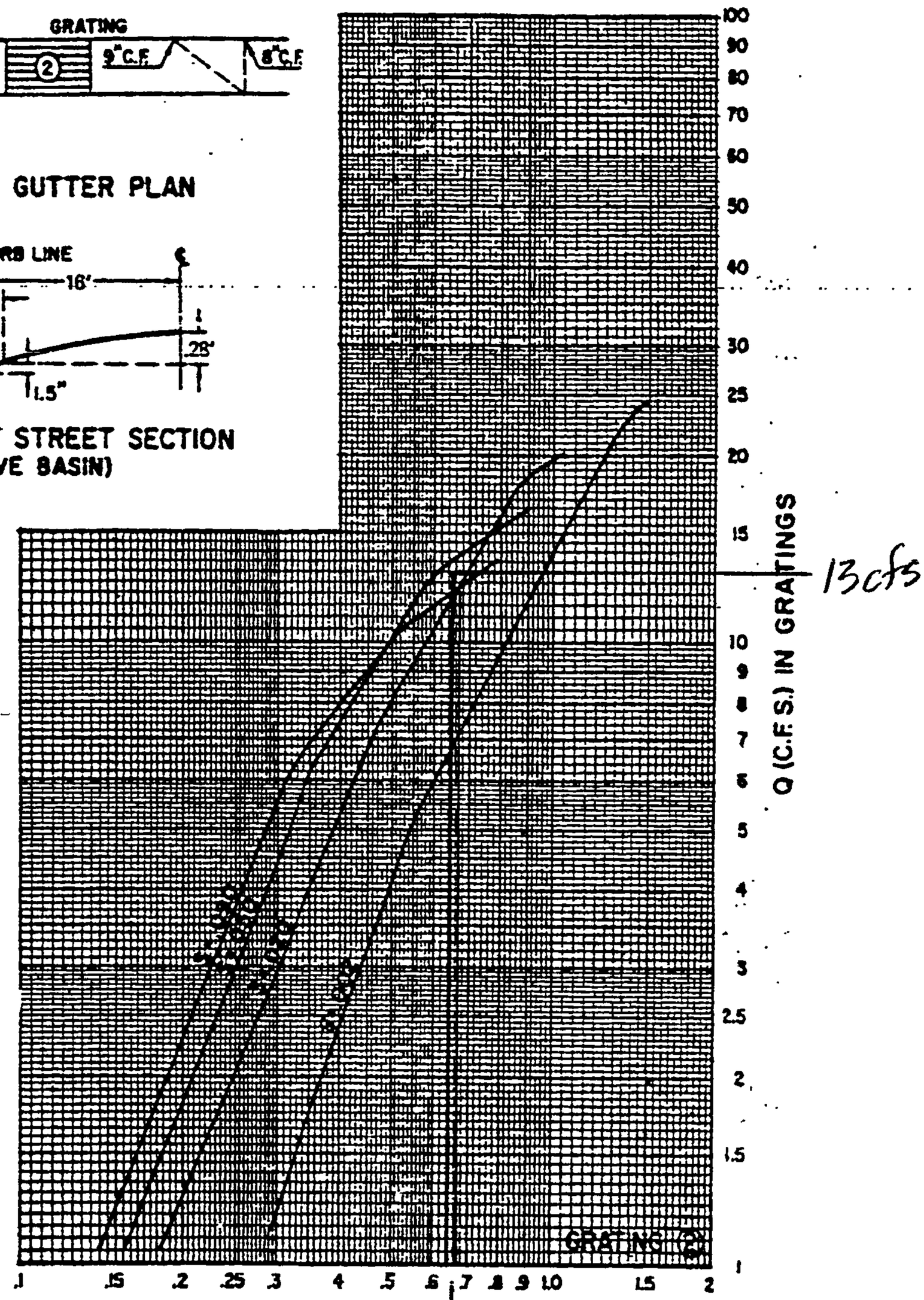
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



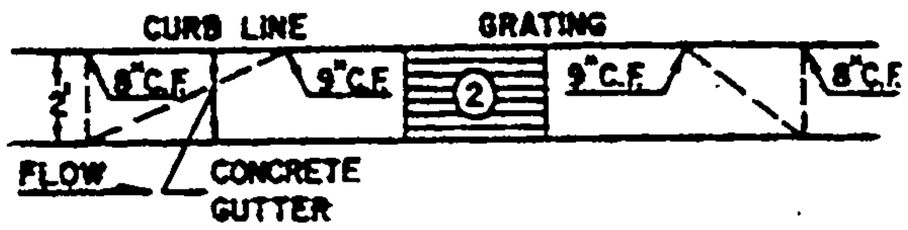
13cfs

2.25%

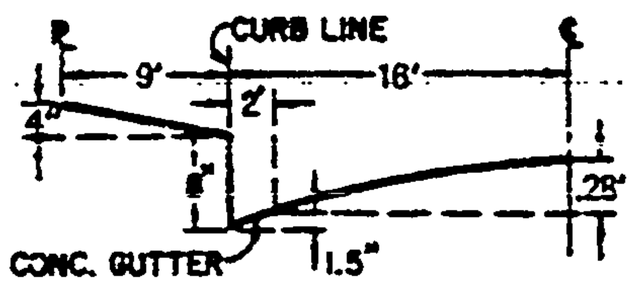
PLATE 22.3 D-5

La Morada @ AP-10

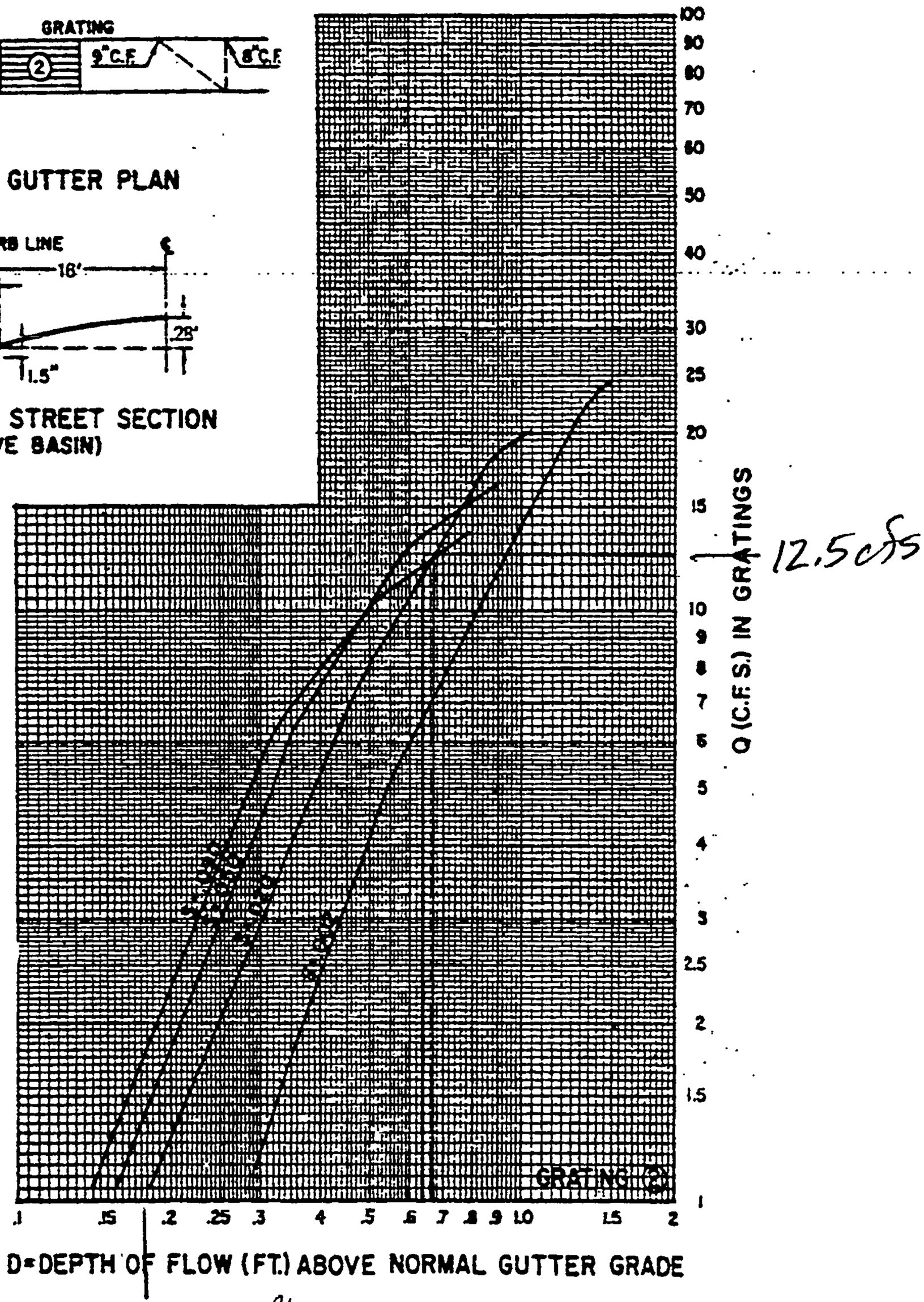
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



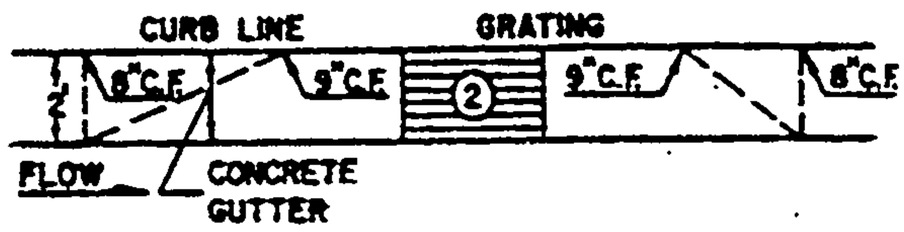
12.5 cfs

slope = 3%

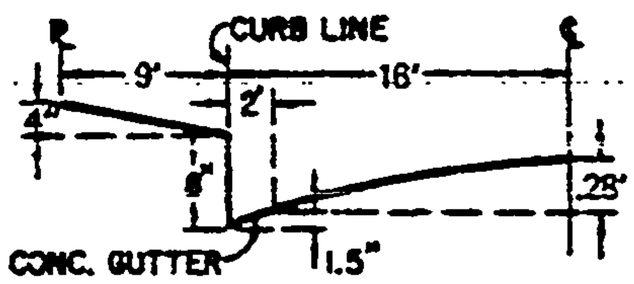
PLATE 22.3 D-5

La Morada Bet. AP-11 & AP-12

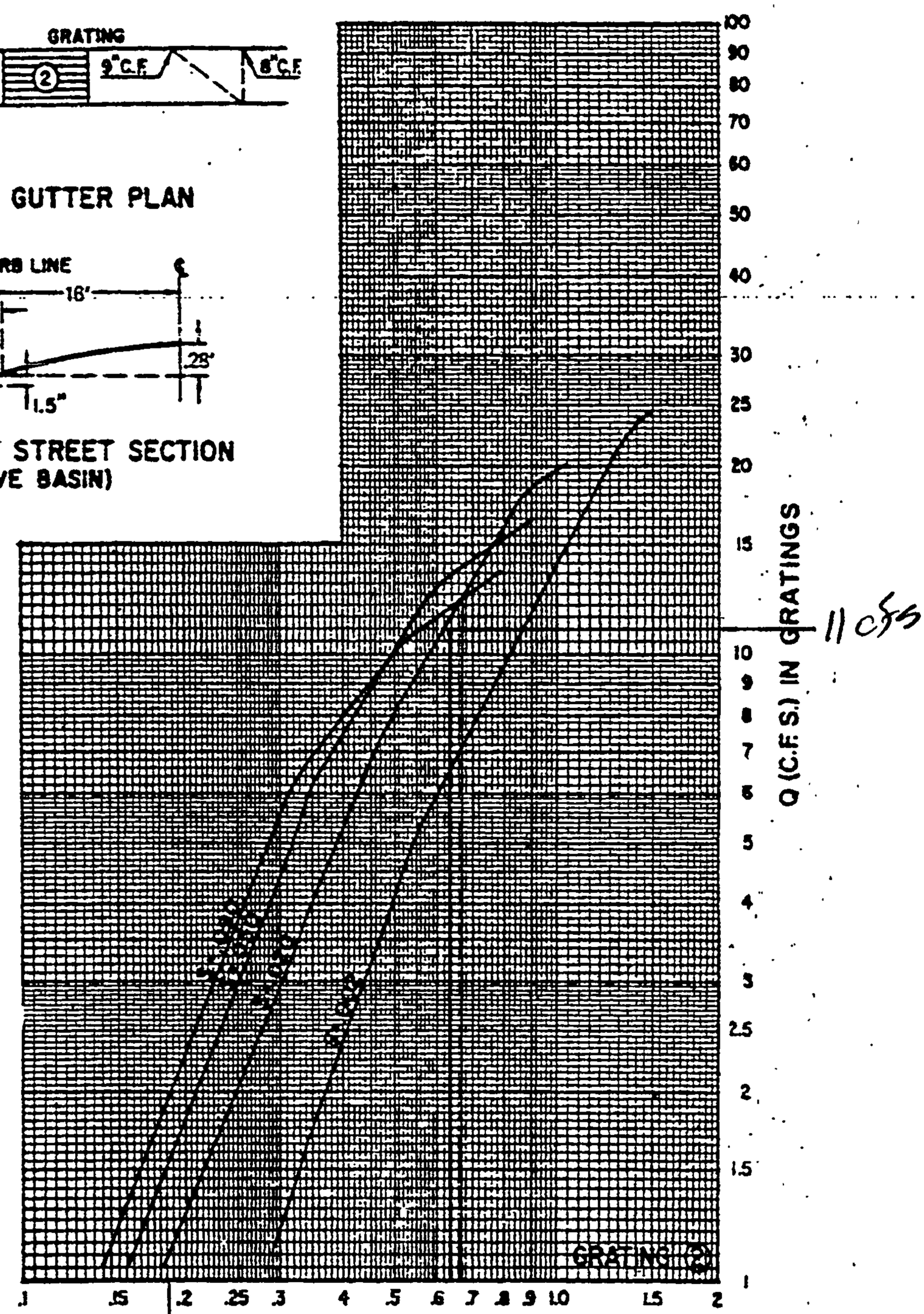
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

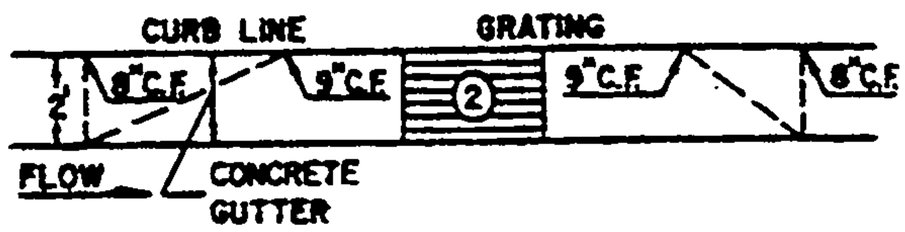


slope = 1.33%

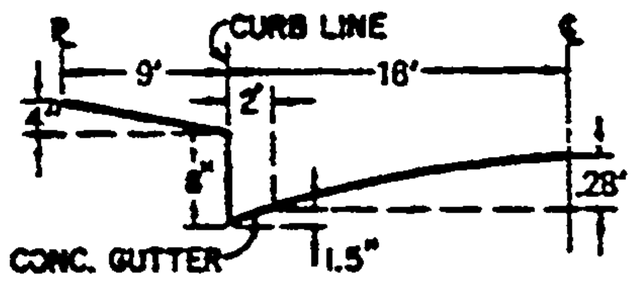
PLATE 22.3 D-5

La Morada @ AP-13
(sta 39+39

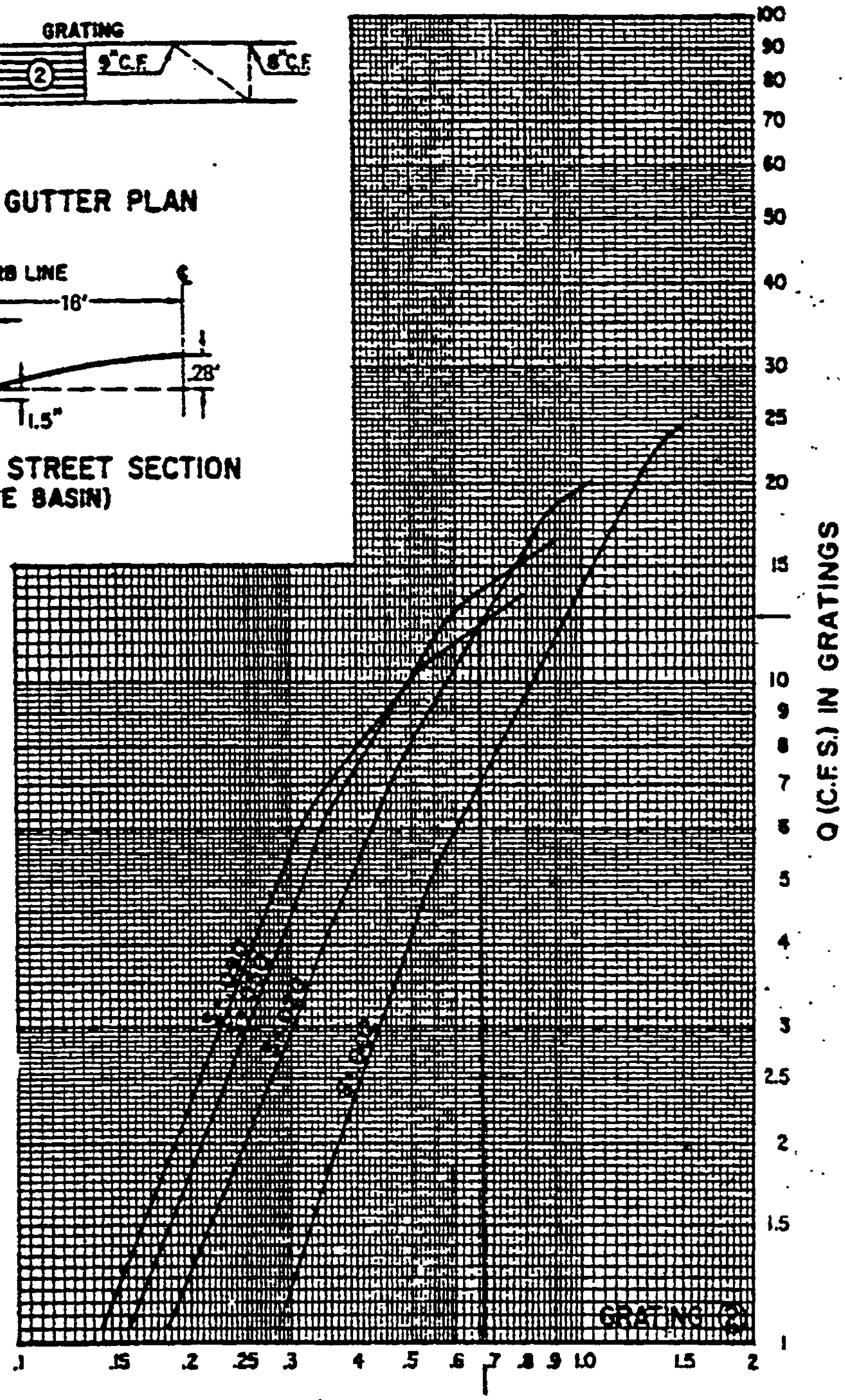
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



12.5 cfs

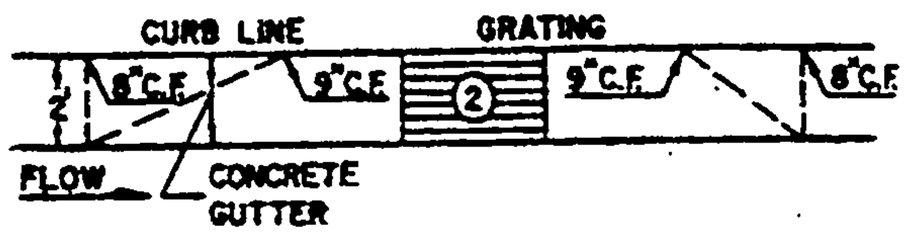
S=2.50%

PLATE 22.3 D-5

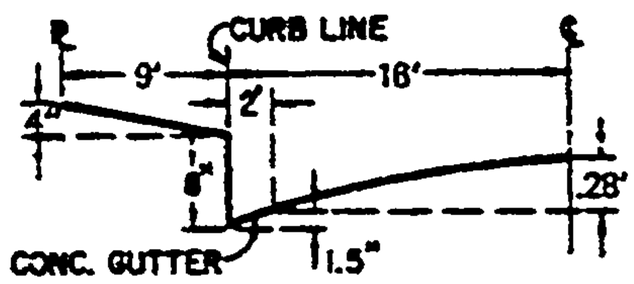
A Inlets Slope = 1.2%

La Morada @ Sta 17+50 (AREA III)

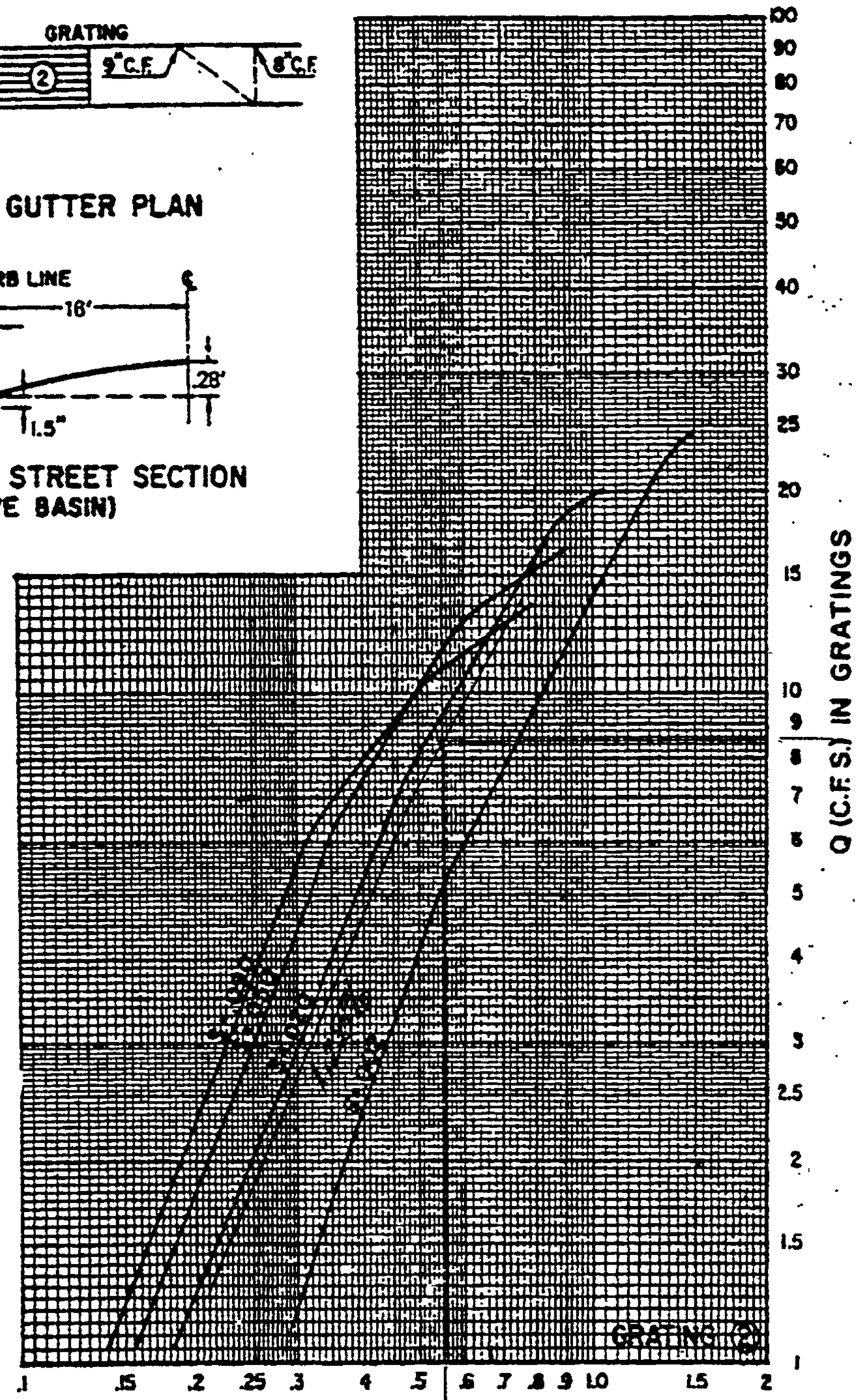
GRATING CAPACITIES FOR TYPE "A", "C" and "D"



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)



8.5 cfs

depth = 0.54'

PLATE 22.3 D-5

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

PROJECT Ladera BP
SUBJECT Drainage
BY JMM DATE
CHECKED DATE
SHEET OF

AREA I Sump Condition in La Morada Cul-de-sac

Discharge in Street = 48 cfs

Propose two(2) double "C" inlets (one set on each side of the cul-de-sac). Max. depth @ FL=0.87 ft.*

Front of dbl. inlet with depth of water @ 0.74 ft

$L = 6.7$ ft $\quad Q = 3(6.7)(0.74)^{1.5} = 12.8$ cfs

Sides (2) of dbl. inlet with avg depth = 0.91 ft

$L = 4.2$ ft $\quad Q = 3(4.2)(0.91)^{1.5} = 11$ cfs

$Q_{total\ inlet} = 23.8$ cfs - 48 cfs for both

Emergency overflow exists down service drive to Mirehave.

Sump Condition - End of Tract B Private Swale

Perimeter of BMD-00 Inlet: 15.8 ft

$Q = 3(15.8)(1.25) = 59.25$

@ FL depth of standing water is 0.87' relative to PL. Per std. dwg. 2205, the double "C" grate relative to top of curb is 0.54 ft below at the front and 0.88 ft below at the back. Add 0.2' to the PL.

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PROJECT Ladera BP
SUBJECT Drainage
BY gmm DATE
CHECKED DATE
SHEET OF

AREA II - EAST END OF TRACT 8-11 SWALE

NMSHTD Median Drop Inlet

Depth of Sump = 1.68'
Inlet Dimensions 2'-6" x 5'-6"
Inlet Perimeter = 16'

$Q = 3(\text{Perimeter})(D)^{1.5}$

$Q = 3 \quad 16(1.68)^{1.5} = 104.5 \text{ cfs}$

$Q_{actual} = 90 \text{ cfs}$

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PROJECT Ladera BP
SUBJECT Drainage
BY JMM DATE
CHECKED DATE
SHEET OF

Sump Condition in La Morada (AREA III)
@ Tract 12 Storm Drain Crossing

Flow in street before AP-7 = 40 cfs

At AP-7 there are 2 "A" inlets and 2 Double "C" inlets.

The two "A" inlets, according to the attached nomograph take in 17 cfs together, leaving 23 cfs for the "C" inlets. The depth of water in the sump at station 18+00 (La Morada) is 0.6 ft at the normal FL. Relative to the normal FL, the back of the grate is 0.2 ft below the FL (0.8 ft. deep) and the front of the grate is 0.32 ft above the normal FL (sump is 0.48' deep @ front)

Front of Inlet $L = 6.7$ ft $Q = 3(6.7)(0.48)^{1.5} = 6.7$ cfs

Sides of Inlet $L = 4.2$ ft $Q = 3(4.2)(0.64)^{1.5} = 6.5$ cfs

13.2 ea. inlet

26.4 cfs for both inlets.

STORM DRAIN ANALYSES

HYDRAULIC ANALYSIS FOR VISTA ORIENTE LA MORADA
AND TRACT: 8 STORM DRAINS

Run date: 09-19-2002
File: laderbp.ST3

Return Period = 5 Yrs
Rainfall file: Your_County

LINE 1 / Q = 285.0 / HT = 60 / WID = 60 / N = .013 / L = 480 / JLC = .2

---

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5132.64	55.71	5128.00	14.99	5136.13	30.93	N/A	19.01
UPSTRM	5138.22	60.00	5132.50	14.51	5141.49	0.00	2.7	19.63

Drainage area (ac)	= 0	Slope of invert (%)	= 0.938
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.117
Time of conc (min)	= 7	Critical depth (in)	= 55.71
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 285	Confluence angle (deg)	= 0
Default Q (cfs)	= 285	Natural ground elev (ft)	= 5140.2
Line capac. (cfs)	= 252.2	Line storage (cuft)	= 9275

LINE 2 / Q = 90.0 / HT = 36 / WID = 36 / N = .013 / L = 97 / JLC = .2

---

2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5138.87	36.00	5132.50	12.73	5141.39	0.00	4.7	7.07
UPSTRM	5141.15	36.00	5134.97	12.73	5143.66	0.00	1.42	7.07

Drainage area (ac)	= 0	Slope of invert (%)	= 2.547
Runoff coefficient	= 0	Slope energy grade line (%)	= 2.340
Time of conc (min)	= 0	Critical depth (in)	= 34.64
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 90	Confluence angle (deg)	= 45
Default Q (cfs)	= 90	Natural ground elev (ft)	= 5139.4
Line capac. (cfs)	= 106.4	Line storage (cuft)	= 686

LINE 3 / Q = 149.0 / HT = 42 / WID = 42 / N = .013 / L = 442 / JLC = .2

---

2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5138.87	42.00	5132.50	15.49	5142.60	0.00	4.2	9.62
UPSTRM	5148.57	42.00	5142.50	15.49	5152.30	0.00	4	9.62

Drainage area (ac)	= 0	Slope of invert (%)	= 2.262
Runoff coefficient	= 0	Slope energy grade line (%)	= 2.194
Time of conc (min)	= 5	Critical depth (in)	= 41.11
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 149	Confluence angle (deg)	= 0
Default Q (cfs)	= 149	Natural ground elev (ft)	= 5150
Line capac. (cfs)	= 151.3	Line storage (cuft)	= 4252

LINE 4 / Q = 124.1 / HT = 42 / WID = 42 / N = .013 / L = 426 / JLC = .2

---

4 / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5149.32	42.00	5142.50	12.90	5151.90	0.00	4	9.62
UPSTRM	5155.84	40.03	5152.50	13.12	5158.51	17.76	3.39	9.46

Drainage area (ac)	= 0	Slope of invert (%)	= 2.347
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.551
Time of conc (min)	= 2	Critical depth (in)	= 39.99
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 124	Confluence angle (deg)	= 30
Default Q (cfs)	= 124.1	Natural ground elev (ft)	= 5159.4
Line capac. (cfs)	= 154.1	Line storage (cuft)	= 4063

LINE 5 / Q = 102.0 / HT = 42 / WID = 42 / N = .013 / L = 160 / JLC = .2

---

5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5156.37	42.00	5152.50	10.60	5158.12	0.00	3.39	9.62
UPSTRM	5158.56	37.89	5155.40	11.17	5160.49	24.97	2	9.14

Drainage area (ac)	= 0	Slope of invert (%)	= 1.812
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.485
Time of conc (min)	= 1	Critical depth (in)	= 37.82
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 102	Confluence angle (deg)	= 30
Default Q (cfs)	= 102	Natural ground elev (ft)	= 5160.9
Line capac. (cfs)	= 135.4	Line storage (cuft)	= 1500

LINE 6 / Q = 102.0 / HT = 36 / WID = 36 / N = .013 / L = 144 / JLC = .2

---

6 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5158.94	36.00	5155.50	14.43	5162.18	0.00	2.39	7.07
UPSTRM	5162.31	36.00	5157.80	14.43	5165.55	0.00	2.6	7.07

Drainage area (ac)	= 0	Slope of invert (%)	= 1.597
Runoff coefficient	= 0	Slope energy grade line (%)	= 2.340
Time of conc (min)	= 1	Critical depth (in)	= 35.24
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 102	Confluence angle (deg)	= 90
Default Q (cfs)	= 102	Natural ground elev (ft)	= 5163.4
Line capac. (cfs)	= 84.3	Line storage (cuft)	= 1018

LINE 7 / Q = 52.0 / HT = 36 / WID = 36 / N = .013 / L = 112 / JLC = .2

---

7 / DNLN = 6

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5162.96	36.00	5157.80	7.36	5163.80	0.00	2.6	7.07
UPSTRM	5163.81	36.00	5160.00	7.36	5164.65	0.00	2.2	7.07

Drainage area (ac)	= 0	Slope of invert (%)	= 1.964
Runoff coefficient	= 0	Slope energy grade line (%)	= 0.608
Time of conc (min)	= 0	Critical depth (in)	= 27.57
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 52	Confluence angle (deg)	= 0
Default Q (cfs)	= 52	Natural ground elev (ft)	= 5165.2
Line capac. (cfs)	= 93.5	Line storage (cuft)	= 792

HYDRAULIC ANALYSIS FOR TRACT 12 STORM DRAIN

Run date: 09-28-2002
File: laderx.ST3

Return Period = 5 Yrs
Rainfall file: Your_County

C

LINE 1 / Q = 70.9 / HT = 42 / WID = 42 / N = .013 / L = 260 / JLC = .2

---

1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5185.00	36.00	5182.00	7.99	5185.99	28.37	-3.5	8.88
UPSTRM	5186.22	38.26	5183.03	7.71	5187.14	23.94	3.47	9.20

Drainage area (ac)	= 0	Slope of invert (%)	= 0.396
Runoff coefficient	= 0	Slope energy grade line (%)	= 0.442
Time of conc (min)	= 2	Critical depth (in)	= 30.93
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 70.9	Confluence angle (deg)	= 45
Default Q (cfs)	= 70.9	Natural ground elev (ft)	= 5190
Line capac. (cfs)	= 63.3	Line storage (cuft)	= 2350

LINE 2 / Q = 53.7 / HT = 36 / WID = 36 / N = .013 / L = 240 / JLC = .2

---

2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5186.40	36.00	5183.03	7.60	5187.30	0.00	3.97	7.07
UPSTRM	5187.96	36.00	5184.48	7.60	5188.85	0.00	1.31	7.07

Drainage area (ac)	= 0	Slope of invert (%)	= 0.604
Runoff coefficient	= 0	Slope energy grade line (%)	= 0.648
Time of conc (min)	= 1	Critical depth (in)	= 28.02
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 53.7	Confluence angle (deg)	= 0
Default Q (cfs)	= 53.7	Natural ground elev (ft)	= 5188.8
Line capac. (cfs)	= 51.8	Line storage (cuft)	= 1696

LINE 3 / Q = 10.0 / HT = 18 / WID = 18 / N = .013 / L = 27 / JLC = .2

---

3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5188.14	18.00	5184.58	5.66	5188.64	0.00	2.71	1.77
UPSTRM	5188.48	18.00	5184.85	5.66	5188.98	0.00	2.64	1.77

Drainage area (ac)	= 0	Slope of invert (%)	= 1.000
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.276
Time of conc (min)	= 0	Critical depth (in)	= 14.48
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 10	Confluence angle (deg)	= 0
Default Q (cfs)	= 10	Natural ground elev (ft)	= 5189
Line capac. (cfs)	= 10.5	Line storage (cuft)	= 48

LINE 4 / Q = 34.1 / HT = 30 / WID = 30 / N = .013 / L = 36 / JLC = .2

---

4 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5188.14	30.00	5184.48	6.95	5188.89	0.00	1.81	4.91
UPSTRM	5188.39	30.00	5184.88	6.95	5189.14	0.00	1.41	4.91

Drainage area (ac)	= 0	Slope of invert (%)	= 1.111
Runoff coefficient	= 0	Slope energy grade line (%)	= 0.691
Time of conc (min)	= 0	Critical depth (in)	= 23.41
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 34	Confluence angle (deg)	= 75
Default Q (cfs)	= 34.1	Natural ground elev (ft)	= 5188.8
Line capac. (cfs)	= 43.2	Line storage (cuft)	= 177

LINE 5 / Q = 24.4 / HT = 24 / WID = 24 / N = .013 / L = 27 / JLC = .2

---

5 / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5188.54	24.00	5184.88	7.77	5189.47	0.00	1.91	3.14
UPSTRM	5188.85	24.00	5185.25	7.77	5189.79	0.00	1.75	3.14

Drainage area (ac)	= 0	Slope of invert (%)	= 1.371
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.163
Time of conc (min)	= 0	Critical depth (in)	= 21.24
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 24.3	Confluence angle (deg)	= 15
Default Q (cfs)	= 24.4	Natural ground elev (ft)	= 5189
Line capac. (cfs)	= 26.5	Line storage (cuft)	= 85

LINE 6 / Q = 14.4 / HT = 18 / WID = 18 / N = .013 / L = 54 / JLC = .2

---

6 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5189.04	18.00	5185.35	8.13	5190.07	0.00	2.14	1.77
UPSTRM	5190.26	18.00	5187.28	8.13	5191.28	0.00	1.62	1.77

Drainage area (ac)	= 0	Slope of invert (%)	= 3.573
Runoff coefficient	= 0	Slope energy grade line (%)	= 1.873
Time of conc (min)	= 0	Critical depth (in)	= 16.93
Inlet time (min)	= 0	Req'd length curb inlet (ft)	= 0.0
Intensity (in/hr)	= 0.00	Req'd grate area (sf)	= 0.0
Cumulative C*A	= 0.0	Depth at inlet opening (in)	= 0
Flow contrib (cfs)	= 14.3	Confluence angle (deg)	= 0
Default Q (cfs)	= 14.37	Natural ground elev (ft)	= 5190.4
Line capac. (cfs)	= 19.9	Line storage (cuft)	= 95

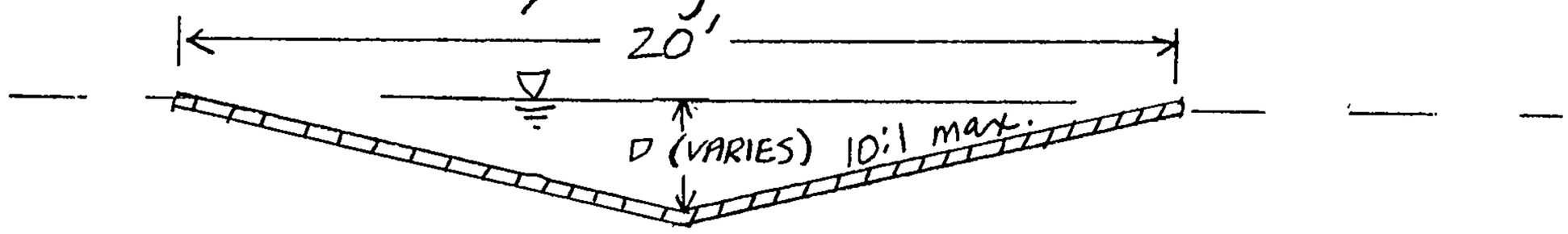
PRIVATE SWALE CAPACITIES

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE, NM 87199
(505) 828-2200 FAX 797-9539
e-mail: dmg@swcp.com

PROJECT Ladera BP
SUBJECT Drainage
BY SMM DATE
CHECKED DATE
SHEET OF

PAVED SWALES - PRIVATE

Capacity Calculations



Typical Swale Cross-Section

$$Q = \frac{1.49}{n}(A)\left(\frac{A}{r_H}\right)^{0.67}(S)^{0.5} \qquad n = 0.013$$

TRACT 8 Swale @ D = 12" A = 10 r_H = 20.1 S = 2.15

$$Q = \frac{1.49}{0.013}(10)\left(\frac{10}{20.1}\right)^{0.67}(0.0215)^{0.5} = 105\text{ cfs} - \boxed{\text{OK } 90\text{ cfs generated}}$$

TRACT 9 Swale D = 12" A = 10 r_H = 20.1 S = 1.50

$$Q = \frac{1.49}{0.013}(10)\left(\frac{10}{20.1}\right)^{0.67}(0.015)^{0.5} = 88\text{ cfs} - \boxed{\text{OK } 69\text{ cfs generated}}$$

TRACT 24 swale D = 0.67' A = 6.7 r_H = 2.0 S = 0.7%

$$Q = \frac{1.49}{0.013}(6.7)\left(6.7/2.0\right)^{0.67}(0.007)^{0.5} = 31\text{ cfs} - \boxed{\text{OK } 14\text{ cfs generated}}$$

TRACT 12 Swale D = 0.58' A = 5.8 r_H = 0.29 S = 1.94%

$$Q = \frac{1.49}{0.013}(5.8)\left(5.8/20\right)^{0.67}(0.0194)^{0.5} = 40\text{ cfs} - \boxed{\text{OK } 1.7\text{ cfs generated}}$$

TRACT 25 Swale D = 0.5' A = 5 r_H = 0.25 S = 1.7%

$$Q = \frac{1.49}{0.013}(5)\left(5/10\right)^{0.67}(0.017)^{0.5} = 30\text{ cfs} - \boxed{\text{OK } 26\text{ cfs generated}}$$

D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS & SURVEYORS

PROJECT Ladera
SUBJECT Drainage
BY JMM DATE 4/4/02
CHECKED _____ DATE _____
SHEET ___ OF ___

Sidewalk Culvert Capacity @ AP-5

Q=15.83 cfs Std. Dwg. 2236

$Q = 2.9 L H^{3/2} = 2.9(2)(7/12)^{3/2} = 4.0$ cfs ea.

with Q=16 cfs 4 culverts will suffice

Separate outfall for Tract 25: Q=11.24 cfs

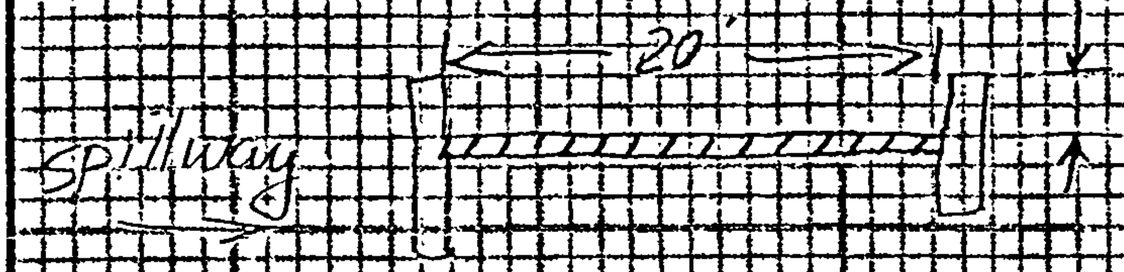
3 sidewalk culverts will suffice @ AP-6

D. MARK GOODWIN & ASSOCIATES, P.A.
CONSULTING ENGINEERS & SURVEYORS

PROJECT Ladera
SUBJECT Drainage
BY JMM DATE
CHECKED DATE
SHEET OF

Interim Grading - Unit II

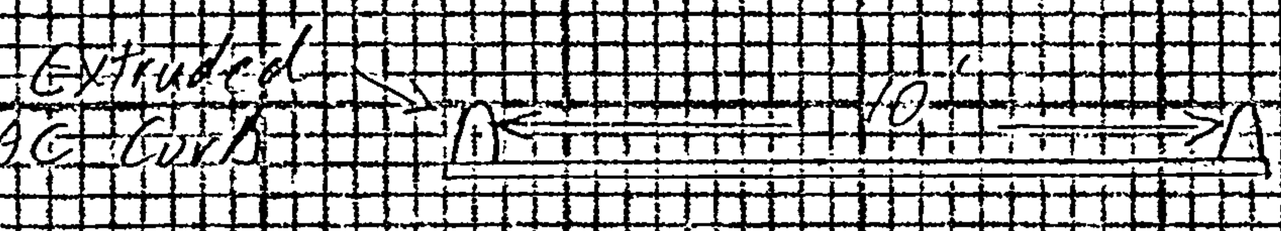
Outfall from Interim Desilting Pond to West Terminus of Vista Oriente



$Q = 2.9(L)H^{3/2} = 2.9(20)(1.0)$

$Q = 58.0$ cfs

Temporary Channel Down Vista Oriente from Spillway



$S = 0.0208\%$ $WP = 11.33'$ $A = 6.675F$ $n = 0.015$

$Q = \frac{1.49}{0.015}(6.67)\left(\frac{6.67}{11.33}\right)^{0.67}(0.0235)^{0.5}$

$Q = 71$ cfs capacity

52 cfs generated - OK

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

April 11, 2002

John M. MacKenzie, PE
Mark Goodwin & Associates, P.A.
PO Box 90606
Albuquerque, NM 87199

Re: Ladera Business Park Conceptual Grading and Drainage Plan
Engineer's Stamp Dated 4-5-02, (H10/D6A)

Dear Mr. MacKenzie,

Based on the information contained in your submittal dated 4-5-02, the above referenced plan cannot be approved for Site Plan for Subdivision or Preliminary Plat until the following comments are addressed:

- AMAFCA approval is required.
- A temporary public drainage easement is required for the interim conditions when public water from Unser Blvd. enters private property.
- A drainage maintenance agreement will be needed for the temporary retention pond and swale.
- A private drainage easement is required for tracts 12 and 13.
- An encroachment agreement from PNM will be required for ponds and channels on PNM easements.
- A private drainage easement will be required for tracts 24 and 25.
- How are flows on tract 7, 8, 9, 10, and 11 conveyed to Mirehaven Diversion Channel.

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

Sincerely,

Carlos A. Montoya, PE
City Floodplain Administrator, PWD
Development and Building Services

C: Terri Martin, Hydrology
Lynn Mazur, AMAFCA
File (2)

THE CITY OF ALBUQUERQUE IS AN EQUAL OPPORTUNITY/REASONABLE ACCOMMODATION EMPLOYER

CITY OF ALBUQUERQUE

THREE HUNDRED YEARS
1706 * 2006
ALBUQUERQUE
Making History

August 9, 2004

Mr. John MacKenzie, PE
MARK GOODWIN & ASSOCIATES
P.O. Box 90606
Albuquerque, NM 87119

RE: LADERA BUSINESS PARK (H-10/D006A)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 11/21/2002
Engineers Certification dated 08/06/2004

Unit 1 only

Dear John:

Based upon the information provided in your Engineer's Certification Submittal dated 08/06/2004, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

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

Sincerely,

Arlene V. Portillo

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

C: Marilyn Maldonado, COA# 693281
File

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

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV.1/11/2002)

PROJECT TITLE: Ladera Business Park ZONE MAP/DRB.FILE#: H-10/D6A

DRB#: 1001523 EPC# _____ WORK ORDER#: 693281

LEGAL DESCRIPTION: Lot 2, Ladera Industrial Center

CITY ADDRESS: Unser Blvd. NW, Albuquerque NM

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: John MacKenzie

ADDRESS: P.O. Box 90606 PHONE: 828-2200

CITY, STATE: Albuquerque NM ZIP CODE: 87119

OWNER: Unser- 98th Street Partnership LLC CONTACT:

ADDRESS: P.O. Box 90598 PHONE: 821-1034

CITY, STATE: Albuquerque NM ZIP CODE: 87199

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

- ____ DRAINAGE REPORT
- ____ DRAINAGE PLAN
- ____ CONCEPTUAL GRADING & DRAINAGE PLAN
- ____ GRADING PLAN
- ____ EROSION CONTROL PLAN
- ____ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ____ CLOMR/LOMR
- ____ TRAFFIC CIRCULATION LAYOUT (TCL)
- ____ ENGINEER'S CERTIFICATION (TCL)
- ✔ ENGINEER'S CERTIFICATION (GRADING/DRAINAGE)
- ____ OTHER

CHECK TYPE OF APPROVAL SOUGHT:

- ✔ SIA / FINANCIAL GUARANTY RELEASE
- ____ PRELIMINARY PLAT APRROVAL
- ____ S. DEV. PLAN FOR SUB'D. APPROVAL
- ____ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ____ SECTOR PLAN APPROVAL
- ____ FINAL PLAT APPROVAL
- ____ FOUNDATION PERMIT APPROVAL
- ____ BUILDING PERMIT APPROVAL
- ____ CERTIFICATE OF OCCUPANCY (PERM)
- ____ CERTIFICATE OF OCCUPANCY (TEMP)
- ____ GRADING PERMIT APPROVAL
- ____ PAVING PERMIT APPROVAL
- ____ WORK ORDER APPROVAL
- ____ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ____ YES
- ____ NO
- ____ COPY PROVIDED

RECEIVED AUG 0 6 2004 HYDROLOGY SECTION

DATE SUBMITTED: 8/05/04 BY: John M MacKenzie

John M. MacKenzie, PE

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

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5).
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5).

f:\\forms\drainf.tbl

CITY OF ALBUQUERQUE

March 5, 2013

Fred C. Arfman
Isaacson & Arfman, P.A.
128 Monroe St NE
Albuquerque, NM 87108

Re: Lots 1-B-1, 1-B-2, 1-B-3, & 1-B-4, Ladera Industrial Center
Interim Drainage Plan
Engineer's Stamp dated 01-29-13 (H10D006A)

Dear Mr. Arfman,

Based upon the information provided in your submittal received 01-30-13, the above referenced plan is approved for Work Order.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Shahab Biazar, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

C: e-mail

DRAINAGE AND TRANSPORTATION INFORMATION SHEET
(Rev. 12/05)

PROJECT TITLE: Ladera Industrial Center Phase 2 ZONE MAP/DRG. FILE # ~~H-9~~ H-10/D006A
DRB#: 1002404 EPC#: WORK ORDER#: 738984

LEGAL DESCRIPTION: Lots 1-B-1, 1-B-2, 1-B-3, & 1-B-4, Ladera Industrial Center
CITY ADDRESS:

ENGINEERING FIRM: ISAACSON & ARFMAN, PA CONTACT: Fred C. Arfman
ADDRESS: 128 MONROE NE PHONE: 268-8828
CITY, STATE: ALBUQUERQUE, NM ZIP CODE: 87108

OWNER: Peterson INV-98th/Unser, LLC CONTACT: Douglas H. Peterson
ADDRESS: 2325 San Pedor Drive NE, Suite 2-A PHONE: 884-3578
CITY, STATE: Albuquerque, NM ZIP CODE: 87110

ARCHITECT: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

SURVEYOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

CONTRACTOR: CONTACT:
ADDRESS: PHONE:
CITY, STATE: ZIP CODE:

TYPE OF SUBMITTAL:
___ DRAINAGE REPORT
X DRAINAGE PLAN 1st SUBMITTAL
___ DRAINAGE PLAN RESUBMITTAL
___ CONCEPTUAL G & D PLAN
X GRADING PLAN
___ EROSION CONTROL PLAN
___ ENGINEER'S CERT (HYDROLOGY)
___ CLOMR/LOMR
___ TRAFFIC CIRCULATION LAYOUT
___ ENGINEER/ARCHITECT CERT (TCL)
___ ENGINEER/ARCHITECT CERT (DRB S.P.)
___ ENGINEER/ARCHITECT CERT (AA)
___ OTHER (SPECIFY)

CHECK TYPE OF APPROVAL SOUGHT:
___ SIA/FINANCIAL GUARANTEE RELEASE
___ PRELIMINARY PLAT APPROVAL
___ S. DEV. PLAN FOR SUB'D APPROVAL
___ S. DEV. FOR BLDG. PERMIT APPROVAL
___ SECTOR PLAN APPROVAL
___ FINAL PLAT APPROVAL
___ FOUNDATION PERMIT APPROVAL
___ BUILDING PERMIT APPROVAL
___ CERTIFICATE OF OCCUPANCY (PERM)
___ CERTIFICATE OF OCCUPANCY (TEMP)
X GRADING PERMIT APPROVAL
___ PAVING PERMIT APPROVAL
X WORK ORDER APPROVAL
___ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:
___ YES
X NO
___ COPY PROVIDED

RECEIVED
JAN 30 2013

SUBMITTED BY: Fred C. Arfman DATE: January 29, 2013
Isaacson & Arfman, P.A.

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

1. **Conceptual Grading and Drainage Plan**: Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.

2. **Drainage Plans**: Required for building permits, grading permits, paving permits and site plans less than five (5) acres.

3. **Drainage Report**: Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.

Current DRC
Project Number:_____

FIGURE 12

INFRASTRUCTURE LIST

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

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

Ladera Business Park
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Lot 2 Ladera Industrial Center
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

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

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			Transportation for Unit I						
		40' FF 4' *	Pavement / C & G sidewalk (both sides)	La Morada Pl. Pl.	Unser	Tract 7 cul-de-sac	/	/	/
		12' 6'	Decel Lane Conc. SW (east side)	Unser	La Morada Pl.	100' South of La Morada Pl.	/	/	/
		40' FF 4' *	Pavement, C & G Sidewalk (both sides) Private	Vista Oeste	La Morada Pl.	SE Corner Tract 16	/	/	/
		40' FF 4'*	Pavement C & G Sidewalk (both sides)	Vista Oeste	La Morada Pl.	SE Corner Tract 2	/	/	/
			PUBLIC UTILITIES						
		8"	WL	La Morada Pl.	Unser	Vista Oriente	/	/	/
		10"	WL	La Morada Pl.	Vista Oriente	S. Side Mirehaven Ch.	/	/	/
		10"	WL	Vista Oriente	SE corner Tract 2	La Morada Pl.	/	/	/
		8"	SAS	La Morada Pl.	Unser	Stoneham Place.	/	/	/
		8"	SAS	Vista Oriente	SE corner Tract 2	La Morada Pl.	/	/	/
			DRAINAGE						
		36" ~~48"~~	RCP	Mirehaven Channel	SE Corner Tract 12	Mirehaven Thalweg	/	/	/
		36"	RCP	Tract 11/12 Boundary	La Morada Pl.	Mirehaven Channel	/	/	/
		10'	AC Channel	Vista Oriente	SE Corner Tract 1	SE Corner Tract 2	/	/	/

revised 07/01/01

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			Unit II						
			Transportation						
		40' FF	Pavement/ C & G sidewalk both sides	Vista Oriente	SE corner Lot 1	SE Corner Tract 2	/	/	/
		24' FF	Pavement / C & G / median (south 1/2 only)	Vista Oriente	Unser	SE Corner Lot 1	/	/	/
			Private						
		40' FF 4' *	Pavement /C & G sidewalks both sides	Vista Oeste	Vista Oriente	SE Corner Tract 16	/	/	/
			PUBLIC UTILITIES						
		8"	WATER LINE	Vista Oeste	La Morada Pl.	Vista Oriente	/	/	/
		10"	WATER LINE	Vista Oriente	Unser	SE corner Tract 2	/	/	/
		8"	SAS	Vista Oeste	La Morada Pl.	Vista Oriente	/	/	/
		8"	SAS	Vista Oeste	SE Corner Lot 1	SE Corner Tract 2	/	/	/

NOTES

1 Storm Drain to Include Manhole & inlets

2 * Sidewalks to be deferred

3 Grading & Drainage Plan Certification Required before release of financial guarantee

4 Water/ SAS infrastructure to include vavles, fittings, Manhole etc

AGENT / OWNER	DEVELOPMENT REVIEW BOARD MEMBER APPROVALS	
John MacKenzie, PE NAME (print)	DRB CHAIR - date	PARKS & GENERAL SERVICES - date
Mark Goodwin & Associates P.A. FIRM	TRANSPORTATION DEVELOPMENT - date	AMAFCA - date
John M MacKenzie 5.24.02 SIGNATURE - date	UTILITY DEVELOPMENT - date	_____ - date
MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: _____	CITY ENGINEER - date	_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

revised 07/01/01

Current DRC
Project Number:_____

FIGURE 12

Date Submitted:_____
Date Site Plan Approved:_____
Date Preliminary Plat Approved:_____
Date Preliminary Plat Expires:_____
DRB Project No.: 1001523
DRB Application No.:_____

INFRASTRUCTURE LIST

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

Ladera Business Park
PROPOSED NAME OF PLAT AND/OR SITE DEVELOPMENT PLAN

Lot 1 Ladera Industrial Center
EXISTING LEGAL DESCRIPTION PRIOR TO PLATTING ACTION

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

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			Transportation for Unit I						
		40' FF	Pavement / C & G	La Morada Pl.	Unser	Tract 7 cul-de-sac	/	/	/
		6' *	sidewalk (both sides)						
			PUBLIC UTILITIES						
		8"	WL	La Morado	Unser	Vista Oriente	/	/	/
		10"	WL	La Morada	Vista Oriente	S. Side Mirehaven Ch.	/	/	/
		10"	WL	Vista Oriente	SE corner Tract 2	La Morada	/	/	/
		8"	SAS	La Morada	Unser	Stoneham Place.	/	/	/
		8"	SAS	Vista Oriente	SE corner Tract 2	La Morada	/	/	/
			DRAINAGE						
		48"	RCP	Mirehaven Channel	SE Corner Tract 12	Mirehaven Thalweg	/	/	/
		36"	RCP	Tract 11/12 Boundary	La Morada	Mirehaven Channel	/	/	/
		10'	AC Channel	Vista Oriente	SE Corner Tract 1	SE Corner Tract 2	/	/	/

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
			Unit II						
			Transportation						
		40' FF	Pavement/ C & G	Vista Oriente	SE corner Lot 1	La Movada Pl.	/	/	/
			sidewalk both sides						
		48' FF	Pavement / C & G / median	Vista Orente	Unser	SE corner Lot 1	/	/	/
			(south 1/2 only)						
			Private						
		40' FF	Pavement /C & G	Vista Oeste	Vista Oriente	La Movada	/	/	/
		6"	sidewalks both sides						
			PUBLIC UTILITIES						
		8"	WATER LINE	Vista Oeste	La Morada	Vista Oriente	/	/	/
		10"	WATER LINE	Vista Oriente	Unser	SE corner Tract 2	/	/	/
		8"	SAS	Vista Oeste	La Morada	Vista Oriente	/	/	/
		8"	SAS	Vista Oeste	SE Corner Lot 1	SE Corner Tract 2	/	/	/

NAME OF PLAT AND/OR SITE PLAN

SIA Sequence #	COA DRC Project #	Size	Type of Improvement	Location	From	To	Private Inspector	City Inspector	City Cnst Engineer
							/	/	/
							/	/	/
							/	/	/
							/	/	/

NOTES

1 Storm Drain to include Manhole & inlets

2 * Sidewalks to be deferred

3 Grading & Drainage Plan Certification Required before release of financial guarantee

4 Water/ SAS infrastructure to Include vavles, fittings, Manhole etc

AGENT / OWNER	DEVELOPMENT REVIEW BOARD MEMBER APPROVALS	
John MacKenzie, PE NAME (print)	DRB CHAIR - date	PARKS & GENERAL SERVICES - date
Mark Goodwin & Associates P.A. FIRM	TRANSPORTATION DEVELOPMENT - date	AMAFCA - date
John M MacKenzie 4/5/02 SIGNATURE - date	UTILITY DEVELOPMENT - date	_____ - date
MAXIMUM TIME ALLOWED TO CONSTRUCT THE IMPROVEMENTS WITHOUT A DRB EXTENSION: _____	CITY ENGINEER - date	_____ - date

DESIGN REVIEW COMMITTEE REVISIONS

REVISION	DATE	DRC CHAIR	USER DEPARTMENT	AGENT /OWNER

revised 07/01/01

PNM JOB NO. _____

PNM Electric Services
Alvarado Square, Albuquerque, New Mexico 87158

EASEMENT ENCROACHMENT AGREEMENT

THIS INFORMATION TO BE PROVIDED BY TITLE COMPANY

This Easement Encroachment Agreement made this _____ day of _____, 19 ____

by and between (BUYER/BORROWER, OWNER) Unser/98th Street Partnership, LLC

whose address is 8900 Washington NE, Albuquerque, NM 87113

(hereinafter called "First Party"), (his) (her) (their) (its) heirs, successors and assigns, and PUBLIC SERVICE COMPANY OF NEW MEXICO, A New Mexico Corporation for it's Electric Services Division, (hereinafter called ("PNM") ("Parties").

WITNESSETH:

WHEREAS, PNM is the Grantee of a certain easement within the hereinafter described property.

WHEREAS, First Party desires to encroach upon the Easement as more particularly specified hereinafter, and WHEREAS, PNM has agreed to said encroachment: NOW THEREFORE, for and in consideration of the sum of One and No/100 ($1.00) DOLLAR, in hand paid, and other valuable consideration, the receipt of which is hereby acknowledged, PNM does hereby grant First Party the right to encroach upon the Easement only to the extent of, and for the purposes set forth below:

PNM USE ONLY FOR LEGAL DESCRIPTION

As necessary to install City of Albuquerque public infrastructure improvements in accordance with Master Grading and Drainage Plan, with Engineer's Stamp, Dated May 24, 2002, and subject to final review and approval by PNM staff.

1. All construction equipment must maintain fifteen (15) foot vertical and horizontal clearance from all conductors.
2. No aerial lift trash dumpsters will be allowed to operate within the right-of-way.
3. All lighting masts/attachments and decorative (or shade trees must not be more than 10 feet in height within in right of way.
4. First party for encroachment will provide a complete set of development plans to PNM for review and approval. If changes are made as a result of the review and approval process, a final development plan will be provided by first party to PNM before approval is granted.
5. When required, first party shall install a PNM approved barricade for structures affected and incur all costs associated with the barricade installation.
6. First party is hereby notified that they are required by National Electrical Safety Code to meet electric clearance codes for any developments near power lines.

PRELIMINARY

By granting the aforesaid right to encroach PNM does not waive or relinquish any rights that it may have under or by reason of the Easement including, but not limited to the right to build, rebuild, construct, reconstruct, locate, relocate, change, modify, renew, operate and maintain it electric lines (including underground lines), poles, guywires and other electric equipment, fixtures and structures that are now located, or may in the future be located, through, on, within, or under the Easement. First Party, at its sole cost and expense, agrees to remove or relocate it encroachment upon the written request of PNM within 90 days of such written request. First Party appoints PNM its agent to accomplish sai removal or relocation at First Party's expense if First Party fails to remove or relocate such encroachment within such time period.

In consideration of PNM granting First Party the right to encroach upon the Easement, First Party hereby agrees to indemnify and hold harmless PNM, its agents and employees, from any and all claims whatsoever for personal injuries or damages to property when such injuries or damages directly or indirectly arise out of the existence, construction, maintenance, repair, condition, use or presence of the encroachment upon the Easement, regardless of the cause of said injuries or damages; provided, however, that notwithstanding anything to the contrary in this paragraph, First Party shall not be required to indemnify PNM for liability, claims, damages, losses or expenses, arising out of (a) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications by PNM, or the agents or employees of PNM; or (b) the giving of or the failure to give directions or instructions by PNM, or the agents or employees of PNM, where such giving or failure to give directions or instructions is the primary cause of bodily injury to persons or damage to property.

In consideration of PNM permitting First Party to encroach upon the Easement, First Party agrees that PNM shall not be responsible for any damage caused to facilities, equipment, structures or other property of First Party if damaged by reason of PNM's use of Easement.

First Party shall comply with all applicable laws, ordinances, rules and regulations enacted or promulgated by any federal, state or local governmental body having jurisdiction over First Party's encroachment.

The provisions hereof shall inure to the benefit of and bind the heirs, executors, administrators, personal representatives, successors and assigns of the Parties hereto; provided, however, that no such heir, executor, administrator, personal representative, successor or assign of First Party shall have the right to use, alter or modify the encroachment in a manner which will increase the burden of the encroachment on the Easement.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the day and year first above written.

BUYER/BORROWER, OWNER (First Party):

_____

_____

PUBLIC SERVICE COMPANY OF NEW MEXICO

By: _____

PRELIMINARY

PNM USE ONLY

STATE OF NEW MEXICO

COUNTY OF _____} SS

This instrument was acknowledged before me on _____ 19 _____,

by

_____

of the Public Service Company of New Mexico, a New Mexico corporation, for it's Electric Services Division on behalf of said corporation

_____
NOTARY PUBLIC

My Commission Expires: _____

STATE OF NEW MEXICO

COUNTY OF _____} SS

This instrument was acknowledged before me on _____ 19 _____,

by _____

_____

_____

_____

_____
NOTARY PUBLIC

My Commission Expires: _____

FOR RECORDER'S USE ONLY

PNM REFERENCE NUMBER

CITY OF ALBUQUERQUE

July 16, 2008

Ronald R. Bohannan, P.E.
Tierra West, LLC
5571 Midway Park Place NE
Albuquerque, NM 87109

Re: Unser and Vista Oriente Grading and Drainage Plan
Engineer's Stamp dated 7-2-08 (H10/D006A3)

Dear Mr. Bohannan,

Based upon the information provided in your submittal received 7-2-08, the above referenced plan cannot be approved for Building Permit until the following comments are addressed:

- The site does not have an approved Site Plan. The Site Plan needs to be approved before Building Permit approval will be granted.
- According to the proposed Site Plan, five of the six buildings will be/have restaurants. Trash enclosures at restaurants are required to drain to the sanitary sewer after passing through the grease trap.
- The 2-2 ft sidewalk culverts build note was omitted from this plan.
- Concerning cover over the 15" SD at the entrance. It appears the entrance was raised on the west side, but lowered on the east side. On the east side there is a spot over the SD of 94.31 and the top of pipe is probably 93.5. Please explain how 0.8 feet is enough cover.
- Provide a spot elevation at the southeast corner of the swale on the east side of the site. This is to ensure the grade is above the invert of the sidewalk culverts.

If you have any questions, you can contact me at 924-3695.

Sincerely,

Curtis A. Cherne, P.E.
Senior Engineer, Planning Dept.
Development and Building Services

C: file

PO Box 1293
Albuquerque
NM 87103
www.cabq.gov

CAC

DRAINAGE AND TRANSPORTATION SHEET

(REV. 1/28/2003rd)

H-10/D006A3

PROJECT TITLE: **Unser & Vista Oriente** ZONE MAP/DRG. FILE #: ~~H-10/D6A2~~

DRB #: EPC #: WORK ORDER #:

LEGAL DESCRIPTION **LOTS 1B AND 1D OF LADERA INDUSTRIAL PARK**

CITY ADDRESS: **UNSER BOULEVARD NW BETWEEN OLD OURAY ROAD NW AND VISTA ORIENTE STREET NW**

ENGINEERING FIRM:	TIERRA WEST, LLC	CONTACT:	Jon Niski
ADDRESS:	5571 MIDWAY PARK PLACE NE	PHONE:	(505) 858-3100
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87109
OWNER:	CAP, II - C/O GEORGE RAINHART ARCHITECTS	CONTACT:	JON STERN
ADDRESS:	2325 SAN PEDRO NE, SUITE 2-B	PHONE:	(505) 884-9110 Ext. 110
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87110
ARCHITECT:	GEORGE RAINHART ARCHITECTS & ASSOCIATES	CONTACT:	JON STERN
ADDRESS:	2325 SAN PEDRO NE, SUITE 2-B	PHONE:	(505) 884-9110 Ext. 110
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87110
SURVEYOR:	SURV-TEK, INC	CONTACT:	RUSS HUGG
ADDRESS:	9384 VALLEY VIEW DRIVE	PHONE:	(505) 897-3366
CITY, STATE:	ALBUQUERQUE, NM	ZIP CODE:	87114
CONTRACTOR:		CONTACT:	
ADDRESS:		PHONE:	
CITY, STATE:		ZIP CODE:	

CHECK TYPE OF SUBMITTAL:

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

CHECK TYPE OF APPROVAL SOUGHT:

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

RECEIVED

JUL 02 2008

HYDROLOGY SECTION

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- X NO
- ___ COPY PROVIDED

DATE SUBMITTED: **7/2/2008** BY: **Jonathan D. Niski, EI**

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

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

CITY OF ALBUQUERQUE

THREE HUNDRED YEARS 1706 • 2006
ALBUQUERQUE
Making History

September 12, 2005

Mr. John MacKenzie, PE
MARK GOODWIN & ASSOCIATES
P.O. Box 90606
Albuquerque, NM 87199

RE: LADERA BUSINESS PARK, UNIT 2 (H-10/D6A)
Engineers Certification for Release of Financial Guaranty
Engineers Stamp dated 11/21/2002
Engineers Certification dated 09/09/2005

Dear John:

P.O. Box 1293

Based upon the information provided in your Engineer's Certification Submittal dated 09/12/2005, the above referenced plan is adequate to satisfy the Grading and Drainage Certification for Release of Financial Guaranty.

Albuquerque

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

Sincerely,

New Mexico 87103

Arlene V. Portillo

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

www.cabq.gov

C: Marilyn Maldonado, COA# 693282
File

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV. 1/28/2003rd)

H-10/D6A

PROJECT TITLE: Ladera BP Unit 2
DRB #: 1001523 EPC#:

ZONE MAP/DRG. FILE #: ~~M-14/D-12~~
WORK ORDER#: 693282

LEGAL DESCRIPTION: Ladera Business Park Subdivsion
CITY ADDRESS:

ENGINEERING FIRM: Mark Goodwin & Associates, PA
ADDRESS: PO Box 90606
CITY, STATE: Albuquerque, NM

CONTACT: John MacKenzie, PE
PHONE: 828-2200
ZIP CODE: 87199

OWNER: Unser 98th St. Partners
ADDRESS: 8900 Washington NE
CITY, STATE: Albuquerque, NM

CONTACT: Pat Wylie
PHONE: 821-1034
ZIP CODE: 87113

ARCHITECT:
ADDRESS:
CITY, STATE:

CONTACT:
PHONE:
ZIP CODE:

SURVEYOR:
ADDRESS:
CITY, STATE:

CONTACT:
PHONE:
ZIP CODE:

CONTRACTOR:
ADDRESS:
CITY, STATE:

CONTACT:
PHONE:
ZIP CODE:

CHECK TYPE OF SUBMITTAL:

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

CHECK TYPE OF APPROVAL SOUGHT:

- ☒ SIA / FINANCIAL GUARANTEE RELEASE
- ☐ PRELIMINARY PLAT APPROVAL
- ☐ S. DEV. PLAN FOR SUB'D. APPROVAL
- ☐ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ☐ SECTOR PLAN APPROVAL
- ☐ FINAL PLAT APPROVAL
- ☐ FOUNDATION PERMIT APPROVAL
- ☐ BUILDING PERMIT APPROVAL
- ☐ CERTIFICATE OF OCCUPANCY (PERM.)
- ☐ CERTIFICATE OF OCCUPANCY (TEMP.)
- ☒ GRADING PERMIT APPROVAL
- ☒ PAVING PERMIT APPROVAL
- ☐ WORK ORDER APPROVAL
- ☐ OTHER (SPECIFY)

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ☐ YES
- ☒ NO
- ☐ COPY PROVIDED

RECEIVED
SEP 12 2005
HYDROLOGY SECTION

DATE SUBMITTED: 9-9-05

BY: John MacKenzie

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

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

D. Mark Goodwin & Associates, P.A.
Consulting Engineers
P.O. BOX 90606, ALBUQUERQUE,NM 87199
(505) 828-2200 FAX 797-9539

September 9, 2005

Mr. Bradley L. Bingham, PE
Sr. Engineer, PWD
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Ladera Business Park, Unit 2 (H10-D6A)

Dear Mr. Bingham:

Enclosed with this letter is the as-built grading certification for the referenced project. Also attached are several documents referencing the original approval of the project in the year 2002.

In your letter to me, dated June 14, 2002, you asked for one "comprehensive bound report." That was submitted to your office on November 22, 2002, after the preliminary plat was approved. The revised plan was stamped November 8, 2002 and the report was stamped November 21, 2002. The plan from 11/8/02 was used as a basis for this as-built certification. As shown on the as-built plan, small, temporary retention ponds have been constructed on each tract within Unit 2 to contain existing runoff until development. One tract (27), already has a building upon it for which an individual grading certification has been previously provided (H10-D27).

Please contact me if I can be of further assistance.

Sincerely,

MARK GOODWIN & ASSOCIATES, P.A.

John M. MacKenzie, PE
Vice President

JMM/wp

Attachments

RECEIVED
SEP 12 2005
HYDROLOGY SECTION

F:\1-Projects\2004\A04038 - Ladera BP 2\Unit 2 Grading Cert.doc

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

June 14, 2002

John MacKenzie PE
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, NM 87199

Re: Ladera Business Park Drainage Report
Engineers stamp date 5-24-02 (H10/D6A)

Dear Mr. MacKenzie,

Based on information contained in your resubmittal dated 6-21-02, the above referenced report is approved for Preliminary Plat and Site Plan for Subdivision action by the DRB. Prior to Work Order or Final Plat, please provide one comprehensive bound report with the above date for the City to use as a masterplan for this project. AMAFCA will be signing any plats, Site Plans or Work Order plans in the LBP.

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

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, PWD
Development and Building Services

C: Lynn Mazur, AMAFCA
file

RECEIVED
SEP 12 2005
HYDROLOGY SECTION

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV.1/11/2002)

PROJECT TITLE: Ladera Business Park ZONE MAP/DRB.FILE#: H-10/D6A

DRB#: 1001523 EPC# _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Lot 2, Ladera Industrial Center

CITY ADDRESS: Unser Blvd. NW, Albuquerque NM

ENGINEERING FIRM: Mark Goodwin & Associates, PA CONTACT: John MacKenzie

ADDRESS: P.O. Box 90606 PHONE: 828-2200

CITY, STATE: Albuquerque NM ZIP CODE: 87119

OWNER: Unser- 98th Street Partnership LLC CONTACT:

ADDRESS: P.O. Box 90598 PHONE: 821-1034

CITY, STATE: Albuquerque NM ZIP CODE: 87199

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

- ✔ DRAINAGE REPORT
- ✔ DRAINAGE PLAN
- ✔ CONCEPTUAL GRADING & DRAINAGE PLAN
- ✔ GRADING PLAN
- ___ EROSION CONTROL PLAN
- ___ ENGINEER'S CERTIFICATION (HYDROLOGY)
- ___ CLOMR/LOMR
- ___ TRAFFIC CIRCULATION LAYOUT (TCL)
- ___ ENGINEER'S CERTIFICATION (TCL)
- ___ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
- ___ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:

- ___ YES
- ___ NO
- ___ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

- ___ SIA / FINANCIAL GUARANTY RELEASE
- ✔ PRELIMINARY PLAT APRROVAL
- ✔ S. DEV. PLAN FOR SUB'D. APPROVAL
- ___ S. DEV. PLAN FOR BLDG. PERMIT APPROVAL
- ___ SECTOR PLAN APPROVAL
- ___ FINAL PLAT APPROVAL
- ___ FOUNDATION PERMIT APPROVAL
- ___ BUILDING PERMIT APPROVAL
- ___ CERTIFICATE OF OCCUPANCY (PERM)
- ___ CERTIFICATE OF OCCUPANCY (TEMP)
- ___ GRADING PERMIT APPROVAL
- ___ PAVING PERMIT APPROVAL
- ✔ WORK ORDER APPROVAL
- ___ OTHER (SPECIFY)

RECEIVED SEP 12 2005 HYDROLOGY SECTION

DATE SUBMITTED: 11/22/02 BY: John M. MacKenzie

John M. MacKenzie, PE

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

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5).
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5).

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D. Mark Goodwin & Associates, P.A.
Consulting Engineers

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November 21, 2002

Mr. Brad Bingham, PE
Hydrology Division
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: Ladera Business Park (DRB Project # 1001523 & Drainage File # H10/D6A)

Dear Mr. Bingham:

A revised drainage report for this project was received by your office on June 21, 2002. Subsequently, the report plan was approved subject to combining the latest changes with the original report and then resubmitting all the revised information. The review and revision has been completed, resulting in the report is being resubmitted with the following changes:

- *The hydraulics for the two storm drains flowing into the Mirehaven Channel have been reevaluated, leading to an enlargement of some of the run legs. The hydraulic grade lines generated from the analyses have been placed on the plan and profile drawings which are to be reviewed by DRC on December 4th.*
- *A storm drain inlet and street flow summary has been created for the Vista Oriente and La Morada to help explain how much each inlet accepts and how much corresponding flow is conveyed in the storm drain and in the street.*
- *The AHYMO run has been revised according to your previous comment on the ID error. The report's flow exhibit has also been revised and new flow values have been displayed in a table format for AREA II and AREA III.*
- *The on-site private swales have been widened to twenty-feet and sized to carry the required runoff. The swale draining the large tracts along the Mirehaven Channel now dumps into a new drop inlet just SW of the La Morada cul-de-sac.*
- *The storm drain outfalls to the Mirehaven Channel are now lined by rip-rap stilling basins, similar to what has been employed at other unlined AMAFCA facilities.*
- *Construction of the decel lane along Unser Blvd. at La Morada involves the removal and replacement of two inlets that now exist along the curb face. The new locations for these inlets will be 12' east of their present location so that they will continue to be backed by a curb and contain a curb opening.*
- *The Grading & Drainage plan has been revised to reflect the latest changes discussed herein.*

Please contact me if I can be of further assistance.

Sincerely,

MARK GOODWIN & ASSOCIATES, PA

John M. MacKenzie, PE
Vice President

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HYDROLOGY SECTION

JMM/bm

f:\\ladera business park\plan changes

MASTER DRAINAGE REPORT
for
LADERA BUSINESS PARK

Prepared for:

Unser - 98th Street Partnership
8900 Washington, NE
Albuquerque, NM 87113

Prepared by:

John M. MacKenzie, PE
Mark Goodwin & Associates, PA
PO Box 90606
Albuquerque, NM 87199

JOHN M. MACKENZIE
NEW MEXICO
11016
REGISTERED PROFESSIONAL ENGINEER

April 5, 2002

Revised May 24, 2002

Revised November 21, 2002

11-21-02

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