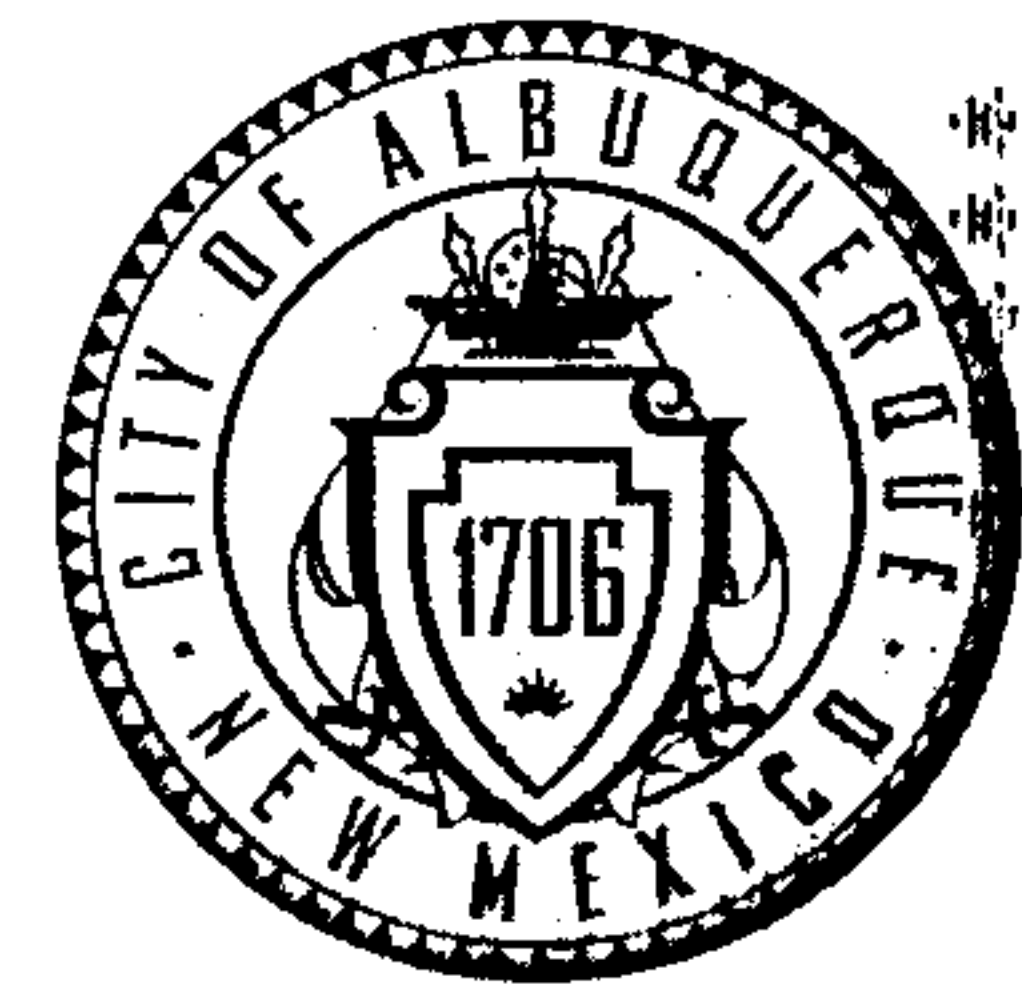


CITY OF ALBUQUERQUE



May 20, 2015

David Thompson, P.E.
Thompson Engineering Consultants, Inc.
PO Box 65760
Albuquerque, NM 87193

**Re: Sunrise Ranch West Subdivision
Analysis for 106th St SW
Drainage Report, Engineer's Stamp Date 3-24-2015 (File: L08D14)**

Dear Mr. Thompson:

Based upon the information provided in your submittal received 3-24-15, the above referenced Submittal cannot be approved until the following conditions/ comments are addressed:

- Provide a plan view of the stub out improvement, reflecting the slope of 0.0057 used to calculate the flow.
- Original storm drain design captured flows from the west. With the grated manhole closed all flows from the west will be carried in the channel. Channel should be widened for this additional capacity allowing 1 foot of free board.

PO Box 1293

Albuquerque

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

New Mexico 87103

www.cabq.gov

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

Orig: Drainage file
c.pdf Addressee via Email, Monica Ortiz

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(Rev. 12/05)

PROJECT TITLE: SUNRISE RANCH WEST SUBDIVISION ZONE MAP PAGE: L-8/D14
 DRB#: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: SUNRISE RANCH WEST SUBDIVISION
 CITY ADDRESS: 106ht Street and Eucariz SW

ENGINEERING FIRM: Thompson Engineering Consultants, Inc. CONTACT: David Thompson
 ADDRESS: P.O. Box 65760 PHONE: 271-2199
 CITY, STATE: Albuquerque, NM ZIP CODE: 87193

OWNER: Galway Construction CONTACT: Rick Beltramo
 ADDRESS: 6330 Riverside Plaza Lane #160 PHONE: (505) 761-9911
 CITY, STATE: Albuquerque, NM ZIP CODE: 87120

ARCHITECT: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

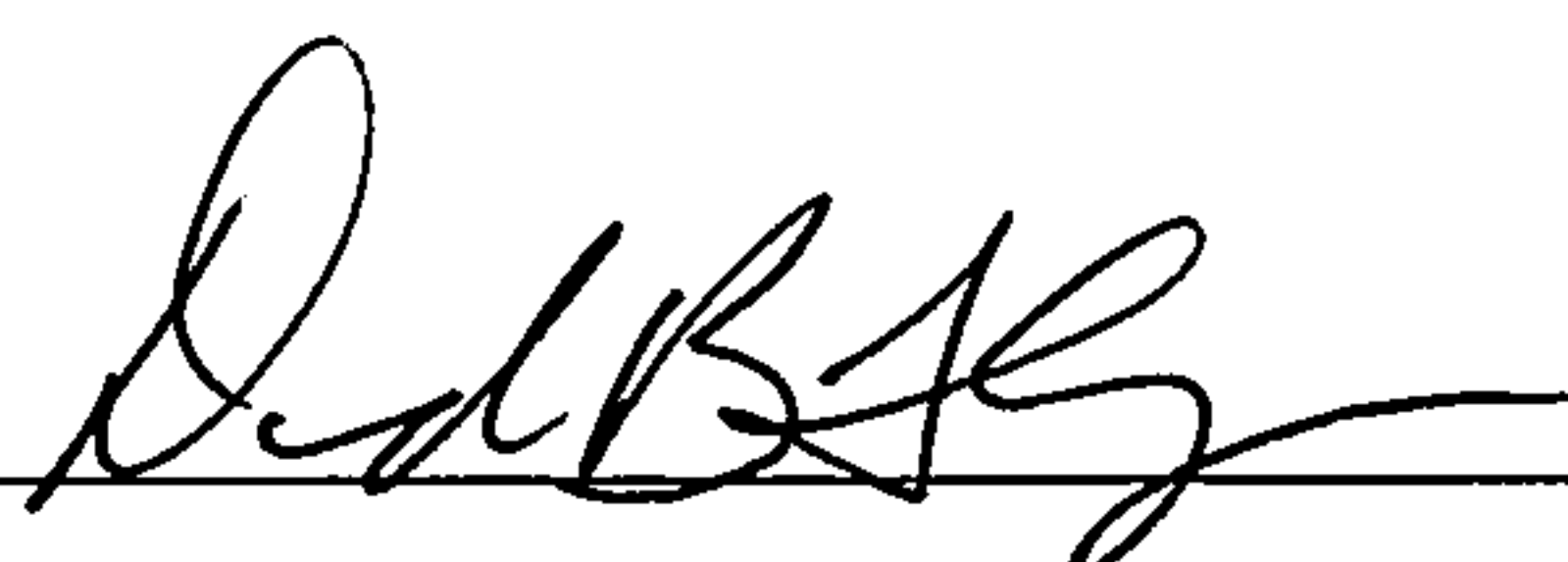
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 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

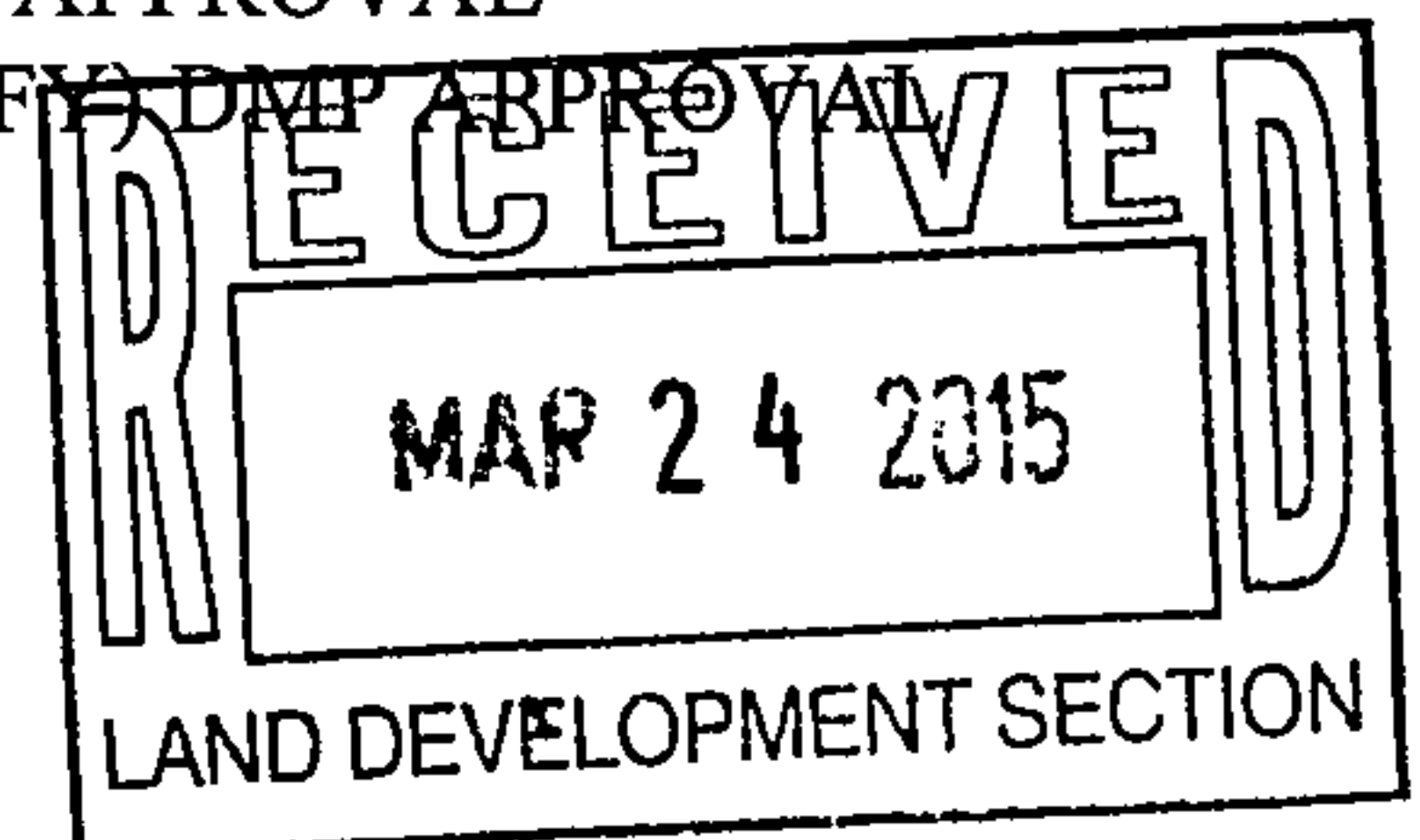
CONTRACTOR: _____ CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:
 _____ DRAINAGE REPORT
 _____ DRAINAGE PLAN 1st SUBMITTAL
 XX _____ DRAINAGE PLAN RESUBMITTAL
 _____ CONCEPTUAL G & D PLAN
 _____ 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) RESPONSE LETTER

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)
 _____ GRADING PERMIT APPROVAL
 _____ PAVING PERMIT APPROVAL
 _____ WORK ORDER APPROVAL
 XX _____ OTHER (SPECIFY) DMP APPROVAL

WAS A PRE-DESIGN CONFERENCE ATTENDED:
 _____ YES
 _____ NO
 _____ COPY PROVIDED

SUBMITTED BY: David Thompson  DATE: 3-24-15



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.

March 24, 2015

Mr. Curtis Cherne, P.E.
Principal Engineer, Planning Department
Development and Building Services
City of Albuquerque
P.O. Box 1293
Albuquerque, NM 87103

Re: SUNRISE WEST RANCH SUBDIVISION 106TH STREET CAPACITY

Dear Mr. Cherne:

This letter presents our summary of our analysis of the capacity of 106th Street SW as it exists today adjacent to the Sunrise West Ranch subdivision. We used the information provided in the Drainage Report for the Sunrise Ranch West Subdivision dated September 7, 2001 prepared by Mark Goodwin & Associates to determine the offsite flows reaching 106th Street from the west. Based on our analysis, 106th Street has adequate capacity to convey the offsite flows to the existing detention pond at the corner of 106th Street and Eucariz Ave.

According to the Sunrise Ranch West Subdivision Drainage Report, the runoff from basins 20101A and 20104A drain to the 106th Street right-of-way. Figure 4 of the Drainage Report shows that Basin 20101A discharges 195 CFS to 106th Street and Basin 20104A discharges 14.1 CFS to 106th Street. Therefore, a total of 219.1 CFS is conveyed in 106th Street during a 100-year storm.

Currently, 106th Street includes a ½ paved street section with a 24 foot-wide paved width and an asphalt-lined channel with a 10-foot wide bottom width and a 6:1 side slope that is 10 feet –wide and a 2:1 side slope that is also 10 feet-wide. The invert of the channel section is about 1.11 feet lower than the flow line of the ½ paved street section.

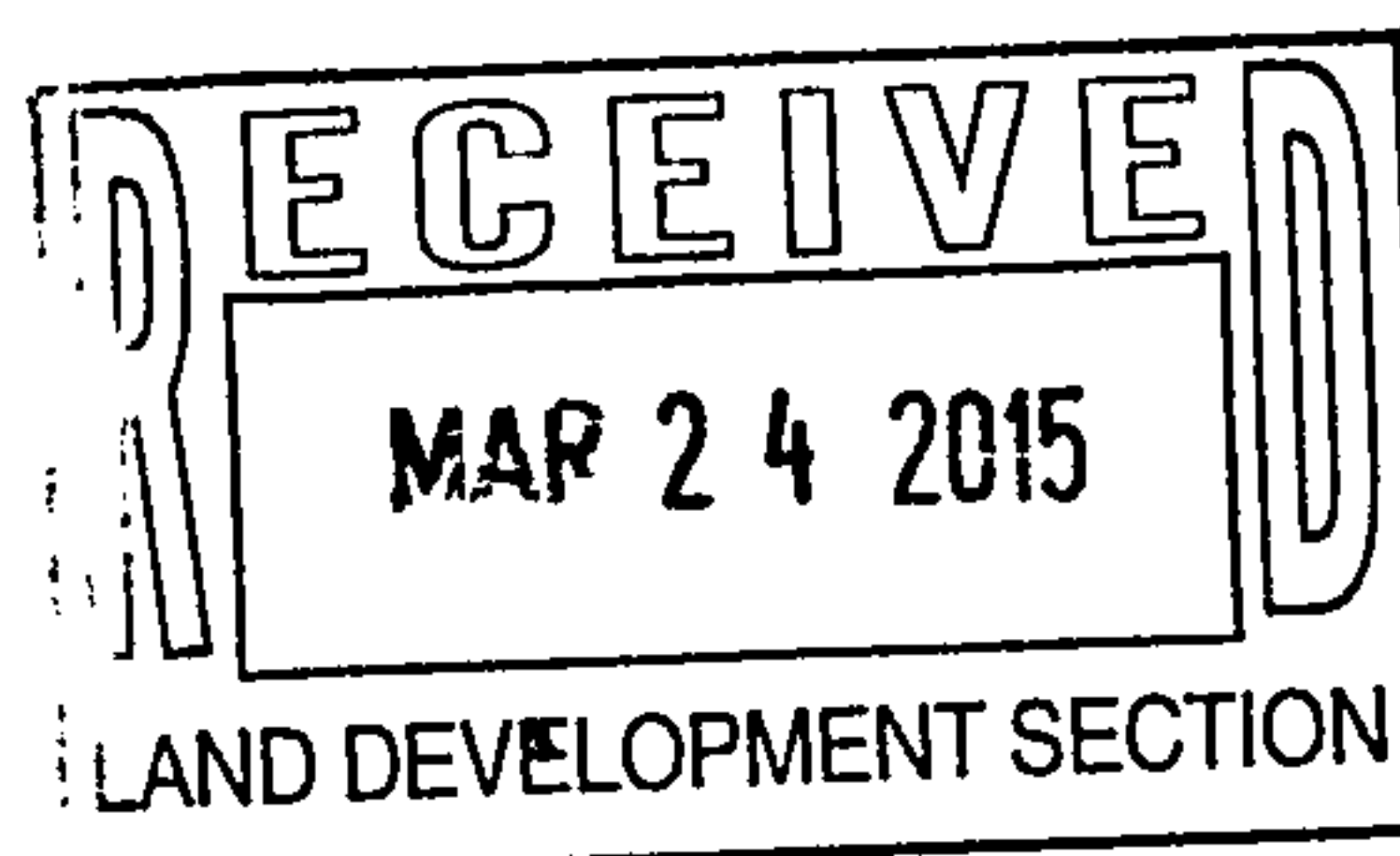
To calculate the street capacity we used software that calculates flow capacity for an irregular cross section with varying Mannings roughness coefficients. For a peak flow of 219.1 CFS, the depth of flow in the street section is 1.612 feet. The maximum depth in the street section is 0.502 feet deep. The velocity of the peak flow is 7.05 fps. So, there is more than enough capacity in 106th Street to convey the peak flow to the pond.

If you should have any questions about this analysis, please call me at 271-2199.

Sincerely,



David B. Thompson, P.E.





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Inbox	☐	plndrs@cabq.gov	Fw: Grading Plan Submittal for 201 Princeton SE	📎	12:20 PM
Drafts	☐	plndrs@cabq.gov	Sunrise Ranch West Subdivision 106th Street Analysis	📎	12:19 PM
Sent	☐	➔ plndrs@cabq.gov	Grading Plan Submittal for 201 Princeton SE	📎	12:15 PM
Spam	☐	Bill Bily	Re: Site Plan Radii		11:07 AM
Trash	☐	sqilligan@snaphome.	Re: #A-PJ-17158: 412 lead/ sewer dude in western bank		11:04 AM

Smart Views

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• Sunrise Ranch West Subdivision 106th Street Analysis

People 📎 ★

Today at 12:19 PM

me
To plndrs@cabq.gov, Monica Ortiz, Curtis Cherne, Shahab Biazar
CC Rick Beltramo

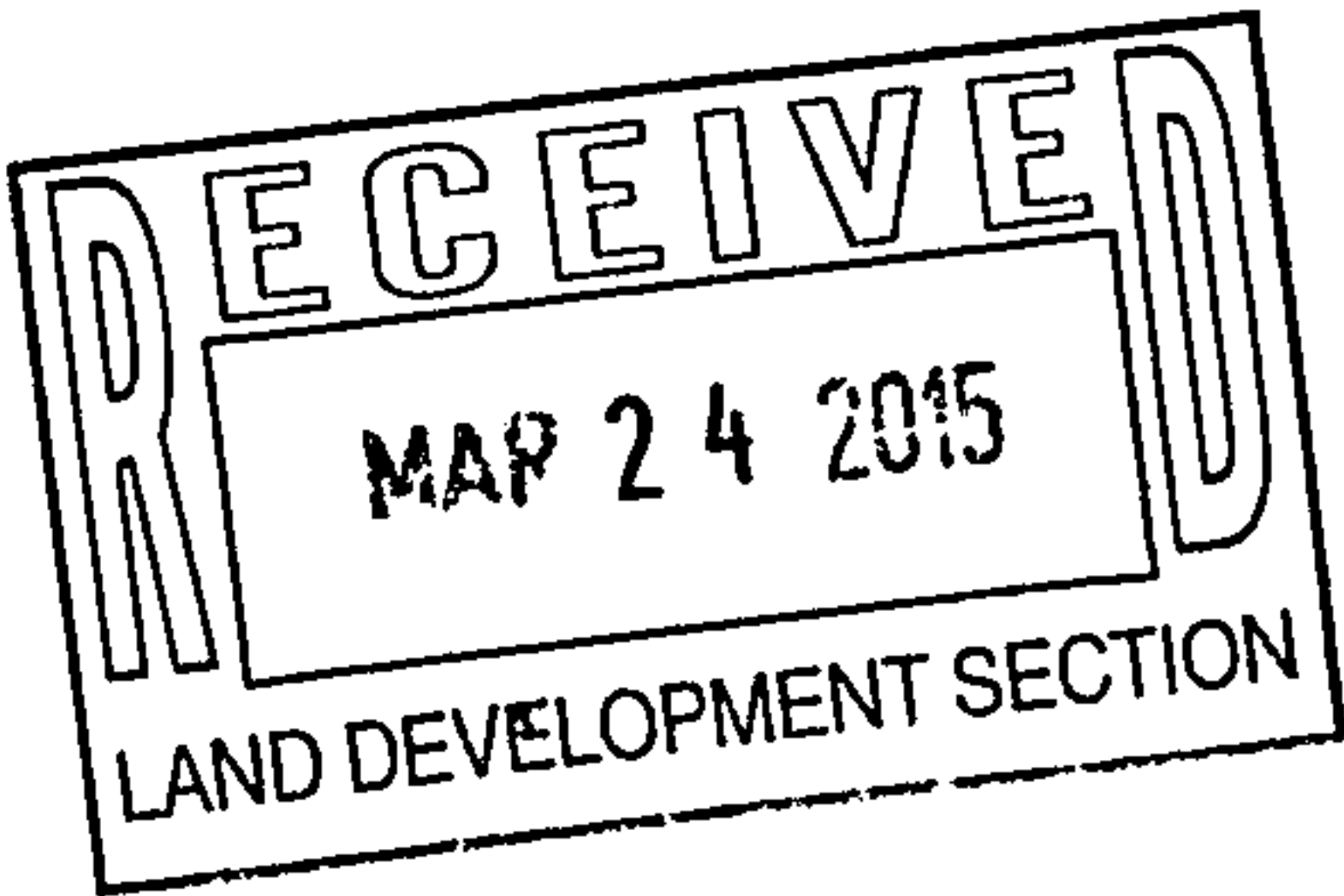
Monica,

Attached is an analysis for 106th Street SW.

David B. Thompson, P.E.
Thompson Engineering Consultants, Inc.
P.O. Box 65760
Albuquerque, NM 87193
Office: (505) 271-2199
Fax: (505) 830-9248

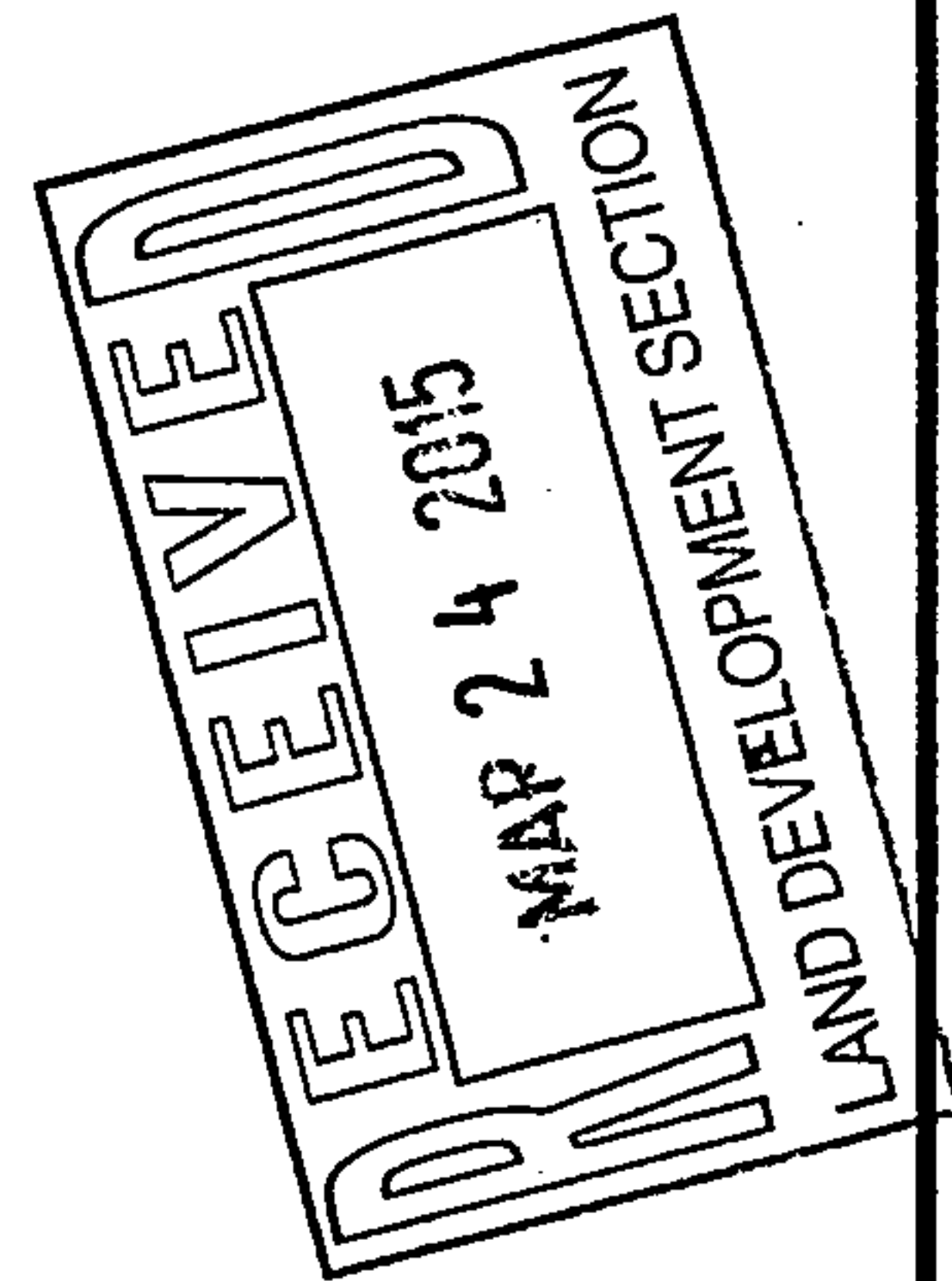
2 Attachments | View all | Download all ▾

Drainage Info She... .pdf	View Download ▾
Capacity Analysis pdf	View Download ▾



**१।अ.
२।अ.
३।अ.
४।अ.
५।अ.**

**106TH STREET MANHOLE
LID AND STUB OUT IMPROVEMENTS**



Manning Formula:

Irregular Section

Input

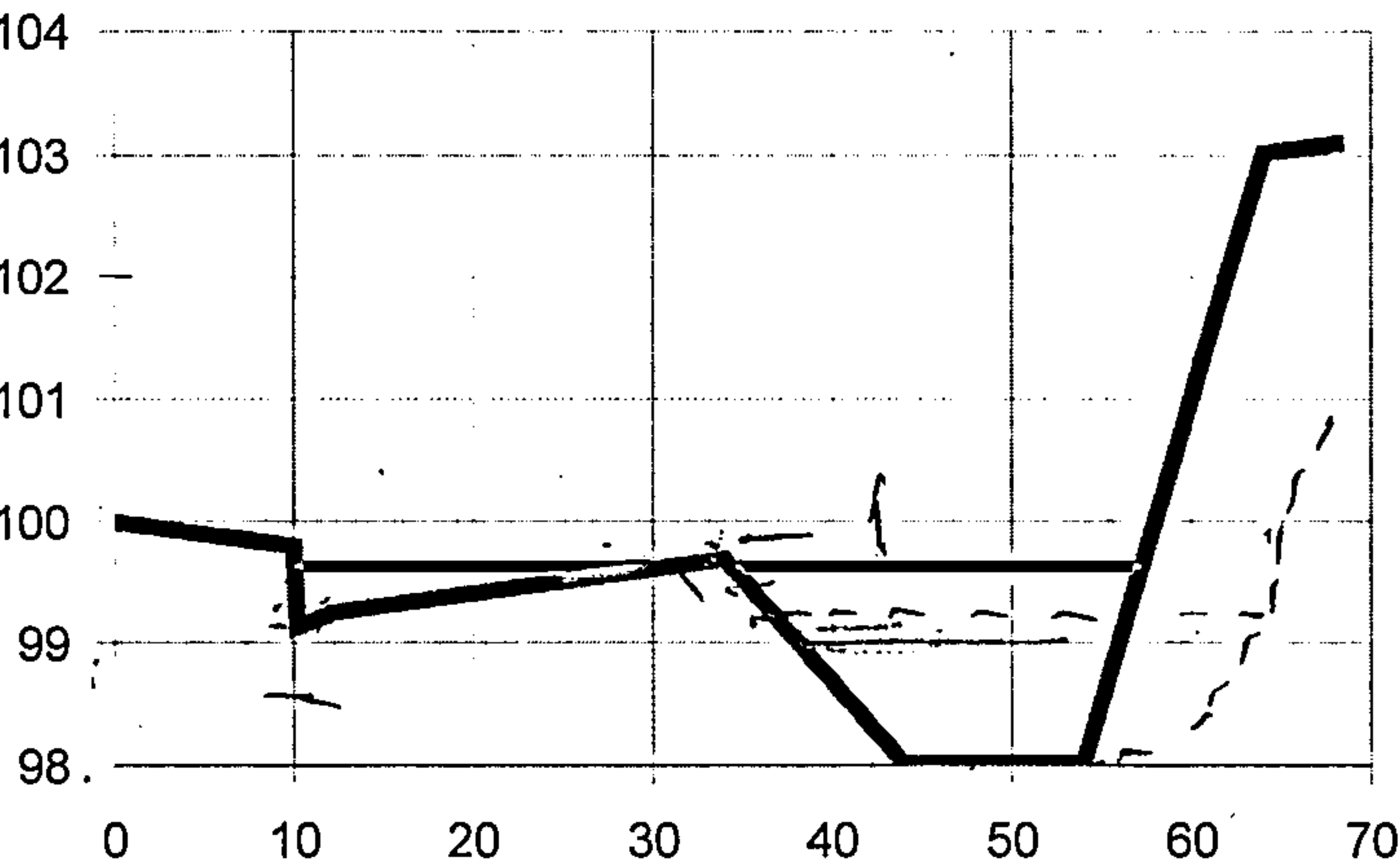
Flow 219 cfs
Slope 0.0057 ft/ft

Sta	Elev	n	Sta	Elev	n	Sta	Elev	n	Sta	Elev	n
0.0	100.0	0.013	4.0	99.92	0.013	10.0	99.80	0.03	10.17	99.13	0.013
12.17	99.25	0.013	34.0	99.69	0.017	44.0	98.02	0.017	54.0	98.02	0.017
64.0	103.02	0.017	68.0	103.1	0.030						

Output

WSElev 99.632 ft
Flow Area 31.0 sf
Velocity 7.05 fps
Velocity Head 0.773 ft
Top Width 44.0 ft
Froude Number 1.48
Critical WSElev 99.872 ft
Critical Slope ft/ft

managing



2 ft

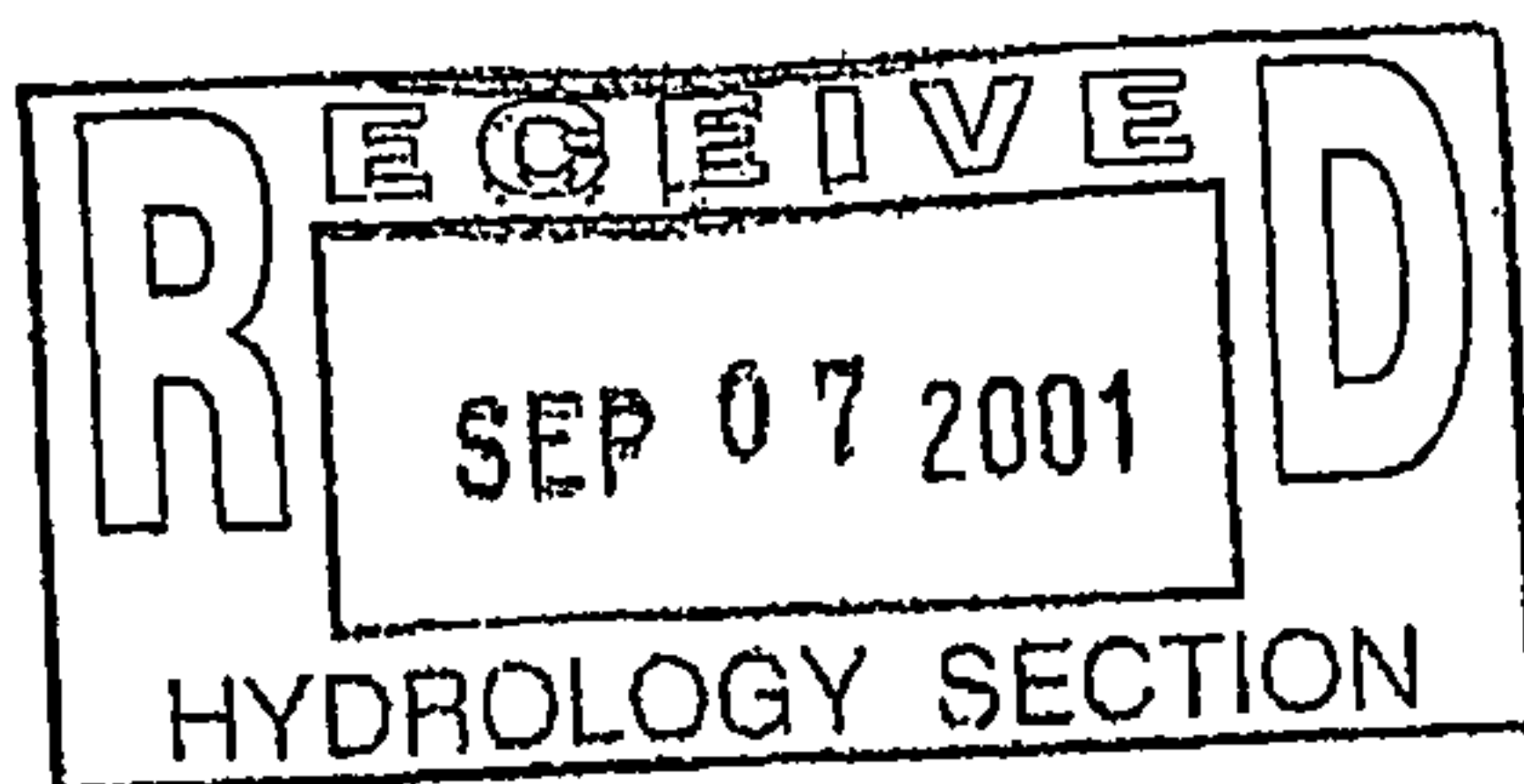
DRAINAGE REPORT
For
Sunrise Ranch West Subdivision

MARK GOODWIN

& ASSOCIATES
CONSULTING ENGINEERS

dmg

DRAINAGE REPORT
For
Sunrise Ranch West Subdivision



September 2001

IV. INTERIM DRAINAGE CONDITIONS

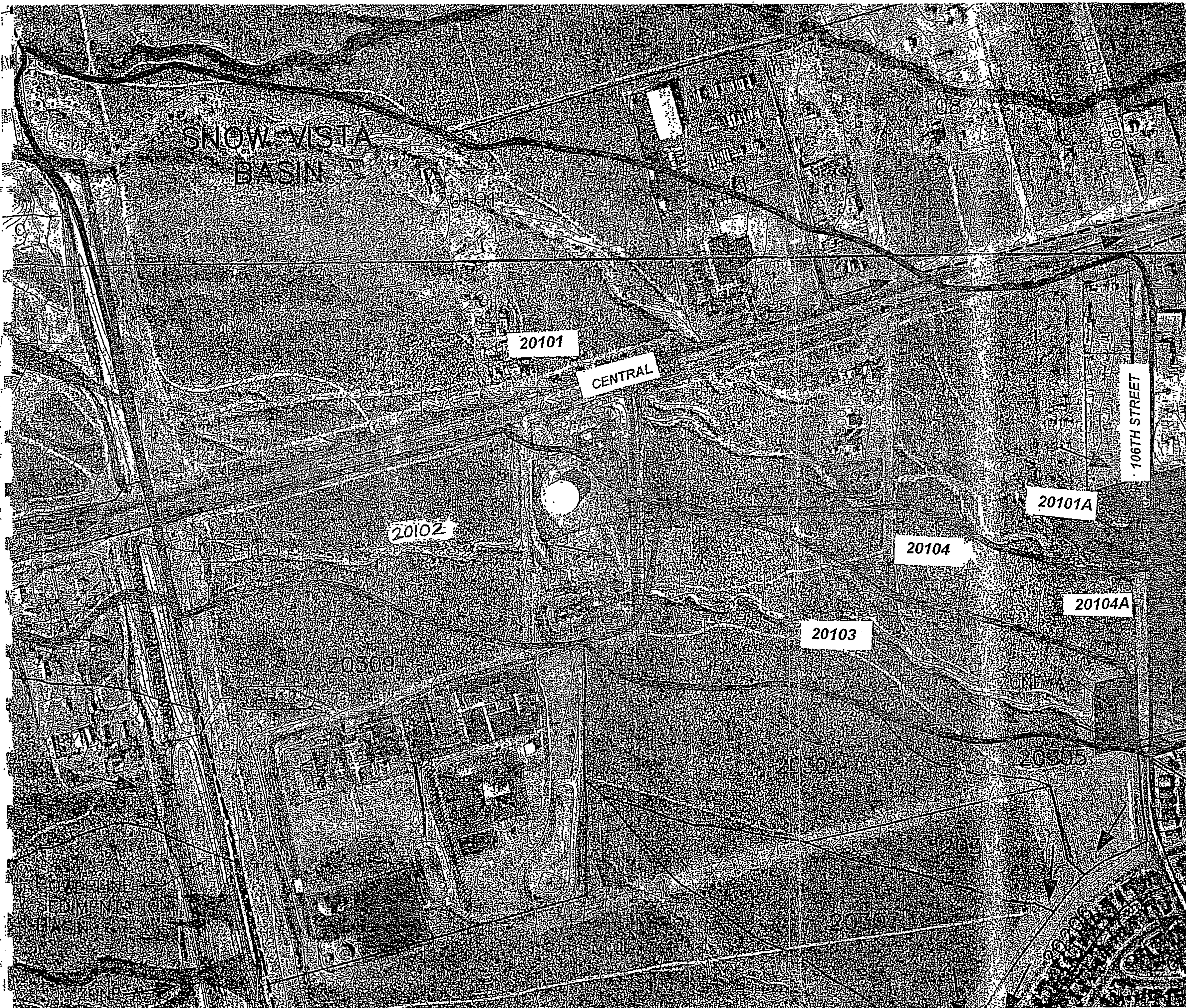
To develop the entire project site, offsite flows presently entering the site from west which includes an arroyo located within a FEMA floodplain will need to be intercepted and directed south to the existing 60" storm sewer in Eucariz. An attempt to acquire a temporary offsite detention pond on the property to the west (SB 160A) to intercept and attenuate a majority of the offsite flows outside of the public right-of-way was unsuccessful. The alternative solution is to intercept a portion of these flows into the proposed 60" storm sewer in 106th street through a 5'x5' median drop inlet with the remaining flows to be conveyed through a temporary swale located within the western half of the 106th street right-of-way. Flows intercepted by the storm sewer will be conveyed south and continue east in the existing 60" Eucariz storm sewer to the Snow Vista Sedimentation Pond. Flows conveyed in the temporary swale will discharge into the existing offsite 106th St. detention pond located at 106th street and Eucariz. There is excess capacity in the existing 106th street detention pond to accommodate a portion of the additional runoff from the flows originating from the 100 year floodplain arroyo. The combination of the temporary swale and outfall structure have been designed to intercept runoff from the 100-year storm. Capacity calculations and rating tables for the outfall structures are in Appendix B.2.

The Snow Vista Basin "existing conditions" AHYMO model has been revised to reflect this interim condition and demonstrates that capacity exists in the offsite 106th St. pond and does not exceed the downstream capacity in the Snow Vista channel (refer to Appendix A.3). The outfall structure in the existing pond will be modified to remove the 30" CMP inlet on the 24" RCP. Details for this modification will be designed at DRC.

The original AMAFCA Snow Vista Basin existing conditions AHYMO model has been revised to reflect changed 'existing conditions' in the area as well as changes as a result of the proposed Sunrise Ranch West development. The revised Snow Vista Basin "existing conditions" is schematically shown in Figure 4. The revisions to the original 'existing conditions' Snow Vista Basin Management Plan AHYMO model are as follows:

1. Original subbasins 20101 and 20104 were revised to eliminate the area east of 106th street which is now the project site.
2. Offsite flows from subbasin 20101A and 20104A were routed south into the offsite 106th St. Sunrise Terrace detention pond located at 106th street and Eucariz.
3. The portion of the original subbasins 20101 and 20104 east of 106th street was renamed as Subbasin 180 (proposed Sunrise Ranch West) and routed through the 60" storm sewer in Eucariz which discharges into the Snow Vista Sedimentation Pond.
4. The 30" CMP outfall structure in the 106th St. Sunrise Terrace pond was removed, allowing the existing 24" RCP to become the 'flow restricting' outfall structure. The rating table for this pond was revised to reflect this new configuration and existing topo conditions verified in the field.

All of these changes have been incorporated into AMAFCA's Snow Vista Basin 'existing conditions' AHYMO model to make sure that the Snow Vista master planned storm sewer will function conceptually and that the



Summary Table			
Subbasin	Area	Q(cfs)	Vol.(ac.ft.)
20101	0.2930	212	12.98
20101A	0.2711	195	12.04
20102	0.0451	56.2	1.75
20103	0.0494	50.0	1.45
20104	0.0346	25.5	0.96
20104A	0.0191	14.1	0.53

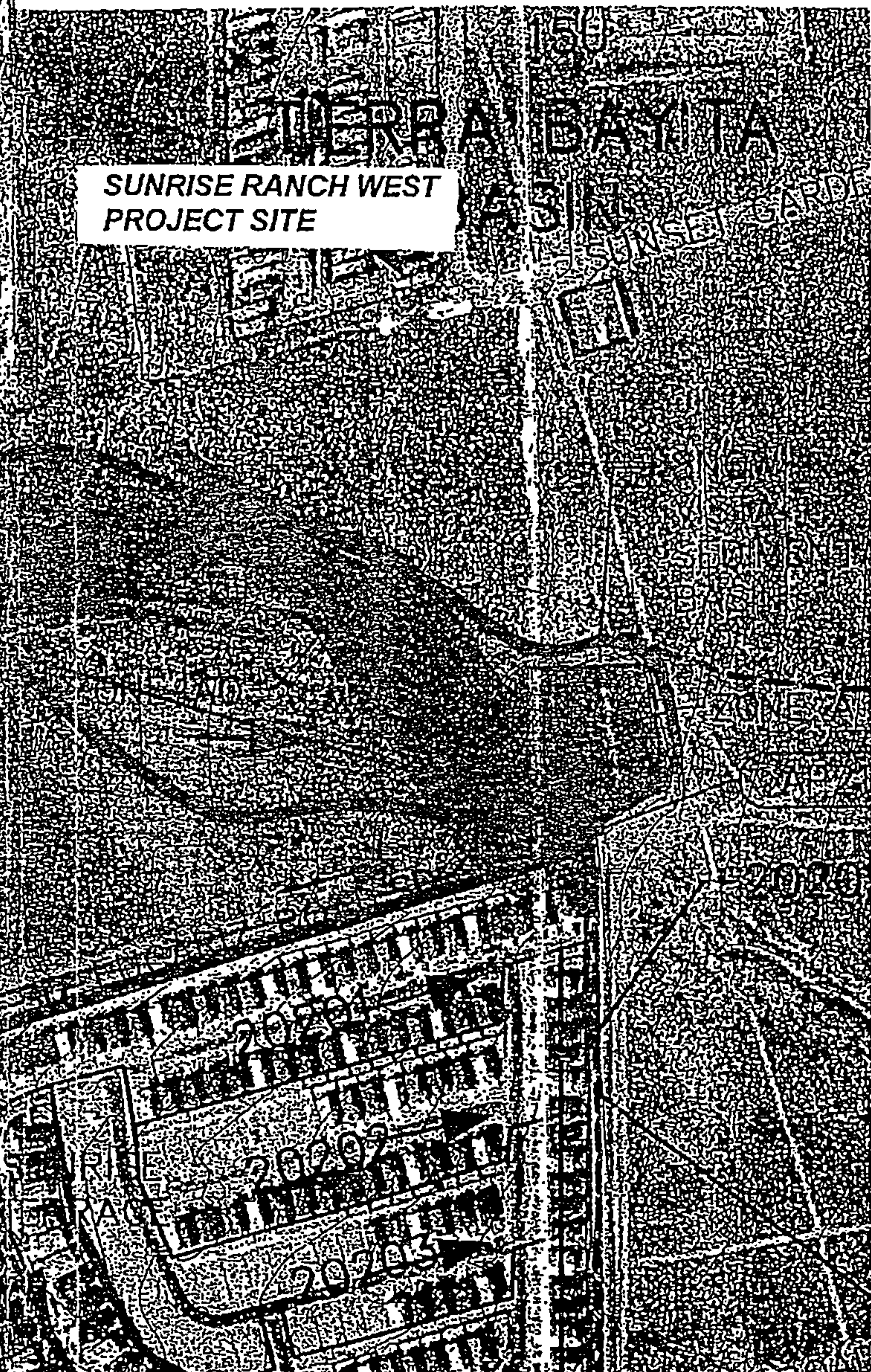


FIGURE 4: SNOW VISTA BASIN
EXISTING CONDITIONS BOUNDARIES

Galway Construction, Inc.
6330 Riverside Plaza Lane, NW, Suite 160
Albuquerque, NM 87120
(505) 761-9911

Date
Due Date

6-25-2014

TRANSMITTAL

LD&DONT

TO: Curtis Cherne
COMPANY City Of Albuquerque
ADDRESS _____
Hand Delivered

FROM: Rick Beltramo
PROJECT Sunrise Ranch West
ITEM Original DMP
CC _____

ATTACHED FIND:

	Letter
	Prints
	Plans
	Changes

	Specifications
	Plan Revisions
	Submittals
	Contract document

	Agreements
	Stop Work Order
XX	Report
	Correspondence

SETS	COPIES	PROJ NO.	DESCRIPTION OF ATTACHMENTS
1	1	675781	"Drainage Report for Sunrise Ranch West Subdivision", dated Sept. 2001 (<u>original report returned</u> and .pdf file)

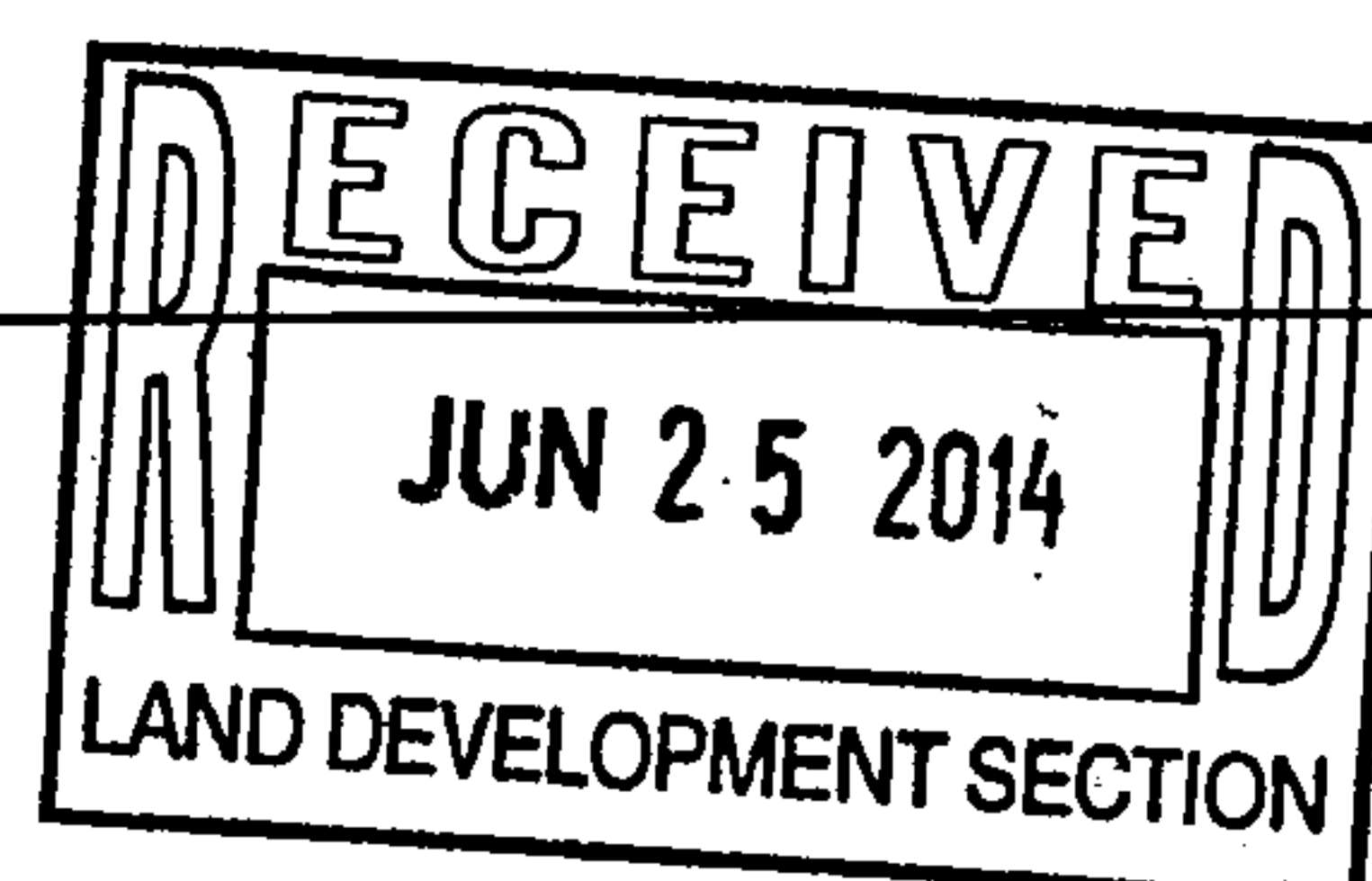
PURPOSE OF TRANSMITTAL

RETURN TO CITY FILES

REMARKS:

Received By: _____

Date: _____



Galway Construction, Inc.

6330 Riverside Plaza Lane, NW, Suite 160
Albuquerque, NM 87120
(505) 761-9911

Date

6-25-2014

Due Date

TRANSMITTAL

TO: Curtis CherneCOMPANY City Of Albuquerque

ADDRESS _____

Hand DeliveredFROM: Rick BeltramoPROJECT The TrailsITEM Amended DMP

CC _____

ATTACHED FIND:

	Letter
	Prints
	Plans
	Changes

	Specifications
	Plan Revisions
	Submittals
	Contract document

	Agreements
	Stop Work Order
XX	Report
	Correspondence

SETS	COPIES	PROJ NO.	DESCRIPTION OF ATTACHMENTS
1	1	NA	"Amendment To The Drainage Master Plan For The Trails, Units 1, 2 and 3", dated April 2014 (.pdf file)

PURPOSE OF TRANSMITTAL

SUBMIT COPY FOR CITY FILES

REMARKS:

Received By: _____

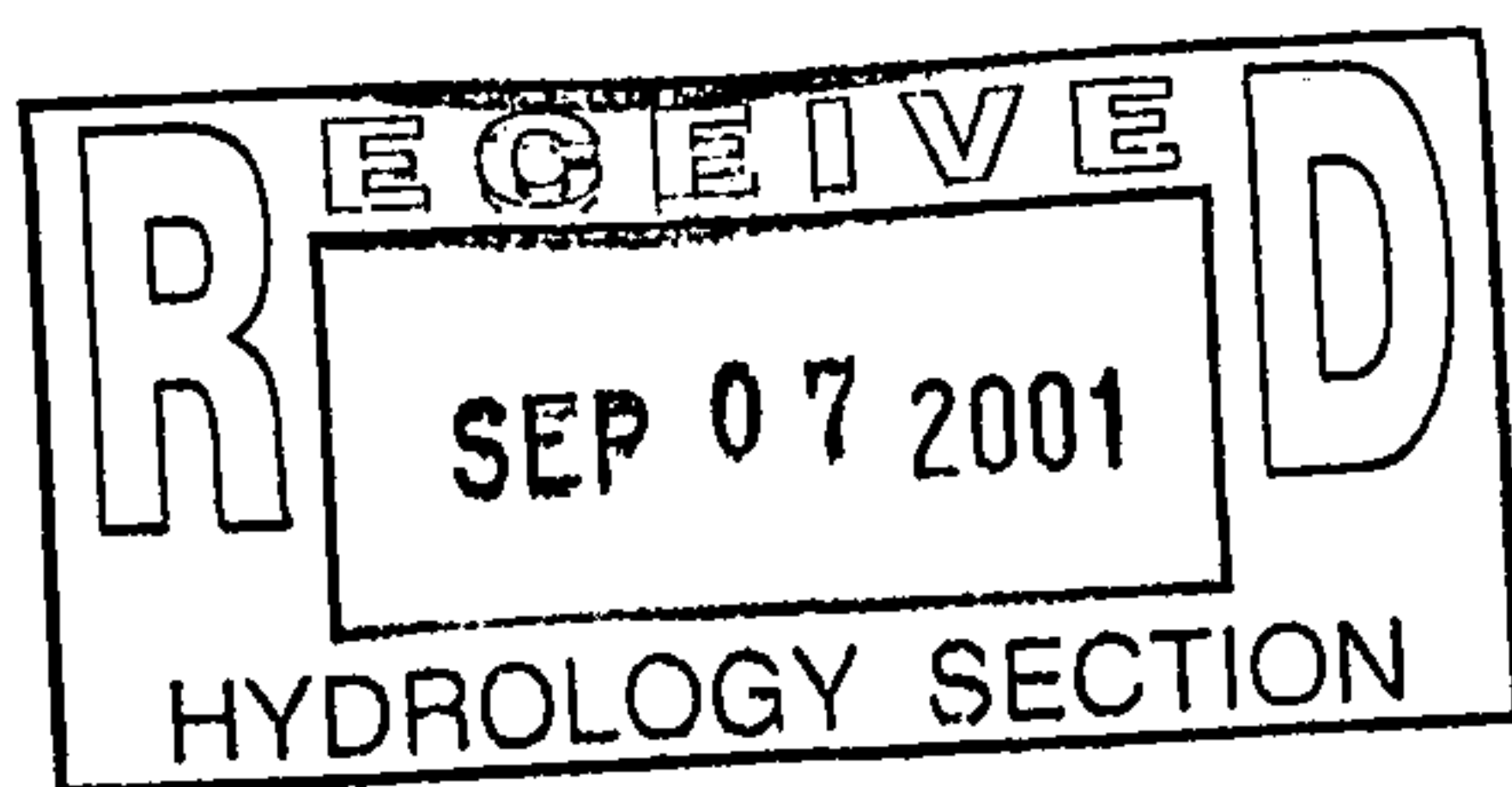
Date: _____

MARK GOODWIN

& ASSOCIATES
CONSULTING ENGINEERS

dmg

DRAINAGE REPORT
For
Sunrise Ranch West Subdivision



September 2001

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CORRESPONDENCE LETTERS

- I. PROJECT DESCRIPTION
- II. DESIGN CRITERIA AND PREVIOUS REPORTS
- III. EXISTING DRAINAGE CONDITIONS
- IV. DEVELOPED DRAINAGE CONDITIONS
- V. INTERIM DRAINAGE CONDITIONS

- FIGURE 1: VICINITY MAP
- FIGURE 2: FEMA MAP
- FIGURE 3: ONSITE SUBBASIN BOUNDARIES & STREET CAPACITY SUMMARY
- FIGURE 4: SNOW VISTA BASIN EXISTING CONDITIONS BOUNDARIES
- FIGURE 5: SNOW VISTA BASIN DEVELOPED CONDITIONS BOUNDARIES
- FIGURE 6: ONSITE DETENTION POND OUTFALL STRUCTURE (in Appendix B.2)

- TABLE 1: SUMMARY OF HYDROLOGIC PARAMETERS
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APPENDIX A.1 - ONSITE DRAINAGE CONDITIONS (AHYMO FILES)

- APPENDIX A.2 - AMAFCA AMOLE-HUBBELL DRAINAGE MANAGEMENT PLAN (AHYMO FILES)
 - ORIGINAL 'DEVELOPED CONDITIONS' MODEL
 - REVISED 'DEVELOPED CONDITIONS' MODEL

- APPENDIX A.3 - AMAFCA AMOLE-HUBBELL DRAINAGE MANAGEMENT PLAN (AHYMO FILES)
 - ORIGINAL 'EXISTING CONDITIONS' MODEL
 - REVISED 'EXISTING / INTERIM CONDITIONS' MODEL

- APPENDIX B.1 - TEMPORARY 106TH STREET SWALE
 - STREET CAPACITY CALCULATIONS (HEC-2)

- APPENDIX B.2 - ONSITE AND OFFSITE POND RATING TABLES
 - OUTFALL STRUCTURES CALCULATIONS AND SCHEMATICS
 - RECORDED OFFSITE POND 'PERMANENT DRAINAGE EASEMENT' DOCUMENT

- APPENDIX B.3 - FLOODPLAIN ANALYSIS (HEC-RAS)
 - CROSS SECTION INPUT

APPENDIX C.1 - 106TH STREET INLET CALCULATIONS

- APPENDIX C.2 - STORM SEWER ANALYSIS (STORMPLUS MODEL)
 - STORM SEWER SCHEMATIC
 - INTERIM CONDITION MODEL
 - DEVELOPED CONDITION MODEL

- POCKETS:
 - Sunrise Ranch West Grading and Drainage Plan
 - Floodplain WSEL and Erosion Setback Plan (within HEC-2 Cross Sections)
 - Proposed Sunset Gardens and 106th Street Sewer and Water Profile
 - As built for Eucariz 60" Storm Sewer and Offsite Detention Pond Outfall (2 sheets)



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

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

September 7, 2001

Mr. Bradley Bingham
Plaza del Sol
Hydrology Dept.
P.O. Box 1293
Albuquerque, NM 87103

**Re: Revised Drainage Plan for Sunrise Ranch West
Engineer's stamp 9-7-01 (L8/D14)**

Dear Mr. Bingham,

I am submitting a revised Drainage Report and Grading and Drainage Plan for the above referenced project. In response to your comment letter dated August 6, 2001:

1. I am seeking AMAFCA's approval.
2. According to the approved Snow Vista Drainage Management Plan as outlined in the Amole Hubbell Drainage Management Plan (July 22, 1999), Subbasin 300 is supposed to be routed south along 114th street to a point approximately 1100 feet south of Eucariz where it is added to runoff from subbasin 310. As we discussed, it appears that prior downstream developments were approved without constructing the required infrastructure that would allow runoff from this subbasin 300 to flow south. At the City's request I have analyzed an additional allowable discharge of 22 cfs from this subbasin into the Snow Vista Sedimentation Pond via Eucariz Road at 106th street.
3. A HEC-2 analysis of the FEMA floodplain using an existing conditions estimated 100 year discharge of 212 cfs. The maximum water surface elevation and erosion setback line have been added to the G&D plan.
4. Preliminary profiles for Sunset Gardens Road and 106th street have been added to the revised report submittal. No surface drainage from 106th street to the Eucariz Road will occur. An inlet in 106th street will prevent this from occurring. A gate and drive pad will be shown on the 106th street construction plan improvements at DRC.
5. Reference to the sideyard "10' private drainage easement" has been removed from the preliminary plat and G&D plan.
6. Spot elevation in the temporary swale have been added to the G&D plan.
7. City of Albuquerque ownership of the "Drainage Easement" on Eucariz was recorded in the Bernalillo County Clerks office on June 27, 1995 in Book 95-15, Pages 3251-3254. The existing offsite 106th street detention pond was granted to the city of Albuquerque. A copy of the recorded document is in Appendix B.2
8. Design grades for the backyards of Sunrise Ranch Unit 2 have been added to the G&D plan.
9. To increase the size of the pond would require the limits of the temporary drainage easement to increase. I doubt that the current property owners would agree to this. Since the allowable discharge to the Snow Vista Pond from this existing offsite pond is much greater than the current design discharge from the outfall structure, adjusting the existing outfall structure to allow an increase in discharge is the best solution for the interim condition. When the site west of 106th street develops, the storm sewer can remain and an orifice plate constructed to restrict the "developed conditions" runoff to the allowable discharge.

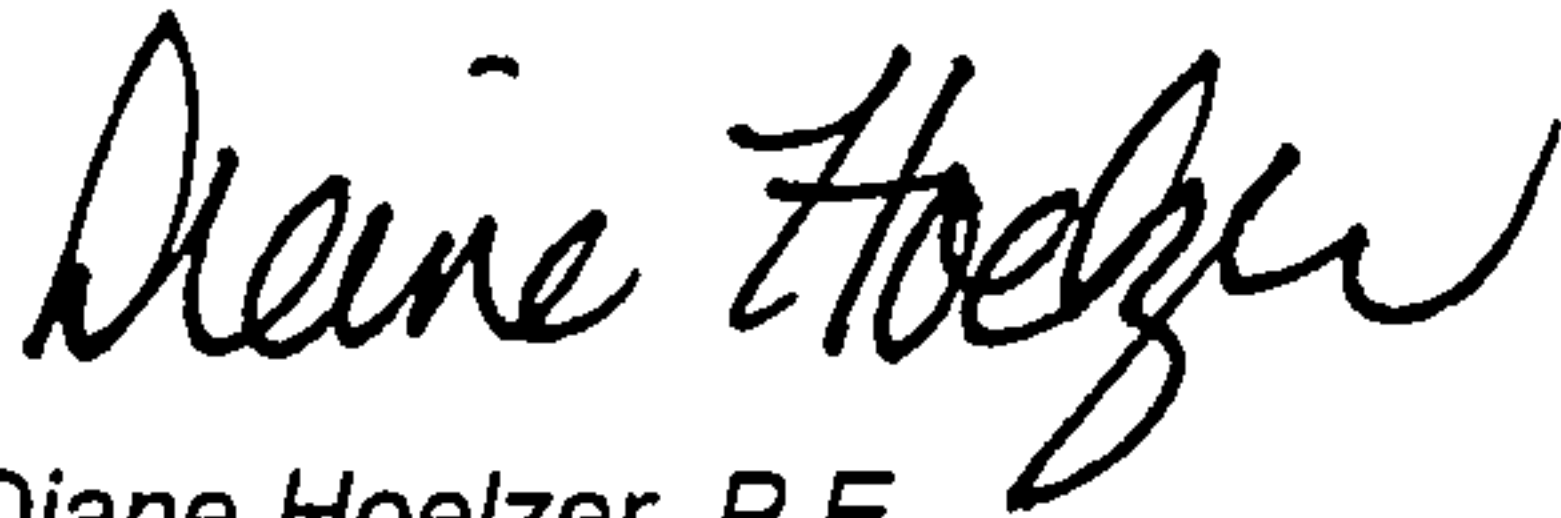
In response to AMAFCA's comments:

1. Two summary tables, Table 2 and Table 3, have been provided in the report following the same format found in the Amole-Hubbell Drainage Management Plan Report.
2. The proposed outfall structure will be the existing 24" RCP without the restrictive 30" CMP inlet.
3. The following note was added to the Sunrise Ranch Infrastructure List: **"Regrade and restore the floodplain areas to the original condition should Unit 2 not be developed. (To be financially guaranteed through AMAFCA.)"**

If you have any questions, please call me.

Sincerely,

MARK GOODWIN AND ASSOCIATES, P.A.



Diane Hoelzer, P.E.

file: sunrise.wst/drain1.ltr



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 6, 2001

Diane Hoelzer, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: Sunrise Ranch West Drainage Report
Engineer's Stamp dated 7-13-01 (L8/D14)

Dear Ms. Hoelzer,

Based upon the information provided in your submittal dated 7-13-01, the above referenced plan cannot be approved for Preliminary Plat until the following comments are addressed:

- ✓ • Because your project drains to the Snow Vista detention facility, AMAFCA review and concurrence will be required.
- ✓ • You will need to include Basin 300 in your analysis of the Eucariz storm drain or explain how this basin was modified to drain elsewhere.
- Please indicate on the grading plan the erosion setback and the limits of the floodplain. A drainage easement, dedicated to AMAFCA, should encompass the erosion setback area.
- ✓ • Please provide preliminary profiles for Sunset Gardens and 106th. Storm drain (and inlets) will need to be identified and financially guaranteed in 106th. There should be no surface drainage to the Eucariz "swale" unless you want to hard line it. A pipe gate and drivepad shall be required. (?)
- ✓ • Please remove references to sideyard private drainage easements. Include the detail of side yard swales previously provided to your office. Street slopes should be shown on the grading plan.
- ✓ • With respect to the temporary asphalt diversion swale, please show spot elevations every 200'. The 2:1 tie-slope will need to end at the existing property line.

- Please provide documentation of ownership of the easement on Eucariz and the pond in Basin 160B. (COA)

- Please place design grades (pads and backyard spots) from adjoining lots from Sunrise Ranch, Unit 2. Also, add dimensions to your wall detail adjoining this subdivision.

- Increasing the size of the outlet pipe from the pond in Basin 160 is not the ultimate condition for this basin. *correct it's interim* It is wiser to increase the size of the pond than increase the pipe, and then install a smaller pipe upon later development (in order to detain the basin to acceptable levels). *will require increase in report, not possible*

AMAFCA's comments are as follows:

- It would be helpful to include in the Drainage Report a table comparing flow rates and, for the ponds, storage volumes and water surface elevations, for the major drainage facilities. Include flow rates for existing, interim and developed conditions.

- The outflow-rating curve for the proposed 42-inch riser pipe in the existing Sunrise Terrace pond should begin at elevation 38.5 and include orifice flow through the 6-inch holes. *not necessary for this report.*

- The SIA should include a provision for restoring grading within the FEMA floodplain should the project not be completed. This is similar to what was done for the Desert Ridge Trails Subdivision.

- For the revised Amole-Hubbell DMP AHYMO files, put a "FINISH" after the Snow Vista Channel confluence.

If you have any questions about my comments, you can contact me at 924-3986. If you have any questions about AMAFCA's comments, contact Lynn Mazur at 884-2215.

Sincerely,

Bradley L. Bingham
Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: Lynn Mazur, AMAFCA
file

*Regrade & restore floodplain areas to original condition.
(to be F.G. through AMAFCA)*



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 20, 2001

Diane Hoelzer, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: Sunrise Ranch West Additional Comments (L8/D14)

Dear Ms. Hoelzer,

Per our meeting, I would like you to investigate accepting the detained basin 300 runoff (approximately 22 cfs) into the existing 60-inch SD in Eucariz. Since the as-built conditions of the Sunrise Terrace Subdivision will not allow for basin 300 to drain per the original Amole-Hubbard Master Plan, it has no other route but to go east to the Snow Vista Pond (in the Eucariz SD).

I have searched our available files and have not found any documentation of ownership or maintenance of the pond in basin 160B at this time. I can defer this requirement to the time of your CLOMR in order to facilitate approval of your project.

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

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: Lynn Mazur, AMAFCA
file

I. PROJECT DESCRIPTION

The proposed Sunrise Ranch West Subdivision located southeast of Sunset Gardens and 106th street covers an area of approximately 19.7 acres. (Figure 1: Vicinity Map). The site is to be developed into 143 single family residential homes in two units. The northern half of the site is encumbered by a 100 year floodplain with a Zone AO designation as shown on FEMA Panel 35001 C0309 and C0328 D (Figure 2: FEMA Map). Unit 2 will be encumbered by this floodplain. This will allow time for a FEMA CLOMR submittal and approval prior to earthwork in Unit 2 but should not hinder proceeding with the development of Unit 1. This site is directly west of the recently developed Sunrise Ranch Units 1-4 subdivision (Mark Goodwin & Associates, Drainage File L9/D6). Adjacent to the south property boundary is Eucariz Road (60' private road) which is encumbered with a City of Albuquerque Drainage Easement and partially by a City of Albuquerque Drainage and Utility Right-of-way. Immediately adjacent to this road is the Sunrise Terrace subdivision. Along the west property boundary is vacant land and an existing detention pond at the northwest corner of Eucariz and 106th street. The north is bounded by vacant land, a mobile home park and a commercial site.

II. DRAINAGE DESIGN CRITERIA AND PREVIOUS REPORTS

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 100-year 6-hour storm event was analyzed to determine street capacities using $P(1 \text{ hr}) = 1.87"$, $P(6 \text{ hr}) = 2.20"$ and $P(24 \text{ hr}) = 2.66"$. The onsite Land Treatment values used were Treatment D=60, Treatment C=20 and Treatment B=20 as determined using "Table A-5 Percent Treatment D" in the DPM. AHYMO printouts are provided in Appendix A.1.

This project site lies within the Snow Vista Basin of the Amole-Hubbell Drainage Management Plan. In the Final Facilities Plan Report (Leedshill-Herkenhoff, Inc., July 99), the allowable peak discharge from this project site (Subbasin 180) is 1.29 cfs/acre or 25.10 cfs. The AHYMO "existing drainage conditions" model from this report was revised to reflect the proposed "interim drainage conditions" as discussed below. These AHYMO files can be found in Appendix A.3. The AHYMO "developed drainage conditions" model from the same report was revised to reflect the proposed "developed conditions". These AHYMO files can be found in Appendix A.2. Tables 2 and Table 3 are a comparison summary of the revised drainage conditions with the original drainage conditions.

III. EXISTING DRAINAGE CONDITIONS

Runoff within the project site flows in an eastward direction at an approximate slope of 3.0 percent (Figure 4).

Along the project sites' western boundary there is an existing arroyo that originates northwest of Central Avenue and flows through the project site before discharging into the Snow Vista Sedimentation pond. This arroyo has been identified as a designated FEMA 100 year floodplain (Figure 2). Another arroyo at the project sites southwest boundary is intercepted by a temporary offsite detention pond at 106th street and Eucariz. This pond was constructed as part of the Sunrise Terrace subdivision located southeast of 106th street and Eucariz. A "restrictive" outfall structure from this pond discharges to a 60" RCP storm sewer that was constructed within the Eucariz corridor, extending from 106th street to the Snow Vista Sedimentation Pond. No offsite flows enter our project site from this arroyo.

Along the project sites south boundary there is an existing swale within the 60' wide Eucariz corridor that appears to convey nuisance flows towards the Snow Vista Sedimentation Pond. The Sunrise Terrace subdivision is immediately adjacent to the Eucariz corridor.

The eastern boundary is adjacent to Sunrise Ranch Unit 2 development and vacant land. No offsite flows enter the site from this direction.

The northern boundary is adjacent to a mobile home park, vacant land and a commercial site. Flows from the mobile home park are directed to a pond on their site. Flows from the vacant land are directed to a depression area located north of the future Sunset Gardens Road. The commercial site is relatively flat but appears to drain toward Sunset Gardens Road and then eastward.

IV. DEVELOPED DRAINAGE CONDITIONS

A. Onsite Flows

The "developed conditions" peak discharge from the project site is 68.9 cfs (Table 1). Onsite runoff will be conveyed as street flow to the southeast corner of the subdivision and into a permanent onsite detention pond facility via a concrete rundown. The pond will be 8.1 feet deep with 2' of freeboard and will have 4:1 side slopes. The maximum discharge from the pond is 25.2 cfs (allowable = 25.1 cfs) with a maximum storage volume of 0.9494 acre-feet at a maximum depth of 8.1 feet. The outfall structure will consist of a 24" pipe connection from the pond to the existing 60" storm sewer in the Eucariz corridor. Connected to the 24" pipe will be a 30" CMP inlet structure perforated with a series of 6" diameter orifice openings on the side and one 9.15" diameter opening on the top of the structure. Two scenarios were analyzed for the orifice opening discharge: 1) for no backwater effect in the storm sewer and 2) (Worse Case Scenario) backwater effect from storm sewer at a maximum HGL = 24.7' as determined from the "developed conditions" stormplus model. Refer to Figure 6: Onsite Detention Pond Outfall Structure for a preliminary sketch and the outfall structure rating tables found in Appendix B.2. Scenario 1 results in a maximum water surface elevation of 28.1' (proposed spillway crest) and scenario 2 results in a maximum water surface elevation of 29.18'. Under the worse case scenario water will spill to the Eucariz corridor existing swale but no homes in the subdivision will be flooded.

Waterblocks at both the north and west project site entrance roads prevents exchange between onsite and offsite flows. Offsite runoff from Sunset Gardens will flow east and enter the Snow Vista Sedimentation pond as street flow through Sunrise Ranch subdivision via Round Up Place. Runoff from 106th street will be conveyed as street flow south to inlets that will connect to the proposed 60" RCP storm sewer in 106th street.

B. Offsite Flows

This project site is part of the Snow Vista Basin Drainage Management Plan (AMAFCA's Amole-Hubbell Drainage Management Plan, LHI, July 99). The original Snow Vista Basin drainage management plan has been revised to reflect changed existing conditions and proposed drainage conditions as a result of the

Sunrise Ranch West development. The revised Snow Vista Basin "developed conditions" drainage management plan is schematically shown in Figure 5. The revisions to the original "developed conditions" Snow Vista Basin Management Plan AHYMO model are as follows:

- 1. The original subbasin 170 has been renamed subbasin 170A to reflect the revised "existing" drainage conditions. This area has been developed into a residential subdivision and drains toward the southeast and does not flow to the northeast as originally planned.*
- 2. The original subbasin 160 has been subdivided and is now subbasins 160A and 160B.*
- 3. The proposed 60" RCP storm sewer in the Eucariz Corridor between Snow Vista Pond and the Sunrise Terrace offsite temporary detention pond has been constructed.*
- 4. The original proposed storm sewer in Sunset Gardens Avenue from 106th street to 102nd street has been eliminated and replaced with a storm sewer in 106th street from Sunset Gardens Avenue to the existing 60" storm sewer in the Eucariz corridor.*
- 5. The original subbasin 180 has been revised to reflect developed conditions and renamed subbasin 180A.*
- 6. Subbasin 300 in the original "existing conditions" AHYMO drained to the south in 114th street and was supposed to be intercepted by a future storm sewer. Existing development to date does not allow for this to occur. Subbasin 300 is now to be restricted to a maximum "developed conditions" discharge of 22 cfs and will be routed east within the future Eucariz Road corridor.*

All of these changes have been incorporated into AMAFCA's Snow Vista Basin 'developed conditions' AHYMO model to make sure that the Snow Vista master planned storm sewer will function conceptually and that the downstream conveyance capacity in the Snow Vista channel did not change significantly. This has been demonstrated as shown in Table 2 'Snow Vista Basin Summary of Developed Drainage Conditions'. The AHYMO files are in Appendix A.2.

The future 60" storm sewer in 106th street has been preliminarily designed and analyzed. The plan and profile of the proposed storm sewer in 106th street is shown on the '106th Street and Sunset Gardens Sewer and Water P&P' found in one of the pockets in this report. The as-builts for the existing 60" storm sewer in Eucariz corridor can also be found in one of the back pockets. The existing 60" storm sewer in the Eucariz corridor and the proposed 106th street 60" storm sewer were modeled using STORMPLUS software to ensure adequate capacity to handle the basinwide "developed drainage conditions". The storm sewer nodal schematic and analysis can be found in Appendix C.2. Figure 5 'Snow Vista Basin Developed Conditions Boundaries' shows the proposed future "developed conditions" storm sewer layout.

The FEMA floodplain will ultimately be removed as development continues to occur to the west and north. In the interim, this floodplain will be intercepted before reaching the project site as discussed below.

new pipe and pond

IV. INTERIM DRAINAGE CONDITIONS

To develop the entire project site, offsite flows presently entering the site from west which includes an arroyo located within a FEMA floodplain will need to be intercepted and directed south to the existing 60" storm sewer in Eucariz. An attempt to acquire a temporary offsite detention pond on the property to the west (SB 160A) to intercept and attenuate a majority of the offsite flows outside of the public right-of-way was unsuccessful. The alternative solution is to intercept a portion of these flows into the proposed 60" storm sewer in 106th street through a 5'x5' median drop inlet with the remaining flows to be conveyed through a temporary swale located within the western half of the 106th street right-of-way. Flows intercepted by the storm sewer will be conveyed south and continue east in the existing 60" Eucariz storm sewer to the Snow Vista Sedimentation Pond. Flows conveyed in the temporary swale will discharge into the existing offsite 106th St. detention pond located at 106th street and Eucariz. There is excess capacity in the existing 106th street detention pond to accommodate a portion of the additional runoff from the flows originating from the 100 year floodplain arroyo. The combination of the temporary swale and outfall structure have been designed to intercept runoff from the 100-year storm. Capacity calculations and rating tables for the outfall structures are in Appendix B.2.

The Snow Vista Basin "existing conditions" AHYMO model has been revised to reflect this interim condition and demonstrates that capacity exists in the offsite 106th St. pond and does not exceed the downstream capacity in the Snow Vista channel (refer to Appendix A.3). The outfall structure in the existing pond will be modified to remove the 30" CMP inlet on the 24" RCP. Details for this modification will be designed at DRC.

The original AMAFCA Snow Vista Basin existing conditions AHYMO model has been revised to reflect changed 'existing conditions' in the area as well as changes as a result of the proposed Sunrise Ranch West development. The revised Snow Vista Basin "existing conditions" is schematically shown in Figure 4. The revisions to the original 'existing conditions' Snow Vista Basin Management Plan AHYMO model are as follows:

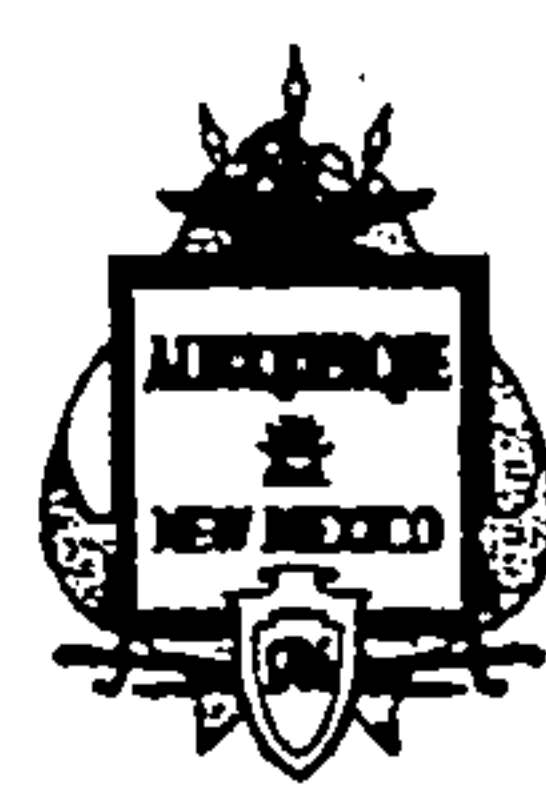
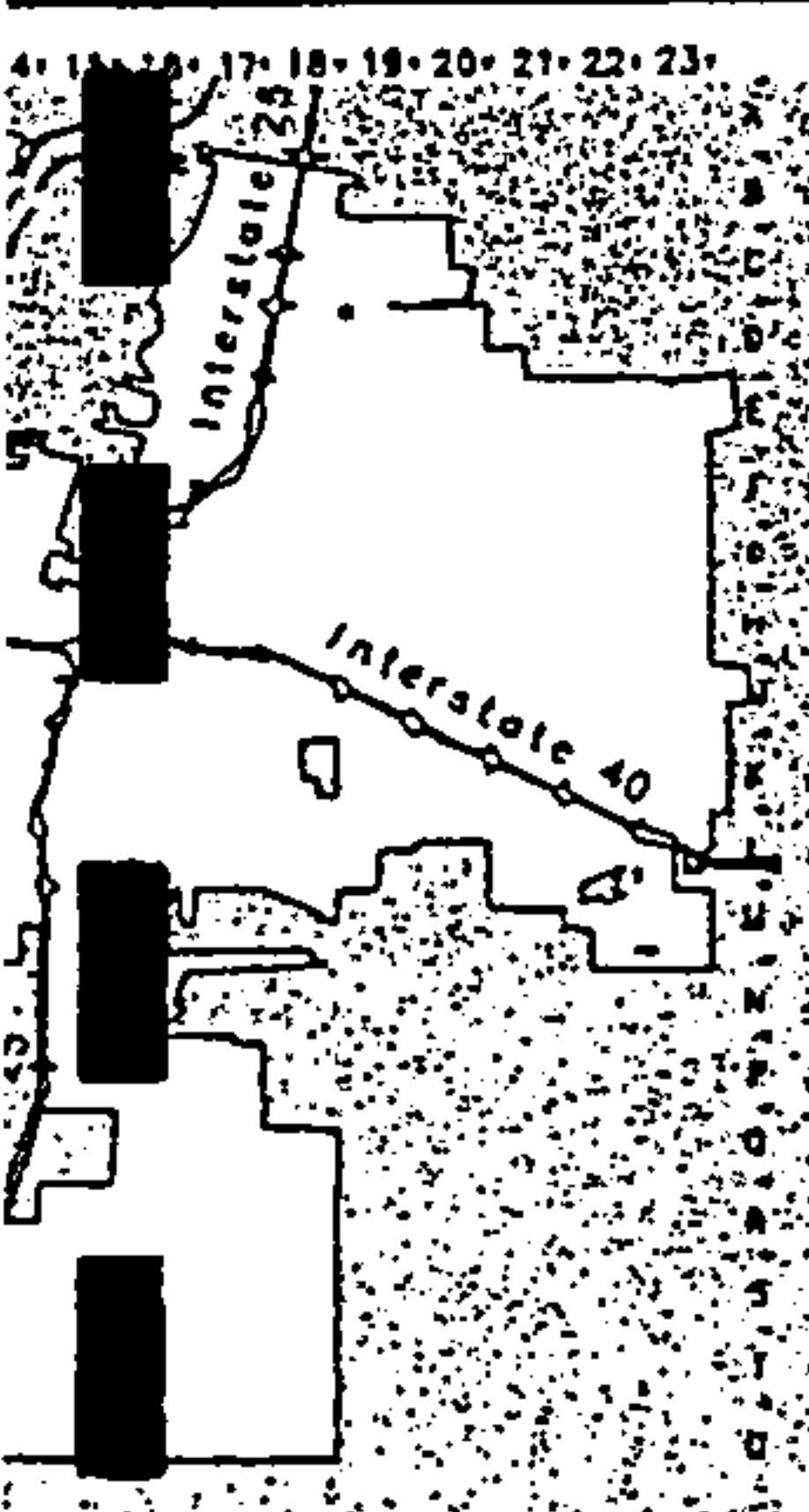
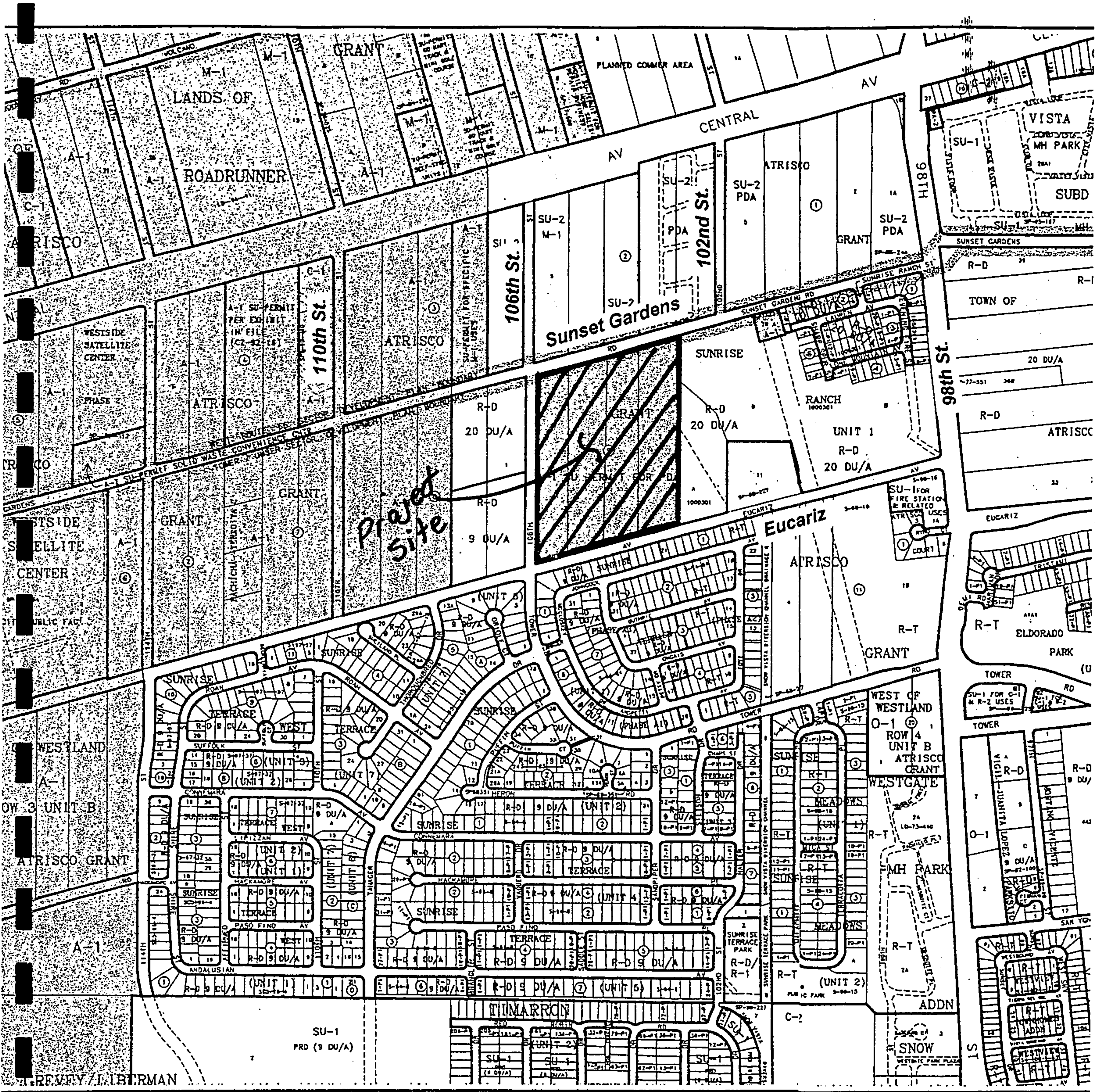
1. Original subbasins 20101 and 20104 were revised to eliminate the area east of 106th street which is now the project site.
2. Offsite flows from subbasin 20101A and 20104A were routed south into the offsite 106th St. Sunrise Terrace detention pond located at 106th street and Eucariz.
3. The portion of the original subbasins 20101 and 20104 east of 106th street was renamed as Subbasin 180 (proposed Sunrise Ranch West) and routed through the 60" storm sewer in Eucariz which discharges into the Snow Vista Sedimentation Pond.
4. The 30" CMP outfall structure in the 106th St. Sunrise Terrace pond was removed, allowing the existing 24" RCP to become the 'flow restricting' outfall structure. The rating table for this pond was revised to reflect this new configuration and existing topo conditions verified in the field.

All of these changes have been incorporated into AMAFCA's Snow Vista Basin 'existing conditions' AHYMO model to make sure that the Snow Vista master planned storm sewer will function conceptually and that the

downstream conveyance capacity in the Snow Vista channel did not change significantly. This has been demonstrated as summarized in Table 3 'Snow Vista Basin Summary of Developed Drainage Conditions'. The AHYMO files are in Appendix A.2.

A. FEMA Floodplain

The maximum water surface elevation for the floodplain arroyo was determined using a peak discharge value of 212 cfs which is the 'existing conditions' 100 year flow as determined in AMAFCA's Amole-HUBBELL Drainage Management Plan Report. Cross sections were obtained from available existing topo as shown on the HEC-2 Cross Section exhibit found in this reports pocket. Erosion setback for the arroyo was determined and is shown in the same exhibit. The erosion setback calculations for the well define arroyo channel located in the far eastern portion of the site was determined previously in the Sunrise Ranch Drainage Report as directed by AMAFCA staff and is reproduced in Appendix B.3. In the remaining floodplain area without a well defined channel, the setback was determined using 6 feet per 100 cfs of runoff. Upon preliminary plat approval a FEMA submittal will be made to the city hydrology staff to be forwarded to FEMA for a CLOMR. HEC-RAS results and cross section input data are in Appendix B.3.



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Albuquerque
Albuquerque Geographic Information System
PLANNING DEPARTMENT
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Zone Atlas Page

L-8-Z

Map Amended through December 08, 2000

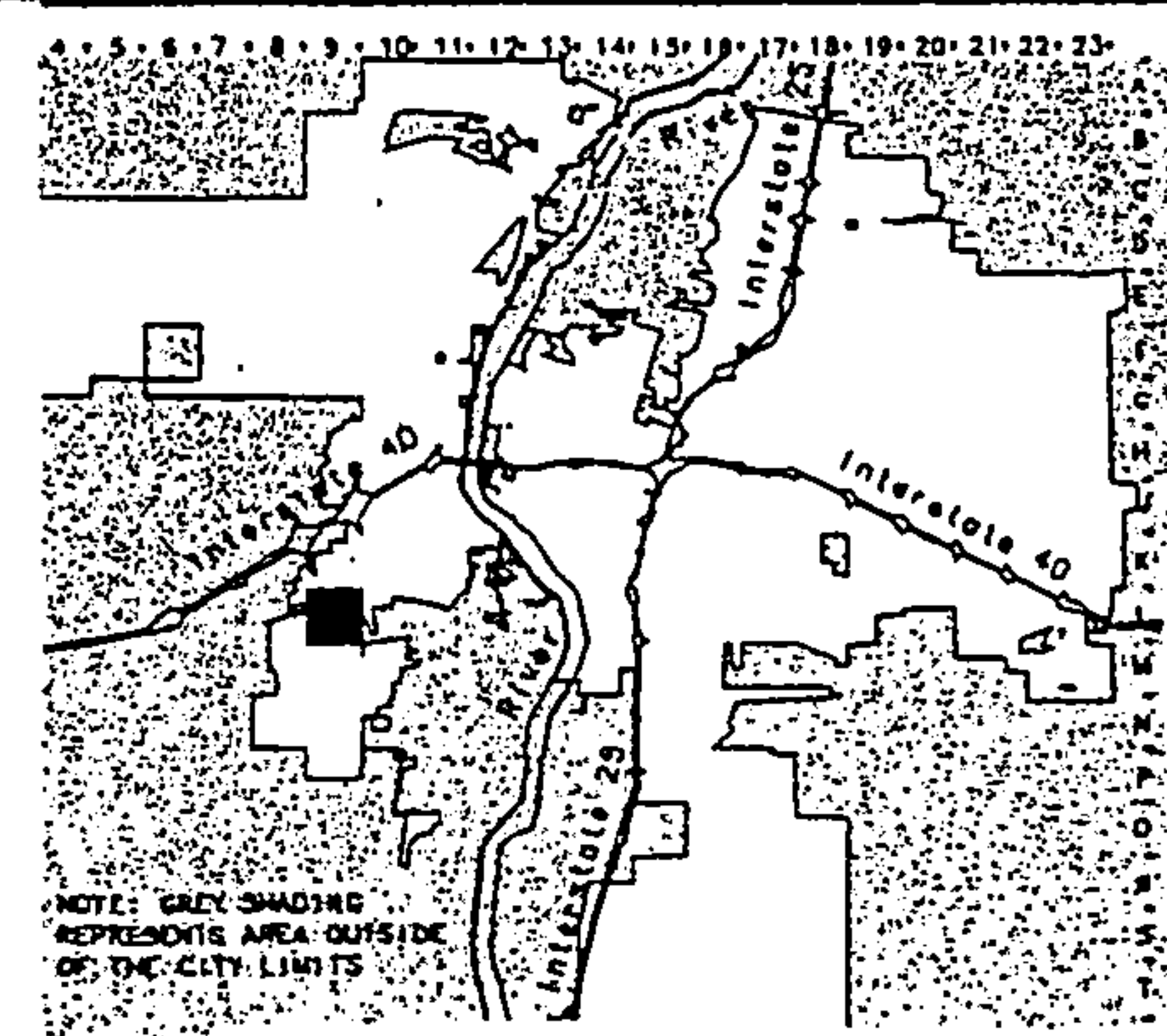
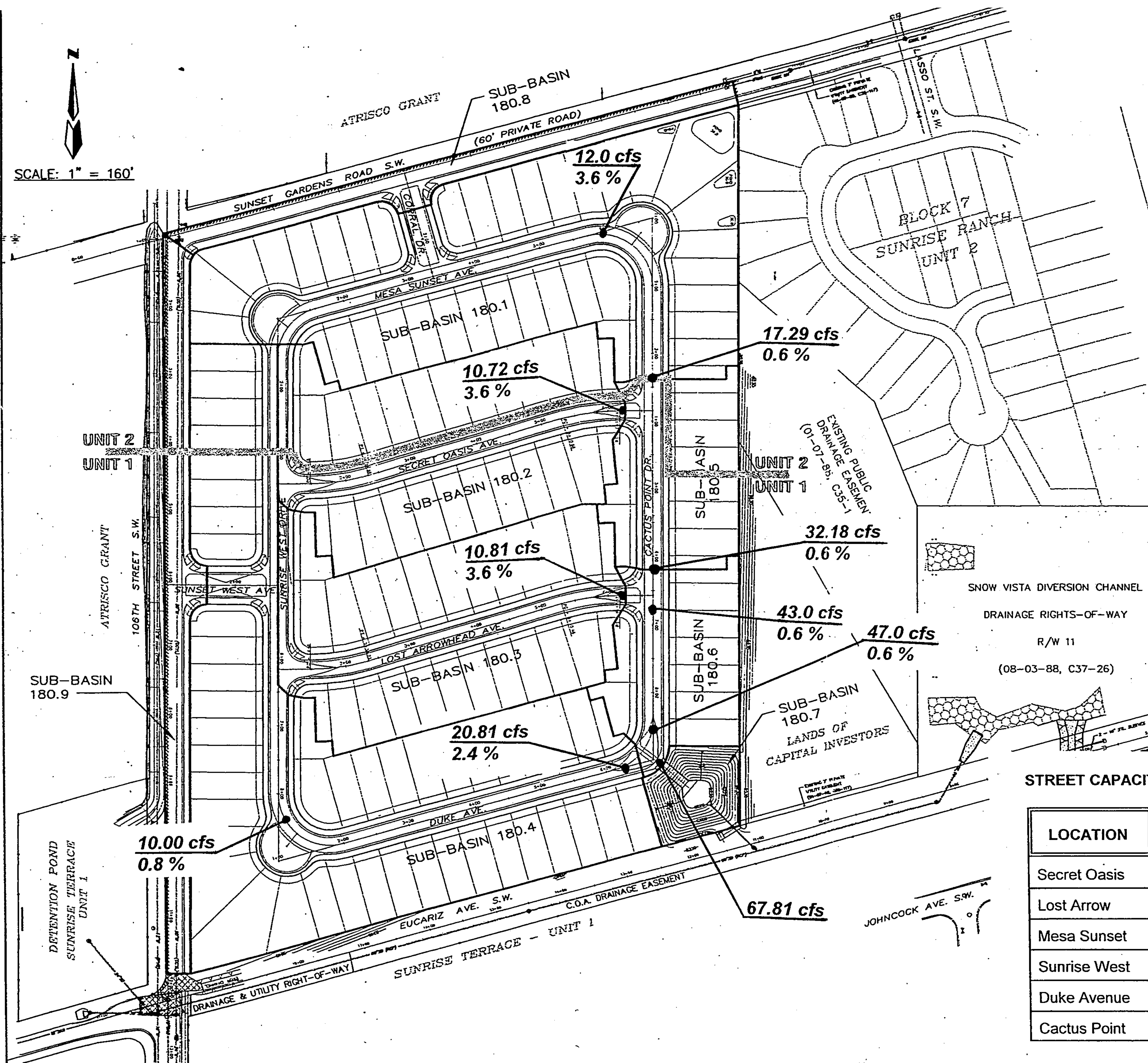


FIGURE 1 VICINITY MAP

SCALE: 1" = 160'



Hydrology Summary Table

LOCATION	SUBASIN ID	Q(100) cfs
Onsite	180.1	17.29
Onsite	180.2	10.72
Onsite	180.3	10.81
Onsite	180.4	20.81
Onsite	180.5	4.17
Onsite	180.6	4.01
Onsite Pond	180.7	1.10
Sunset Gardnes	180.8	2.95
106th Street	180.9	3.89

STREET CAPACITIES SUMMARY

LOCATION	CURB	WIDTH ft.	SLOPE %	Q cfs	DEPTH ft	VELOC. fps	EG ft.
Secret Oasis	MTB	26' FF	3.60	10.72	.23	3.9	.47
Lost Arrow	MTB	26' FF	3.60	10.81	.23	3.9	.47
Mesa Sunset	MTB	28' FF	3.00	12.00	.25	3.8	.47
Sunrise West	MTB	28' FF	0.80	10.00	.30	2.3	.38
Duke Avenue	MTB	26' FF	2.40	20.81	.31	4.3	.61
Cactus Point	STD	28' FF	0.60	47.00	.66	3.8	.88

ZONE MAP No.: L-8

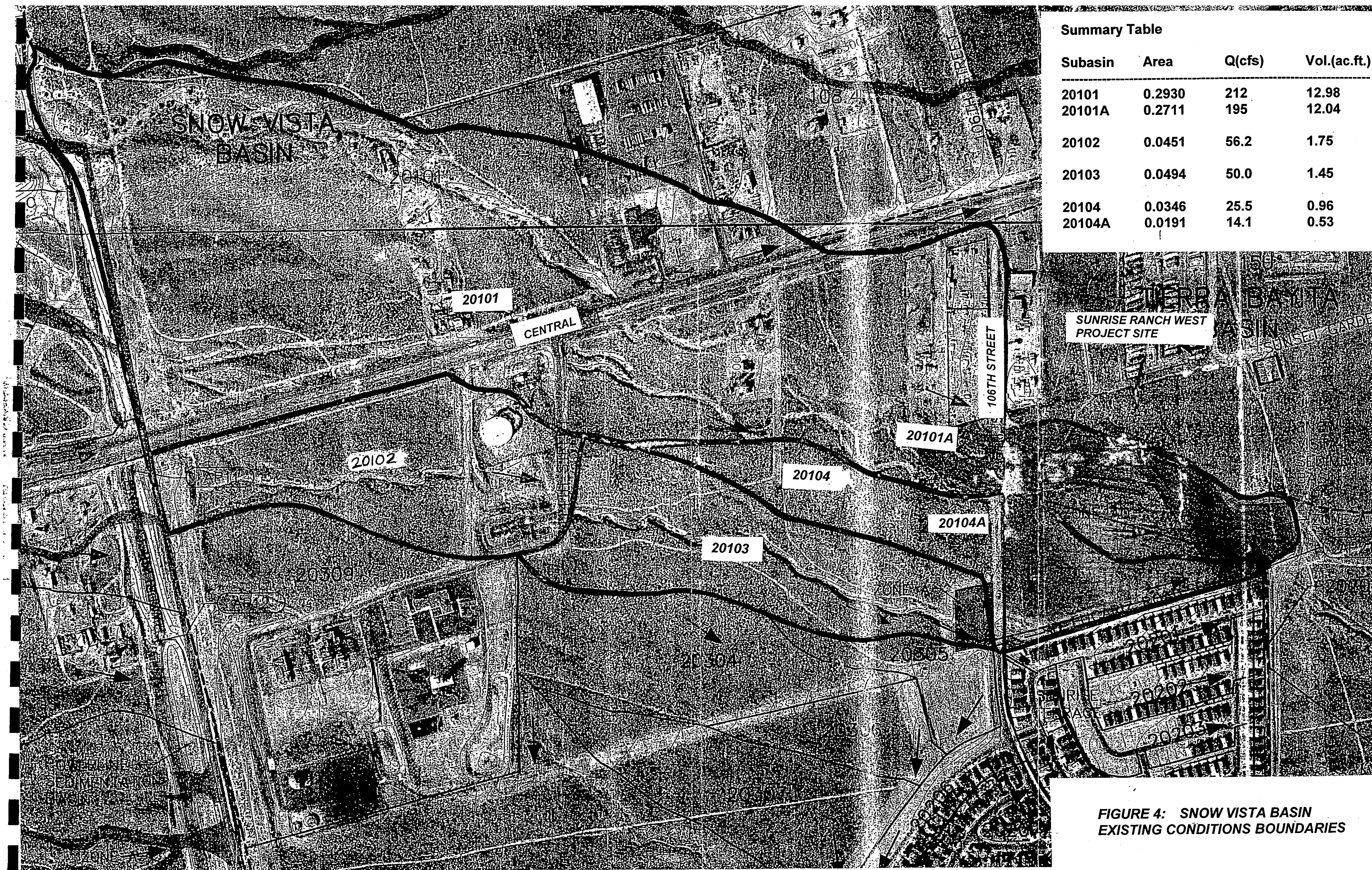


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SUNRISE RANCH WEST ALBUQUERQUE, NEW MEXICO

ON-SITE BASIN BOUNDARIES
& STREET CAPACITY SUMMARY

FIG. 3



**Q_a = 100 year allowable discharge
or (1.29 cfs / acre)***

*** Source: Amole Hubbell Drainage Management Plan
Leedshill-Herkenhoff, Inc. 7/22/99, AMAFCA Rpt.**

**Note 1: Subasins with 'A' designation have been revised
in accordance with Sunrise Ranch West Drainage Plan
Mark Goodwin & Associates, July 2001.**

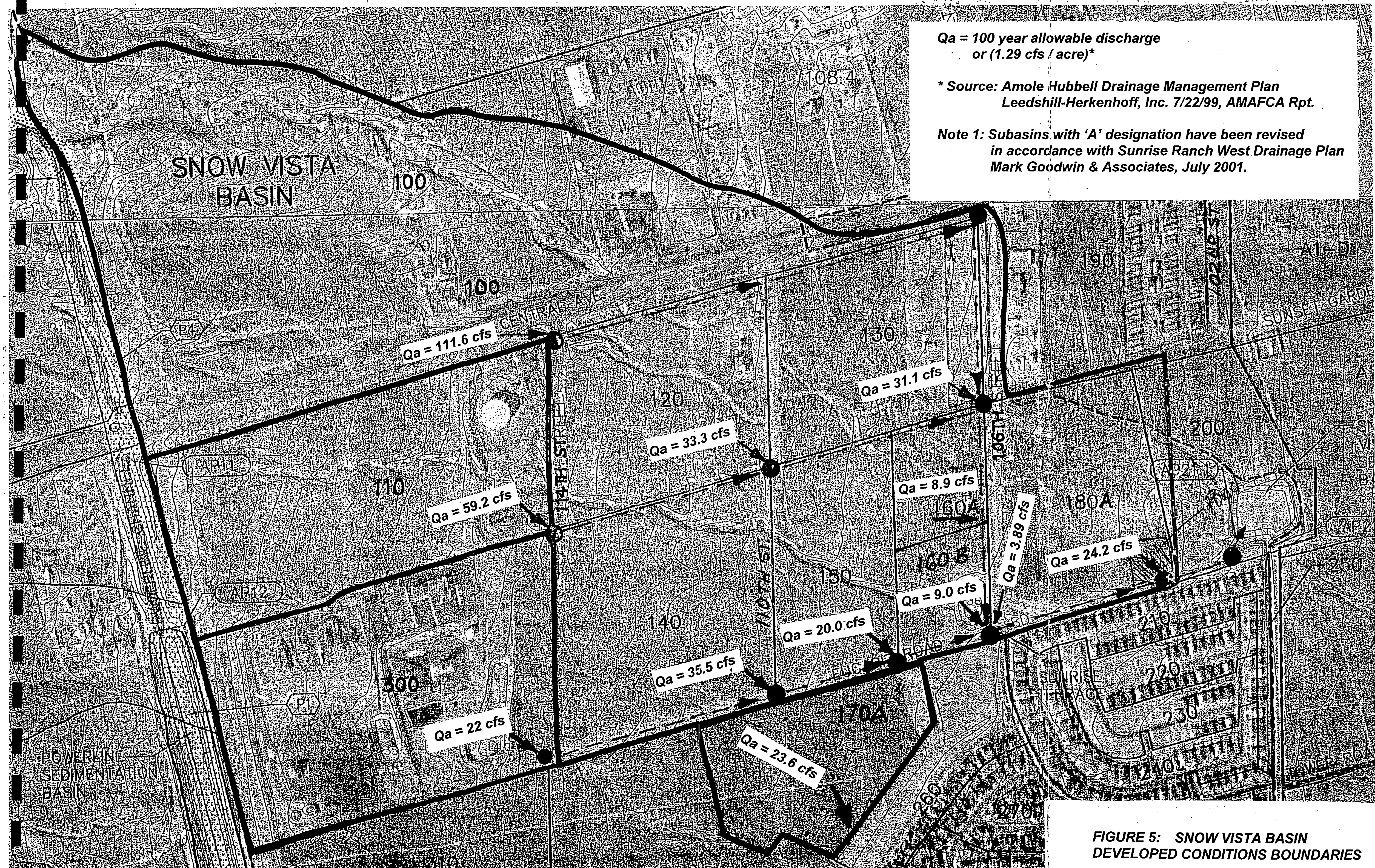


**FIGURE 5: SNOW VISTA BASIN
DEVELOPED CONDITIONS BOUNDARIES**

Rating Table
(Assume no backwater effect in 60"RCP)

OUTFLOW Q (cfs)	STORAGE (Ac.Ft.)	ELEVATION (feet)
0	0	20
2.67	0.0397	21
7.91	0.0944	22
10.98	0.1682	23
15.51	0.2641	24
18.40	0.3853	25
20.86	0.5344	26
23.04	0.7139	27
25.03	0.9266	28
26.87	1.1752	29
28.57	1.4624	30

Results of AHYMO analysis:
Peak Q (out) = 25.2 cfs
Peak Volume = 0.9494 acre-feet
Peak WSEI = 28.1'

Rating Table
WORSE CASE SCENARIO: submerged orifice
(Assume HGL(max.)=24.7' in 60"RCP)

OUTFLOW Q (cfs)	STORAGE (Ac.Ft.)	ELEVATION (feet)
0	0	20
0.01	0.0397	21
0.02	0.0944	22
0.03	0.1682	23
0.04	0.2641	24
5.33	0.3853	25
11.09	0.5344	26
14.76	0.7139	27
17.68	0.9266	28
20.18	1.1752	29
22.40	1.4624	30

Results of AHYMO analysis:
Peak Q (out) = 20.59 cfs
Peak Volume = 1.228 acre-feet
Peak WSEI = 29.18'

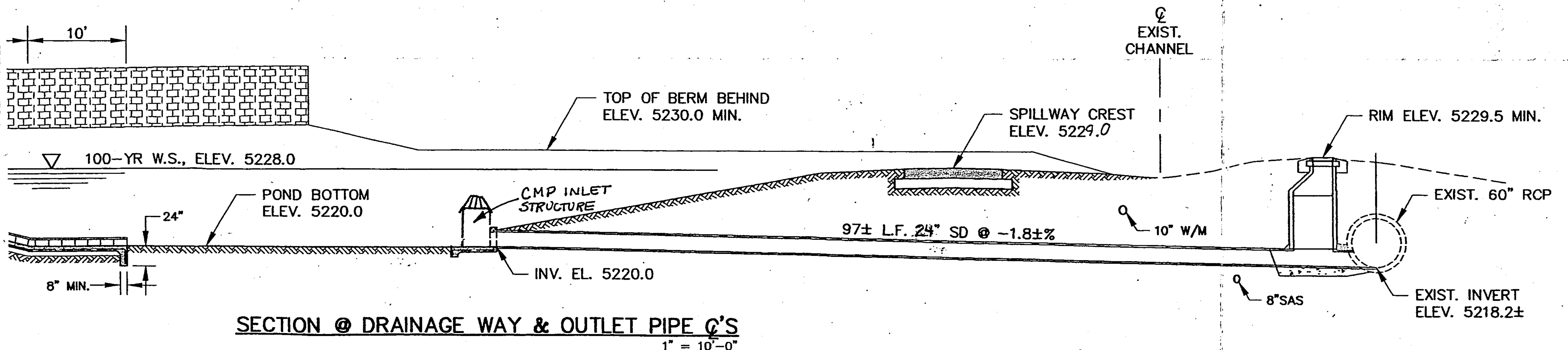
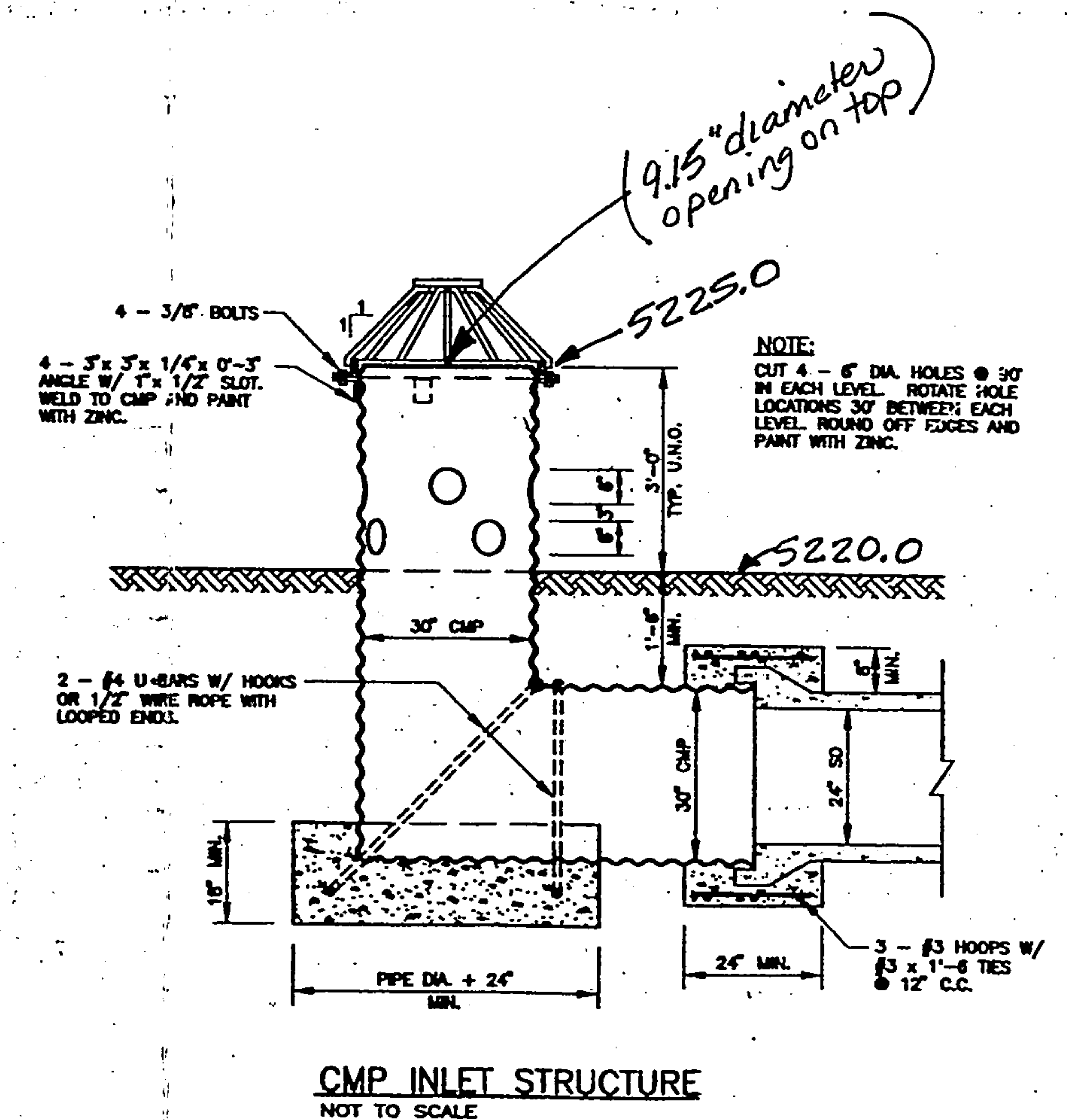


**Figure 6 Onsite Detention Pond
Outfall Structure**

Sunrise Ranch West Subdivision

TABLE 1: SUMMARY OF HYDROLOGIC PARAMETERS

LOCATION	SUBASIN ID	AREA (acres)	AREA (sq.mi.)	L.TR D	L.TR B	L.TR C	Q(100) cfs	RUNOFF VOL. (AF)
ONSITE	180.1	4.864	0.00760	60	20	20	17.29	0.611
ONSITE	180.2	3.017	0.00471	60	20	20	10.72	0.378
ONSITE	180.3	3.043	0.00475	60	20	20	10.81	0.382
ONSITE	180.4	5.855	0.00915	60	20	20	20.81	0.735
ONSITE	180.5	1.174	0.00183	60	20	20	4.17	0.147
ONSITE	180.6	1.129	0.00176	60	20	20	4.01	0.141
ONSITE POND	180.7	0.383	0.00060	0	0	100	1.10	0.032
SUB-TOTAL		19.46	0.0304				68.91	2.426
SUNSET GARDENS	180.8	0.746	0.00117	80	10	10	2.95	0.108
106 th STREET	180.9	0.979	0.00153	82	9	9	3.89	0.144
TOTAL		21.19						

(19.46 acres) x (1.29 cfs/acre) = 25.10 cfs

(21.19 acres) x (1.29 cfs/acre) = 27.33 cfs

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TABLE 2
SNOW VISTA BASIN
SUMMARY OF DEVELOPED DRAINAGE CONDITIONS

AP NO.	MAP NO.	DESCRIPTION	VARIABLE	PROPOSED DMP FACILITIES		REVISED PROPOSED DMP FACILITIES	
				DMP	FUTURE CAPACITY	DMP	FUTURE CAPACITY
21.1	4	SNOW VISTA SEDIMENTATION BASIN	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	423 53.8 2.07 1.36	484	407 57.1 2.06 1.23	484
21	4	SNOW VISTA CHANNEL AT HEAD	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	389 53.8 2.07 1.25	375	378 57.1 2.07 1.14	375
22	4	SNOW VISTA BELOW SECTION LINE JUNCTION	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	747 95 1.97 1.29	810	671 92.9 1.95 1.17	810
22.1	4	SNOW VISTA BELOW SAGE CROSSING	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	916 114.4 1.93 1.29	930	841 112.5 1.92 1.20	930
22.2	4	SNOW VISTA BELOW INLET FROM WESTGATE	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	1031 121.7 1.92 1.36	1050	956 119.7 1.91 1.27	1050
23	4	SNOW VISTA BELOW BENAVIDES INLET	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	2058 167.5 1.88 1.93	2100	1979 165.5 1.87 1.86	2100
24	7	SNOW VISTA AT ENTRANCE TO AMOLE ARROYO	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	2081 183.4 1.87 1.77	2100	2005 181.4 1.86 1.71	2100

Revised according to revised Snow Vista Mangement Plan AHYMO file "sv_dmpr2.dat" dated 8-17-01

TABLE 3
SNOW VISTA BASIN
SUMMARY OF EXISTING / INTERIM DRAINAGE CONDITIONS

AP NO	MAP NO	DESCRIPTION	VARIABLE	EXISTING CONDITIONS		INTERIM CONDITIONS	
					FUTURE CAPACITY		FUTURE CAPACITY
21.1	4	SNOW VISTA SEDIMENTATION BASIN	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	233 17.1 0.76 0.86	484	178 19.1 0.86 0.67	484
21	4	SNOW VISTA CHANNEL AT HEAD	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	167 17.0 0.76 0.62	375	148 19.0 0.86 0.56	375
22	4	SNOW VISTA BELOW SECTION LINE JUNCTION	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	407 41 0.86 0.70	810	408 43.5 0.91 0.71	810
22.1	4	SNOW VISTA BELOW SAGE CROSSING	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	642 49.4 0.83 0.90	930	644 51.3 0.87 0.91	930
22.2	4	SNOW VISTA BELOW INLET FROM WESTGATE	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	812 57.0 0.90 1.07	1050	812 59.0 0.94 1.07	1050
23	4	SNOW VISTA BELOW BENAVIDES INLET	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	1864 99.0 1.14 1.78	2100	1864 101.0 1.16 1.79	2100
24	7	SNOW VISTA AT ENTRANCE TO AMOLE ARROYO	Q (cfs) Tvol (AF) Runoff (in) cfs/ac	1814 105.7 1.10 1.57	2100	1815 107.6 1.12 1.58	2100

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Revised according to revised Snow Vista Mangement Plan AHYMO files "sv100e1b.dat" and "sv100e1r.dat" dated 7-6-01

APPENDIX A.1

Onsite Developed Conditions (AHYMO files)

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994

RUN DATE (MON/DAY/YR) =09/05/2001

INPUT FILE = SUNWEST.DAT

USER NO.= M_GOODWN.I01

COMMAND	FROM TO HYDROGRAPH ID ID IDENTIFICATION NO. NO.	PEAK AREA (SQ MI)	RUNOFF DISCHARGE (CFS)	TIME TO VOLUME (AC-FT)	CFS RUNOFF (INCHES)	PAGE = 1 PEAK (HOURS)	PER ACRE	NOTATION
---------	---	-------------------------	------------------------------	------------------------------	---------------------------	-----------------------------	-------------	----------

START

TIME= .00

RAINFALL TYPE= 1

RAIN6= 2.200

COMPUTE NM HYD	180.10 - 1	.00760	17.29	.611	1.50672	1.500	3.555	PER IMP= 60.00
COMPUTE NM HYD	180.20 - 2	.00471	10.72	.378	1.50672	1.500	3.556	PER IMP= 60.00
ADD HYD	100.20 1& 2 3	.01231	28.01	.989	1.50668	1.500	3.555	
COMPUTE NM HYD	180.30 - 1	.00475	10.81	.382	1.50672	1.500	3.556	PER IMP= 60.00
ADD HYD	100.30 1& 3 2	.01706	38.82	1.371	1.50667	1.500	3.556	
COMPUTE NM HYD	180.40 - 1	.00915	20.81	.735	1.50672	1.500	3.554	PER IMP= 60.00
ADD HYD	100.40 1& 2 3	.02621	59.63	2.106	1.50668	1.500	3.555	
COMPUTE NM HYD	180.50 - 1	.00183	4.17	.147	1.50672	1.500	3.564	PER IMP= 60.00
ADD HYD	100.50 1& 3 2	.02804	63.81	2.253	1.50667	1.500	3.556	
COMPUTE NM HYD	180.60 - 1	.00176	4.01	.141	1.50672	1.500	3.564	PER IMP= 60.00
ADD HYD	100.60 1& 2 3	.02980	67.82	2.395	1.50667	1.500	3.556	
COMPUTE NM HYD	180.70 - 1	.00060	1.10	.032	.99307	1.500	2.864	PER IMP= .00
ADD HYD	100.70 1& 3 2	.03040	68.92	2.426	1.49653	1.500	3.542	
ROUTE RESERVOIR	POND.100 2 1	.03040	25.20	2.426	1.49653	1.750	1.295	AC-FT= .949
COMPUTE NM HYD	180.80 - 1	.00117	2.95	.108	1.73716	1.500	3.945	PER IMP= 80.00
COMPUTE NM HYD	180.90 - 1	.00153	3.89	.144	1.76021	1.500	3.976	PER IMP= 82.00

FINISH

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 09/05/2001
START TIME (HR:MIN:SEC) = 14:21:54 USER NO.= M_GOODWN.I01
INPUT FILE = SUNWEST.DAT

START TIME=0.0
***** SUNRISE RANCH WEST LONGFORD HOMES (L-9)
***** 100-YEAR 6-HOUR STORM EVENT
***** FILE: SUNWEST.DAT SEPT 2001 BY:DLH
***** SINGLE FAMILY DETACHED

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.87 IN RAIN SIX=2.20 IN
RAIN DAY=2.66 IN DT=0.05 HR

COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
DT = .050000 HOURS END TIME = 6.000000 HOURS

.0000	.0025	.0050	.0076	.0103	.0131	.0160
.0190	.0222	.0254	.0289	.0324	.0362	.0401
.0443	.0487	.0534	.0584	.0637	.0695	.0758
.0837	.0924	.1176	.1773	.2798	.4384	.6668
.9790	1.2253	1.3366	1.4295	1.5109	1.5836	1.6495
1.7096	1.7648	1.8156	1.8624	1.9057	1.9458	1.9548
1.9631	1.9708	1.9780	1.9848	1.9912	1.9973	2.0031
2.0087	2.0140	2.0191	2.0240	2.0287	2.0333	2.0377
2.0420	2.0462	2.0502	2.0542	2.0580	2.0617	2.0653
2.0689	2.0724	2.0757	2.0791	2.0823	2.0855	2.0886
2.0916	2.0946	2.0976	2.1005	2.1033	2.1061	2.1088
2.1115	2.1142	2.1168	2.1193	2.1219	2.1244	2.1268
2.1293	2.1316	2.1340	2.1363	2.1386	2.1409	2.1431
2.1453	2.1475	2.1497	2.1518	2.1539	2.1560	2.1580
2.1601	2.1621	2.1641	2.1660	2.1680	2.1699	2.1718
2.1737	2.1756	2.1774	2.1793	2.1811	2.1829	2.1847
2.1864	2.1882	2.1899	2.1916	2.1933	2.1950	2.1967
2.1984	2.2000					

***** DEVELOPED CONDITIONS

***** SUBBASIN 180.1 (4.86 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.1 AREA=0.00760 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 18.003 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
AREA = .004560 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 8.0885 CFS UNIT VOLUME = .9996 B = 354.67 P60 = 1.8700
AREA = .003040 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.10

RUNOFF VOLUME = 1.50672 INCHES = .6107 ACRE-Feet
PEAK DISCHARGE RATE = 17.29 CFS AT 1.500 HOURS BASIN AREA = .0076 SQ. MI.

***** SUBBASIN 180.2 (3.017 ACRES)

COMPUTE NM HYD ID=2 HYD NO=180.2 AREA=0.00471 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.157 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002826 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 5.0127 CFS UNIT VOLUME = .9988 B = 354.67 P60 = 1.8700
AREA = .001884 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 180.20

RUNOFF VOLUME = 1.50672 INCHES = .3785 ACRE-Feet
PEAK DISCHARGE RATE = 10.72 CFS AT 1.500 HOURS BASIN AREA = .0047 SQ. MI.

ADD HYD ID=3 HYD=100.2 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 100.20

RUNOFF VOLUME = 1.50668 INCHES = .9892 ACRE-Feet
PEAK DISCHARGE RATE = 28.01 CFS AT 1.500 HOURS BASIN AREA = .0123 SQ. MI.

***** SUBBASIN 180.3 (3.043 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.3 AREA=0.00475 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.252 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002850 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 5.0553 CFS UNIT VOLUME = .9988 B = 354.67 P60 = 1.8700
AREA = .001900 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.30

RUNOFF VOLUME = 1.50672 INCHES = .3817 ACRE-Feet
PEAK DISCHARGE RATE = 10.81 CFS AT 1.500 HOURS BASIN AREA = .0048 SQ. MI.

ADD HYD ID=2 HYD=100.3 ID=1 ID=3
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 100.30

RUNOFF VOLUME = 1.50667 INCHES = 1.3709 ACRE-Feet
PEAK DISCHARGE RATE = 38.82 CFS AT 1.500 HOURS BASIN AREA = .0171 SQ. MI.

***** SUBBASIN 180.4 (5.855 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.4 AREA=0.00915 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 21.675 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
AREA = .005490 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.7381 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .003660 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.40

RUNOFF VOLUME = 1.50672 INCHES = .7353 ACRE-FEET
PEAK DISCHARGE RATE = 20.81 CFS AT 1.500 HOURS BASIN AREA = .0092 SQ. MI.

ADD HYD ID=3 HYD=100.4 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 100.40

RUNOFF VOLUME = 1.50668 INCHES = 2.1061 ACRE-FEET
PEAK DISCHARGE RATE = 59.63 CFS AT 1.500 HOURS BASIN AREA = .0262 SQ. MI.

***** SUBBASIN 180.5 (1.174 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.5 AREA=0.00183 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.3350 CFS UNIT VOLUME = .9966 B = 526.28 P60 = 1.8700
AREA = .001098 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.9476 CFS UNIT VOLUME = .9946 B = 354.67 P60 = 1.8700
AREA = .000732 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.50

RUNOFF VOLUME = 1.50672 INCHES = .1471 ACRE-FEET
PEAK DISCHARGE RATE = 4.17 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

ADD HYD ID=2 HYD=100.5 ID=1 ID=3
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 100.50

RUNOFF VOLUME = 1.50667 INCHES = 2.2532 ACRE-FEET
PEAK DISCHARGE RATE = 63.81 CFS AT 1.500 HOURS BASIN AREA = .0280 SQ. MI.

***** SUBASIN 180.6 (1.129 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.6 AREA=0.00176 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.1691 CFS UNIT VOLUME = .9966 B = 526.28 P60 = 1.8700
AREA = .001056 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.8731 CFS UNIT VOLUME = .9946 B = 354.67 P60 = 1.8700
AREA = .000704 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.60

RUNOFF VOLUME = 1.50672 INCHES = .1414 ACRE-FEET
PEAK DISCHARGE RATE = 4.01 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

ADD HYD ID=3 HYD=100.6 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 100.60

RUNOFF VOLUME = 1.50667 INCHES = 2.3946 ACRE-FEET
PEAK DISCHARGE RATE = 67.82 CFS AT 1.500 HOURS BASIN AREA = .0298 SQ. MI.

***** SUBASIN 180.7 (0.383 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.7 AREA=0.00060 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 = 1.7471 CFS UNIT VOLUME = .9952 B = 388.14 P60 = 1.8700
AREA = .000600 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.70

RUNOFF VOLUME = .99307 INCHES = .0318 ACRE-FEET
PEAK DISCHARGE RATE = 1.10 CFS AT 1.500 HOURS BASIN AREA = .0006 SQ. MI.

ADD HYD ID=2 HYD=100.7 ID=1 ID=3
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 100.70

RUNOFF VOLUME = 1.49653 INCHES = 2.4264 ACRE-FEET
PEAK DISCHARGE RATE = 68.92 CFS AT 1.500 HOURS BASIN AREA = .0304 SQ. MI.

***** ROUTE FLOW THROUGH SUNRISE RANCH WEST ONSITE DETENTION POND
***** OUTFALL STRUCTURE: SERIES OF (8)-6" DIA. HOLE IN STANDPIPE+ (1) 9.15" DIA
***** DISCHARGE TO 24" RCP TO 60" RCP STORM SEWER IN EUCARIZ

***** ASSUMES NO BACKWATER EFFECT ***

ROUTE RESERVOIR ID=1 HYD=POND.100 INFLOW=2 CODE=24

OUTFLOW (CFS) STORAGE (AC FT) ELEV (FT)

0	0	20.0
2.7	0.0397	21.0
7.9	0.0944	22.0
10.98	0.1682	23.0
15.51	0.2641	24.0
18.40	0.3853	25.0
20.86	0.5344	26.0
23.04	0.7139	27.0
25.03	0.9266	28.0
26.86	1.1752	29.0

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

.00	.00	20.00	.000	.00
1.20	1.38	20.07	.003	.20
2.40	2.62	24.67	.345	17.43
3.60	.34	20.16	.006	.43
4.80	.30	20.11	.004	.30
6.00	.38	20.13	.005	.36
7.20	.00	20.00	.000	.00

PEAK DISCHARGE = 25.198 CFS - PEAK OCCURS AT HOUR 1.75

MAXIMUM WATER SURFACE ELEVATION = 28.092

MAXIMUM STORAGE = .9494 AC-FT INCREMENTAL TIME= .050000HRS

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA POND.100

RUNOFF VOLUME = 1.49653 INCHES = 2.4264 ACRE-FEET
PEAK DISCHARGE RATE = 25.20 CFS AT 1.750 HOURS BASIN AREA = .0304 SQ. MI.

***** SUBBASIN 180.8 (0.746 ACRES) SUNSET GARDENS AVENUE

COMPUTE NM HYD ID=1 HYD NO=180.8 AREA=0.00117 SQ MI
PER A=0 PER B=10 PER C=10 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 = 3.6954 CFS UNIT VOLUME = .9959 B = 526.28 P60 = 1.8700
AREA = .000936 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .62260 CFS UNIT VOLUME = .9808 B = 354.67 P60 = 1.8700
AREA = .000234 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.80

RUNOFF VOLUME = 1.73716 INCHES = .1084 ACRE-FEET
PEAK DISCHARGE RATE = 2.95 CFS AT 1.500 HOURS BASIN AREA = .0012 SQ. MI.

***** SUBBASIN 180.9 (0.979 ACRES) 106TH STREET

COMPUTE NM HYD ID=1 HYD NO=180.9 AREA=0.00153 SQ MI
PER A=0 PER B=9 PER C=9 PER D=82
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.9532 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8700
AREA = .001255 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .73275 CFS UNIT VOLUME = .9835 B = 354.67 P60 = 1.8700
AREA = .000275 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.90

RUNOFF VOLUME = 1.76021 INCHES = .1436 ACRE-FEET
PEAK DISCHARGE RATE = 3.89 CFS AT 1.500 HOURS BASIN AREA = .0015 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 14:21:54

RUN DATE (MON/DAY/YR) =09/05/2001

USER NO.= M GOODWN.I01

FROM TO		PEAK	RUNOFF	TIME TO CFS	PAGE = 1		
HYDROGRAPH	ID ID	AREA	DISCHARGE	VOLUME	RUNOFF	PEAK PER	
COMMAND	IDENTIFICATION NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS) ACRE NOTATION

START	TIME= .00									
RAINFALL TYPE= 1	RAIN6= 2.200									
COMPUTE NM HYD	180.10	-	1	.00760	17.29	.611	1.50672	1.500	3.555	PER IMP= 60.00
COMPUTE NM HYD	180.20	-	2	.00471	10.72	.378	1.50672	1.500	3.556	PER IMP= 60.00
ADD HYD	100.20	1 & 2	3	.01231	28.01	.989	1.50668	1.500	3.555	
COMPUTE NM HYD	180.30	-	1	.00475	10.81	.382	1.50672	1.500	3.556	PER IMP= 60.00
ADD HYD	100.30	1 & 3	2	.01706	38.82	1.371	1.50667	1.500	3.556	
COMPUTE NM HYD	180.40	-	1	.00915	20.81	.735	1.50672	1.500	3.554	PER IMP= 60.00
ADD HYD	100.40	1 & 2	3	.02621	59.63	2.106	1.50668	1.500	3.555	
COMPUTE NM HYD	180.50	-	1	.00183	4.17	.147	1.50672	1.500	3.564	PER IMP= 60.00
ADD HYD	100.50	1 & 3	2	.02804	63.81	2.253	1.50667	1.500	3.556	
COMPUTE NM HYD	180.60	-	1	.00176	4.01	.141	1.50672	1.500	3.564	PER IMP= 60.00
ADD HYD	100.60	1 & 2	3	.02980	67.82	2.395	1.50667	1.500	3.556	
COMPUTE NM HYD	180.70	-	1	.00060	1.10	.032	.99307	1.500	2.864	PER IMP= .00
ADD HYD	100.70	1 & 3	2	.03040	68.92	2.426	1.49653	1.500	3.542	
ROUTE RESERVOIR	POND.100	2	1	.03040	20.59	2.232	1.37639	1.850	1.058	AC-FT= 1.228
COMPUTE NM HYD	180.80	-	1	.00117	2.95	.108	1.73716	1.500	3.945	PER IMP= 80.00
COMPUTE NM HYD	180.90	-	1	.00153	3.89	.144	1.76021	1.500	3.976	PER IMP= 82.00
FINISH										

AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
RUN DATE (MON/DAY/YR) = 09/05/2001
START TIME (HR:MIN:SEC) = 14:22:36 USER NO.= M_GOODWN.I01
INPUT FILE = sunwest1.dat

START TIME=0.0
***** SUNRISE RANCH WEST LONGFORD HOMES (L-9)
***** 100-YEAR 6-HOUR STORM EVENT
***** FILE: SUNWEST1.DAT SEPT 2001 BY:DLH
***** SINGLE FAMILY DETACHED

RAINFALL TYPE=1 RAIN QUARTER=0.0 IN
RAIN ONE=1.87 IN RAIN SIX=2.20 IN
RAIN DAY=2.66 IN DT=0.05 HR

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

DT = .050000 HOURS END TIME = 6.000000 HOURS

.0000	.0025	.0050	.0076	.0103	.0131	.0160
.0190	.0222	.0254	.0289	.0324	.0362	.0401
.0443	.0487	.0534	.0584	.0637	.0695	.0758
.0837	.0924	.1176	.1773	.2798	.4384	.6668
.9790	1.2253	1.3366	1.4295	1.5109	1.5836	1.6495
1.7096	1.7648	1.8156	1.8624	1.9057	1.9458	1.9548
1.9631	1.9708	1.9780	1.9848	1.9912	1.9973	2.0031
2.0087	2.0140	2.0191	2.0240	2.0287	2.0333	2.0377
2.0420	2.0462	2.0502	2.0542	2.0580	2.0617	2.0653
2.0689	2.0724	2.0757	2.0791	2.0823	2.0855	2.0886
2.0916	2.0946	2.0976	2.1005	2.1033	2.1061	2.1088
2.1115	2.1142	2.1168	2.1193	2.1219	2.1244	2.1268
2.1293	2.1316	2.1340	2.1363	2.1386	2.1409	2.1431
2.1453	2.1475	2.1497	2.1518	2.1539	2.1560	2.1580
2.1601	2.1621	2.1641	2.1660	2.1680	2.1699	2.1718
2.1737	2.1756	2.1774	2.1793	2.1811	2.1829	2.1847
2.1864	2.1882	2.1899	2.1916	2.1933	2.1950	2.1967
2.1984	2.2000					

***** DEVELOPED CONDITIONS

***** SUBBASIN 180.1 (4.86 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.1 AREA=0.00760 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 18.003 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.8700
AREA = .004560 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 8.0885 CFS UNIT VOLUME = .9996 B = 354.67 P60 = 1.8700
AREA = .003040 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.10

RUNOFF VOLUME = 1.50672 INCHES = .6107 ACRE-FEET
PEAK DISCHARGE RATE = 17.29 CFS AT 1.500 HOURS BASIN AREA = .0076 SQ. MI.

***** SUBASIN 180.2 (3.017 ACRES)

COMPUTE NM HYD ID=2 HYD NO=180.2 AREA=0.00471 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.157 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002826 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 5.0127 CFS UNIT VOLUME = .9988 B = 354.67 P60 = 1.8700
AREA = .001884 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 180.20

RUNOFF VOLUME = 1.50672 INCHES = .3785 ACRE-FEET
PEAK DISCHARGE RATE = 10.72 CFS AT 1.500 HOURS BASIN AREA = .0047 SQ. MI.

ADD HYD ID=3 HYD=100.2 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 100.20

RUNOFF VOLUME = 1.50668 INCHES = .9892 ACRE-FEET
PEAK DISCHARGE RATE = 28.01 CFS AT 1.500 HOURS BASIN AREA = .0123 SQ. MI.

***** SUBASIN 180.3 (3.043 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.3 AREA=0.00475 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 11.252 CFS UNIT VOLUME = .9981 B = 526.28 P60 = 1.8700
AREA = .002850 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 5.0553 CFS UNIT VOLUME = .9988 B = 354.67 P60 = 1.8700
AREA = .001900 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.30

RUNOFF VOLUME = 1.50672 INCHES = .3817 ACRE-Feet
PEAK DISCHARGE RATE = 10.81 CFS AT 1.500 HOURS BASIN AREA = .0048 SQ. MI.

ADD HYD ID=2 HYD=100.3 ID=1 ID=3
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 100.30

RUNOFF VOLUME = 1.50667 INCHES = 1.3709 ACRE-Feet
PEAK DISCHARGE RATE = 38.82 CFS AT 1.500 HOURS BASIN AREA = .0171 SQ. MI.

***** SUBBASIN 180.4 (5.855 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.4 AREA=0.00915 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 21.675 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
AREA = .005490 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 9.7381 CFS UNIT VOLUME = 1.000 B = 354.67 P60 = 1.8700
AREA = .003660 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.40

RUNOFF VOLUME = 1.50672 INCHES = .7353 ACRE-FEET
PEAK DISCHARGE RATE = 20.81 CFS AT 1.500 HOURS BASIN AREA = .0092 SQ. MI.

ADD HYD ID=3 HYD=100.4 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 100.40

RUNOFF VOLUME = 1.50668 INCHES = 2.1061 ACRE-FEET
PEAK DISCHARGE RATE = 59.63 CFS AT 1.500 HOURS BASIN AREA = .0262 SQ. MI.

***** SUBBASIN 180.5 (1.174 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.5 AREA=0.00183 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.3350 CFS UNIT VOLUME = .9966 B = 526.28 P60 = 1.8700
AREA = .001098 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.9476 CFS UNIT VOLUME = .9946 B = 354.67 P60 = 1.8700
AREA = .000732 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.50

RUNOFF VOLUME = 1.50672 INCHES = .1471 ACRE-FEET
PEAK DISCHARGE RATE = 4.17 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

ADD HYD ID=2 HYD=100.5 ID=1 ID=3
PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 100.50

RUNOFF VOLUME = 1.50667 INCHES = 2.2532 ACRE-FEET
PEAK DISCHARGE RATE = 63.81 CFS AT 1.500 HOURS BASIN AREA = .0280 SQ. MI.

***** SUBBASIN 180.6 (1.129 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.6 AREA=0.00176 SQ MI
PER A=0 PER B=20 PER C=20 PER D=60
TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.1691 CFS UNIT VOLUME = .9966 B = 526.28 P60 = 1.8700
AREA = .001056 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = 1.8731 CFS UNIT VOLUME = .9946 B = 354.67 P60 = 1.8700
AREA = .000704 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.60

RUNOFF VOLUME = 1.50672 INCHES = .1414 ACRE-FEET
PEAK DISCHARGE RATE = 4.01 CFS AT 1.500 HOURS BASIN AREA = .0018 SQ. MI.

ADD HYD ID=3 HYD=100.6 ID=1 ID=2
PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 100.60

RUNOFF VOLUME = 1.50667 INCHES = 2.3946 ACRE-FEET
PEAK DISCHARGE RATE = 67.82 CFS AT 1.500 HOURS BASIN AREA = .0298 SQ. MI.

***** SUBBASIN 180.7 (0.383 ACRES)

COMPUTE NM HYD ID=1 HYD NO=180.7 AREA=0.00060 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 = 1.7471 CFS UNIT VOLUME = .9952 B = 388.14 P60 = 1.8700
AREA = .000600 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.70

RUNOFF VOLUME = .99307 INCHES = .0318 ACRE-FEET
 PEAK DISCHARGE RATE = 1.10 CFS AT 1.500 HOURS BASIN AREA = .0006 SQ. MI.

ADD HYD ID=2 HYD=100.7 ID=1 ID=3
 PRINT HYD ID=2 CODE=1

PARTIAL HYDROGRAPH 100.70

RUNOFF VOLUME = 1.49653 INCHES = 2.4264 ACRE-FEET
 PEAK DISCHARGE RATE = 68.92 CFS AT 1.500 HOURS BASIN AREA = .0304 SQ. MI.

***** ROUTE FLOW THROUGH SUNRISE RANCH WEST ONSITE DETENTION POND
 ***** ASSUMES WORSE CASE SCENERIO THAT OUTFALL STRUCTURE IS LIMITED BY
 ***** OUTFALL STRUCTURE: SERIES OF (8)-6" DIA. HOLE IN STANDPIPE+ (1) 9.15" DIA
 ***** DISCHARGE TO 24" RCP TO 60" RCP STORM SEWER IN EUCARIZ

***** *****

***** *** ASSUME HGL(maximum) = 24.7' IN 60" RCP STORM SEWER ***

***** *****

ROUTE RESERVOIR ID=1 HYD=POND.100 INFLOW=2 CODE=24

OUTFLOW (CFS) STORAGE (AC FT) ELEV (FT)

0	0	20.0
0.01	0.0397	21.0
0.02	0.0944	22.0
0.03	0.1682	23.0
0.04	0.2641	24.0
5.33	0.3853	25.0
11.09	0.5344	26.0
14.76	0.7139	27.0
17.68	0.9266	28.0
20.18	1.1752	29.0
22.40	1.4624	30.0

* * * * *

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

.00	.00	20.00	.000	.00
1.20	1.38	20.09	.003	.00
2.40	2.62	27.38	.795	15.88
3.60	.34	24.15	.283	.85
4.80	.30	24.05	.270	.30
6.00	.38	24.06	.271	.35
7.20	.00	23.99	.263	.04
8.40	.00	23.95	.259	.04
9.60	.00	23.91	.255	.04
10.80	.00	23.87	.251	.04
12.00	.00	23.83	.247	.04
13.20	.00	23.79	.244	.04

14.40	.00	23.75	.240	.04
15.60	.00	23.71	.236	.04
16.80	.00	23.67	.233	.04
18.00	.00	23.63	.229	.04
19.20	.00	23.60	.225	.04
20.40	.00	23.56	.222	.04
21.60	.00	23.52	.218	.04
22.80	.00	23.49	.215	.03
24.00	.00	23.45	.211	.03
25.20	.00	23.41	.208	.03
26.40	.00	23.38	.205	.03
27.60	.00	23.34	.201	.03
28.80	.00	23.31	.198	.03

PEAK DISCHARGE = 20.588 CFS - PEAK OCCURS AT HOUR 1.85
 MAXIMUM WATER SURFACE ELEVATION = 29.184
 MAXIMUM STORAGE = 1.2280 AC-FT INCREMENTAL TIME= .050000HRS

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA POND.100

RUNOFF VOLUME = 1.37639 INCHES = 2.2316 ACRE-FEET
 PEAK DISCHARGE RATE = 20.59 CFS AT 1.850 HOURS BASIN AREA = .0304 SQ. MI.

***** SUBBASIN 180.8 (0.746 ACRES) SUNSET GARDENS AVENUE

COMPUTE NM HYD ID=1 HYD NO=180.8 AREA=0.00117 SQ MI
 PER A=0 PER B=10 PER C=10 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 = 3.6954 CFS UNIT VOLUME = .9959 B = 526.28 P60 = 1.8700
 AREA = .000936 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
 UNIT PEAK = .62260 CFS UNIT VOLUME = .9808 B = 354.67 P60 = 1.8700
 AREA = .000234 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.80

RUNOFF VOLUME = 1.73716 INCHES = .1084 ACRE-FEET
 PEAK DISCHARGE RATE = 2.95 CFS AT 1.500 HOURS BASIN AREA = .0012 SQ. MI.

***** SUBBASIN 180.9 (0.979 ACRES) 106TH STREET

COMPUTE NM HYD ID=1 HYD NO=180.9 AREA=0.00153 SQ MI

PER A=0 PER B=9 PER C=9 PER D=82

TP=0.1333 HR MASS RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 4.9532 CFS UNIT VOLUME = .9971 B = 526.28 P60 = 1.8700
AREA = .001255 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .118429HR TP = .133300HR K/TP RATIO = .888442 SHAPE CONSTANT, N = 3.992480
UNIT PEAK = .73275 CFS UNIT VOLUME = .9835 B = 354.67 P60 = 1.8700
AREA = .000275 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

PRINT HYD ID=1 CODE=1

PARTIAL HYDROGRAPH 180.90

RUNOFF VOLUME = 1.76021 INCHES = .1436 ACRE-FEET

PEAK DISCHARGE RATE = 3.89 CFS AT 1.500 HOURS BASIN AREA = .0015 SQ. MI.

FINISH

NORMAL PROGRAM FINISH

END TIME (HR:MIN:SEC) = 14:22:36

APPENDIX A.2

AMAFCA Amole-Hubbell Drainage Management Plan

Original 'developed conditions' model (AHYMO)

Revised 'developed conditions' model (AHYMO)

Snow Vista Sedimentation Pond

** ROUTE THE FLOW AT THE HEAD OF THE SNOW VISTA CHANNEL THROUGH THE EXISTING
 ** SEDIMENTATION BASIN
 ** 1994 TOPO BY TOM MANN AND ALBUQUERQUE SURVEYING USED AS A BASIS FOR STORAGE
 ** VOLUME CALCULATIONS. OUTFLOW CALCULATED WITH A WEIR EQUATION $C=3.00$. FLOW
 ** OVER SIDE SLOPE AREAS CALCULATED IN .5' WIDE INCREMENTS WITH DEPTH AT
 ** THE MIDPOINT OF THE INCREMENT USED FOR h FOR THE INCREMENT.

ROUTE RESERVOIR ID=3 HYD=200.2 INFLOW ID=10 CODE=24.2

CFS OUT	VOL AC-FT	ELEV FT
0	0	10.0
1.7	0.54	11.0
34	1.79	12.0
112	3.25	13.0
230	4.82	14.0
393	6.51	15.0
604	8.29	16.0

* * * * *

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	10.00	.000	.00
1.20	2.77	10.01	.007	.02
2.40	359.55	14.84	6.247	367.67
3.60	30.88	12.03	1.830	36.13
4.80	27.98	11.84	1.586	28.73
6.00	8.39	11.26	.861	9.99
7.20	9.77	11.25	.854	9.82
8.40	9.02	11.23	.833	9.28
9.60	8.43	11.22	.809	8.66
10.80	7.83	11.20	.787	8.08
12.00	7.43	11.18	.768	7.60
13.20	7.01	11.17	.752	7.17
14.40	6.64	11.16	.737	6.79
15.60	6.32	11.15	.724	6.46
16.80	6.04	11.14	.712	6.15
18.00	5.78	11.13	.702	5.88
19.20	5.54	11.12	.692	5.63
20.40	5.30	11.11	.683	5.39
21.60	5.12	11.11	.675	5.19
22.80	4.93	11.10	.668	5.00
24.00	4.76	11.10	.660	4.81
25.20	.09	10.95	.511	1.61
26.40	.00	10.70	.376	1.18
27.60	.00	10.51	.275	.87
28.80	.00	10.37	.201	.63
30.00	.00	10.27	.147	.46
31.20	.00	10.20	.108	.34
32.40	.00	10.15	.079	.25
33.60	.00	10.11	.058	.18
34.80	.00	10.08	.042	.13
36.00	.00	10.06	.031	.10
37.20	.00	10.04	.023	.07
38.40	.00	10.03	.017	.05
39.60	.00	10.02	.012	.04
40.80	.00	10.02	.009	.03
42.00	.00	10.01	.006	.02
43.20	.00	10.01	.005	.01
44.40	.00	10.01	.003	.01
45.60	.00	10.00	.003	.01
46.80	.00	10.00	.002	.01
48.00	.00	10.00	.001	.00
49.20	.00	10.00	.001	.00
50.40	.00	10.00	.001	.00
51.60	.00	10.00	.001	.00

PEAK DISCHARGE = 377.756 CFS - PEAK OCCURS AT HOUR 2.00
 MAXIMUM WATER SURFACE ELEVATION = 14.906
 MAXIMUM STORAGE = 6.3520 AC-FT INCREMENTAL TIME= .100000HRS

PRINT HYD ID=3 CODE=1

PARTIAL HYDROGRAPH 200.20

RUNOFF VOLUME = 2.06540 INCHES = 57.1326 ACRE-FEET
 PEAK DISCHARGE RATE = 377.76 CFS AT 2.000 HOURS BASIN AREA = .5187 SQ. MI.

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = sv_dmp.dat

RUN DATE (MON/DAY/YR) =06/28/2001
 USER NO.= M_GOODWN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
*S											
*S	SNOW VISTA										
*S	WITH MANAGEMENT PLAN IN PLACE										
*S											
*S											
*S	100-YR, 24-HR STORM WITH NO SEDIMENT**										
*S	FILE NAME : SV_DMP1.DAT										
*S	BY: TOM BLAINE AND RICHARD STOCKTON/K. JACOBSEN										
*S	LAST REVISION: 06-08-99 (PIPE FOR POND.71 CHANGED AND HYD=400)										
*S	100 YEAR 24HR STORM DEVELOPED CONDITION										
RAINFALL	TYPE= 2										RAIN24= 2.660
COMPUTE NM HYD	100.00	-	2	.13520	340.82	15.597	2.16311	1.500	3.939	PER IMP=	85.00
ROUTE RESERVOIR	100.10	2	5	.13520	111.60	15.611	2.16501	1.850	1.290	AC-FT=	4.075
ROUTE	100.20	5	3	.13520	112.75	15.611	2.16502	1.400	1.303		
ROUTE	100.30	3	10	.13520	114.14	15.611	2.16502	1.450	1.319		
COMPUTE NM HYD	110.00	-	2	.07170	181.36	8.272	2.16311	1.500	3.952	PER IMP=	85.00
ROUTE RESERVOIR	110.10	2	5	.07170	59.19	8.377	2.19060	2.600	1.290	AC-FT=	.001
ROUTE	110.20	5	11	.07170	61.29	8.377	2.19061	1.400	1.336		
COMPUTE NM HYD	120.00	-	2	.04030	101.99	4.649	2.16311	1.500	3.954	PER IMP=	85.00
ROUTE RESERVOIR	120.10	2	5	.04030	33.30	4.654	2.16525	1.850	1.291	AC-FT=	1.219
ADD HYD	120.20	11& 5	12	.11200	94.58	13.031	2.18148	1.400	1.319		
ROUTE	120.30	12	11	.11200	95.88	13.031	2.18148	1.400	1.338		
COMPUTE NM HYD	130.00	-	2	.03770	95.41	4.349	2.16311	1.500	3.954	PER IMP=	85.00
ROUTE RESERVOIR	130.10	2	5	.03770	31.10	4.349	2.16310	1.850	1.289	AC-FT=	1.142
ADD HYD	130.20	11& 5	12	.14970	126.97	17.380	2.17685	1.400	1.325		
ADD HYD	130.30	10&12	12	.28490	238.38	32.991	2.17123	1.450	1.307		
ROUTE	130.40	12	90	.28490	241.75	32.991	2.17124	1.450	1.326		
COMPUTE NM HYD	140.00	-	2	.04300	105.07	4.718	2.05746	1.500	3.818	PER IMP=	79.00
ROUTE RESERVOIR	140.10	2	5	.04300	35.50	4.739	2.06628	1.800	1.290	AC-FT=	1.198
ROUTE	140.20	5	11	.04300	36.97	4.739	2.06630	1.400	1.343		
COMPUTE NM HYD	150.00	-	2	.02420	55.95	2.451	1.89898	1.500	3.612	PER IMP=	70.00
ROUTE RESERVOIR	150.10	2	5	.02420	19.99	2.456	1.90318	1.800	1.291	AC-FT=	.589
ADD HYD	150.20	11& 5	12	.06720	56.96	7.195	2.00755	1.400	1.324		
COMPUTE NM HYD	170.00	-	70	.02853	65.96	2.889	1.89898	1.500	3.612	PER IMP=	70.00
ROUTE RESERVOIR	150.10	70	5	.02853	23.61	2.893	1.90140	1.800	1.293	AC-FT=	.693
ADD HYD	170.20	12& 5	12	.09573	80.56	10.088	1.97591	1.400	1.315		
ROUTE	150.30	12	11	.09573	83.24	10.088	1.97592	1.400	1.359		
COMPUTE NM HYD	160.00	-	2	.02170	50.17	2.198	1.89898	1.500	3.612	PER IMP=	70.00
ROUTE RESERVOIR	160.10	2	5	.02170	15.89	2.198	1.89896	1.850	1.144	AC-FT=	.888
ADD HYD	160.20	11& 5	12	.11743	94.99	12.286	1.96168	1.850	1.264		
ROUTE	170.40	12	11	.11743	94.99	12.286	1.96169	1.850	1.264		
COMPUTE NM HYD	180.00	-	2	.02810	64.96	2.846	1.89898	1.500	3.612	PER IMP=	70.00
ROUTE RESERVOIR	180.10	2	5	.02810	23.20	2.854	1.90432	1.800	1.290	AC-FT=	.684

ADD HYD	180.20	11& 5	10	.14553	118.19	15.140	1.95061	1.850	1.269	
ROUTE	180.30	10	11	.14553	118.20	15.140	1.95061	1.850	1.269	
COMPUTE NM HYD	190.00	-	2	.03130	79.22	3.611	2.16311	1.500	3.955	PER IMP= 85.00
ROUTE RESERVOIR	190.10	2	5	.03130	25.80	3.611	2.16310	1.850	1.288	AC-FT= .950
ADD HYD	190.00	90& 5	1	.31620	267.54	36.602	2.17043	1.450	1.322	
ROUTE	190.20	1	10	.31620	271.17	36.602	2.17043	1.450	1.340	
ADD HYD	190.30	11&10	12	.46173	380.80	51.742	2.10114	1.450	1.289	
COMPUTE NM HYD	200.00	-	2	.02520	49.60	2.074	1.54349	1.500	3.075	PER IMP= 52.00
*S THE VOLUME FROM 200.1 IS THE SNOW VISTA POND VOLUME UNDER DEV. COND.										
*S HYD=200.1 IS *****AP 21.1*****										
ADD HYD	200.10	2&12	10	.48693	423.42	53.816	2.07228	1.450	1.359	
ROUTE RESERVOIR	200.20	10	3	.48693	387.71	53.814	2.07218	2.000	1.244	AC-FT= 6.455
*S HYD=200.2 IS *****AP 21*****										
MODIFY TIME	200.20	3	3	.48693	388.53	53.814	2.07218	1.950	1.247	
*s BEGIN ONSITE WATERSHED										
COMPUTE NM HYD	210.00	-	2	.00920	20.66	.871	1.77514	1.500	3.509	PER IMP= 61.00
ADD HYD	210.10	3& 2	10	.49613	393.57	54.685	2.06667	1.900	1.239	
ROUTE	210.20	10	11	.49613	393.76	54.684	2.06663	1.950	1.240	
COMPUTE NM HYD	220.00	-	2	.00800	17.97	.757	1.77514	1.500	3.510	PER IMP= 61.00
ADD HYD	220.10	11& 2	10	.50413	397.90	55.441	2.06200	1.950	1.233	
ROUTE	220.20	10	11	.50413	397.80	55.440	2.06198	1.900	1.233	
COMPUTE NM HYD	230.00	-	2	.00940	21.11	.890	1.77514	1.500	3.509	PER IMP= 61.00
ADD HYD	230.10	11& 2	10	.51353	403.48	56.330	2.05673	1.850	1.228	
ROUTE	230.20	10	11	.51353	404.02	56.330	2.05670	1.900	1.229	
COMPUTE NM HYD	240.00	-	2	.01450	32.56	1.373	1.77514	1.500	3.509	PER IMP= 61.00
*s END ONSITE WATERSHED										
ADD HYD	240.10	11& 2	10	.52803	412.58	57.702	2.04897	1.800	1.221	
COMPUTE NM HYD	250.00	-	2	.00220	5.04	.201	1.71016	1.500	3.582	PER IMP= 50.00
ADD HYD	250.10	10& 2	11	.53023	414.22	57.903	2.04756	1.800	1.221	
COMPUTE NM HYD	260.00	-	2	.01570	34.01	1.443	1.72289	1.500	3.385	PER IMP= 60.00
ROUTE	260.10	2	15	.01570	32.36	1.443	1.72292	1.550	3.221	
COMPUTE NM HYD	270.00	-	2	.01020	20.61	.841	1.54680	1.500	3.157	PER IMP= 50.00
ADD HYD	270.10	15& 2	16	.02590	52.62	2.284	1.65352	1.500	3.175	
DIVIDE HYD	270.20	16	15	.02035	25.79	1.795	1.65352	1.500	1.980	
	270.30	AND	3	.00555	26.84	.489	1.65352	1.500	7.556	
ROUTE	270.40	3	16	.00555	24.11	.489	1.65360	1.550	6.788	
COMPUTE NM HYD	280.00	-	2	.00220	5.42	.243	2.07506	1.500	3.850	PER IMP= 80.00
ADD HYD	280.10	16& 2	17	.00775	28.88	.733	1.77310	1.550	5.821	
ADD HYD	280.20	17&11	10	.53798	419.19	58.636	2.04361	1.750	1.217	
ROUTE	280.30	10	11	.53798	419.02	58.632	2.04348	1.750	1.217	
COMPUTE NM HYD	290.00	-	2	.00670	12.00	.421	1.17900	1.500	2.799	PER IMP= 25.00
ADD HYD	290.10	11& 2	10	.54468	424.08	59.053	2.03284	1.700	1.217	
COMPUTE NM HYD	300.00	-	2	.07090	179.34	8.179	2.16311	1.500	3.952	PER IMP= 85.00
ROUTE RESERVOIR	300.10	2	5	.07090	58.60	8.192	2.16634	1.850	1.291	AC-FT= 2.142
ROUTE	300.20	5	11	.07090	58.59	8.192	2.16636	2.350	1.291	
COMPUTE NM HYD	310.00	-	2	.08640	214.61	9.724	2.11028	1.500	3.881	PER IMP= 82.00
ROUTE RESERVOIR	310.10	2	5	.08640	71.30	9.826	2.13237	1.800	1.289	AC-FT= 2.505
ADD HYD	310.20	11& 5	12	.15730	129.89	18.018	2.14769	2.300	1.290	
ROUTE	310.30	12	11	.15730	129.89	18.018	2.14769	2.300	1.290	
ROUTE	310.40	11	13	.15730	129.89	18.018	2.14769	2.350	1.290	
COMPUTE NM HYD	320.00	-	2	.05470	122.45	5.283	1.81093	1.500	3.498	PER IMP= 65.00

ROUTE RESERVOIR	320.10	2	5	.05470	16.32	5.206	1.78457	2.100	.466 AC-FT=	3.035
ROUTE	320.20	5	11	.05470	16.32	5.205	1.78432	2.150	.466	
COMPUTE NM HYD	330.00	-	2	.02380	53.29	2.299	1.81093	1.500	3.498 PER IMP=	65.00
ADD HYD	330.10	11& 2	12	.07850	63.27	7.504	1.79239	1.500	1.259	
ADD HYD	330.20	12&13	14	.23580	190.99	25.522	2.02940	1.500	1.266	
ROUTE	330.30	14	12	.23580	189.79	25.521	2.02938	1.550	1.258	
ROUTE	330.40	12	11	.23580	190.04	25.521	2.02933	1.550	1.259	
ROUTE	330.50	15	17	.02035	25.49	1.795	1.65356	1.550	1.957	
ROUTE	330.60	17	16	.02035	25.11	1.795	1.65356	1.550	1.928	
COMPUTE NM HYD	340.00	-	2	.01550	31.31	1.279	1.54680	1.500	3.156 PER IMP=	50.00
ADD HYD	340.10	16& 2	15	.03585	55.01	3.073	1.60737	1.500	2.398	
ROUTE	340.20	15	16	.03585	54.76	3.073	1.60739	1.500	2.387	
ROUTE	340.30	16	15	.03585	54.42	3.073	1.60739	1.500	2.372	
COMPUTE NM HYD	350.00	-	2	.04830	97.54	3.985	1.54680	1.500	3.155 PER IMP=	50.00
ADD HYD	350.10	15& 2	16	.08415	151.96	7.058	1.57260	1.500	2.822	
ROUTE	350.20	16	15	.08415	151.86	7.058	1.57261	1.500	2.820	
ROUTE	350.30	15	16	.08415	150.38	7.058	1.57261	1.500	2.792	
COMPUTE NM HYD	360.00	-	2	.02080	42.01	1.716	1.54680	1.500	3.156 PER IMP=	50.00
ADD HYD	360.10	16& 2	15	.10495	192.40	8.774	1.56748	1.500	2.864	
ADD HYD	360.20	15&11	17	.34075	379.27	34.295	1.88709	1.500	1.739	
ROUTE	360.30	17	16	.34075	377.82	34.295	1.88708	1.500	1.732	
ADD HYD	360.40	16&10	15	.88543	741.01	93.348	1.97675	1.600	1.308	
COMPUTE NM HYD	370.00	-	2	.01830	36.97	1.510	1.54680	1.500	3.156 PER IMP=	50.00
ROUTE RESERVOIR	370.10	2	5	.01830	6.64	1.510	1.54678	2.050	.567 AC-FT=	.768
*S HYD=AP22 IS *****AP 22*****										
ADD HYD	AP22	5&15	22	.90373	747.11	94.857	1.96804	1.600	1.292	
ROUTE	100.00	22	88	.90373	752.81	94.856	1.96801	1.600	1.302	
*S COMPUTE HYD FOR BASIN 301.61										
COMPUTE NM HYD	301.61	-	61	.03590	84.71	3.399	1.77514	1.500	3.687 PER IMP=	61.00
*S ROUTE ID=61 THROUGH POND.61										
ROUTE RESERVOIR	.61	61	1	.03590	26.35	3.411	1.78163	1.750	1.147 AC-FT=	1.154
*S ROUTE THIS FLOW DOWN THE 24" STORM DRAIN PIPE TO POND.62										
ROUTE	.61	1	11	.03590	26.36	3.411	1.78166	1.800	1.147	
*S HYDROGRAPH ID = 11 IS THE ROUTED FLOW OUT OF POND.61										
*S COMPUTE HYD FOR BASIN 301.62										
COMPUTE NM HYD	301.62	-	62	.03440	81.18	3.257	1.77514	1.500	3.687 PER IMP=	61.00
*S ROUTE ID=62 THROUGH POND.62										
ROUTE RESERVOIR	.62	62	1	.03440	25.02	3.267	1.78046	1.800	1.136 AC-FT=	1.098
*S ROUTED FLOW OUT OF POND.62										
*S ADD HYD ID=11 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 30" STORM DRAIN										
*S TO POND.63										
ADD HYD	POND.62	1&11	1	.07030	51.38	6.678	1.78106	1.800	1.142	
ROUTE	.62	1	12	.07030	51.40	6.678	1.78107	1.800	1.142	
*S HYDROGRAPH ID = 12 IS THE ROUTED FLOW DOWN THE 30" STORM DRAIN PIPE										
*S COMPUTE HYD FOR BASIN 301.63										
COMPUTE NM HYD	301.63	-	63	.03440	81.18	3.257	1.77514	1.500	3.687 PER IMP=	61.00
*S ROUTE ID=63 THROUGH POND.63										
ROUTE RESERVOIR	.63	63	1	.03440	25.02	3.267	1.78046	1.800	1.136 AC-FT=	1.098
*S ROUTED FLOW OUT OF POND.63										
*S ADD HYD ID=12 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN										
*S TO POND.64										

ADD HYD	POND.63	1&12	1	.10470	76.42	9.944	1.78086	1.800	1.140	
ROUTE	.63	1	13	.10470	76.44	9.944	1.78087	1.800	1.141	
*S HYDROGRAPH ID = 13 IS THE ROUTED FLOW DOWN THE 36" STORM DRAIN PIPE										
*S TO THE INLET OF POND.64 TO THIS STORM DRAIN PIPE										
*S COMPUTE HYD FOR BASIN 301.64										
COMPUTE NM HYD	301.64	-	64	.03440	81.18	3.257	1.77514	1.500	3.687	PER IMP= 61.00
*S ROUTE ID=64 THROUGH POND.64										
ROUTE RESERVOIR	.64	64	1	.03440	25.02	3.267	1.78046	1.800	1.136	AC-FT= 1.098
*S ROUTED FLOW OUT OF POND.64										
*S ADD HYD ID=13 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN										
*S TO POND.65										
ADD HYD	POND.64	1&13	1	.13910	101.46	13.211	1.78076	1.800	1.140	
ROUTE	.64	1	14	.13910	101.46	13.211	1.78077	1.800	1.140	
*S HYDROGRAPH ID = 14 IS THE ROUTED FLOW DOWN THE 36" STORM DRAIN PIPE										
*S TO THE INLET OF POND.64 TO THIS STORM DRAIN PIPE										
*S COMPUTE HYD FOR BASIN 301.65										
COMPUTE NM HYD	301.65	-	65	.03440	81.18	3.257	1.77514	1.500	3.687	PER IMP= 61.00
*S ROUTE ID=65 THROUGH POND.65										
ROUTE RESERVOIR	.65	65	1	.03440	25.02	3.267	1.78046	1.800	1.136	AC-FT= 1.098
*S ROUTED FLOW OUT OF POND.65										
*S ADD HYD ID=14 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN										
*S TO SNOW VISTA CHANNEL										
ADD HYD	POND.65	1&14	1	.17350	126.48	16.477	1.78070	1.800	1.139	
*S COMPUTE HYD FOR BASIN 301.05										
COMPUTE NM HYD	301.05	-	5	.03280	77.40	3.105	1.77514	1.500	3.687	PER IMP= 61.00
*S TOTAL FLOW AT AP-22.1 IN SNOW VISTA CHANNEL										
ADD HYD	301.00	88&1	3	1.07723	870.85	111.334	1.93785	1.600	1.263	
*S HYD=AP22.1 IS *****AP 22.1*****										
ADD HYD	AP22.1	3&5	2	1.11003	916.28	114.439	1.93304	1.600	1.290	
ROUTE	301.60	2	1	1.11003	925.36	114.436	1.93299	1.600	1.303	
*S COMPUTE HYD FOR BASIN 301.04										
COMPUTE NM HYD	301.04	-	4	.07660	180.72	7.252	1.77515	1.500	3.686	PER IMP= 61.00
*S HYD=AP22.2 IS *****AP 22.2*****										
ADD HYD	AP22.2	1&4	1	1.18663	1031.47	121.688	1.92280	1.600	1.358	
ROUTE	300.00	1	9	1.18663	1037.20	121.687	1.92278	1.600	1.366	
*S COMPUTE HYD FOR BASIN 301.71										
COMPUTE NM HYD	301.71	-	71	.06940	163.75	6.570	1.77514	1.500	3.687	PER IMP= 61.00
*S ROUTE THIS FLOW DOWN THE 60" STORM DRAIN PIPE LINE TO 301.72										
ROUTE	.71	71	11	.06940	167.38	6.570	1.77515	1.500	3.769	
*S COMPUTE HYD FOR BASIN 301.72										
COMPUTE NM HYD	301.72	-	72	.04220	99.58	3.995	1.77514	1.500	3.687	PER IMP= 61.00
*S ADD BASIN 301.71 AND ROUTE THIS FLOW DOWN THE 60" STORM DRAIN PIPE LINE TO 3										
ADD HYD	301.72	72&11	2	.11160	266.96	10.566	1.77514	1.500	3.738	
ROUTE	.71	2	11	.11160	269.93	10.566	1.77515	1.500	3.779	
*S COMPUTE HYD FOR BASIN 301.74										
COMPUTE NM HYD	301.74	-	74	.00910	21.88	.830	1.71015	1.500	3.757	PER IMP= 50.00
*S ADD BASIN 301.72 AND BASIN 301.74										
ADD HYD	301.74	74&11	11	.12070	291.81	11.396	1.77024	1.500	3.778	
COMPUTE NM HYD	301.73	-	73	.01940	45.78	1.837	1.77514	1.500	3.688	PER IMP= 61.00
*S ADD HYDGRAPHS FROM										
ADD HYD	301.73	73&11	4	.14010	337.60	13.232	1.77092	1.500	3.765	

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*S COMPUTE HYD FOR BASIN 301.03
COMPUTE NM HYD      301.03  -      3      .34380      810.21      32.549      1.77514      1.500      3.682 PER IMP= 61.00
*S HYDROGRAPH ID 73 IS THE INFLOW TO THE SNOW VISTA CHANNEL AT AP-23
ADD HYD      301.03  3& 4  73      .48390      1147.81      45.781      1.77392      1.500      3.706
*S HYD=AP23 IS *****AP 23*****
ADD HYD      AP23  9&73  1      1.67053      2058.10      167.468      1.87966      1.500      1.925
ROUTE      400.00  1      2      1.67053      2065.12      167.468      1.87965      1.500      1.932
ROUTE      500.00  2      3      1.67053      2022.43      167.464      1.87961      1.500      1.892
ROUTE      600.00  3      4      1.67053      2008.97      167.462      1.87960      1.550      1.879
*S COMPUTE HYD FOR BASIN 301.02
COMPUTE NM HYD      301.02  -      2      .03910      92.26      3.702      1.77514      1.500      3.687 PER IMP= 61.00
ROUTE RESERVOIR      .02      2      1      .03910      44.19      3.702      1.77514      1.650      1.766 AC-FT= 1.152
ADD HYD      AP23.1  4& 1  3      1.70963      2048.99      171.164      1.87720      1.550      1.873
ROUTE      700.00  3      2      1.70963      2040.10      171.156      1.87711      1.550      1.865
*S COMPUTE HYD FOR BASIN 301.01
COMPUTE NM HYD      301.01  -      1      .07810      184.26      7.394      1.77514      1.500      3.686 PER IMP= 61.00
ROUTE RESERVOIR      .01      1      5      .07810      102.50      7.394      1.77514      1.600      2.051 AC-FT= 1.789
ADD HYD      AP23.2  5& 2  6      1.78773      2142.56      178.549      1.87266      1.550      1.873
ROUTE      800.00  6      4      1.78773      2038.68      178.537      1.87252      1.600      1.782
*S COMPUTE HYD FOR BASIN 301.00
COMPUTE NM HYD      300.00  -      1      .05156      121.66      4.881      1.77514      1.500      3.687 PER IMP= 61.00
ROUTE RESERVOIR      .01      1      5      .05156      42.85      4.881      1.77514      1.750      1.298 AC-FT= 1.790
*S HYD=AP24 IS *****AP 24*****
ADD HYD      AP24  5& 4  2      1.83929      2081.41      183.418      1.86979      1.600      1.768
ROUTE      SV_DMP2.HYD  2      66      1.83929      2062.57      183.409      1.86969      1.600      1.752
FINISH

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AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = SV_DMPR2.DAT

RUN DATE (MON/DAY/YR) =08/24/2001
 USER NO.= M_GOODWN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
START										TIME= .00
*S										
*S	SNOW VISTA									
*S	WITH MANAGEMENT PLAN IN PLACE (REVISED DEVELOPED CONDITIONS)									
*S										
*S										
*S	100-YR, 24-HR STORM WITH NO SEDIMENT**									
*S	FILE NAME : SV_DMPR2.DAT (7-6-01)									
*S	BY: TOM BLAINE AND RICHARD STOCKTON/K. JACOBSEN									
*S	LAST REVISION: 06-08-99 (PIPE FOR POND.71 CHANGED AND HYD=400)									
*S										
*S	LAST REVISION: 11-20-00 (REVISED SUBASIN 190 TO 190A & 190B,									
S	DMG ROUTED 190A THROUGH SNOW VISTA POND; REVISED SUBASIN 200 TO 200 & 200A,									
S	DMG ROUTED THROUGH SNOW VISTA POND)									
*S										
*S	LAST REVISION: 7-9-01 (REVISED SUBASIN 180 TO 180A (DEV.SUNRISE RANCH WEST);									
S	DMG SPLIT SUBASIN 160 TO 160A AND 160B;ROUTED 1/2 106th ST TO INL AT EUCARIZ									
S	DMG REVISED STORM SEWER AT SUNSET GARDENS/106th ST DOWN 106th ST TO EUCARIZ,									
S	DMG DELETED STORM SEWER IN SUNSET GARDENS EAST OF 106th ST;									
S	DMG FIELD VERIFIED SB 170A DRAINS SOUTH TOWARDS SB 320, THUS ADDED SB 170A									
S	DMG TO SB 320 AND ASSUMED! THE COMPOSITE FLOW ROUTES THRU TANAGER DET. POND									
S	DMG									
S	DMG LAST REVISION 8-17-01 (SUBASIN 300 ADDED TO SUBASIN 140 AND ROUTED									
S	DMG EAST IN EUCARIZ STORM DRAIN									
*S	100 YEAR 24HR STORM DEVELOPED CONDITION									
	RAINFALL TYPE= 2									
COMPUTE NM HYD	100.00	-	2	.13520	340.82	15.597	2.16311	1.500	3.939	RAIN24= 2.660 PER IMP= 85.00
ROUTE RESERVOIR	100.10	2	5	.13520	111.60	15.611	2.16501	1.850	1.290	AC-FT= 4.075
ROUTE	100.20	5	3	.13520	112.75	15.611	2.16502	1.400	1.303	
ROUTE	100.30	3	10	.13520	114.14	15.611	2.16502	1.450	1.319	
COMPUTE NM HYD	110.00	-	2	.07170	181.36	8.272	2.16311	1.500	3.952	PER IMP= 85.00
ROUTE RESERVOIR	110.10	2	5	.07170	59.20	8.278	2.16471	1.850	1.290	AC-FT= 2.168
ROUTE	110.20	5	11	.07170	61.38	8.278	2.16473	1.400	1.338	
COMPUTE NM HYD	120.00	-	2	.04030	101.99	4.649	2.16311	1.500	3.954	PER IMP= 85.00
ROUTE RESERVOIR	120.10	2	5	.04030	33.30	4.654	2.16525	1.850	1.291	AC-FT= 1.219
ADD HYD	120.20	11& 5	12	.11200	94.67	12.932	2.16491	1.400	1.321	
ROUTE	120.30	12	11	.11200	95.94	12.932	2.16491	1.400	1.338	
COMPUTE NM HYD	130.00	-	2	.03770	95.41	4.349	2.16311	1.500	3.954	PER IMP= 85.00
ROUTE RESERVOIR	130.10	2	5	.03770	31.10	4.349	2.16310	1.850	1.289	AC-FT= 1.142
ADD HYD	130.20	11& 5	12	.14970	127.03	17.281	2.16445	1.400	1.326	
ADD HYD	130.30	10&12	11	.28490	238.61	32.892	2.16472	1.450	1.309	

ROUTE	130.40	11	13	.28490	239.66	32.892	2.16472	1.450	1.314		
COMPUTE NM HYD	160A	-	2	.01085	25.09	1.099	1.89898	1.500	3.613	PER IMP=	70.00
ROUTE RESERVOIR	160.10	2	5	.01085	8.91	1.099	1.89895	1.800	1.283	AC-FT=	.408
ADD HYD	160.20	13& 5	12	.29575	244.13	33.991	2.15497	1.700	1.290		
ROUTE	160.30	12	13	.29575	244.31	33.991	2.15497	1.450	1.291		
COMPUTE NM HYD	160B	-	2	.01085	25.09	1.099	1.89898	1.500	3.613	PER IMP=	70.00
ROUTE RESERVOIR	160.40	2	5	.01085	9.01	1.099	1.89895	1.800	1.297	AC-FT=	.406
COMPUTE NM HYD	180.90	-	2	.00306	7.77	.349	2.13711	1.500	3.968	PER IMP=	82.00
ADD HYD	160.50	2& 5	4	.01391	13.68	1.448	1.95126	1.550	1.536		
ADD HYD	160.60	13& 4	14	.30966	256.52	35.439	2.14582	1.650	1.294		
COMPUTE NM HYD	300.00	-	2	.07090	179.34	8.179	2.16311	1.500	3.952	PER IMP=	85.00
ROUTE RESERVOIR	300.10	2	5	.07090	22.01	8.203	2.16936	2.150	.485	AC-FT=	4.271
ROUTE	300.20	5	12	.07090	22.06	8.203	2.16937	1.350	.486		
COMPUTE NM HYD	140.00	-	2	.04300	105.07	4.718	2.05746	1.500	3.818	PER IMP=	79.00
ROUTE RESERVOIR	140.10	2	5	.04300	35.50	4.739	2.06628	1.800	1.290	AC-FT=	1.198
ADD HYD	140.30	5&12	11	.11390	57.55	12.942	2.13045	1.350	.789		
ROUTE	140.20	11	10	.11390	58.76	12.942	2.13045	1.400	.806		
COMPUTE NM HYD	150.00	-	2	.02420	55.95	2.451	1.89898	1.500	3.612	PER IMP=	70.00
ROUTE RESERVOIR	150.10	2	5	.02420	19.99	2.456	1.90318	1.800	1.291	AC-FT=	.589
ADD HYD	150.20	10& 5	11	.13810	78.75	15.398	2.09062	1.400	.891		
ROUTE	150.30	11	12	.13810	80.37	15.398	2.09063	1.400	.909		
ADD HYD	150.40	12&14	10	.44776	334.06	50.837	2.12879	1.650	1.166		
ROUTE	150.50	10	11	.44776	334.02	50.837	2.12879	1.650	1.166		
COMPUTE NM HYD	180A	-	2	.03040	69.10	2.890	1.78251	1.500	3.552	PER IMP=	60.00
ROUTE RESERVOIR	180.10	2	5	.03040	25.10	2.918	1.80000	1.750	1.290	AC-FT=	.711
ADD HYD	180.20	11& 5	10	.47816	359.11	53.755	2.10789	1.650	1.173		
ROUTE	180.30	10	80	.47816	359.25	53.755	2.10789	1.700	1.174		
COMPUTE NM HYD	190A	-	2	.01878	47.54	2.167	2.16311	1.500	3.955	PER IMP=	85.00
ROUTE RESERVOIR	190.10	2	5	.01878	15.47	2.167	2.16309	1.850	1.287	AC-FT=	.571
COMPUTE NM HYD	200.00	-	1	.01436	18.51	.510	.66636	1.500	2.014	PER IMP=	.00
COMPUTE NM HYD	200A	-	3	.00736	16.74	.700	1.78251	1.500	3.554	PER IMP=	60.00
ADD HYD	200.A	5& 3	4	.02614	32.21	2.866	2.05592	1.500	1.926		
ADD HYD	200.A	1& 4	2	.04050	50.73	3.377	1.56322	1.500	1.957		
*S THE VOLUME FROM 200.1 IS THE SNOW VISTA POND VOLUME UNDER DEV. COND.											
*S HYD=200.1 IS *****AP 21.1*****											
ADD HYD	200.10	2&80	10	.51866	406.82	57.132					

ADD HYD	240.10	11& 2	10	.55976	401.94	61.021	2.04400	1.900	1.122	
COMPUTE NM HYD	250.00	-	2	.00220	5.04	.201	1.71016	1.500	3.582	PER IMP= 50.00
ADD HYD	250.10	10& 2	11	.56196	403.22	61.222	2.04270	1.900	1.121	
COMPUTE NM HYD	260.00	-	2	.01570	34.01	1.443	1.72289	1.500	3.385	PER IMP= 60.00
ROUTE	260.10	2	15	.01570	32.36	1.443	1.72292	1.550	3.221	
COMPUTE NM HYD	270.00	-	2	.01020	20.61	.841	1.54680	1.500	3.157	PER IMP= 50.00
ADD HYD	270.10	15& 2	16	.02590	52.62	2.284	1.65352	1.500	3.175	
DIVIDE HYD	270.20	16	15	.02035	25.79	1.795	1.65352	1.500	1.980	
	270.30	AND	3	.00555	26.84	.489	1.65352	1.500	7.556	
ROUTE	270.40	3	16	.00555	24.11	.489	1.65360	1.550	6.788	
COMPUTE NM HYD	280.00	-	2	.00220	5.42	.243	2.07506	1.500	3.850	PER IMP= 80.00
ADD HYD	280.10	16& 2	17	.00775	28.88	.733	1.77310	1.550	5.821	
ADD HYD	280.20	17&11	10	.56971	407.20	61.955	2.03903	1.800	1.117	
ROUTE	280.30	10	11	.56971	407.32	61.951	2.03890	1.800	1.117	
COMPUTE NM HYD	290.00	-	2	.00670	12.00	.421	1.17900	1.500	2.799	PER IMP= 25.00
ADD HYD	290.10	11& 2	10	.57641	410.72	62.372	2.02891	1.800	1.113	
COMPUTE NM HYD	310.00	-	2	.08640	214.61	9.724	2.11028	1.500	3.881	PER IMP= 82.00
ROUTE RESERVOIR	310.10	2	5	.08640	71.30	9.826	2.13237	1.800	1.289	AC-FT= 2.505
ROUTE	310.30	5	11	.08640	74.19	9.826	2.13238	1.400	1.342	
ROUTE	310.40	11	13	.08640	75.19	9.826	2.13238	1.400	1.360	
COMPUTE NM HYD	170.00	-	1	.02853	65.96	2.889	1.89898	1.500	3.612	PER IMP= 70.00
ROUTE RESERVOIR	170.10	1	3	.02853	23.61	2.893	1.90140	1.800	1.293	AC-FT= .693
COMPUTE NM HYD	320.00	-	4	.05470	122.45	5.283	1.81093	1.500	3.498	PER IMP= 65.00
ADD HYD	170.20	4& 3	2	.08323	146.05	8.176	1.84194	1.500	2.742	
ROUTE RESERVOIR	320.10	2	5	.08323	19.96	8.098	1.82421	2.400	.375	AC-FT= 4.815
ROUTE	320.20	5	11	.08323	19.95	8.097	1.82404	2.450	.375	
COMPUTE NM HYD	330.00	-	2	.02380	53.29	2.299	1.81093	1.500	3.498	PER IMP= 65.00
ADD HYD	330.10	11& 2	12	.10703	64.82	10.395	1.82112	1.500	.946	
ADD HYD	330.20	12&13	14	.19343	135.42	20.221	1.96015	1.500	1.094	
ROUTE	330.30	14	12	.19343	134.46	20.221	1.96012	1.500	1.086	
ROUTE	330.40	12	11	.19343	134.56	20.221	1.96006	1.550	1.087	
ROUTE	330.50	15	17	.02035	25.49	1.795	1.65356	1.550	1.957	
ROUTE	330.60	17	16	.02035	25.11	1.795	1.65356	1.550	1.928	
COMPUTE NM HYD	340.00	-	2	.01550	31.31	1.279	1.54680	1.500	3.156	PER IMP= 50.00
ADD HYD	340.10	16& 2	15	.03585	55.01	3.073	1.60737	1.500	2.398	
ROUTE	340.20	15	16	.03585	54.76	3.073	1.60739	1.500	2.387	
ROUTE	340.30	16	15	.03585	54.42	3.073	1.60739	1.500	2.372	
COMPUTE NM HYD	350.00	-	2	.04830	97.54	3.985	1.54680	1.500	3.155	PER IMP= 50.00
ADD HYD	350.10	15& 2	16	.08415	151.96	7.058	1.57260	1.500	2.822	
ROUTE	350.20	16	15	.08415	151.86	7.058	1.57261	1.500	2.820	
ROUTE	350.30	15	16	.08415	150.38	7.058	1.57261	1.500	2.792	
COMPUTE NM HYD	360.00	-	2	.02080	42.01	1.716	1.54680	1.500	3.156	PER IMP= 50.00
ADD HYD	360.10	16& 2	15	.10495	192.40	8.774	1.56748	1.500	2.864	
ADD HYD	360.20	15&11	17	.29838	324.86	28.994	1.82198	1.500	1.701	
ROUTE	360.30	17	16	.29838	323.72	28.994	1.82197	1.500	1.695	
ADD HYD	360.40	16&10	15	.87479	665.25	91.366	1.95832	1.600	1.188	
COMPUTE NM HYD	370.00	-	2	.01830	36.97	1.510	1.54680	1.500	3.156	PER IMP= 50.00
ROUTE RESERVOIR	370.10	2	5	.01830	6.64	1.510	1.54678	2.050	.567	AC-FT= .768
*S HYD=AP22 IS *****AP 22*****										
ADD HYD	AP22	5&15	22	.89309	671.34	92.876	1.94989	1.600	1.175	
ROUTE	100.00	22	88	.89309	677.11	92.875	1.94986	1.600	1.185	

COMPUTE NM HYD 301.61 - 61 .03590 84.71 3.399 1.77514 1.500 3.687 PER IMP= 61.00
 *S ROUTE ID=61 THROUGH POND.61
 ROUTE RESERVOIR .61 61 1 .03590 26.35 3.411 1.78163 1.750 1.147 AC-FT= 1.154
 *S ROUTE THIS FLOW DOWN THE 24" STORM DRAIN PIPE TO POND.62
 ROUTE .61 1 11 .03590 26.36 3.411 1.78166 1.800 1.147
 *S HYDROGRAPH ID = 11 IS THE ROUTED FLOW OUT OF POND.61
 COMPUTE NM HYD 301.62 - 62 .03440 81.18 3.257 1.77514 1.500 3.687 PER IMP= 61.00
 *S ROUTE ID=62 THROUGH POND.62
 ROUTE RESERVOIR .62 62 1 .03440 25.02 3.267 1.78046 1.800 1.136 AC-FT= 1.098
 *S ROUTED FLOW OUT OF POND.62
 *S ADD HYD ID=11 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 30" STORM DRAIN
 *S TO POND.63
 ADD HYD POND.62 1&11 1 .07030 51.38 6.678 1.78106 1.800 1.142
 ROUTE .62 1 12 .07030 51.40 6.678 1.78107 1.800 1.142
 *S HYDROGRAPH ID = 12 IS THE ROUTED FLOW DOWN THE 30" STORM DRAIN PIPE
 *S COMPUTE HYD FOR BASIN 301.63
 COMPUTE NM HYD 301.63 - 63 .03440 81.18 3.257 1.77514 1.500 3.687 PER IMP= 61.00
 *S ROUTE ID=63 THROUGH POND.63
 ROUTE RESERVOIR .63 63 1 .03440 25.02 3.267 1.78046 1.800 1.136 AC-FT= 1.098
 *S ROUTED FLOW OUT OF POND.63
 *S ADD HYD ID=12 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN
 *S TO POND.64
 ADD HYD POND.63 1&12 1 .10470 76.42 9.944 1.78086 1.800 1.140
 ROUTE .63 1 13 .10470 76.44 9.944 1.78087 1.800 1.141
 *S HYDROGRAPH ID = 13 IS THE ROUTED FLOW DOWN THE 36" STORM DRAIN PIPE
 *S TO THE INLET OF POND.64 TO THIS STORM DRAIN PIPE
 COMPUTE NM HYD 301.64 - 64 .03440 81.18 3.257 1.77514 1.500 3.687 PER IMP= 61.00
 *S ROUTE ID=64 THROUGH POND.64
 ROUTE RESERVOIR .64 64 1 .03440 25.02 3.267 1.78046 1.800 1.136 AC-FT= 1.098
 *S ROUTED FLOW OUT OF POND.64
 *S ADD HYD ID=13 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN
 *S TO POND.65
 ADD HYD POND.64 1&13 1 .13910 101.46 13.211 1.78076 1.800 1.140
 ROUTE .64 1 14 .13910 101.46 13.211 1.78077 1.800 1.140
 *S HYDROGRAPH ID = 14 IS THE ROUTED FLOW DOWN THE 36" STORM DRAIN PIPE
 *S TO THE INLET OF POND.64 TO THIS STORM DRAIN PIPE
 COMPUTE NM HYD 301.65 - 65 .03440 81.18 3.257 1.77514 1.500 3.687 PER IMP= 61.00
 *S ROUTE ID=65 THROUGH POND.65
 ROUTE RESERVOIR .65 65 1 .03440 25.02 3.267 1.78046 1.800 1.136 AC-FT= 1.098
 *S ROUTED FLOW OUT OF POND.65
 *S ADD HYD ID=14 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN
 *S TO SNOW VISTA CHANNEL
 ADD HYD POND.65 1&14 1 .17350 126.48 16.477 1.78070 1.800 1.139
 *S COMPUTE HYD FOR BASIN 301.05
 COMPUTE NM HYD 301.05 - 5 .03280 77.40 3.105 1.77514 1.500 3.687 PER IMP= 61.00
 *S TOTAL FLOW AT AP-22.1 IN SNOW VISTA CHANNEL
 ADD HYD 301.00 88& 1 3 1.06659 795.15 109.352 1.92235 1.600 1.165
 *S HYD=AP22.1 IS *****AP 22.1*****
 ADD HYD AP22.1 3& 5 2 1.09939 840.58 112.458 1.91796 1.600 1.195
 ROUTE 301.60 2 1 1.09939 849.61 112.455 1.91791 1.600 1.208
 *S COMPUTE HYD FOR BASIN 301.04

COMPUTE NM HYD	301.04	-	4	.07660	180.72	7.252	1.77515	1.500	3.686 PER IMP=	61.00
*S HYD=AP22.2 IS *****AP 22.2*****										
ADD HYD	AP22.2	1& 4	1	1.17599	955.72	119.707	1.90860	1.600	1.270	
ROUTE	300.00	1	9	1.17599	961.12	119.705	1.90858	1.600	1.277	
COMPUTE NM HYD	301.71	-	71	.06940	163.75	6.570	1.77514	1.500	3.687 PER IMP=	61.00
*S ROUTE THIS FLOW DOWN THE 60" STORM DRAIN PIPE LINE TO 301.72										
ROUTE	.71	71	11	.06940	167.38	6.570	1.77515	1.500	3.769	
*S COMPUTE HYD FOR BASIN 301.72										
COMPUTE NM HYD	301.72	-	72	.04220	99.58	3.995	1.77514	1.500	3.687 PER IMP=	61.00
*S ADD BASIN 301.71 AND ROUTE THIS FLOW DOWN THE 60" STORM DRAIN PIPE LINE TO 3										
ADD HYD	301.72	72&11	2	.11160	266.96	10.566	1.77514	1.500	3.738	
ROUTE	.71	2	11	.11160	269.93	10.566	1.77515	1.500	3.779	
COMPUTE NM HYD	301.74	-	74	.00910	21.88	.830	1.71015	1.500	3.757 PER IMP=	50.00
*S ADD BASIN 301.72 AND BASIN 301.74										
ADD HYD	301.74	74&11	11	.12070	291.81	11.396	1.77024	1.500	3.778	
COMPUTE NM HYD	301.73	-	73	.01940	45.78	1.837	1.77514	1.500	3.688 PER IMP=	61.00
ADD HYD	301.73	73&11	4	.14010	337.60	13.232	1.77092	1.500	3.765	
COMPUTE NM HYD	301.03	-	3	.34380	810.21	32.549	1.77514	1.500	3.682 PER IMP=	61.00
*S HYDROGRAPH ID 73 IS THE INFLOW TO THE SNOW VISTA CHANNEL AT AP-23										
ADD HYD	301.03	3& 4	73	.48390	1147.81	45.781	1.77392	1.500	3.706	
*S HYD=AP23 IS *****AP 23*****										
ADD HYD	AP23	9&73	1	1.65989	1978.57	165.487	1.86933	1.500	1.862	
ROUTE	400.00	1	2	1.65989	1985.71	165.486	1.86932	1.500	1.869	
ROUTE	500.00	2	3	1.65989	1944.27	165.482	1.86928	1.500	1.830	
ROUTE	600.00	3	4	1.65989	1931.38	165.481	1.86926	1.550	1.818	
COMPUTE NM HYD	301.02	-	2	.03910	92.26	3.702	1.77514	1.500	3.687 PER IMP=	61.00
ROUTE RESERVOIR	.02	2	1	.03910	44.19	3.702	1.77514	1.650	1.766 AC-FT=	1.152
ADD HYD	AP23.1	4& 1	3	1.69899	1971.41	169.182	1.86709	1.550	1.813	
ROUTE	700.00	3	2	1.69899	1961.78	169.174	1.86700	1.550	1.804	
COMPUTE NM HYD	301.01	-	1	.07810	184.26	7.394	1.77514	1.500	3.686 PER IMP=	61.00
ROUTE RESERVOIR	.01	1	5	.07810	102.50	7.394	1.77514	1.600	2.051 AC-FT=	1.789
ADD HYD	AP23.2	5& 2	6	1.77709	2064.23	176.568	1.86296	1.550	1.815	
ROUTE	800.00	6	4	1.77709	1962.59	176.554	1.86282	1.600	1.726	
COMPUTE NM HYD	300.00	-	1	.05156	121.66	4.881	1.77514	1.500	3.687 PER IMP=	61.00
ROUTE RESERVOIR	.01	1	5	.05156	42.85	4.881	1.77514	1.750	1.298 AC-FT=	1.790
*S HYD=AP24 IS *****AP 24*****										
ADD HYD	AP24	5& 4	2	1.82865	2005.32	181.436	1.86035	1.600	1.713	
ROUTE	SV_DMP2.HYD	2	66	1.82865	1985.36	181.426	1.86025	1.600	1.696	
FINISH										

START 0.0 HOURS PC=0 PL=-1
 *S
 *S SNOW VISTA
 *S WITH MANAGEMENT PLAN IN PLACE (REVISED DEVELOPED CONDITIONS)
 *S
 *S
 *S 100-YR, 24-HR STORM WITH NO SEDIMENT**
 *S FILE NAME : SV_DMPR2.DAT (7-6-01)
 *S BY: TOM BLAINE AND RICHARD STOCKTON/K. JACOBSEN
 *S LAST REVISION: 06-08-99 (PIPE FOR POND.71 CHANGED AND HYD=400)
 *S
 *S LAST REVISION: 11-20-00 (REVISED SUBASIN 190 TO 190A & 190B,
 S DMG ROUTED 190A THROUGH SNOW VISTA POND; REVISED SUBASIN 200 TO 200 & 200A,
 S DMG ROUTED THROUGH SNOW VISTA POND)
 *S
 *S LAST REVISION: 7-9-01 (REVISED SUBASIN 180 TO 180A (DEV.SUNRISE RANCH WEST);
 S DMG SPLIT SUBASIN 160 TO 160A AND 160B;ROUTED 1/2 106th ST TO INL AT EUCARIZ;
 S DMG REVISED STORM SEWER AT SUNSET GARDENS/106th ST DOWN 106th ST TO EUCARIZ,
 S DMG DELETED STORM SEWER IN SUNSET GARDENS EAST OF 106th ST;
 S DMG FIELD VERIFIED SB 170A DRAINS SOUTH TOWARDS SB 320, THUS ADDED SB 170A
 S DMG TO SB 320 AND ASSUMED! THE COMPOSITE FLOW ROUTES THRU TANAGER DET. POND
 S DMG
 S DMG LAST REVISION 8-17-01 (SUBASIN 300 ADDED TO SUBASIN 140 AND ROUTED
 S DMG EAST IN EUCARIZ STORM DRAIN

 * THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF TO THE SNOW VISTA
 * CHANNEL FOR THE DEVELOPED CONDITIONS. AMAFCA IS CONCERNED
 * WITH THE CAPACITY OF BOTH THE SNOW VISTA POND AND THE CHANNEL. MODELS BY
 * EASTERLING AND ASSOCIATES AND RYLES AND ASSOCIATES WERE USED IN THE
 * CONSTRUCTION OF THIS MODEL. DRAINAGE BASINS WERE DETERMINED FROM ORIGINAL
 * DESIGN DATA FOR SNOW VISTA CHANNEL BY LH. THE LOCATION OF THE INLETS TO THE
 * CHANNEL WERE DETERMINED FROM THE AERIALS AND DESIGN DATA.

 ** ANALYSIS ASSUMPTIONS:

 ** ALL LAND IN THE OFFSITE WATERSHED IS MODELED IN DEVELOPED CONDITION
 ** ACCORDING TO THE ZONING PROPOSED IN SECTOR PLANS FOR THE AREA. DETENTION OF
 ** RUNOFF TO A PEAK OF 1.29 cfs PER ac IS ASSUMED FOR MOST BASINS WHICH ARE
 ** NOT LOCATED ADJACENT TO THE SNOW VISTA CHANNEL. STORM DRAIN CONVEYENCES
 ** BETWEEN EACH BASIN AND THE SNOW VISTA CHANNEL ARE ASSUMED. THE ASSUMED
 ** STORM DRAINS ARE SIZED FOR NEAR OR AT FULL PIPE FLOW IN THE 100 YR
 ** STORM.
 ** TO PROVIDE FOR A CERTAIN PORTION OF EACH BASIN TO FREE DISCHARGE TO THE
 ** FUTURE STORM DRAINS (ie. public streets & adjacent areas) THE POND ROUTINGS
 ** USED TO SIMULATE DETENTION OF RUNOFF FROM INDIVIDUAL BASINS IN THE WATERSHED
 ** ALLOW THE FULL ALLOWABLE DISCHARGE TO PASS THROUGH AS SOON AS IT IS
 ** AVAILABLE AT THE BOTTOM OF THE BASIN. POND THAT ARE EXISTING OR HAVE
 ** CONSTRUCTION DRAWINGS PREPARED FOR THEM ARE MODELED TO SIMULATE THEIR NORMAL
 ** STAGE STORAGE DISCHARGE CHARACTERISTICS.

 * SUBSEQUENT USERS OF THIS MODEL ASSUME FULL RESPONSIBILITY TO VERIFY THE
 * VALIDITY, CURRENCY, AND PROPRIETY OF THE ASSUMPTIONS UPON WHICH THIS MODEL
 * WAS CONSTRUCTED.

 *S100 YEAR 24HR STORM DEVELOPED CONDITION
 RAINFALL TYPE=2 0.0 1.87 2.20 2.66 DT=0.05
 ** 10 YEAR 24HR STORM DEVELOPED CONDITION
 **RAINFALL TYPE=2 0.0 1.25 1.47 1.77 DT=0.05
 ** 5 YEAR STORM
 **RAINFALL TYPE=2 0.0 1.04 1.24 1.51 DT=0.05
 ** 2 YEAR STORM
 **RAINFALL TYPE=2 0.0 0.74 0.95 1.15 DT=0.05

 ** COMPUTE HYDROGRAPH FOR BASIN 100 THE WATERSHED EAST OF THE POWERLINE CHANNEL
 ** AND NORTH OF CENTRAL AVE. INDUSTRIAL PARK DEVELOPMENT ASSUMED
 COMPUTE NM HYD ID=2 HYD=100 DA==0.1352 SM
 %A=0 %B=15.0 %C=0.0 %D85.0 TP=0.1333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE

** ASSUMED ALLOWABLE DISCHARGE = 111.6 cfs

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=100.1 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	100
111.59	0.001	100.1
111.6	4.10	105

PRINT HYD ID=5 CODE=1

**ROUTE FLOW DOWN AN ASSUMED STORM DRAIN ALONG THE SOUTH SIDE OF CENTRAL FROM
 **THE EXISTING BOX CULVERT NEAR 114TH ST. TO 106TH ST.

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.017
 PIPE DIA=42 N=0.013

COMPUTE TRAVEL TIME ID=3 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1800 FT SLOPE=0.017

ROUTE ID=3 HYDROGRAPH NO=100.2 INFLOW ID=5 DT=0.0

PRINT HYD ID=3 CODE=1

**ROUTE FLOW DOWN AN ASSUMED STORM DRAIN IN THE 106TH STREET ROW TO THE
 **INTERSECTION OF SUNSET GARDEN AND 106TH

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.010
 PIPE DIA=48 N=0.013

COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1000 FT SLOPE=0.010

ROUTE ID=10 HYDROGRAPH NO=100.3 INFLOW ID=3 DT=0.0

PRINT HYD ID=10 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 110 THE WATERSHED E OF THE POWERLINE CHANNEL
 ** S. OF CENTRAL AVE , W. OF 114 STREET, N. OF SUNSET GARDEN. ASSUMED IP DEVELOPMENT

COMPUTE NM HYD ID=2 HYD=110 DA==0.0717 SM
 %A=0 %B=15.0 %C=0.0 %D=85.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
 ** ASSUMED ALLOWABLE DISCHARGE = 59.2 cfs

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=110.1 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	100
59.19	0.001	100.1
59.2	2.3	101

PRINT HYD ID=5 CODE=1

**ROUTE FLOW DOWN A STORM DRAIN IN SUNSET GARDENS TO 110 STREET

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.030
 PIPE DIA=30 N=0.013

COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1100 FT SLOPE=0.030

ROUTE ID=11 HYDROGRAPH NO=110.2 INFLOW ID=5 DT=0.0

PRINT HYD ID=11 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 120 THE WATERSHED E OF 114 STREET,
 ** S. OF CENTRAL AVE , W. OF 110 STREET, N. OF SUNSET. ASSUMED IP DEVELOPMENT

COMPUTE NM HYD ID=2 HYD=120 DA==0.0403 SM
 %A=0 %B=15.0 %C=0.0 %D=85.0 TP=0.13333
 MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
 ** ASSUMED ALLOWABLE DISCHARGE Q=33.3

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=120.1 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	100
33.29	0.001	100.1
33.3	1.30	105

PRINT HYD ID=5 CODE=1

** ADD THE FLOW FROM BASIN 120 TO THE ROUTED FLOW FROM THE WEST AT
 ** THE INTERSECTION OF SUNSET GARDENS AND 110 STREET

ADD HYD ID=12 HYD=120.2 ID I=11 ID II=5

PRINT HYD ID=12 CODE=1

**ROUTE FLOW DOWN A STORM DRAIN IN THE SUNSET GARDENS ROW FROM 110TH TO
 **TO 106TH STREET.

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.027
 PIPE DIA=36 N=0.013

COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1100 FT SLOPE=0.027

ROUTE ID=11 HYDROGRAPH NO=120.3 INFLOW ID=12 DT=0.0

PRINT HYD ID=11 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 130 THE WATERSHED E OF 110 STREET,

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** S. OF CENTRAL AVE , W. OF 106 STREET, N. OF SUNSET GARDENS. ASSUMED IP DEVELOPMENT
COMPUTE NM HYD      ID=2  HYD=130  DA==0.0377 SM
                    %A=0  %B=15.0  %C=0.0 %D=85.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2  CODE=1
** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
** ASSUMED ALLOWABLE DISCHARGE Q=31.1
ROUTE RESERVOIR    ID=5  HYDROGRAPH NO=130.1  INFLOW ID=2  CODE=24
                   OUTFLOW(cfs)  STORAGE(ac ft)  ELEV(ft)
                   0             0.0           100
                   31.09         0.001         100.1
                   31.10         1.30          105
PRINT HYD          ID=5  CODE=1
** ADD THE FLOW FROM BASIN 130 TO THE ROUTED FLOW FROM THE WEST IN THE
** ASSUMED SUNSET GARDENS STORM DRAIN AT THE INTERSECTION OF SUNSET GARDENS
** AND 106TH STREET
ADD HYD            ID=12  HYD=130.2  ID I=11  ID II=5
PRINT HYD          ID=12  CODE=1
** ADD THE FLOW IN THE ASSUMED SUNSET GARDENS STORM DRAIN TO THE FLOW IN THE
** ASSUMED 106TH STREET STORM DRAIN AT THE INTERSECTION OF SUNSET GARDENS AND
** 106TH STREET
ADD HYD            ID=11  HYD=130.3  ID I=10  ID II=12
PRINT HYD          ID=11  CODE=1
** REVISED 7-9-01
** ROUTE THE COMBINED FLOW AT THE INTERSECTION OF 106TH STREET AND SUNSET
** GARDENS DOWN AN ASSUMED STORM DRAIN IN 106TH ROW TO THE INTERSECTION
** HALFWAY TO EUCARIZ @ SW CORNER OF SB 160B
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.009
                    PIPE DIA=60  N=0.013
COMPUTE TRAVEL TIME ID=13  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=520 FT  SLOPE=0.009
ROUTE              ID=13  HYDROGRAPH NO=130.4  INFLOW ID=11  DT=0.0
PRINT HYD          ID=13  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 160A THE WATERSHED W OF 106 STREET,
** S. OF SUNSET GARDENS, N. OF EUCARIZ, ASSUMED MULTI-FAMILY DEVELOPMENT
COMPUTE NM HYD      ID=2  HYD=160A  DA==0.01085 SM
                    %A=0  %B=30.0  %C=0.0 %D=70.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2  CODE=1
** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
** ASSUMED ALLOWABLE DISCHARGE Q=8.9
ROUTE RESERVOIR    ID=5  HYDROGRAPH NO=160.1  INFLOW ID=2  CODE=24
                   OUTFLOW(cfs)  STORAGE(ac ft)  ELEV(ft)
                   0             0.0           100
                   8.9           0.40          100.1
                   8.91          0.41          105
PRINT HYD          ID=5  CODE=1
** ADD THE FLOW FROM BASIN 160A TO THE FLOW IN THE ASSUMED 106TH STREET STORM SEWER
** MIDWAY BETWEEN SUNSET GARDENS AND EUCARIZ
ADD HYD            ID=12  HYD=160.2  ID I=13  ID II=5
PRINT HYD          ID=12  CODE=1
** ROUTE THE COMBINED FLOW MIDWAY DOWN 106TH STREET IN ASSUMED STORM SEWER
** TO THE INTERSECTION OF EUCARIZ AND 106TH STREET
COMPUTE RATING CURVE CID=1  VALLEY SECTION NO=1  CODE=-1  SLOPE=0.009
                    PIPE DIA=60  N=0.013
COMPUTE TRAVEL TIME ID=13  REACH=1  NUMBER OF VALLEY SECTIONS=1
                    LENGTH=555 FT  SLOPE=0.009
ROUTE              ID=13  HYDROGRAPH NO=160.3  INFLOW ID=12  DT=0.0
PRINT HYD          ID=13  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 160B THE WATERSHED W OF 106 STREET,
** S. OF SUNSET GARDENS, N. OF EUCARIZ, ASSUME MULTI-FAMILY DEVELOPMENT
COMPUTE NM HYD      ID=2  HYD=160B  DA==0.01085 SM
                    %A=0  %B=30.0  %C=0.0 %D=70.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2  CODE=1
** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
** ASSUMED ALLOWABLE DISCHARGE Q=9.0
ROUTE RESERVOIR    ID=5  HYDROGRAPH NO=160.4  INFLOW ID=2  CODE=24
                   OUTFLOW(cfs)  STORAGE(ac ft)  ELEV(ft)
                   0             0.0           100
                   9.0           0.40          100.1

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9.01 0.407 105.
 PRINT HYD ID=5 CODE=1
 ** COMPUTE HYD FOR 106TH STREET FLOW
 ** ASSUME FULL PVMT SECTION SUNSET GARDENS TO EUCARIZ
 COMPUTE NM HYD ID=2 HYD=180.9 DA=0.00306 SM
 %A=0 %B=9.0 %C=9.0 %D=82.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD 106TH STREET FLOW TO SB 160B
 ADD HYD ID=4 HYD=160.5 ID I=2 ID II=5
 PRINT HYD ID=4 CODE=1
 ** ADD THE FLOW FROM BASIN 160B TO THE FLOW IN THE ASSUMED 106TH STREET STORM SEWER
 ** AT THE INTERSECTION OF 106TH STREET AND EUCARIZ ROAD
 ADD HYD ID=14 HYD=160.6 ID I=13 ID II=4
 PRINT HYD ID=14 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 300 THE WEST SIDE CONVENIENCE CENTER. SITE IS
 ** CURRENTLY PARTIALLY DEVELOPED AND FLOW IS DETAINED AND RELEASED AT A SMALL
 ** RATE. ASSUME PROPERTY IS FULLY DEVELOPED BUT WILL ONLY BE ALLOWED TO RELEASE
 ** 22 CFS (PER COA HYDROLOGY DEPT. 8-17-01)
 COMPUTE NM HYD ID=2 HYD=300 DA=0.0709 SM
 %A=0 %B=15.0 %C=0.0 %D=85.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
 ** ASSUMED ALLOWABLE DISCHARGE Q=22.0 cfs
 ROUTE RESERVOIR ID=5 HYDROGRAPH NO=300.1 INFLOW ID=2 CODE=24
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0.0 100
 22.0 0.001 100.1
 22.01 4.30 105
 PRINT HYD ID=5 CODE=1
 **ROUTE FLOW FROM BASIN 300 DOWN AN ASSUMED STORM DRAIN IN EUCARIZ AVENUE TO A
 **FROM 114TH ST TO A POINT APPROXIMATELY 1100 LF EAST TO 110TH ST
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.01
 PIPE DIA=24 N=0.013
 COMPUTE TRAVEL TIME ID=12 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1100 FT SLOPE=0.010
 ROUTE ID=12 HYDROGRAPH NO=300.2 INFLOW ID=5 DT=0.0
 PRINT HYD ID=12 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 140 THE WATERSHED E OF 114 STREET,
 ** S. OF SUNSET GARDENS, W. OF 110 STREET, N. OF EUCARIZ. 60% IP AND
 ** 40% MULTIPLE UNIT RESIDENTIAL DEVELOPMENT ASSUMED.
 COMPUTE NM HYD ID=2 HYD=140 DA=0.0430 SM
 %A=0 %B=21.0 %C=0.0 %D=79.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
 ** ASSUMED ALLOWABLE DISCHARGE Q=35.5
 ROUTE RESERVOIR ID=5 HYDROGRAPH NO=140.1 INFLOW ID=2 CODE=24
 OUTFLOW(cfs) STORAGE(ac ft) ELEV(ft)
 0 0.0 100
 35.49 0.001 100.1
 35.50 1.4 105
 PRINT HYD ID=5 CODE=1
 ** ADD BASIN 300 TO SUBASIN 140 IN EUCARIZ STORM DRAIN AT 110th ST
 ADD HYD ID=11 HYD=140.3 ID I=5 ID II=12
 PRINT HYD ID=11 CODE=1
 **ROUTE FLOW DOWN A STORM DRAIN IN THE EUCARIZ STREET ROW FROM 110 STREET
 **TO A POINT 600' EAST
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.020
 PIPE DIA=30 N=0.013
 COMPUTE TRAVEL TIME ID=10 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=600 FT SLOPE=0.020
 ROUTE ID=10 HYDROGRAPH NO=140.2 INFLOW ID=11 DT=0.0
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 150 THE WATERSHED E OF 110 STREET,
 ** S. OF SUNSET GARDENS, N. OF EUCARIZ, ASSUME MULTI-FAMILY DEVELOPMENT
 COMPUTE NM HYD ID=2 HYD=150 DA=0.0242 SM
 %A=0 %B=30.0 %C=0.0 %D=70.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE

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** ASSUMED ALLOWABLE DISCHARGE Q=20.0 cfs
ROUTE RESERVOIR      ID=5 HYDROGRAPH NO=150.1 INFLOW ID=2 CODE=24
      OUTFLOW(cfs)      STORAGE(ac ft)      ELEV(ft)
              0              0.0              100
              19.99          0.001          100.1
              20.00          1.20           105

PRINT HYD            ID=5 CODE=1
** ADD THE FLOW FROM BASIN 150 TO THE FLOW IN THE ASSUMED EUCARIZ STORM DRAIN
** AT A POINT 1600' EAST OF 114TH STREET
ADD HYD              ID=11 HYD=150.2 ID I=10 ID II=5
PRINT HYD            ID=11 CODE=1
** ROUTE THE FLOW IN THE ASSUMED EUCARIZ STORM DRAIN FROM 550' WEST OF 110TH
** STREET TO THE INTERSECTION OF EUCARIZ AND 106TH STREET
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.027
      PIPE DIA=36 N=0.013
COMPUTE TRAVEL TIME ID=12 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=500 FT SLOPE=0.027
ROUTE                ID=12 HYDROGRAPH NO=150.3 INFLOW ID=11 DT=0.0
PRINT HYD            ID=12 CODE=1
** ADD THE FLOW FROM 106TH ST STORM SEWER AT EUCARIZ TO THE EUCARIZ STORM SEWER AT 106TH ST
** AT A POINT 1600' EAST OF 114TH STREET
ADD HYD              ID=10 HYD=150.4 ID I=12 ID II=14
PRINT HYD            ID=10 CODE=1
**ROUTE FLOW DOWN A STORM DRAIN IN THE EUCARIZ CORRIDOR FROM 106TH STREET TO A
**POINT 900' EAST OF 106TH STREET
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.016
      PIPE DIA=60 N=0.013
COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=900 FT SLOPE=0.016
ROUTE                ID=11 HYDROGRAPH NO=150.5 INFLOW ID=10 DT=0.0
PRINT HYD            ID=11 CODE=1
** (REV.7-9-01) COMPUTE HYDROGRAPH FOR BASIN 180A THE WATERSHED E OF 106TH STREET,
** S. OF SUNSET GARDENS, N. OF EUCARIZ CORRIDOR, SINGLE FAMILY RESIDENTIAL
COMPUTE NM HYD       ID=2 HYD=180A DA==0.03040 SM
      %A=0 %B=20.0 %C=20.0 %D=60.0 TP=0.13333
      MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
** ASSUMED ALLOWABLE DISCHARGE Q=25.1
ROUTE RESERVOIR      ID=5 HYDROGRAPH NO=180.1 INFLOW ID=2 CODE=24
      OUTFLOW(cfs)      STORAGE(ac ft)      ELEV(ft)
              0              0.0              100.
              25.09          0.001          100.1
              25.10          0.90           105.

PRINT HYD            ID=5 CODE=1
** ADD THE FLOW FROM BASIN 180A TO THE STORM DRAIN IN THE EUCARIZ STORM SEWER
ADD HYD              ID=10 HYD=180.2 ID I=11 ID II=5
PRINT HYD            ID=10 CODE=1
**ROUTE FLOW IN THE EUCARIZ CORRIDOR STORM SEWER FROM 400' EAST OF 106TH TO
**THE POND AT THE HEAD OF THE SNOW VISTA CHANNEL
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.020
      PIPE DIA=60 N=0.013
COMPUTE TRAVEL TIME ID=80 REACH=1 NUMBER OF VALLEY SECTIONS=1
      LENGTH=400 FT SLOPE=0.016
ROUTE                ID=80 HYDROGRAPH NO=180.3 INFLOW ID=10 DT=0.0
PRINT HYD            ID=80 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 190 THE WATERSHED E OF 106TH STREET,
** N. OF SUNSET GARDENS, SOUTH OF CENTRAL. ASSUME I.P DEVELOPMENT
**
** DMG revision SUBASIN 190 SPLIT INTO TWO SUBASINS 190A & 190B
** DMG Q(allowable) 190A = 15.48 cfs (60%)
** DMG Q(allowable) 190B = 10.32 cfs (40%)
** DMG SUBASIN 190A ROUTED TO SNOW VISTA SEDIMENTATION POND
**
COMPUTE NM HYD       ID=2 HYD=190A DA==0.01878 SM
      %A=0 %B=15.0 %C=0.0 %D=85.0 TP=0.13333
      MASS RAINFALL=-1
PRINT HYD            ID=2 CODE=1
** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
** ASSUMED ALLOWABLE DISCHARGE Q=25.8
** DMG revision* Q(allowable)=15.48 cfs

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ROUTE RESERVOIR ID=5 HYDROGRAPH NO=190.1 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	100
15.47	0.001	100.1
15.48	1.30	105

PRINT HYD ID=5 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 200 THE BASIN BETWEEN SUNSET GARDEN ROAD AND
** THE EUCERIZ CORRIDOR THAT INCLUDES THE POND AT THE HEAD OF THE SNOW VISTA
** CHANNEL. IT IS ASSUMED THAT FREE DISCHARGE FROM THIS PROPERTY IS PREFERABLE
** DUE TO IT'S CLOSE PROXIMITY TO THE SNOW VISTA CHANNEL
** DMG revision SUBASIN 200=Open Area + Pond, SUBASIN 200A=Sunrise Ranch Subdivision

COMPUTE NM HYD ID=1 HYD=200 DA==0.01436 SM
%A=0 %B=100 %C=0 %D=0 TP=0.13333
MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

COMPUTE NM HYD ID=3 HYD=200A DA==0.00736 SM
%A=0.0 %B=20.0 %C=20.0 %D=60.0 TP=0.13333
MASS RAINFALL=-1

PRINT HYD ID=3 CODE=1

** ADD THE FLOW FROM BASIN 190A TO THE FLOW FROM SB 200
** TO THE SNOW VISTA SEDIMENTATION POND

ADD HYD ID=4 HYD=200.A ID I=5 ID II=3

ADD HYD ID=2 HYD=200.A ID I=1 ID II=4

** ADD THE FLOW FROM BASIN 200 TO THE POND AT THE HEAD OF THE SNOW VISTA
** CHANNEL. THIS IS THE TOTAL FLOW TO THE POND.

*S THE VOLUME FROM 200.1 IS THE SNOW VISTA POND VOLUME UNDER DEV. COND.

*S HYD=200.1 IS *****AP 21.1*****

ADD HYD ID=10 HYD=200.1 ID I=2 ID II=80

PRINT HYD ID=10 CODE=1

** ROUTE THE FLOW AT THE HEAD OF THE SNOW VISTA CHANNEL THROUGH THE EXISTING
** SEDIMENTATION BASIN

** 1994 TOPO BY TOM MANN AND ALBUQUERQUE SURVEYING USED AS A BASIS FOR STORAGE
** VOLUME CALCULATIONS. OUTFLOW CALCULATED WITH A WEIR EQUATION C=3.00. FLOW
** OVER SIDE SLOPE AREAS CALCULATED IN .5' WIDE INCREMENTS WITH DEPTH AT
** THE MIDPOINT OF THE INCREMENT USED FOR h FOR THE INCREMENT.

ROUTE RESERVOIR ID=3 HYD=200.2 INFLOW ID=10 CODE=24.2

CFS OUT	VOL AC-FT	ELEV FT
0	0	10.0
1.7	0.54	11.0
34	1.79	12.0
112	3.25	13.0
230	4.82	14.0
393	6.51	15.0
604	8.29	16.0

PRINT HYD ID=3 CODE=1

*S HYD=200.2 IS *****AP 21*****

MODIFY TIME ID=3 DT=0.05 CODE=3

PRINT HYD ID=3 CODE=1

*s BEGIN ONSITE WATERSHED

** ASSUME FREE DISCHARGE TO THE CHANNEL IS PREFERABLE DUE TO THE CLOSE
** PROXIMITY TO THE CHANNEL

** COMPUTE HYDROGRAPH FOR BASIN 210 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
** ACRE RESIDENTIAL DEVELOPMENT

COMPUTE NM HYD ID=2 HYD=210 DA=0.0092 SM
%A=0.0 %B=27.0 %C=12.0 %D=61.0 TP=0.13333
MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

** ADD THE FLOW FROM BASIN 210 TO THE FLOW IN THE SNOW VISTA CHANNEL NEAR
** THE HEAD OF THE SNOW VISTA CHANNEL

ADD HYD ID=10 HYD=210.1 ID I=3 ID II=2

PRINT HYD ID=10 CODE=1

** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM THE HEAD TO
** A POINT 500LF SOUTH.

COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
MINIMUM ELEV=100 FT MAXIMUM ELEV=105.0 FT
CHANNEL SLOPE=0.0105 FLOOD PLAIN SLOPE=0.0109
N=0.013 DIST=30

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	105	10	100	20	100	30	105

COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=500 FT SLOPE=0.0109
 ROUTE ID=11 HYDROGRAPH NO=210.2 INFLOW ID=10 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 220 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
 ** ACRE RESIDENTIAL DEVELOPMENT
 COMPUTE NM HYD ID=2 HYD=220 DA==0.0080 SM
 %A=0.0 %B=27.0 %C=12.0 %D=61.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BASIN 220 TO THE FLOW IN THE SNOW VISTA CHANNEL 500LF
 ** SOUTH OF THE HEAD OF THE CHANNEL
 ADD HYD ID=10 HYD=220.1 ID I=11 ID II=2
 PRINT HYD ID=10 CODE=1
 ** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM 500LF SOUTH OF
 ** THE HEAD OF THE CHANNEL TO A POINT 750 LF SOUTH OF THE HEAD
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=105.0 FT
 CHANNEL SLOPE=0.0109 FLOOD PLAIN SLOPE=0.0109
 N=0.013 DIST=30

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	105	10	100	20	100	30	105

 COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=250 FT SLOPE=0.0109
 ROUTE ID=11 HYDROGRAPH NO=220.2 INFLOW ID=10 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 230 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
 ** ACRE RESIDENTIAL DEVELOPMENT
 COMPUTE NM HYD ID=2 HYD=230 DA==0.0094 SM
 %A=0.0 %B=27.0 %C=12.0 %D=61.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BASIN 230 TO THE FLOW IN THE SNOW VISTA CHANNEL AT A POINT
 ** 750 LF SOUTH OF THE HEAD OF THE CHANNEL
 ADD HYD ID=10 HYD=230.1 ID I=11 ID II=2
 PRINT HYD ID=10 CODE=1
 ** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM 750LF SOUTH OF
 ** THE HEAD OF THE CHANNEL TO TOWER ROAD
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=105.0 FT
 CHANNEL SLOPE=0.0109 FLOOD PLAIN SLOPE=0.0109
 N=0.013 DIST=30

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	105	10	100	20	100	30	105

 COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=350 FT SLOPE=0.0109
 ROUTE ID=11 HYDROGRAPH NO=230.2 INFLOW ID=10 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 240 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
 ** ACRE RESIDENTIAL DEVELOPMENT
 COMPUTE NM HYD ID=2 HYD=240 DA==0.0145 SM
 %A=0.0 %B=27.0 %C=12.0 %D=61.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 *s END ONSITE WATERSHED
 ** ADD THE FLOW FROM BASIN 240 TO THE FLOW IN THE SNOW VISTA CHANNEL NEAR
 ** TOWER ROAD
 ADD HYD ID=10 HYD=240.1 ID I=11 ID II=2
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 250 THE SNOW VISTA CHANNEL CORRIDOR NORTH
 ** OF TOWER ROAD
 COMPUTE NM HYD ID=2 HYD=250 DA==0.0022 SM
 %A=0.0 %B=0.0 %C=50.0 %D=50.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BASIN 250 TO THE ROUTED FLOW IN THE SNOW VISTA CHANNEL
 ** AT TOWER ROAD
 ADD HYD ID=11 HYD=250.1 ID I=10 ID II=2
 PRINT HYD ID=11 CODE=1

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** COMPUTE HYDROGRAPH FOR BASIN 260 THE NORTHWEST PORTION OF SUNRISE TERRACE
** UNIT 2 PHASE A-1 AND A PORTION OF 106TH STREET
COMPUTE NM HYD      ID=2  HYD=260  DA==0.0157 SM
                    %A=0.0 %B=40.0 %C=0.0 %D=60.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2 CODE=1
** ASSUME MAJORITY OF THE FLOW REMAINS ON SOUTHWEST SIDE OF THE STREET. ROUTE
** THE FLOW DOWN 106TH STREET FROM Tanager Road TO THE EASEMENT CHANNEL
** FROM SUNRISE TERRACE UNIT 2 PHASE A-1. ROUTE IN ONE HALF STREET SECTION
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
                    MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.67 FT
                    CHANNEL SLOPE=0.0298 FLOOD PLAIN SLOPE=0.0298
                    N=.013 DIST=2.16 N=-.017 DIST=38.16 N=.013 DIST=40.32
                    DIST ELEV DIST ELEV DIST ELEV DIST ELEV
                    0.0 0.67 0.16 0.00 2.16 0.13 20.16 0.42
                    38.16 0.13 40.16 0.00 40.32 0.67
COMPUTE TRAVEL TIME ID=15 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=520 FT SLOPE=0.0298
ROUTE              ID=15 HYDROGRAPH NO=260.1 INFLOW ID=2 DT=0.0
PRINT HYD          ID=15 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 270 THE PORTION OF SUNRISE TERRACE
** UNIT 2 PHASE A-1 THAT CONTRIBUTES FLOW TO THE EASEMENT CHANNEL LEADING
** TO 106TH STREET AND A PORTION OF 106TH STREET.
COMPUTE NM HYD      ID=2  HYD=270  DA==0.0102 SM
                    %A=0.0 %B=50.0 %C=0.0 %D=50.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2 CODE=1
** ADD THE FLOW FROM BASIN 270 TO THE ROUTED FLOW IN 106TH STREET AT THE
** INTERSECTION WITH THE EASEMENT CHANNEL
ADD HYD            ID=16  HYD=270.1 ID I=15 ID II=2
PRINT HYD          ID=16 CODE=1
** ASSUME THAT THE PORTION OF THE FLOW IN 106TH STREET THAT EXCEEDS ONE HALF
** THE STREET CAPACITY WILL SPILL OVER INTO THE NORTHEAST HALF OF THE STREET
** HYD. 270.2 = FLOW TO REMAIN ON THE SOUTH WEST SIDE OF THE STREET
** HYD. 270.3 = FLOW TO SPILL OVER TO THE NORTHEAST SIDE OF THE STREET
DIVIDE HYD         ID=16 CODE=999.0 ID=15 HYD=270.2 ID=3 HYD=270.3
                    TOTAL FLOW      DIVIDED FLOW
                    5                4.9
                    21               20.9
                    46               22.0
                    60               30.0
PRINT HYD          ID=15 CODE=1
PRINT HYD          ID=3 CODE=1
** ROUTE THE FLOW ON THE NORTHEAST SIDE OF 106TH STREET DOWN TOWER BLVD TO THE
** SNOW VISTA CHANNEL. USE AVERAGE SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
                    MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.67 FT
                    CHANNEL SLOPE=0.0298 FLOOD PLAIN SLOPE=0.0298
                    N=.013 DIST=2.16 N=-.017 DIST=38.16 N=.013 DIST=40.32
                    DIST ELEV DIST ELEV DIST ELEV DIST ELEV
                    0.0 0.67 0.16 0.00 2.16 0.13 20.16 0.42
                    38.16 0.13 40.16 0.00 40.32 0.67
COMPUTE TRAVEL TIME ID=16 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=950 FT SLOPE=0.0298
ROUTE              ID=16 HYDROGRAPH NO=270.4 INFLOW ID=3 DT=0.0
PRINT HYD          ID=16 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 280 THE PORTION OF TOWER BLVD EAST OF THE
** INTERSECTION WITH SANDPIPER DRIVE AND WEST OF THE SNOW VISTA CHANNEL
COMPUTE NM HYD      ID=2  HYD=280  DA==0.0022 SM
                    %A=0.0 %B=20.0 %C=0.0 %D=80.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2 CODE=1
** ADD THE FLOW FROM BASIN 270 TO THE ROUTED FLOW IN TOWER BLVD. AT THE
** THE SNOW VISTA CHANNEL
ADD HYD            ID=17  HYD=280.1 ID I=16 ID II=2
PRINT HYD          ID=17 CODE=1
** ADD THE FLOW IN TOWER TO THE SNOW VISTA CHANNEL AT THE CHANNEL CROSSING
ADD HYD            ID=10  HYD=280.2 ID I=17 ID II=11
PRINT HYD          ID=10 CODE=1
** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM TOWER ROAD
** TO THE CONFLUENCE AT THE SECTION LINE. USE AVERAGE CHANNEL SLOPE

```

COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=105.0 FT
 CHANNEL SLOPE=0.0105 FLOOD PLAIN SLOPE=0.0105
 N=0.013 DIST=30

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	105	10	100	20	100	30	105

 COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=1600 FT SLOPE=0.0105
 ROUTE ID=11 HYDROGRAPH NO=280.3 INFLOW ID=10 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 290 THE SNOW VISTA CHANNEL CORRIDOR SOUTH OF
 ** OF TOWER ROAD AND THE SUNRISE TERRACE PARK AREA
 COMPUTE NM HYD ID=2 HYD=290 DA==0.0067 SM
 %A=0.0 %B=50.0 %C=25.0 %D=25.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BASIN 280 TO THE ROUTED FLOW IN THE SNOW VISTA CHANNEL
 ** AT THE SECTION LINE
 ADD HYD ID=10 HYD=290.1 ID I=11 ID II=2
 PRINT HYD ID=10 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 310 THE TRACT SOUTH OF EUCARIZ, NORTH OF THE
 ** SECTION LINE, AND EAST OF THE POWERLINE CHANNEL. ASSUME 75% I.P. AND 25%
 ** MULTIPLE UNIT RESIDENTIAL DEVELOPMENT
 COMPUTE NM HYD ID=2 HYD=310 DA==0.0864 SM
 %A=0.0 %B=18.0 %C=0.0 %D=82.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
 ** ASSUMED ALLOWABLE DISCHARGE Q=71.3 cfs
 ROUTE RESERVOIR ID=5 HYDROGRAPH NO=310.1 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	100
71.29	0.001	100.1
71.3	4.00	105

 PRINT HYD ID=5 CODE=1
 *** (Rev.8-17-01 (DMG) SB 300 removed from 114th street storm sewer routing
 *** and added to SB 140 at Eucariz and 114th St.)
 **ROUTE FLOW FROM BASIN 310 DOWN AN ASSUMED STORM DRAIN
 **FROM A POINT 1100 LF SOUTH OF EUCARIZ TO A POINT 1600 LF SOUTH OF EUCARIZ
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.008
 PIPE DIA=48 N=0.013
 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=500 FT SLOPE=0.008
 ROUTE ID=11 HYDROGRAPH NO=310.3 INFLOW ID=5 DT=0.0
 PRINT HYD ID=11 CODE=1
 **ROUTE THE ROUTED FLOW FROM BASIN 310 DOWN AN ASSUMED STORM DRAIN
 **FROM A POINT 1600 LF SOUTH OF EUCARIZ AT THE WEST LINE OF BASIN 330 EAST
 **TO TANAGER DRIVE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.035
 PIPE DIA=42 N=0.013
 COMPUTE TRAVEL TIME ID=13 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1250 FT SLOPE=0.035
 ROUTE ID=13 HYDROGRAPH NO=310.4 INFLOW ID=11 DT=0.0
 PRINT HYD ID=13 CODE=1
 ** COMPUTE THE HYDROGRAPH FOR BASINS 320 AND 330.
 ** THESE BASINS ARE UNDER THE SAME OWNERSHIP
 ** ASSUME THE RUNOFF FROM THE MAJORITY OF THE SITE WILL BE ROUTED THROUGH
 ** THE EXISTING TANAGER POND CONSTRUCTED WITH THE SUNRISE TERRACE UNITS
 ** 3,4,& 5 PROJECT. BECAUSE THE OUTFALL FROM THE POND IS SMALL THE PEAK
 ** OUTFLOW FROM THE AREA ROUTED THROUGH THE POND WILL BE LESS THAN 1.29cfs PER
 ** ac.. THIS WILL ALLOW BASIN 330 TO HAVE FREE DISCHARGE TO THE STORM DRAIN
 ** SYSTEM. THE COMBINED OUTFLOW FROM BASINS 320 AND 330 WILL BE LIMITED TO
 ** 1.29 cfs PER ac. Q=73.1
 ** (REV.7-9-01) COMPUTE HYDROGRAPH FOR BASIN 170 THE WATERSHED W OF 106 STREET,
 ** S. OF EUCARIZ, MULTI-FAMILY DEVELOPMENT ASSUMED.
 ** ASSUMED SB 170 TO BE ADDED TO SB 320 AND ROUTE THROUGH TANAGER POND (7-9-01)
 COMPUTE NM HYD ID=1 HYD=170 DA==0.02853 SM
 %A=0 %B=30.0 %C=0.0 %D=70.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=1 CODE=1
 ** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE

** ASSUMED ALLOWABLE DISCHARGE Q=23.6 cfs

ROUTE RESERVOIR ID=3 HYDROGRAPH NO=170.1 INFLOW ID=1 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0.0	100
23.6	0.001	100.1
23.61	1.30	105

PRINT HYD ID=3 CODE=1

** COMPUTE THE HYDROGRAPH FOR BASIN 320 THE NORTH PORTION OF THE AREA SOUTH

** EUCERIZ ,EAST OF TANAGER, AND NORTH OF THE SECTION LINE. ASSUME

** SINGLE FAMILY RESIDENTIAL DEVELOPMENT

COMPUTE NM HYD ID=4 HYD=320 DA==0.0547 SM
%A=0.0 %B=35.0 %C=0.0 %D=65.0 TP=0.13333
MASS RAINFALL=-1

PRINT HYD ID=4 CODE=1

** (REV 7-9-01)ADD THE FLOW FROM BASIN 170 TO FLOW FROM SB 320

** ASSUME SB 170 ALSO ROUTED THROUGH TANAGER POND

ADD HYD ID=2 HYD=170.2 ID I=4 ID II=3

PRINT HYD ID=2 CODE=1

** ROUTE FLOW FROM BASIN 320 THROUGH THE TANAGER POND. POND VOLUME IS APPROX.

** DISCHARGE CURVE IS BASED ON PRESSURE PIPE FLOW THROUGH A 24" DIA PIPE. HGL

** AT THE OUTLET END OF THE 24" PIPE AT TANAGER AND ANDALUSIAN DRIVE IS ASSUMED

** TO BE 44.0 AT THE TIME OF THE PEAK DISCHARGE FROM THE POND. DESIGN OF THE

** OUTFALL PIPE IS PRELIMINARY AT THIS TIME. ALL OF THE ASSUMPTIONS USED HERE

** SHOULD BE CHECKED AT THE TIME THAT DEVELOPMENT OCCURS IN BASINS 320 AND 330.

ROUTE RESERVOIR ID=5 HYDROGRAPH NO=320.1 INFLOW ID=2 CODE=24

OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
0	0	43
0.1	0.11	44
7.5	0.54	45
10.6	1.13	46
13.0	1.76	47
15.0	2.44	48
16.6	3.16	49
18.3	3.94	50
19.9	4.78	51
21.3	5.66	52
22.6	6.60	53

PRINT HYD ID=5 CODE=1

**ROUTE THE OUTFLOW FROM THE POND DOWN THE 24" OUTFALL PIPE TO THE 48" STORM

**DRAIN AT THE INTERSECTION OF ANDALUSIAN AVE. AND TANAGER DRIVE. USE PEAK FLOW

**FRICTION SLOPE FOR PIPE SLOPE

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.01

PIPE DIA=24 N=0.013

COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=850 FT SLOPE=0.01

ROUTE ID=11 HYDROGRAPH NO=320.2 INFLOW ID=5 DT=0.0

PRINT HYD ID=11 CODE=1

** COMPUTE HYDROGRAPH FOR BASIN 330 THE SOUTH PORTION OF THE TRACT SOUTH OF

** EUCERIZ ,EAST OF TANAGER, AND NORTH OF THE SECTION LINE. ASSUME

** SINGLE FAMILY RESIDENTIAL DEVELOPMENT

COMPUTE NM HYD ID=2 HYD=330 DA==0.0238 SM
%A=0.0 %B=35.0 %C=0.0 %D=65.0 TP=0.13333
MASS RAINFALL=-1

PRINT HYD ID=2 CODE=1

** ADD THE FLOW FROM BASIN 330 TO THE ROUTED FLOW FROM BASIN 320

** THE COMBINED DISCHARGE IS ASSUMED TO BE LIMITED TO 73.1 cfs

ADD HYD ID=12 HYD=330.1 ID I=11 ID II=2

PRINT HYD ID=12 CODE=1

** ADD THE FLOW FROM BASIN 330 & 320 TO THE ROUTED FLOW IN THE STORM DRAIN

** FROM THE WEST

ADD HYD ID=14 HYD=330.2 ID I=12 ID II=13

PRINT HYD ID=14 CODE=1

**ROUTE THE FLOW FROM TANAGER TO THE INTERSECTION OF ANDALUSTAN AND HALTER

**IN THE STORM DRAIN TO BE CONSTRUCTED WITH THE SUNRISE TERRACE UNITS 3,4 & 5

**PROJECT. CURRENT PLANS PREPARED BY RYALS ENGINEERING CALL FOR APPROX 800 LF

**OF 48" DIA STORM DRAIN AND 1150 LF OF 54" DIA STORM DRAIN

**USE FRICTION SLOPE FOR PIPE SLOPE.

**NOTE: PIPE LENGTH IS APPROXIMATE

COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0196

PIPE DIA=48 N=0.013

COMPUTE TRAVEL TIME ID=12 REACH=1 NUMBER OF VALLEY SECTIONS=1

LENGTH=800 FT SLOPE=0.0196
 ROUTE ID=12 HYDROGRAPH NO=330.3 INFLOW ID=14 DT=0.0
 PRINT HYD ID=12 CODE=1
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0105
 PIPE DIA=54 N=0.013
 COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=1150 FT SLOPE=0.0105
 ROUTE ID=11 HYDROGRAPH NO=330.4 INFLOW ID=12 DT=0.0
 PRINT HYD ID=11 CODE=1
 ** ROUTE THE FLOW IN TOWER ROAD TO THE EASEMENT CHANNEL
 ** OUTLET DOWN TOWER BOULEVARD TO SANDPIPER DRIVE. USE AVERAGE SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
 MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.67 FT
 CHANNEL SLOPE=0.0298 FLOOD PLAIN SLOPE=0.0298
 N=.013 DIST=2.16 N=-.017 DIST=38.16 N=.013 DIST=42.32

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.67	0.16	0.00	2.16	0.13	20.16	0.42
38.16	0.13	40.16	0.00	40.32	0.67		

 COMPUTE TRAVEL TIME ID=17 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=370 FT SLOPE=0.0298
 ROUTE ID=17 HYDROGRAPH NO=330.5 INFLOW ID=15 DT=0.0
 PRINT HYD ID=17 CODE=1
 ** ASSUME ALL OF THE FLOW ON THE SOUTH SIDE OF TOWER ROAD IS ACCEPTED BY
 ** SANDPIPER DRIVE. ROUTE THE FLOW DOWN SANDPIPER DRIVE FROM TOWER ROAD TO
 ** THE PROPOSED INLETS NORTH OF CONNEMARA AVENUE. USE AVERAGE SLOPE
 COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=5
 MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.87 FT
 CHANNEL SLOPE=0.014 FLOOD PLAIN SLOPE=0.014
 N=0.030 DIST=9.0 N=-0.013 DIST=11 N=-0.017 DIST=39
 N=0.013 DIST=41 N=0.030 DIST=50

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0.0	0.87	9.0	.67	9.16	0.0	11	0.13
25	0.28	37.0	.13	39.0	0.0	41.0	.67
50.0	0.87						

 COMPUTE TRAVEL TIME ID=16 REACH NO=1 VALLEY SECTIONS=1
 LENGTH=450 FT SLOPE=0.014
 ROUTE ID=16 HYDROGRAPH NO=330.6 INFLOW ID=17 DT=0.0
 PRINT HYD ID=16 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 340 THE SOUTHEAST PORTION OF SUNRISE TERRACE
 ** UNIT 2 PHASE A-1 THAT DISCHARGES TO SANDPIPER DRIVE
 COMPUTE NM HYD ID=2 HYD=340 DA==0.0155 SM
 %A=0.0 %B=50 %C=0.0 %D=50.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BASIN 340 TO THE ROUTED FLOW IN SANDPIPER DRIVE
 ADD HYD ID=15 HYD=340.1 ID I=16 ID II=2
 PRINT HYD ID=15 CODE=1
 ** FOR MODELING PURPOSES ASSUME ALL OF THE FLOW IN SANDPIPER IS INTERCEPTED
 ** BY THE PROPOSED SANDPIPER STORM DRAIN ABOVE THE INTERSECTION WITH CONNEMARA.
 ** ROUTE THE FLOW IN THE PROPOSED STORM DRAIN DOWN SANDPIPER TO PASO FINO PLACE.
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.008
 PIPE DIA=36 N=0.013
 COMPUTE TRAVEL TIME ID=16 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=270 FT SLOPE=0.008
 ROUTE ID=16 HYDROGRAPH NO=340.2 INFLOW ID=15 DT=0.0
 PRINT HYD ID=16 CODE=1
 COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.011
 PIPE DIA=36 N=0.013
 COMPUTE TRAVEL TIME ID=15 REACH=1 NUMBER OF VALLEY SECTIONS=1
 LENGTH=340 FT SLOPE=0.011
 ROUTE ID=15 HYDROGRAPH NO=340.3 INFLOW ID=16 DT=0.0
 PRINT HYD ID=15 CODE=1
 ** COMPUTE HYDROGRAPH FOR BASIN 350 THE NORTH WEST PORTION OF SUNRISE TERRACE
 ** UNITS 3, 4, AND 5
 COMPUTE NM HYD ID=2 HYD=350 DA==0.0483 SM
 %A=0.0 %B=50 %C=0.0 %D=50.0 TP=0.13333
 MASS RAINFALL=-1
 PRINT HYD ID=2 CODE=1
 ** ADD THE FLOW FROM BASIN 350 TO THE SANDPIPER DR. S.D. FLOW AT THE
 ** INTERSECTION OF PASO FINO AND SANDPIPER DRIVE
 ADD HYD ID=16 HYD=350.1 ID I=15 ID II=2

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PRINT HYD ID=16 CODE=1
**ROUTE THE COMBINED FLOW DOWN THE PASO FINO STORM DRAIN FROM SANDPIPER TO
**HALTER DRIVE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.023
PIPE DIA=48 N=0.013
COMPUTE TRAVEL TIME ID=15 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=360 FT SLOPE=0.023
ROUTE ID=15 HYDROGRAPH NO=350.2 INFLOW ID=16 DT=0.0
PRINT HYD ID=15 CODE=1
**ROUTE THE FLOW FROM THE PROPOSED PASO FINO STORM DRAIN DOWN THE PROPOSED
**HALTER DRIVE STORM DRAIN
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.006
PIPE DIA=54 N=0.013
COMPUTE TRAVEL TIME ID=16 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=250 FT SLOPE=0.006
ROUTE ID=16 HYDROGRAPH NO=350.3 INFLOW ID=15 DT=0.0
PRINT HYD ID=16 CODE=1
** COMPUTE THE HYDROGRAPH FOR BASIN 360. THE BASIN THAT CONTRIBUTES FLOW
** TO ANDLUSIAN AVENUE
COMPUTE NM HYD ID=2 HYD=360 DA==0.0208 SM
%A=0.0 %B=50 %C=0.0 %D=50.0 TP=0.13333
MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ADD THE FLOW FROM BASIN 360 TO THE FLOW IN THE PROPOSED HALTER STORM
** DRAIN AT THE INTERSECTION OF HALTER DR. & ANDALUSTAN AVE.
ADD HYD ID=15 HYD=360.1 ID I=16 ID II=2
PRINT HYD ID=15 CODE=1
** ADD THE FLOW FROM THE PROPOSED HALTER STORM DRAIN TO THE PROPOSED
** ANDALUSTAN STORM DRAIN AT THE INTERSECTION OF HALTER AND ANDALUSTAN
ADD HYD ID=17 HYD=360.2 ID I=15 ID II=11
PRINT HYD ID=17 CODE=1
**ROUTE THE COMBINED FLOW DOWN THE STORM DRAIN OUTFALL FROM THE INTERSECTION
**OF HALTER DRIVE AND ANDALUSTAN DRIVE TO THE SNOW VISTA CHANNEL
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.009
PIPE DIA=72 N=0.013
COMPUTE TRAVEL TIME ID=16 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=200 FT SLOPE=0.009
ROUTE ID=16 HYDROGRAPH NO=360.3 INFLOW ID=17 DT=0.0
PRINT HYD ID=16 CODE=1
** ADD THE FLOW FROM THE THE PROPOSED 72" DIA OUTFALL FROM THE SUNRISE
** TERRACE UNITS 3, 4, AND 5 SUBDIVISION TO THE FLOW IN THE SNOW VISTA CHANNEL
** AT THE SECTION LINE.
ADD HYD ID=15 HYD=360.4 ID I=16 ID II=10
PRINT HYD ID=15 CODE=1
** COMPUTE THE HYDROGRAPH FOR BASIN 370 THE PORTION OF SUNRISE TERRACE UNIT 3
** THAT IS ADJACENT TO THE SNOW VISTA CHANNEL AND CONTRIBUTES FLOW TO THE
** TO THE PROPOSED HALTER DETENTION POND
COMPUTE NM HYD ID=2 HYD=370 DA==0.0183 SM
%A=0.0 %B=50 %C=0.0 %D=50.0 TP=0.13333
MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ROUTE FLOW FROM BASIN 370 THROUGH THE PROPOSED HALTER POND
** STAGE STORAGE DISCHARGE CURVE PER MASTER DRAINAGE PLAN FOR SUNRISE TERRACE
** UNITS 3,4,AND 5 BY RYLES ENGINEERING
ROUTE RESERVOIR ID=5 HYD=370.1 INFLOW ID=2 CODE=24
OUTFLOW CFS STORAGE AC-FT ELEVATION FT
0.00000 0.0000 88.50
3.68 0.1180 90.5
5.20 0.3172 92.5
6.37 0.6137 94.5
6.88 0.9032 95.5
7.13 0.9092 96.0
PRINT HYD ID=5 CODE=1
** ADD THE FLOW FROM THE PROPOSED HALTER POND TO THE FLOW IN THE SNOW VISTA
** CHANNEL AT THE SECTION LINE.
** THIS IS THE TOTAL FLOW IN THE SNOW VISTA CHANNEL AT THE SECTION LINE
**S HYD=AP22 IS *****AP 22*****
ADD HYD ID=22 HYD=AP22 ID I=5 ID II=15
PRINT HYD ID=22 CODE=1
*****
** RATING CURVE FOR AP22 TO 22.1

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COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
 MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
 CHANNEL SLOPE=0.0246 FLOOD PLAIN SLOPE=0.0246
 N=0.013 DIST=34

DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
0	106	12	100	22	100	34	106

COMPUTE TRAVEL TIME ID=88 REACH NO=1 VALLEY SECTIONS=1

LENGTH=784 FT SLOPE=0.0246

ROUTE ID=88 HYDROGRAPH NO=100 INFLOW ID=22 DT=0.0

PRINT HYD ID=88 CODE=1

***** INSERTED TOM'S STUFF !!!

* ANALYSIS OF THE BASINS ABOVE THE SNOW VISTA CHANNEL AND THE SECTION LINE
 * CONFLUENCE.

* DEVELOPED LAND TREATMENT A=0 B=27% C=12% D=61%

* THE RUNOFF IS CALCULATED ASSUMING THAT THERE ARE SEVEN BASINS.

* TIME OF CONCENTRATION IS CALCULATED TO BE LESS THAN 10 MIN. THEREFORE,

* $T_p = 2/3 T_c = 2/3 0.16667 = 0.1111$ FOR ALL BASINS.

* BASIN 301.61

* UNDEVELOPED LAND WEST OF WESTGATE HEIGHTS.

* MAXIMUM DISCHARGE IS 1.29 x 23 ACRES = 29.7 CFS

* ENTERS SNOW VISTA CHANNEL VIA A RUNDOWN AT "22.1"

COMPUTE NM HYD ID=61 HYD=301.61 DA=0.0359 SQ MI

%A=0 %B=27 %C=12 %D=61 TP=0.111

MASS RAINFALL=-1

PRINT HYD ID=61 CODE=1

*S ROUTE ID=61 THROUGH POND. 61

* ROUTE RESERVOIR TO SIMULATE THE CONTROLLED DISCHARGE OF THE POND.

* TOTAL MAXIMUM DISCHARGE IS 1.29 x 23 ACRES = 29.7 CFS

ROUTE RESERVOIR ID=1 HYDROGRAPH NO=POND. 61 INFLOW ID=61 CODE=24

OUTFLOW (CFS)	STORAGE (AF)	ELEV (FT)
00.00	0.000	100.0
15.00	0.001	100.1
20.00	0.500	101.0
29.70	1.500	105.0

PRINT HYD ID=1 CODE=1

*S ROUTE THIS FLOW DOWN THE 24" STORM DRAIN PIPE TO POND. 62

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLOPE=0.053

PIPE DIA=24 N=0.013

COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF SECTIONS=1

LENGTH=750 SLOPE=0.053

ROUTE ID=11 HYDROGRAPH=POND. 61 INFLOW ID=1 DT=0.0

*S HYDROGRAPH ID = 11 IS THE ROUTED FLOW OUT OF POND. 61

PRINT HYD ID=11 CODE=1

* BASIN 301.62

* UNDEVELOPED LAND WEST OF WESTGATE HEIGHTS.

* MAXIMUM DISCHARGE = 1.29 x 22 ACRES = 28.4 CFS

* ENTERS SNOW VISTA CHANNEL VIA A RUNDOWN AT "22.1"

COMPUTE NM HYD ID=62 HYD=301.62 DA=0.0344 SQ MI

%A=0 %B=27 %C=12 %D=61 TP=0.111

MASS RAINFALL=-1

PRINT HYD ID=62 CODE=1

*S ROUTE ID=62 THROUGH POND. 62

* ROUTE RESERVOIR TO SIMULATE THE CONTROLLED DISCHARGE OF THE POND.

* TOTAL MAXIMUM DISCHARGE IS 1.29 x 22 ACRES = 28.4 CFS

ROUTE RESERVOIR ID=1 HYDROGRAPH NO=POND. 62 INFLOW ID=62 CODE=24

OUTFLOW (CFS)	STORAGE (AF)	ELEV (FT)
00.00	0.000	100.0
15.00	0.001	100.1
20.00	0.500	101.0
28.40	1.500	105.0

*S ROUTED FLOW OUT OF POND. 62

PRINT HYD ID=1 CODE=1

*S ADD HYD ID=11 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 30" STORM DRAIN

*S TO POND. 63

ADD HYD ID=1 HYD NO=POND. 62 ID I=1 ID II=11

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLOPE=0.045

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PIPE DIA=30      N=0.013
COMPUTE TRAVEL TIME ID=12 REACH=1  NUMBER OF SECTIONS=1
                        LENGTH=1100      SLOPE=0.045
ROUTE                ID=12  HYDROGRAPH=POND.62  INFLOW ID=1  DT=0.0
*S HYDROGRAPH ID = 12 IS THE ROUTED FLOW DOWN THE 30" STORM DRAIN PIPE
PRINT HYD            ID=12  CODE=1
*****
* BASIN 301.63
* UNDEVELOPED LAND NORTH OF WESTGATE HEIGHTS.
* MAXIMUM DISCHARGE = 1.29 x 22 ACRES = 28.4 CFS
* ENTERS SNOW VISTA CHANNEL VIA A RUNDOWN AT "22.1"
*****
*S COMPUTE HYD FOR BASIN 301.63
COMPUTE NM HYD        ID=63  HYD=301.63  DA=0.0344 SQ MI
                        %A=0 %B=27 %C=12 %D=61 TP=0.111
                        MASS RAINFALL=-1
PRINT HYD              ID=63 CODE=1
*S ROUTE ID=63 THROUGH POND.63
* ROUTE RESERVOIR TO SIMULATE THE CONTROLLED DISCHARGE OF THE POND.
* TOTAL MAXIMUM DISCHARGE IS 1.29 x 22 ACRES = 28.4 CFS
ROUTE RESERVOIR       ID=1  HYDROGRAPH NO=POND.63  INFLOW ID=63  CODE=24
                        OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
                        00.00              0.000             100.0
                        15.00              0.001             100.1
                        20.00              0.500             101.0
                        28.40              1.500             105.0
*S ROUTED FLOW OUT OF POND.63
PRINT HYD              ID=1  CODE=1
*S ADD HYD ID=12 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN
*S TO POND.64
ADD HYD                ID=1  HYD NO=POND.63  ID I=1  ID II=12
COMPUTE RATING CURVE  CID=1  VS NO=1  CODE=-1  SLOPE=0.035
                        PIPE DIA=36      N=0.013
COMPUTE TRAVEL TIME  ID=13  REACH=1  NUMBER OF SECTIONS=1
                        LENGTH=1000      SLOPE=0.035
ROUTE                ID=13  HYDROGRAPH=POND.63  INFLOW ID=1  DT=0.0
*S HYDROGRAPH ID = 13 IS THE ROUTED FLOW DOWN THE 36" STORM DRAIN PIPE
*S TO THE INLET OF POND.64 TO THIS STORM DRAIN PIPE
PRINT HYD              ID=13  CODE=1
*****
* BASIN 301.64
* UNDEVELOPED LAND NORTH OF WESTGATE HEIGHTS.
* MAXIMUM DISCHARGE = 1.29 x 22 ACRES = 28.4 CFS
*
* ENTERS SNOW VISTA CHANNEL VIA A RUNDOWN AT "22.1"
*****
COMPUTE NM HYD        ID=64  HYD=301.64  DA=0.0344 SQ MI
                        %A=0 %B=27 %C=12 %D=61 TP=0.111
                        MASS RAINFALL=-1
PRINT HYD              ID=64 CODE=1
*S ROUTE ID=64 THROUGH POND.64
* ROUTE RESERVOIR TO SIMULATE THE CONTROLLED DISCHARGE OF THE POND.
* TOTAL MAXIMUM DISCHARGE IS 1.29 x 22 ACRES = 28.4 CFS
ROUTE RESERVOIR       ID=1  HYDROGRAPH NO=POND.64  INFLOW ID=64  CODE=24
                        OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
                        00.00              0.000             100.0
                        15.00              0.001             100.1
                        20.00              0.500             101.0
                        28.40              1.500             105.0
*S ROUTED FLOW OUT OF POND.64
PRINT HYD              ID=1  CODE=1
*S ADD HYD ID=13 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN
*S TO POND.65
ADD HYD                ID=1  HYD NO=POND.64  ID I=1  ID II=13
COMPUTE RATING CURVE  CID=1  VS NO=1  CODE=-1  SLOPE=0.035
                        PIPE DIA=36      N=0.013
COMPUTE TRAVEL TIME  ID=14  REACH=1  NUMBER OF SECTIONS=1
                        LENGTH=1000      SLOPE=0.035
ROUTE                ID=14  HYDROGRAPH=POND.64  INFLOW ID=1  DT=0.0
*S HYDROGRAPH ID = 14 IS THE ROUTED FLOW DOWN THE 36" STORM DRAIN PIPE
*S TO THE INLET OF POND.64 TO THIS STORM DRAIN PIPE

```

```

PRINT HYD          ID=14    CODE=1
*****
* BASIN 301.65
* UNDEVELOPED LAND NORTH OF WESTGATE HEIGHTS.
* MAXIMUM DISCHARGE = 1.29 x 22 ACRES = 28.4 CFS
* ENTERS SNOW VISTA CHANNEL VIA A RUNDOWN AT "22.1"
*****
COMPUTE NM HYD      ID=65  HYD=301.65 DA=0.0344 SQ MI
                   %A=0 %B=27 %C=12 %D=61 TP=0.111
                   MASS RAINFALL=-1

PRINT HYD          ID=65 CODE=1
*S ROUTE ID=65 THROUGH POND.65
* ROUTE RESERVOIR TO SIMULATE THE CONTROLLED DISCHARGE OF THE POND.
* TOTAL MAXIMUM DISCHARGE IS 1.29 x 22 ACRES = 28.4 CFS
ROUTE RESERVOIR    ID=1 HYDROGRAPH NO=POND.65  INFLOW ID=65  CODE=24
                   OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
                   00.00              0.000            100.0
                   15.00              0.001            100.1
                   20.00              0.500            101.0
                   28.40              1.500            105.0

*S ROUTED FLOW OUT OF POND.65
PRINT HYD          ID=1    CODE=1
*S ADD HYD ID=14 TO ID=1 AND ROUTE THIS FLOW THROUGH THE 36" STORM DRAIN
*S TO SNOW VISTA CHANNEL
ADD HYD            ID=1    HYD NO=POND.65  ID I=1  ID II=14
PRINT HYD          ID=1    CODE=1
*****
* BASIN 301.5
* DEVELOPED LAND THE NORTHERN PORTION OF WESTGATE.
* ENTERS SNOW VISTA CHANNEL INLETS IN GIBSON AT "22.1"
*****
*S COMPUTE HYD FOR BASIN 301.05
COMPUTE NM HYD      ID=5  HYD=301.05 DA=0.0328 SQ MI
                   %A=0 %B=27 %C=12 %D=61 TP=0.111
                   MASS RAINFALL=-1

PRINT HYD          ID=5 CODE=1
*S TOTAL FLOW AT AP-22.1 IN SNOW VISTA CHANNEL
ADD HYD            ID=3  HYD=301  I=88 II=1
*S HYD=AP22.1 IS *****AP 22.1*****
ADD HYD            ID=2  HYD=AP22.1  I=3 II=5
PRINT HYD          ID=2    CODE=1
*****
** RATING CURVE FOR 22.1 TO 22.2
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                   MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
                   CHANNEL SLOPE=0.012  FLOOD PLAIN SLOPE=0.012
                   N=0.013  DIST=34
                   DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                   0  106    12  100    22  100    34  106

COMPUTE TRAVEL TIME ID=1  REACH NO=1  VALLEY SECTIONS=1
                   LENGTH=1217 FT  SLOPE=0.012
ROUTE              ID=1  HYDROGRAPH NO=301.6  INFLOW ID=2  DT=0.0
PRINT HYD          ID=1  CODE=1
*****
* BASIN 301.4
* DEVELOPED LAND CONSISTING OF THE NORTHEASTERN PORTION OF WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "22.2"
*****
*S COMPUTE HYD FOR BASIN 301.04
COMPUTE NM HYD      ID=4  HYD=301.04 DA=0.0766 SQ MI
                   %A=0 %B=27 %C=12 %D=61 TP=0.111
                   MASS RAINFALL=-1

PRINT HYD          ID=4 CODE=1
*S HYD=AP22.2 IS *****AP 22.2*****
ADD HYD            ID=1  HYD=AP22.2  I=1 II=4
PRINT HYD          ID=1  CODE=1
*****
** RATING CURVE FOR 22.2 TO AP23
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                   MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
                   CHANNEL SLOPE=0.012  FLOOD PLAIN SLOPE=0.012

```

```

      N=0.013  DIST=34
      DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
        0   106    12   100    22   100    34   106
COMPUTE TRAVEL TIME ID=9  REACH NO=1  VALLEY SECTIONS=1
      LENGTH=568 FT  SLOPE=0.012
ROUTE      ID=9  HYD=300  INID=1  DT=0.0
PRINT HYD  ID=9  CODE=1
*****
*  BASIN 301.71
*  LAND EAST OF SNOW VISTA CHANNEL. THIS IS THE UNDEVELOPED LAND WEST OF THE
*  TRAILER PARK. THIS BASIN FLOWS THROUGH A CONTROL DISCHARGE POND AND INTO
*  MAXIMUM DISCHARGE = FREE DISCHARGE (KMJ-LH 3/8/99)
*  REMOVED WITH * (1.29 x 25 ACRES = 32.25 CFS)
*
*  ENTERS SNOW VISTA CHANNEL AT "AP-23".
*****
COMPUTE NM HYD  ID=71  HYD=301.71  DA=0.0694  SQ MI
      %A=0  %B=27  %C=12  %D=61  TP=0.111
      MASS RAINFALL=-1
PRINT HYD  ID=71  CODE=1
*
*  *S ROUTE ID=71 THROUGH POND.71
*  *  ROUTE RESERVOIR TO SIMULATE THE CONTROLLED DISCHARGE OF THE POND.
*  *  TOTAL MAXIMUM DISCHARGE IS 1.29 x 25 ACRES = 32.25 CFS.
*
*  ROUTE RESERVOIR      ID=1  HYDROGRAPH NO=POND.71  INFLOW ID=71  CODE=24
*                        OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
*                        00.00      0.000      100.0
*                        10.00      0.001      100.1
*                        25.00      0.500      101.0
*                        32.25      1.500      105.0
*  PRINT HYD      ID=1  CODE=1
*S ROUTE THIS FLOW DOWN THE 60" STORM DRAIN PIPE LINE TO 301.72
COMPUTE RATING CURVE  CID=1  VS NO=1  CODE=-1  SLOPE=0.013
      PIPE DIA=60  N=0.013
COMPUTE TRAVEL TIME  ID=11  REACH=1  NUMBER OF SECTIONS=1
      LENGTH=600  SLOPE=0.013
ROUTE      ID=11  HYDROGRAPH=POND.71  INFLOW ID=71  DT=0.0
PRINT HYD  ID=11  CODE=1
*****
*  BASIN 301.72
*  LAND EAST OF SNOW VISTA CHANNEL. THIS IS THE TRAILER PARK LAND.
*  THIS BASIN FLOWS INTO THE CHANNEL VIA A 24" CMP AT THE
*  MAXIMUM DISCHARGE = FREE DISCHARGE
*  ENTERS SNOW VISTA CHANNEL AT "AP-23".
*****
*S COMPUTE HYD FOR BASIN 301.72
COMPUTE NM HYD  ID=72  HYD=301.72  DA=0.0422  SQ MI
      %A=0  %B=27  %C=12  %D=61  TP=0.111
      MASS RAINFALL=-1
PRINT HYD  ID=72  CODE=1
*S ADD BASIN 301.71 AND ROUTE THIS FLOW DOWN THE 60" STORM DRAIN PIPE LINE TO 301.73
ADD HYD      ID=2  HYD=301.72  I=72  II=11
COMPUTE RATING CURVE  CID=1  VS NO=1  CODE=-1  SLOPE=0.013
      PIPE DIA=60  N=0.013
COMPUTE TRAVEL TIME  ID=11  REACH=1  NUMBER OF SECTIONS=1
      LENGTH=600  SLOPE=0.013
ROUTE      ID=11  HYDROGRAPH=POND.71  INFLOW ID=2  DT=0.0
PRINT HYD  ID=11  CODE=1
*****
COMPUTE NM HYD  ID=74  HYD=301.74  DA=0.0091  SQ MI
      %A=0  %B=0  %C=50  %D=50  TP=0.111
      MASS RAINFALL=-1
PRINT HYD  ID=74  CODE=1
*S ADD BASIN 301.72 AND BASIN 301.74
ADD HYD      ID=11  HYD=301.74  I=74  II=11
*****
*  BASIN 301.73
*  LAND EAST OF SNOW VISTA CHANNEL. THIS IS THE UNDEVELOPED LAND SOUTH OF THE
*  TRAILER PARK. THIS BASIN FLOWS INTO A CONTROLLED DISCHARGE POND AND THEN
*  TO THE THE CHANNEL.

```

```

* MAXIMUM DISCHARGE = FREE DISCHARGE (KMJ-LH 3/8/99)
* REMOVED WITH * (1.29 x 17 ACRES = 21.9 CFS)
* ENTERS SNOW VISTA CHANNEL AT "AP-23".
*****
COMPUTE NM HYD      ID=73  HYD=301.73  DA=0.01940  SQ MI
                   %A=0 %B=27 %C=12 %D=61  TP=0.111
                   MASS RAINFALL=-1

PRINT HYD          ID=73  CODE=1
*
*
* *S ROUTE ID=73 THROUGH POND.73
* * ROUTE RESERVOIR TO SIMULATE THE CONTROLLED DISCHARGE OF THE POND.
* * TOTAL MAXIMUM DISCHARGE IS 1.29 x 17 ACRES = 21.9 CFS
*
* ROUTE RESERVOIR      ID=12  HYDROGRAPH NO=POND.73  INFLOW ID=73  CODE=24
*                      OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
*                      00.00              0.000            100.0
*                      10.00              0.001            100.1
*                      15.00              0.500            101.0
*                      21.90              3.000            105.0
*
* PRINT HYD          ID=12  CODE=1
ADD HYD             ID=4   HYD=301.73  ID I=73  ID II=11
PRINT HYD          ID=4   CODE=1
*****
* BASIN 301.3
* DEVELOPED LAND CONSISTING OF THE MAJOR PORTION OF EXISTING WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "AP-23"
*****
COMPUTE NM HYD      ID=3  HYD=301.03  DA=0.3438  SQ MI
                   %A=0 %B=27 %C=12 %D=61  TP=0.111
                   MASS RAINFALL=-1

PRINT HYD          ID=3  CODE=1
*S HYDROGRAPH ID 73 IS THE INFLOW TO THE SNOW VISTA CHANNEL AT AP-23
ADD HYD             ID=73  HYD=301.03  I=3  II=4
PRINT HYD          ID=73  CODE=1
*S HYD=AP23 IS *****AP 23*****
ADD HYD             ID=1  HYD=AP23  I=9  II=73
PRINT HYD          ID=1  CODE=1
*****
** RATING CURVE FOR AP23 TO 23.1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100 FT  MAXIMUM ELEV=115 FT
                      CHANNEL SLOPE=0.012  FLOOD PLAIN SLOPE=0.012
                      N=0.013  DIST=60
                      DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                      0    115   10   100   50   100   60   115

COMPUTE RATING CURVE CID=2  VALLEY SECTION=2  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100 FT  MAXIMUM ELEV=115 FT
                      CHANNEL SLOPE=0.0037  FLOOD PLAIN SLOPE=0.0037
                      N=0.013  DIST=60
                      DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                      0    115   10   100   50   100   60   115

COMPUTE TRAVEL TIME ID=2  REACH NO=1  VALLEY SECTIONS=2
                      LENGTH= 183 FT  SLOPE=0.012
ROUTE               ID=2  HYD=400  INID=1  DT=0.0
PRINT HYD          ID=2  CODE=1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
                      CHANNEL SLOPE=0.0037  FLOOD PLAIN SLOPE=0.0037
                      N=0.035  DIST=76
                      DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                      0    106   18   100   58   100   76   106

COMPUTE TRAVEL TIME ID=3  REACH NO=2  VALLEY SECTIONS=1
                      LENGTH= 342 FT  SLOPE=0.0037
ROUTE               ID=3  HYD=500  INID=2  DT=0.0
PRINT HYD          ID=3  CODE=1
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                      MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
                      CHANNEL SLOPE=0.0038  FLOOD PLAIN SLOPE=0.0038
                      N=0.030  DIST=76
                      DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV

```

```

0      106    18    100    58    100    76    106
COMPUTE TRAVEL TIME ID=4 REACH NO=3 VALLEY SECTIONS=1
      LENGTH=170 FT SLOPE=0.0038
ROUTE      ID=4 HYD=600 INFLOW ID=3 DT=0.0
PRINT HYD      ID=4 CODE=1
*****
* BASIN 301.2
* DEVELOPED AND UNDEVELOPED LAND CONSISTING OF THE SOUTHEAST PORTION OF
* WESTGATE HEIGHTS.
* 10AC DEVELOPED AND 15 AC UNDEVELOPED. THE ROUTE RESERVOIR ACCOUNTS FOR A
* DEVELOPED DISCHARGE OF 38.16 CFS, PLUS (15) (1.29)=19.35 CFS FOR UNDEVELOPED.
* MAX DISCHARGE FROM THIS BASIN = 57.51 CFS
* ENTERS SNOW VISTA CHANNEL INLETS IN GIBSON AT "23.1"
*****
COMPUTE NM HYD      ID=2 HYD=301.02 DA=0.0391 SQ MI
      %A=0 %B=27 %C=12 %D=61 TP=0.111
      MASS RAINFALL=-1
PRINT HYD      ID=2 CODE=1
ROUTE RESERVOIR      ID=1 HYDROGRAPH NO=POND.02 INFLOW ID=2 CODE=24
      OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
      00.00      0.000      100.0
      57.51      1.500      100.1
      58.00      3.0      105.0
PRINT HYD      ID=1 CODE=1
ADD HYD      ID=3 HYD=AP23.1 I=4 II=1
PRINT HYD      ID=3 CODE=1
*****
** RATING CURVE FOR 23.1 TO 23.2
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
      MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
      CHANNEL SLOPE=0.0038 FLOOD PLAIN SLOPE=0.0038
      N=0.030 DIST=76
      DIST ELEV      DIST ELEV      DIST ELEV      DIST ELEV
      0      106      18      100      58      100      76      106
COMPUTE TRAVEL TIME ID=2 REACH NO=3 VALLEY SECTIONS=1
      LENGTH=850 FT SLOPE=0.0038
ROUTE      ID=2 HYD=700 INFLOW ID=3 DT=0.0
PRINT HYD      ID=2 CODE=1
*****
* BASIN 301.1
* DEVELOPED AND UNDEVELOPED LAND CONSISTING OF THE SOUTHEAST PORTION OF
* WESTGATE HEIGHTS.
* 15 AC DEVELOPED AND 35 AC UNDEVELOPED. THE ROUTE RESERVOIR ACCOUNTS FOR A
* DEVELOPED DISCHARGE OF 57.23 CFS, PLUS (35) (1.29)=45.15 CFS FOR UNDEVELOPED.
* MAX DISCHARGE FROM THIS BASIN = 102.38 CFS
* ENTERS SNOW VISTA CHANNEL INLETS IN GIBSON AT "23.2"
*****
COMPUTE NM HYD      ID=1 HYD=301.01 DA=0.0781 SQ MI
      %A=0 %B=27 %C=12 %D=61 TP=0.111
      MASS RAINFALL=-1
PRINT HYD      ID=1 CODE=1
ROUTE RESERVOIR      ID=5 HYDROGRAPH NO=POND.01 INFLOW ID=1 CODE=24
      OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
      00.00      0.000      100.0
      102.38      1.500      100.5
      103.00      3.000      105.0
PRINT HYD      ID=5 CODE=1
ADD HYD      ID=6 HYD=AP23.2 I=5 II=2
PRINT HYD      ID=6 CODE=1
*****
** RATING CURVE FOR 23.2 TO 23.3
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
      MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
      CHANNEL SLOPE=0.0038 FLOOD PLAIN SLOPE=0.0038
      N=0.030 DIST=76
      DIST ELEV      DIST ELEV      DIST ELEV      DIST ELEV
      0      106      18      100      58      100      76      106
COMPUTE TRAVEL TIME ID=4 REACH NO=3 VALLEY SECTIONS=1
      LENGTH=1225 FT SLOPE=0.0038
ROUTE      ID=4 HYD=800 INFLOW ID=6 DT=0.0
PRINT HYD      ID=4 CODE=1

```

```

*****
* BASIN 301.00
* DEVELOPED AND UNDEVELOPED LAND CONSISTING OF THE SOUTH PORTION OF
* WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "23.3"
*****
COMPUTE NM HYD      ID=1  HYD=300.00 DA=0.05156 SQ MI
                   %A=0 %B=27 %C=12 %D=61 TP=0.111
                   MASS RAINFALL=-1
PRINT HYD           ID=1 CODE=1
ROUTE RESERVOIR     ID=5 HYDROGRAPH NO=POND.01  INFLOW ID=1  CODE=24
                   OUTFLOW (CFS)      STORAGE (AF)      ELEV (FT)
                   00.00              0.000            100.0
                   42.57              1.500            100.1
                   44.00              3.000            105.0
PRINT HYD           ID=5  CODE=1
*S HYD=AP24 IS *****AP 24*****
ADD HYD             ID=2  HYD=AP24  I=5  II=4
PRINT HYD           ID=2  CODE=1
*****
** RATING CURVE FOR AP24 TO AP03
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                   MINIMUM ELEV=100 FT  MAXIMUM ELEV=106 FT
                   CHANNEL SLOPE=0.024 FLOOD PLAIN SLOPE=0.024
                   N=0.035  DIST=56
                   DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                   0      106   18    100   38    100   56    106
COMPUTE TRAVEL TIME ID=3  REACH NO=3  VALLEY SECTIONS=1
                   LENGTH=1800 FT  SLOPE=0.0190
ROUTE              ID=66 HYD=SV_DMP2.HYD INFLOW ID=2 DT=0.0
PRINT HYD          ID=66 CODE=1
PUNCH HYD          ID=66
FINISH

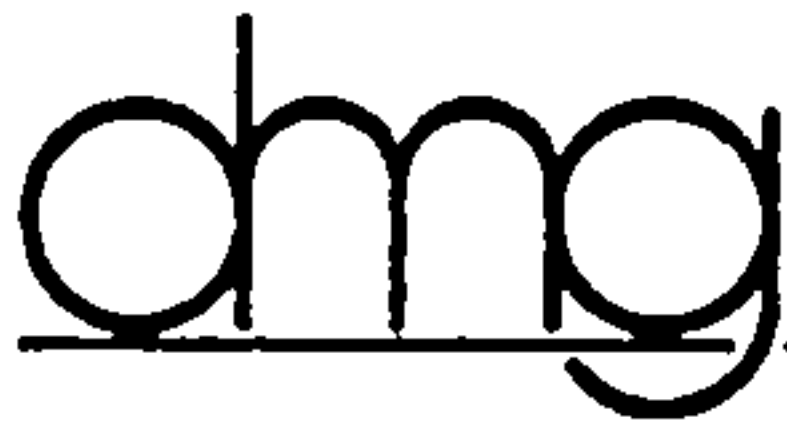
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APPENDIX A.3

AMAFCA Amole-Hubbell Drainage Management Plan

Original 'existing conditions' model (AHYMO)

Revised 'existing/interim conditions' model (AHYMO)



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PROJECT Sunrise Ranch West
SUBJECT Exist. offsite Subasin
BY DH DATE 7-12-01
CHECKED _____ DATE _____
SHEET _____ OF _____

Revise Exist. Conditions Offsite Subasins

From AMAFCA AHVMO File: SUIODE1B.DAT

(Refer to Figure 4: Snow Vista Exist Conditions Basin)

SB 20101 (Revise to remove area east of 106th st.)

$$\text{Area} = 0.29230 \text{ sq. mi.} = 187.07 \text{ acres}$$

$$\begin{aligned} \text{Area east of } 106^{\text{th}} \text{ st} &= 480 \times 400 = 592,000 \text{ SF} \\ &= 13.59 \text{ acres} \end{aligned}$$

$$\begin{aligned} \text{SB 20101A} &= 173.48 \text{ acres } (187.07 - 13.59) \\ &= 0.27106 \text{ sq mi} \end{aligned}$$

SB 20104 (Revise to remove area east of 106th st)

$$\text{Area} = 0.0346 \text{ sq. mi.} = 22.14 \text{ acres}$$

$$\begin{aligned} \text{Area east of } 106^{\text{th}} \text{ st} &= 750(1150)^{\frac{1}{2}} = 431,250 \text{ SF} \\ &= 9.90 \text{ acres.} \end{aligned}$$

$$\begin{aligned} \text{SB 20104 A} &= 12.24 \text{ acres } (22.14 - 9.90) \\ &= 0.0191 \text{ sq. mi.} \end{aligned}$$

Sunrise Terrace - Offsite Pond (Existing 106th st/Eucariz)

Elev	Area					$\sum AF$	
5238	145 x 50	7250	}	9731(2)	19462	19462	0.4468
5240	172 x 71	12,212		16663.5(4)	66654	86116	1.9770
5244	205 x 103	21,115		24,357.5(4)	97,430	183546	4.236
5248	120 x 230	27600					

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = SV100ER.DAT

RUN DATE (MON/DAY/YR) =09/08/2001
 USER NO.= M_GOODWN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
*S											
*S	SNOW VISTA WATERSHED (INTERIM CONDITIONS)										
*S											
*S											
*S	100-YR, 24-HR STORM WITH SEDIMENT										
*S	LAST REVISION 9-7-01 INCLUDES 106TH STORM SEWER AND SPLIT FLOW BETWEEN										
*S	5'5 MEDIAN DROP INLET AND TEMP.SWALE INTERCEPTION AND										
*S	REVISED 106TH ST OFFSITE DETENTION POND OUTFALL (24"RCP)										
*S	LAST REVISION 7-6-01 DLH MARK GOODWIN & ASSOCIATES										
*S	NEW FILE NAME: SV100ER.DAT (EXISTING CONDITIONS REVISED SUBBASIN 20101 TO 2010										
*S	AND SUBBASIN 20104 TO 20104A										
*S											
*S	OLD FILE NAME : SV100E1B.DAT (existing conditions)										
*S	BY: RICHARD STOCKTON AND TOM BLAINE										PEER REVIEWED BY: CLINT DODGE
*S	LAST REVISION: 05-15-96										
*S	100 YEAR 24 HR STORM, EXISTING CONDITIONS										
	RAINFALL TYPE= 2										RAIN24= 2.660
*S	COMPUTE HYD FOR BASIN 20101, FLOW INTO SNOW VISTA POND,										
*S	THAT WAS NOT MODELED BY EASTERLING.										
	SEDIMENT BULK										PK BF = 1.16
*S	REVISED SB 20101 TO 20101A DELETED AREA EAST OF 106TH STREET										
COMPUTE NM HYD	E20101A	-	1	.27106	195.27	12.035	.83249	1.700	1.126	PER IMP=	14.00
DIVIDE HYD	201.INL	1	6	.13472	86.10	5.982	.83249	1.700	.999		
	201.SWL	AND	3	.13634	109.17	6.053	.83249	1.700	1.251		
	SEDIMENT BULK										PK BF = 1.16
*S	REVISED SB 20104 TO 20104, DELETED AREA EAST OF 106TH STREET										
COMPUTE NM HYD	E20104A	-	2	.01910	14.06	.532	.52229	1.550	1.150	PER IMP=	.00
ADD HYD	E20104.1	2& 3	4	.15544	119.51	6.585	.79437	1.700	1.201		
*S	BEGIN EASTERLING OFFSITE WATERSHED										
COMPUTE NM HYD	E20102	-	2	.04510	56.15	1.749	.72724	1.500	1.945	PER IMP=	6.00
SED WASH LOAD	E20102	2								WASH CONC. (PPM-w) =	41687
ROUTE	E20102.1	2	10	.04510	47.65	1.749	.72725	1.600	1.651		
COMPUTE NM HYD	E20103	-	3	.04940	50.00	1.448	.54959	1.500	1.581	PER IMP=	1.00
*S	COMPUTE SEDIMENT WASH LOAD FOR BASIN 20103										
SED WASH LOAD	E20103	3								WASH CONC. (PPM-w) =	50848
ADD HYD	E20103.1	3&10	11	.09450	94.70	3.197	.63437	1.550	1.566		
ROUTE	E20103.2	11	10	.09450	84.91	3.197	.63438	1.600	1.404		
SEDIMENT TRANSP	E20103.1	11									
				SED ID = 1			PEAK CONC. (PPM-w) =	413317	TOTAL SED. (TONS) =	1994.42	
*S	ADD SB 20101A, 20104A, 20102, 20103										
ADD HYD	E20103.1	4&10	11	.24994	200.67	9.783	.73387	1.650	1.254		
ROUTE RESERVOIR	E20103.3	11	5	.24994	73.56	9.789	.73435	2.000	.460	AC-FT=	3.484
ADD HYD	E20103.1	5& 6	4	.38466	152.67	15.770	.76872	1.700	.620		
COMPUTE NM HYD	180A	-	1	.03040	80.16	3.352	2.06771	1.500	4.120	PER IMP=	60.00

ROUTE RESERVOIR	180.10	1	2	.03040	25.10	3.353	2.06807	1.800	1.290	AC-FT=	.974
ADD HYD	E20103.1	2& 4	3	.41506	177.77	19.123	.86389	1.700	.669		
ROUTE	E20103.4	3	10	.41506	177.73	19.124	.86389	1.750	.669		
ROUTE RESERVOIR	POND.OUT	10	50	.41506	148.51	19.054	.86075	2.050	.559	AC-FT=	3.736
*S HYD NO. POND.OUT IS ***** AP 21 *****											
*S BEGIN EASTERLING ONSITE WATERSHED											
COMPUTE NM HYD	E20201	-	2	.00920	23.97	1.010	2.05917	1.500	4.071	PER IMP=	61.00
ADD HYD	E20201.1	50& 2	10	.42426	153.51	20.064	.88674	2.000	.565		
ROUTE	E20201.2	10	11	.42426	153.46	20.064	.88672	2.000	.565		
COMPUTE NM HYD	E20202	-	2	.00800	20.84	.879	2.05917	1.500	4.071	PER IMP=	61.00
ADD HYD	E20202.1	11& 2	10	.43226	157.81	20.942	.90841	2.000	.570		
ROUTE	E20202.2	10	11	.43226	157.73	20.942	.90840	2.000	.570		
COMPUTE NM HYD	E20203	-	2	.00940	24.49	1.032	2.05917	1.500	4.071	PER IMP=	61.00
ADD HYD	E20203.1	11& 2	10	.44166	162.84	21.975	.93289	2.000	.576		
ROUTE	E20203.2	10	11	.44166	162.79	21.974	.93288	2.000	.576		
COMPUTE NM HYD	E20204	-	2	.01450	37.77	1.592	2.05917	1.500	4.070	PER IMP=	61.00
ADD HYD	E20204.1	11& 2	10	.45616	170.68	23.566	.96868	2.000	.585		
COMPUTE NM HYD	E20205	-	2	.00220	5.85	.233	1.98378	1.500	4.155	PER IMP=	50.00
ADD HYD	E20205.1	10& 2	11	.45836	171.84	23.799	.97355	2.000	.586		
COMPUTE NM HYD	E20206	-	2	.01570	39.45	1.673	1.99855	1.500	3.926	PER IMP=	60.00
ROUTE	E20206.1	2	15	.01570	37.59	1.673	1.99858	1.550	3.741		
COMPUTE NM HYD	E20207	-	2	.01020	23.91	.976	1.79429	1.500	3.662	PER IMP=	50.00
ADD HYD	E20207.1	15& 2	16	.02590	61.31	2.650	1.91809	1.500	3.699		
DIVIDE HYD	E20207.2	16	15	.01972	30.75	2.017	1.91809	1.500	2.437		
	E20207.3	AND	3	.00618	30.56	.632	1.91809	1.500	7.727		
ROUTE	E20207.4	3	16	.00618	28.19	.632	1.91817	1.550	7.128		
COMPUTE NM HYD	E20208	-	2	.00220	6.29	.282	2.40707	1.500	4.467	PER IMP=	80.00
ADD HYD	E20208.1	16& 2	17	.00838	33.72	.915	2.04640	1.550	6.287		
*S HYD=E20208.2 IS THE FLOW IN SNOW VISTA CHANNEL AT TOWER ROAD											
ADD HYD	E20208.2	17&11	10	.46674	173.80	24.714	.99281	2.000	.582		
ROUTE	E20208.3	10	30	.46674	173.92	24.713	.99277	2.000	.582		
ROUTE	E20207.5	15	17	.01972	30.66	2.017	1.91813	1.550	2.429		
COMPUTE NM HYD	E20301	-	2	.01550	36.32	1.483	1.79429	1.500	3.661	PER IMP=	50.00
ADD HYD	E20301.1	17& 2	15	.03522	64.23	3.501	1.86360	1.500	2.849		
ROUTE	E20207.6	15	16	.03522	64.46	3.501	1.86362	1.550	2.860		
ROUTE	E20301.2	16	12	.03522	64.84	3.501	1.86362	1.550	2.877		
ROUTE	E20301.3	12	15	.03522	64.93	3.501	1.86362	1.550	2.881		
COMPUTE NM HYD	E20302	-	2	.04830	113.15	4.622	1.79429	1.500	3.660	PER IMP=	50.00
ADD HYD	E20302.1	15& 2	16	.08352	174.32	8.123	1.82351	1.500	3.261		
ROUTE	E20302.2	16	15	.08352	173.92	8.123	1.82352	1.500	3.254		
ROUTE	E20302.3	15	16	.08352	171.52	8.123	1.82352	1.550	3.209		
COMPUTE NM HYD	E20303	-	2	.02080	48.74	1.990	1.79429	1.500	3.661	PER IMP=	50.00
ADD HYD	E20303.1	16& 2	20	.10432	219.05	10.113	1.81768	1.500	3.281		
*S BEGIN RYALS OFFSITE FLOW											
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20304	-	1	.03141	30.80	.875	.52229	1.500	1.532	PER IMP=	.00
ROUTE	E20304.5	1	3	.03141	21.56	.875	.52234	1.600	1.072		
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20305	-	4	.00170	2.33	.070	.77297	1.500	2.142	PER IMP=	.00
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20306	-	2	.01500	14.71	.418	.52229	1.500	1.533	PER IMP=	.00

ADD HYD	E20306.1	2& 3	1	.04641	33.34	1.293	.52231	1.600	1.122		
ADD HYD	E20306.2	1& 4	3	.04811	35.33	1.363	.53116	1.600	1.147		
*S USE L FROM MID POINT OF BASIN TO MIDPOINT OF NEXT											
ROUTE	E20306.5	3	2	.04811	28.96	1.363	.53118	1.650	.940		
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20307	-	3	.02938	28.81	.818	.52229	1.500	1.532	PER IMP=	.00
ADD HYD	E20307.1	2& 3	1	.07749	50.93	2.181	.52780	1.600	1.027		
*S HYD 20307.5 = INTO TANAGER POND *LOCATION* FROM NORTH											
ROUTE	E20307.5	1	4	.07749	48.75	2.181	.52781	1.600	.983		
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20308	-	3	.06688	65.73	1.863	.52229	1.500	1.536	PER IMP=	.00
*S HYD 20309=COA SATELLITE: ASSUME 10 CFS CLEAN & NON-ERSOIVE; REAL 1993 0.5+-											
STORE HYD	E20309	-	2	.07516	.51	.112	.02786	.400	.011		
*S HYD 20309.1 = INTO TANAGER POND LOCATION FROM WEST (20308+20309 (COA SATELLIT											
ADD HYD	E20309.1	2& 3	1	.14204	66.24	1.975	.26067	1.500	.729		
ADD HYD	E20309.2	1& 4	5	.21953	109.35	4.156	.35496	1.550	.778		
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20310	-	1	.07109	70.02	1.980	.52229	1.500	1.539	PER IMP=	.00
ROUTE	E20310.5	1	2	.07109	70.82	1.980	.52231	1.500	1.557		
*S HYD 20310.1 = AP 2 IN = TANAGER POND IN											
ADD HYD	E20310.1	2& 5	3	.29062	179.49	6.136	.39589	1.550	.965		
*S HYD 20310.8 = AP2 OUT = TANAGER POND OUT (CURVE FROM RYALS)											
ROUTE RESERVOIR	E20310.8	3	4	.29062	22.88	6.136	.39589	2.100	.123	AC-FT=	3.882
ROUTE	E20310.6	4	2	.29062	22.83	6.136	.39590	2.300	.123		
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20311	-	3	.01031	10.12	.287	.52229	1.500	1.533	PER IMP=	.00
ADD HYD	E20311.1	2& 3	1	.30093	23.90	6.423	.40022	1.600	.124		
*S BEGIN EASTERLING'S MODEL OF RYALS ONSITE FLOWS											
ROUTE	E20207.3	1	12	.30093	23.94	6.423	.40023	1.650	.124		
ROUTE	E20207.4	12	11	.30093	24.04	6.423	.40023	1.650	.125		
ADD HYD	E20303.2	20&11	17	.40525	235.07	16.536	.76511	1.550	.906		
ROUTE	E20303.3	17	16	.40525	235.94	16.537	.76511	1.550	.910		
COMPUTE NM HYD	E20312	-	2	.00670	13.92	.489	1.36764	1.500	3.246	PER IMP=	25.00
*S THIS IS THE TOTAL FLOW INTO THE EXISTING RUNDOWN CHANNEL FROM ORGINAL											
*S 1980'S GORDON HERKENHOFF DESIGN.											
ADD HYD	E20313.4	16& 2	3	.41195	248.60	17.025	.77491	1.550	.943		
COMPUTE NM HYD	E20313	-	2	.01830	42.88	1.751	1.79429	1.500	3.661	PER IMP=	50.00
ROUTE RESERVOIR	E20313.1	2	5	.01830	7.26	1.751	1.79427	2.050	.620	AC-FT=	.912
ADD HYD	E20208.3	5&30	10	.48504	181.15	26.464	1.02300	2.000	.584		
ROUTE	E20303.4	10	12	.48504	181.24	26.464	1.02299	2.000	.584		
*S HYD NO. E20303.1 IS ***** AP 22 *****											
ADD HYD	E20303.1	12& 3	20	.89699	408.72	43.489	.90906	1.550	.712		
ROUTE	E20303.5	20	11	.89699	411.52	43.488	.90905	1.550	.717		
*S COMPUTE HYD FOR BASIN 20401											
SEDIMENT BULK										PK BF =	1.16
COMPUTE NM HYD	E20401	-	1	.12700	148.03	3.452	.50966	1.500	1.821	PER IMP=	.00
*S COMPUTE HYD FOR BASIN 20402											
SEDIMENT BULK										PK BF =	1.06
COMPUTE NM HYD	E20402	-	2	.07970	129.46	4.406	1.03660	1.500	2.538	PER IMP=	25.00
ADD HYD	E20402.1	1& 2	3	.20670	277.49	7.858	.71283	1.500	2.098		
*S HYD NO. E20402.2 IS ***** AP 22.1 *****											

ADD HYD	E20402.2	3&11	1	1.10369	643.49	51.347	.87230	1.550	.911	
ROUTE	E20402.5	1	2	1.10369	659.29	51.345	.87228	1.550	.933	
*S COMPUTE HYD FOR BASIN 20403										
COMPUTE NM HYD	E20403	-	4	.07660	191.56	7.687	1.88165	1.500	3.908	PER IMP= 61.00
*S HYD NO. E20403.1 IS ***** AP 22.2 *****										
ADD HYD	E20403.1	4&2	1	1.18029	812.41	59.033	.93779	1.500	1.075	
ROUTE	E20403.5	1	11	1.18029	823.18	59.032	.93778	1.550	1.090	
*S COMPUTE HYD FOR BASIN 20404										
SEDIMENT BULK										
COMPUTE NM HYD	E20404	-	7	.10300	183.66	6.852	1.24740	1.500	2.786	PK BF = 1.08 PER IMP= 36.00
*S COMPUTE HYD FOR BASIN 20405										
COMPUTE NM HYD	E20405	-	3	.34380	875.03	35.153	1.91716	1.500	3.977	PER IMP= 61.00
ADD HYD	E20405.1	7&3	2	.44680	1058.68	42.005	1.76276	1.500	3.702	
*S HYD NO. E20405.2 IS ***** AP 23 *****										
ADD HYD	E20405.2	2&11	4	1.62709	1864.73	101.037	1.16432	1.500	1.791	
ROUTE	E20405.5	4	2	1.62709	1850.08	101.037	1.16432	1.500	1.777	
ROUTE	E20405.6	2	3	1.62709	1817.61	101.035	1.16430	1.500	1.745	
ROUTE	E20405.7	3	4	1.62709	1801.47	101.035	1.16429	1.500	1.730	
*S COMPUTE HYD FOR BASIN 20501										
COMPUTE NM HYD	E20501	-	2	.03910	63.72	2.158	1.03465	1.500	2.546	PER IMP= 24.00
ADD HYD	E20501.1	2&4	3	1.66619	1865.19	103.192	1.16125	1.500	1.749	
ROUTE	E20501.5	3	4	1.66619	1838.32	103.189	1.16121	1.550	1.724	
*S COMPUTE HYD FOR BASIN 20502										
COMPUTE NM HYD	E20502	-	1	.07810	104.93	3.133	.75209	1.500	2.099	PER IMP= 12.00
ADD HYD	E20502.1	4&1	3	1.74429	1925.91	106.321	1.14289	1.550	1.725	
ROUTE	E20502.5	3	4	1.74429	1771.34	106.316	1.14283	1.600	1.587	
*S COMPUTE HYD FOR BASIN 20503										
COMPUTE NM HYD	E20503	-	1	.05156	56.47	1.359	.49417	1.500	1.711	PER IMP= .00
*S HYD NO. E20503.1 IS ***** AP 24 *****										
ADD HYD	E20503.1	4&1	2	1.79585	1814.83	107.675	1.12421	1.550	1.579	
ROUTE	SV100E1B.HYD	2	3	1.79585	1828.64	107.671	1.12416	1.600	1.591	
FINISH										

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
 INPUT FILE = SV100E1B.DAT

RUN DATE (MON/DAY/YR) =07/05/2001
 USER NO.= M_GOODWN.I01

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
START											TIME= .00
*S											
*S	SNOW VISTA WATERSHED										
*S											
*S											
*S	100-YR, 24-HR STORM WITH SEDIMENT.										
*S	FILE NAME : SV100E1B.DAT										
*S	BY: RICHARD STOCKTON AND TOM BLAINE										
*S	LAST REVISION: 05-15-96										
*S	100 YEAR 24 HR STORM, EXISTING CONDITIONS										
	RAINFALL TYPE= 2										RAIN24= 2.660
*S	COMPUTE HYD FOR BASIN 20101, FLOW INTO SNOW VISTA POND,										
*S	THAT WAS NOT MODELED BY EASTERLING.										
	SEDIMENT BULK										PK BF = 1.16
COMPUTE NM HYD	E20101	-	50	.29230	212.20	12.978	.83249	1.700	1.134	PER IMP=	14.00
*S	BEGIN EASTERLING OFFSITE WATERSHED										
COMPUTE NM HYD	E20102	-	2	.04510	56.15	1.749	.72724	1.500	1.945	PER IMP=	6.00
SED WASH LOAD	E20102	2								WASH CONC. (PPM-w) =	41687
ROUTE	E20102.1	2	10	.04510	47.65	1.749	.72725	1.600	1.651		
COMPUTE NM HYD	E20103	-	3	.04940	50.00	1.448	.54959	1.500	1.581	PER IMP=	1.00
*S	COMPUTE SEDIMENT WASH LOAD FOR BASIN 20103										
SED WASH LOAD	E20103	3								WASH CONC. (PPM-w) =	50848
ADD HYD	E20103.1	3&10	11	.09450	94.70	3.197	.63437	1.550	1.566		
ROUTE	E20103.2	11	10	.09450	84.91	3.197	.63438	1.600	1.404		
SEDIMENT TRANSP	E20103.1	11								PEAK CONC. (PPM-w) =	413317
ROUTE RESERVOIR	E20103.3	10	5	.09450	2.64	3.197	.63437	2.850	.044	AC-FT=	2.698
ROUTE	E20103.4	5	10	.09450	2.64	3.197	.63438	2.950	.044		
	SEDIMENT BULK										PK BF = 1.16
COMPUTE NM HYD	E20104	-	2	.03460	25.46	.964	.52229	1.550	1.150	PER IMP=	.00
ADD HYD	E20104.1	2&10	1	.12910	26.70	4.161	.60433	1.550	.323		
ADD HYD	SVPOND.1	1&50	10	.42140	232.82	17.139	.76259	1.700	.863		
ROUTE RESERVOIR	POND.OUT	10	50	.42140	167.32	17.066	.75933	1.900	.620	AC-FT=	3.986
*S	HYD NO. POND.OUT IS ***** AP 21 *****										
*S	BEGIN EASTERLING ONSITE WATERSHED										
COMPUTE NM HYD	E20201	-	2	.00920	23.97	1.010	2.05917	1.500	4.071	PER IMP=	61.00
ADD HYD	E20201.1	50& 2	10	.43060	174.20	18.076	.78710	1.850	.632		
ROUTE	E20201.2	10	11	.43060	174.30	18.076	.78708	1.900	.632		
COMPUTE NM HYD	E20202	-	2	.00800	20.84	.879	2.05917	1.500	4.071	PER IMP=	61.00
ADD HYD	E20202.1	11& 2	10	.43860	179.64	18.954	.81028	1.900	.640		
ROUTE	E20202.2	10	11	.43860	180.06	18.954	.81027	1.850	.641		
COMPUTE NM HYD	E20203	-	2	.00940	24.49	1.032	2.05917	1.500	4.071	PER IMP=	61.00
ADD HYD	E20203.1	11& 2	10	.44800	187.10	19.986	.83647	1.850	.653		
ROUTE	E20203.2	10	11	.44800	187.34	19.986	.83646	1.850	.653		
COMPUTE NM HYD	E20204	-	2	.01450	37.77	1.592	2.05917	1.500	4.070	PER IMP=	61.00

ADD HYD	E20204.1	11& 2	10	.46250	198.21	21.578	.87479	1.850	.670	
COMPUTE NM HYD	E20205	-	2	.00220	5.85	.233	1.98378	1.500	4.155	PER IMP= 50.00
ADD HYD	E20205.1	10& 2	11	.46470	199.89	21.811	.88004	1.850	.672	
COMPUTE NM HYD	E20206	-	2	.01570	39.45	1.673	1.99855	1.500	3.926	PER IMP= 60.00
ROUTE	E20206.1	2	15	.01570	37.59	1.673	1.99858	1.550	3.741	
COMPUTE NM HYD	E20207	-	2	.01020	23.91	.976	1.79429	1.500	3.662	PER IMP= 50.00
ADD HYD	E20207.1	15& 2	16	.02590	61.31	2.650	1.91809	1.500	3.699	
DIVIDE HYD	E20207.2	16	15	.01972	30.75	2.017	1.91809	1.500	2.437	
	E20207.3	AND	3	.00618	30.56	.632	1.91809	1.500	7.727	
ROUTE	E20207.4	3	16	.00618	28.19	.632	1.91817	1.550	7.128	
COMPUTE NM HYD	E20208	-	2	.00220	6.29	.282	2.40707	1.500	4.467	PER IMP= 80.00
ADD HYD	E20208.1	16& 2	17	.00838	33.72	.915	2.04640	1.550	6.287	
*S HYD=E20208.2 IS THE FLOW IN SNOW VISTA CHANNEL AT TOWER ROAD										
ADD HYD	E20208.2	17&11	10	.47308	203.91	22.725	.90070	1.850	.673	
ROUTE	E20208.3	10	30	.47308	202.70	22.724	.90065	1.850	.669	
ROUTE	E20207.5	15	17	.01972	30.66	2.017	1.91813	1.550	2.429	
COMPUTE NM HYD	E20301	-	2	.01550	36.32	1.483	1.79429	1.500	3.661	PER IMP= 50.00
ADD HYD	E20301.1	17& 2	15	.03522	64.23	3.501	1.86360	1.500	2.849	
ROUTE	E20207.6	15	16	.03522	64.46	3.501	1.86362	1.550	2.860	
ROUTE	E20301.2	16	12	.03522	64.84	3.501	1.86362	1.550	2.877	
ROUTE	E20301.3	12	15	.03522	64.93	3.501	1.86362	1.550	2.881	
COMPUTE NM HYD	E20302	-	2	.04830	113.15	4.622	1.79429	1.500	3.660	PER IMP= 50.00
ADD HYD	E20302.1	15& 2	16	.08352	174.32	8.123	1.82351	1.500	3.261	
ROUTE	E20302.2	16	15	.08352	173.92	8.123	1.82352	1.500	3.254	
ROUTE	E20302.3	15	16	.08352	171.52	8.123	1.82352	1.550	3.209	
COMPUTE NM HYD	E20303	-	2	.02080	48.74	1.990	1.79429	1.500	3.661	PER IMP= 50.00
ADD HYD	E20303.1	16& 2	20	.10432	219.05	10.113	1.81768	1.500	3.281	
*S BEGIN RYALS OFFSITE FLOW										
SEDIMENT BULK										
COMPUTE NM HYD	E20304	-	1	.03141	30.80	.875	.52229	1.500	1.532	PK BF = 1.16
ROUTE	E20304.5	1	3	.03141	21.56	.875	.52234	1.600	1.072	PER IMP= .00
SEDIMENT BULK										
COMPUTE NM HYD	E20305	-	4	.00170	2.33	.070	.77297	1.500	2.142	PK BF = 1.16
SEDIMENT BULK										
COMPUTE NM HYD	E20306	-	2	.01500	14.71	.418	.52229	1.500	1.533	PK BF = 1.16
ADD HYD	E20306.1	2& 3	1	.04641	33.34	1.293	.52231	1.600	1.122	PER IMP= .00
ADD HYD	E20306.2	1& 4	3	.04811	35.33	1.363	.53116	1.600	1.147	
*S USE L FROM MID POINT OF BASIN TO MIDPOINT OF NEXT										
ROUTE	E20306.5	3	2	.04811	28.96	1.363	.53118	1.650	.940	
SEDIMENT BULK										
COMPUTE NM HYD	E20307	-	3	.02938	28.81	.818	.52229	1.500	1.532	PK BF = 1.16
ADD HYD	E20307.1	2& 3	1	.07749	50.93	2.181	.52780	1.600	1.027	PER IMP= .00
*S HYD 20307.5 = INTO TANAGER POND *LOCATION* FROM NORTH										
ROUTE	E20307.5	1	4	.07749	48.75	2.181	.52781	1.600	.983	
SEDIMENT BULK										
COMPUTE NM HYD	E20308	-	3	.06688	65.73	1.863	.52229	1.500	1.536	PK BF = 1.16
*S HYD 20309=COA SATELLITE: ASSUME 10 CFS CLEAN & NON-ERSOIVE; REAL 1993 0.5+-										
STORE HYD	E20309	-	2	.07516	.51	.112	.02786	.400	.011	
*S HYD 20309.1 = INTO TANAGER POND LOCATION FROM WEST (20308+20309 (COA SATELLIT										
ADD HYD	E20309.1	2& 3	1	.14204	66.24	1.975	.26067	1.500	.729	
ADD HYD	E20309.2	1& 4	5	.21953	109.35	4.156	.35496	1.550	.778	

SEDIMENT BULK										
COMPUTE NM HYD	E20310	-	1	.07109	70.02	1.980	.52229	1.500	1.539	PK BF = 1.16
ROUTE	E20310.5	1	2	.07109	70.82	1.980	.52231	1.500	1.557	PER IMP= .00
*S HYD 20310.1 = AP 2 IN = TANAGER POND IN										
ADD HYD	E20310.1	2& 5	3	.29062	179.49	6.136	.39589	1.550	.965	
*S HYD 20310.8 = AP2 OUT = TANAGER POND OUT (CURVE FROM RYALS)										
ROUTE RESERVOIR	E20310.8	3	4	.29062	22.88	6.136	.39589	2.100	.123	AC-FT= 3.882
ROUTE	E20310.6	4	2	.29062	22.83	6.136	.39590	2.300	.123	
SEDIMENT BULK										
COMPUTE NM HYD	E20311	-	3	.01031	10.12	.287	.52229	1.500	1.533	PK BF = 1.16
ADD HYD	E20311.1	2& 3	1	.30093	23.90	6.423	.40022	1.600	.124	PER IMP= .00
*S BEGIN EASTERLING'S MODEL OF RYALS ONSITE FLOWS										
ROUTE	E20207.3	1	12	.30093	23.94	6.423	.40023	1.650	.124	
ROUTE	E20207.4	12	11	.30093	24.04	6.423	.40023	1.650	.125	
ADD HYD	E20303.2	20&11	17	.40525	235.07	16.536	.76511	1.550	.906	
ROUTE	E20303.3	17	16	.40525	235.94	16.537	.76511	1.550	.910	
COMPUTE NM HYD	E20312	-	2	.00670	13.92	.489	1.36764	1.500	3.246	PER IMP= 25.00
*S THIS IS THE TOTAL FLOW INTO THE EXISTING RUNDOWN CHANNEL FROM ORGINAL										
*S 1980'S GORDON HERKENHOFF DESIGN.										
ADD HYD	E20313.4	16& 2	3	.41195	248.60	17.025	.77491	1.550	.943	
COMPUTE NM HYD	E20313	-	2	.01830	42.88	1.751	1.79429	1.500	3.661	PER IMP= 50.00
ROUTE RESERVOIR	E20313.1	2	5	.01830	7.26	1.751	1.79427	2.050	.620	AC-FT= .912
ADD HYD	E20208.3	5&30	10	.49138	209.55	24.475	.93393	1.850	.666	
ROUTE	E20303.4	10	12	.49138	210.03	24.475	.93392	1.900	.668	
*S HYD NO. E20303.1 IS ***** AP 22 *****										
ADD HYD	E20303.1	12& 3	20	.90333	407.21	41.500	.86140	1.550	.704	
ROUTE	E20303.5	20	11	.90333	410.12	41.500	.86139	1.550	.709	
*S COMPUTE HYD FOR BASIN 20401										
SEDIMENT BULK										
COMPUTE NM HYD	E20401	-	1	.12700	148.03	3.452	.50966	1.500	1.821	PK BF = 1.16
*S COMPUTE HYD FOR BASIN 20402										
SEDIMENT BULK										
COMPUTE NM HYD	E20402	-	2	.07970	129.46	4.406	1.03660	1.500	2.538	PK BF = 1.06
ADD HYD	E20402.1	1& 2	3	.20670	277.49	7.858	.71283	1.500	2.098	PER IMP= 25.00
*S HYD NO. E20402.2 IS ***** AP 22.1 *****										
ADD HYD	E20402.2	3&11	1	1.11003	642.08	49.358	.83373	1.550	.904	
ROUTE	E20402.5	1	2	1.11003	658.11	49.357	.83371	1.550	.926	
*S COMPUTE HYD FOR BASIN 20403										
COMPUTE NM HYD	E20403	-	4	.07660	191.56	7.687	1.88165	1.500	3.908	PER IMP= 61.00
*S HYD NO. E20403.1 IS ***** AP 22.2 *****										
ADD HYD	E20403.1	4& 2	1	1.18663	811.88	57.044	.90135	1.500	1.069	
ROUTE	E20403.5	1	11	1.18663	822.09	57.043	.90135	1.550	1.082	
*S COMPUTE HYD FOR BASIN 20404										
SEDIMENT BULK										
COMPUTE NM HYD	E20404	-	7	.10300	183.66	6.852	1.24740	1.500	2.786	PK BF = 1.08
*S COMPUTE HYD FOR BASIN 20405										
COMPUTE NM HYD	E20405	-	3	.34380	875.03	35.153	1.91716	1.500	3.977	PER IMP= 61.00
ADD HYD	E20405.1	7& 3	2	.44680	1058.68	42.005	1.76276	1.500	3.702	
*S HYD NO. E20405.2 IS ***** AP 23 *****										
ADD HYD	E20405.2	2&11	4	1.63343	1864.25	99.049	1.13697	1.500	1.783	
ROUTE	E20405.5	4	2	1.63343	1849.63	99.048	1.13697	1.500	1.769	

ROUTE	E20405.6	2	3	1.63343	1817.23	99.047	1.13695	1.500	1.738	
ROUTE	E20405.7	3	4	1.63343	1801.11	99.046	1.13694	1.500	1.723	
*S COMPUTE HYD FOR BASIN 20501										
COMPUTE NM HYD	E20501	-	2	.03910	63.72	2.158	1.03465	1.500	2.546	PER IMP= 24.00
ADD HYD	E20501.1	2& 4	3	1.67253	1864.83	101.204	1.13455	1.500	1.742	
ROUTE	E20501.5	3	4	1.67253	1837.67	101.200	1.13451	1.550	1.717	
*S COMPUTE HYD FOR BASIN 20502										
COMPUTE NM HYD	E20502	-	1	.07810	104.93	3.133	.75209	1.500	2.099	PER IMP= 12.00
ADD HYD	E20502.1	4& 1	3	1.75063	1925.25	104.333	1.11745	1.550	1.718	
ROUTE	E20502.5	3	4	1.75063	1770.60	104.327	1.11739	1.600	1.580	
*S COMPUTE HYD FOR BASIN 20503										
COMPUTE NM HYD	E20503	-	1	.05156	56.47	1.359	.49417	1.500	1.711	PER IMP= .00
*S HYD NO. E20503.1 IS ***** AP 24 *****										
ADD HYD	E20503.1	4& 1	2	1.80219	1814.40	105.686	1.09956	1.550	1.573	
ROUTE	SV100E1B.HYD	2	3	1.80219	1828.07	105.681	1.09951	1.600	1.585	
FINISH										

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START                0.0 HOURS   PC=0   PL=-1
*S
*S      SNOW VISTA WATERSHED (INTERIM CONDITIONS)
*S
*S
*S 100-YR, 24-HR STORM WITH SEDIMENT
*S LAST REVISION 9-7-01 INCLUDES 106TH STORM SEWER AND SPLIT FLOW BETWEEN
*S 5'5 MEDIAN DROP INLET AND TEMP.SWALE INTERCEPTION AND
*S REVISED 106TH ST OFFSITE DETENTION POND OUTFALL (24"RCP)
*S LAST REVISION 7-6-01 DLH MARK GOODWIN & ASSOCIATES
*S NEW FILE NAME: SV100ER.DAT (EXISTING CONDITIONS REVISED SUBASIN 20101 TO 20101A
*S AND SUBASIN 20104 TO 20104A
*S
*S OLD FILE NAME : SV100E1B.DAT (existing conditions)
*S BY: RICHARD STOCKTON AND TOM BLAINE      PEER REVIEWED BY: CLINT DODGE
*S LAST REVISION: 05-15-96
*****
* THE PURPOSE OF THIS MODEL IS TO CALCULATE THE RUNOFF TO THE SNOW VISTA POND
* AND THE CHANNEL FOR THE EXISTING CONDITIONS AMAFCA IS CONCERNED
* WITH THE CAPACITY OF BOTH THE POND AND THE CHANNEL. MODELS BY
* EASTERLING AND ASSOCIATES AND RYLES AND ASSOCIATES WERE USED IN THE
* CONSTRUCTION OF THIS MODEL.
*****
***** ANALYSIS ASSUMPTIONS:*****
*****
* BASINS THAT CONTRIBUTE FLOW TO THE SNOW VISTA CHANNEL ARE ASSUMED TO BE IN
* THE EXISTING CONDITION BASED ON THE AERIAL PHOTO DATED NOVEMBER 07, 1995.
*****
* SUBSEQUENT USERS OF THIS MODEL ASSUME FULL RESPONSIBILITY TO VERIFY THE
* VALIDITY, CURRENCY, AND PROPRIETY OF THE ASSUMPTIONS UPON WHICH THIS MODEL
* WAS CONSTRUCTED.
*****
*S 100 YEAR 24 HR STORM, EXISTING CONDITIONS
RAINFALL      TYPE=2  0.0  1.87  2.20  2.66      DT=0.0500
* 10 YEAR 24 HR STORM, EXISTING CONDITIONS
**RAINFALL    TYPE=2  0.0  1.25  1.47  1.77      DT=0.0500
* 2 YEAR 24 HR STORM, EXISTING CONDITIONS
**RAINFALL    TYPE=2  0.0  0.74  0.95  1.15      DT=0.0500
*
*****
* THE RUNOFF FOR BASIN 20101 IS CALCULATED ASSUMING THAT THERE IS ONE BASIN
* AND NO SUB-BASINS. TIME OF CONCENTRATION IS CALCULATED USING THE SCS
* UPLAND METHOD.
*  $T_p = 2/3 T_c = 2/3 (0.46) = 0.31$ 
* THERE ARE SEVERAL SMALL AREAS THAT ARE DEVELOPED. THE AREA WAS CALCULATED USING
* AREIAL PHOTOGRAPHS. THE TOTAL AREA OF LAND TREATMENT "D" IS 34.9 ACRES.
* THE TOTAL AREA OF THE BASIN IS 187.1 ACRES (0.2923 SQ MI).
* BULKING FACTORS WERE CALCULATED FROM BASINS 20102 AND 20103. THE CALCULATED
* BULKING FACTOR WAS THEN DISTRIBUTED THROUGH OUT THE WATERSHED TO APPLICABLE
* BASINS.
*****
*
*S COMPUTE HYD FOR BASIN 20101, FLOW INTO SNOW VISTA POND,
*S THAT WAS NOT MODELED BY EASTERLING.
*
SEDIMENT BULK      CODE=1  BF=1.16
*S REVISED SB 20101 TO 20101A DELETED AREA EAST OF 106TH STREET
COMPUTE NM HYD      ID=1  HYD=E20101A  DA=0.27106 SQ MI
                   %A=86 %B=0 %C=0 %D=14 TP=0.31
                   MASS RAINFALL=-1
PRINT HYD          ID=1 CODE=1
DIVIDE HYD          ID=1 CODE=999 ID=6  HYD NO=201.INL
                   ID=3  HYD NO=201.SWL
                   TOTAL FLOW      DIVIDE FLOW
                   37              21.0
                   125             60.0
                   195             86.0

PRINT HYD          ID=6 CODE=1
PRINT HYD          ID=3 CODE=1
** COMPUTE BULKED HYDROGRAPH FOR BASIN 20104
SEDIMENT BULK      CODE=1  BF=1.16

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*S REVISED SB 20104 TO 20104, DELETED AREA EAST OF 106TH STREET
COMPUTE NM HYD      ID=2  HYD=E20104A  DA==0.0191 SM
                    %A=97  %B=0.0  %C=3.0 %D=0.0 TP=0.1855
                    MASS RAINFALL=-1
PRINT HYD           ID=2  CODE=1
*ADD SB 20101A & 20104A
ADD HYD             ID=4  HYD=E20104.1  I=2 II=3
PRINT HYD           ID=4  CODE=1
*****
*S BEGIN EASTERLING OFFSITE WATERSHED
*****
COMPUTE NM HYD      ID=2  HYD=E20102  DA=0.0451
                    A=77  B=0  C=17  D=6 TP=0.1333
                    MASS RAIN=-1
PRINT HYD           ID=2  CODE=1
SED WASH LOAD       ID=2  K=0.17  C=0.20  P=1.0  LS=0.87
                    IMPERV=6.0  WASH LF=3.0
** ROUTE THE FLOW FROM BASIN 20102 DOWN THE EXISTING ARROYO FROM THE WEST LINE
** OF BASIN 20103 TO A POINT 500' WEST OF 106TH STREET
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT  MAXIMUM ELEV=107.0 FT
                    CHANNEL SLOPE=0.032  FLOOD PLAIN SLOPE=0.032
                    N=0.030  DIST=36
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0    107      14    100      24    100      36    107
COMPUTE TRAVEL TIME ID=10  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=1750 FT  SLOPE=0.032
ROUTE              ID=10  HYD=E20102.1  INFLOW ID=2  DT=0.0
PRINT HYD          ID=10  CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20103
COMPUTE NM HYD      ID=3  HYD=E20103  DA==0.0494 SM
                    %A=95  %B=0.0  %C=4.0 %D=1.0 TP=0.1333
                    MASS RAINFALL=-1
PRINT HYD           ID=3  CODE=1
*S COMPUTE SEDIMENT WASH LOAD FOR BASIN 20103
SED WASH LOAD       ID=3  SOIL  K=0.17  CROP=.20
                    EROSION PRACTICE P=1.0  LS=1.00
                    PERCENT IMPERVIOUS=1.1  WASH LOAD FACTOR=3.0
** ADD THE ROUTED FLOW FROM BASIN 20102 TO THE FLOW FROM BASIN 20103 AT A POINT
** IN THE ARROYO LOCATED 500 LF WEST OF 106TH STREET
ADD HYD             ID=11  HYD=E20103.1  ID I=3  ID II=10
PRINT HYD           ID=11  CODE=1
** ROUTE THE COMBINED FLOW DOWN THE ARROYO TO THE PROPOSED SEDIMENTATION BASIN
** TO BE LOCATED AT THE SOUTH EAST CORNER OF BASIN 20103. USE AVERAGE CONDITIONS.
COMPUTE RATING CURVE CID=1  VALLEY SECTION=1  NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT  MAXIMUM ELEV=106.0 FT
                    CHANNEL SLOPE=0.024  FLOOD PLAIN SLOPE=0.024
                    N=0.030  DIST=40
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0    106      14    100      26    100      40    106
COMPUTE TRAVEL TIME ID=10  REACH NO=1  VALLEY SECTIONS=1
                    LENGTH=1750 FT  SLOPE=0.032
ROUTE              ID=10  HYD=E20103.2  INFLOW ID=11  DT=0.0
PRINT HYD          ID=10  CODE=1
** COMPUTE SEDIMENT TRANSPORT FOR THE ARROYO IN THE 1750 LF REACH ABOVE THE
** PROPOSED SEDIMENTATION BASIN.
** USE COMPOSITE WASH LOAD CONCENTRATION FROM BASINS 20102 AND 20103
SEDIMENT TRANS      ID=11  IDS=1  CODE=10
                    A FACTOR= 0.0022  B EXP= 3.4
                    C EXP= 0.80  D EXP=-2.4  NUMBER WASH = 1
                    WASH CONC=44112 PPM  CID = -1
*S ADD SB 20101A, 20104A, 20102, 20103
ADD HYD             ID=11  HYD=E20103.1  ID I=4  ID II=10
PRINT HYD           ID=11  CODE=1
** X-ROUTE THE COMBINED FLOW THROUGH THE PROPOSED SEDIMENTATION BASIN TO BE
** X-LOCATED IN THE SOUTH EAST CORNER OF BASIN 20103. STAGE STORAGE DISCHARGE
** X-CURVE IS PRELIMINARY. OUTFLOW ASSUMED TO BE CONTROLLED BY A 6" DIA.
** X-ORIFICE. POND VOLUME IS ASSUMED TO BE 4.21 ac ft AT 8' DEPTH
** X-0.9095 ac ft OF THIS VOLUME IS REQUIRED FOR SEDIMENT STORAGE AND THUS
** X-IS EXCLUDED FROM THE STORAGE CURVE
**

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** REVISED 7-12-01 DMG ROUTE COMBINED FLOW THROUGH AN EXISTING TEMPORARY
 ** SEDIMENTATION POND. LOWER ELEVATION OF 30" STAND PIPE
 ** USE EXISTING 24"SD OUTFALL STRUCTURE.
 ** RATING TABLE HAS BEEN REVISED TO REFLECT PROPOSED CONDITIONS WITH
 ** EXISTING POND CONFIGURATION FOR THE INTERIM CONDITION
 ** Qmax=90 cfs INTERCEPTED AT UPSTREAM FEMA ARROYO

ROUTE RESERVOIR	ID=5 HYD=E20103.3	INFLOW ID=11	CODE=24
	OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
	0	0.00	5234.7
	42.0	0.01	5238
	47.0	0.151	5238.5
	50.5	0.303	5239
	54.0	0.605	5240
	59.5	1.059	5241.5
	60.5	1.212	5242
	66.0	1.977	5244
	72.0	3.096	5246
	76.5	4.214	5248

PRINT HYD ID=5 CODE=1
 ** ADD FLOW FROM DETENTION POND TO FLOW IN 60" SD IN 106TH STREET

ADD HYD ID=4 HYD=E20103.1 ID I=5 ID II=6
 PRINT HYD ID=4 CODE=1

** ADD SUNRISE RANCH WEST SUBDIVISION HYDROGRAPH TO 60" STORM SEWER IN EUCARIZ
 ** (REV.7-9-01) COMPUTE HYDROGRAPH FOR BASIN 180A THE WATERSHED E OF 106TH STREET,
 ** S. OF SUNSET GARDENS, N. OF EUCARIZ CORRIDOR, SINGLE FAMILY RESIDENTIAL
 COMPUTE NM HYD ID=1 HYD=180A DA=0.03040 SM

%A=0 %B=20.0 %C=20.0 %D=60.0 TP=0.13333

MASS RAINFALL=-1

PRINT HYD ID=1 CODE=1

** USE A ROUTE RESERVOIR ROUTINE TO SIMULATE CONTROLLED DISCHARGE
 ** ASSUMED ALLOWABLE DISCHARGE Q=25.1

ROUTE RESERVOIR	ID=2 HYDROGRAPH NO=180.1	INFLOW ID=1	CODE=24
	OUTFLOW(cfs)	STORAGE(ac ft)	ELEV(ft)
	0.	0.0	100.
	25.09	0.01	100.1
	25.10	1.00	105.

PRINT HYD ID=3 CODE=1
 ** ADD FLOW SUNRISE RANCH WEST AND OUTFLOW FROM 106TH ST POND AND 106TH ST STORM SEWER

ADD HYD ID=3 HYD=E20103.1 ID I=2 ID II=4
 PRINT HYD ID=3 CODE=1

** OUTFLOW FROM THE POND IS ROUTED THROUGH THE EXISTING 60" DIA STORM
 ** NORTH OF THE ONSITE AREA TO THE SNOW VISTA CHANNEL POND.

COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.01 DIA=5 N=0.014
 COMPUTE TRAVEL TIME ID=10 R NO=1 VS=1 L=1200 SLP=0.01
 ROUTE ID=10 HYD=E20103.4 INFLOW=3
 PRINT HYD ID=10 CODE=1

ROUTE RESERVOIR	ID=50 HYD=POND.OUT	INFLOW ID=10	CODE=24
	CFS OUT	VOL AC-FT	ELEV FT
	0	0	10.0
	1.7	0.54	11.0
	34	1.79	12.0
	112	3.25	13.0
	230	4.82	14.0
	393	6.51	15.0
	604	8.29	16.0

PRINT HYD ID=50 CODE=1
 *S HYD NO. POND.OUT IS ***** AP 21 *****

 *S BEGIN EASTERLING ONSITE WATERSHED

 ** ASSUME FREE DISCHARGE TO THE CHANNEL IS PREFERABLE DUE TO THE CLOSE
 ** PROXIMITY TO THE CHANNEL

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** COMPUTE HYDROGRAPH FOR BASIN 20201 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
** ACRE RESIDENTIAL DEVELOPMENT
COMPUTE NM HYD      ID=2  HYD=E20201  DA=0.0092 SM
                    %A=0.0  %B=27.0  %C=12.0 %D=61.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20201 TO THE FLOW IN THE SNOW VISTA CHANNEL NEAR
** THE HEAD OF THE SNOW VISTA CHANNEL
ADD HYD            ID=10  HYD=E20201.1 ID I=50  ID II=2
PRINT HYD          ID=10 CODE=1
** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM THE HEAD TO
** A POINT 500LF SOUTH.
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=105.0 FT
                    CHANNEL SLOPE=0.0109 FLOOD PLAIN SLOPE=0.0109
                    N=0.013 DIST=30
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0    105      10    100      20    100      30    105
COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=500 FT SLOPE=0.0109
ROUTE              ID=11 HYD=E20201.2 INFLOW ID=10 DT=0.0
PRINT HYD          ID=11 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20202 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
** ACRE RESIDENTIAL DEVELOPMENT
COMPUTE NM HYD      ID=2  HYD=E20202  DA==0.0080 SM
                    %A=0.0  %B=27.0  %C=12.0 %D=61.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20202 TO THE FLOW IN THE SNOW VISTA CHANNEL 500LF
** SOUTH OF THE HEAD OF THE CHANNEL
ADD HYD            ID=10  HYD=E20202.1 ID I=11  ID II=2
PRINT HYD          ID=10 CODE=1
** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM 500LF SOUTH OF
** THE HEAD OF THE CHANNEL TO A POINT 750 LF SOUTH OF THE HEAD
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=105.0 FT
                    CHANNEL SLOPE=0.0109 FLOOD PLAIN SLOPE=0.0109
                    N=0.013 DIST=30
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0    105      10    100      20    100      30    105
COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=250 FT SLOPE=0.0109
ROUTE              ID=11 HYD=E20202.2 INFLOW ID=10 DT=0.0
PRINT HYD          ID=11 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20203 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
** ACRE RESIDENTIAL DEVELOPMENT
COMPUTE NM HYD      ID=2  HYD=E20203  DA==0.0094 SM
                    %A=0.0  %B=27.0  %C=12.0 %D=61.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD          ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20203 TO THE FLOW IN THE SNOW VISTA CHANNEL AT A POINT
** 750 LF SOUTH OF THE HEAD OF THE CHANNEL
ADD HYD            ID=10  HYD=E20203.1 ID I=11  ID II=2
PRINT HYD          ID=10 CODE=1
** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM 750LF SOUTH OF
** THE HEAD OF THE CHANNEL TO TOWER ROAD
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=105.0 FT
                    CHANNEL SLOPE=0.0109 FLOOD PLAIN SLOPE=0.0109
                    N=0.013 DIST=30
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0    105      10    100      20    100      30    105
COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=350 FT SLOPE=0.0109
ROUTE              ID=11 HYD=E20203.2 INFLOW ID=10 DT=0.0
PRINT HYD          ID=11 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20204 SUNRISE TERRACE UNIT 1. ASSUME 6.5 DU PER
** ACRE RESIDENTIAL DEVELOPMENT
COMPUTE NM HYD      ID=2  HYD=E20204  DA==0.0145 SM
                    %A=0.0  %B=27.0  %C=12.0 %D=61.0 TP=0.13333
                    MASS RAINFALL=-1

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PRINT HYD ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20204 TO THE FLOW IN THE SNOW VISTA CHANNEL NEAR
** TOWER ROAD
ADD HYD ID=10 HYD=E20204.1 ID I=11 ID II=2
PRINT HYD ID=10 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20205 THE SNOW VISTA CHANNEL CORRIDOR NORTH
** OF TOWER ROAD
COMPUTE NM HYD ID=2 HYD=E20205 DA==0.0022 SM
%A=0.0 %B=0.0 %C=50.0 %D=50.0 TP=0.13333
MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20205 TO THE ROUTED FLOW IN THE SNOW VISTA CHANNEL
** AT TOWER ROAD
ADD HYD ID=11 HYD=E20205.1 ID I=10 ID II=2
PRINT HYD ID=11 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20206 THE NORTHWEST PORTION OF SUNRISE TERRACE
** UNIT 2 PHASE A-1 AND A PORTION OF 106TH STREET
COMPUTE NM HYD ID=2 HYD=E20206 DA==0.0157 SM
%A=0.0 %B=40.0 %C=0.0 %D=60.0 TP=0.13333
MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ASSUME MAJORITY OF THE FLOW REMAINS ON SOUTHWEST SIDE OF THE STREET. ROUTE
** THE FLOW DOWN 106TH STREET FROM Tanager Road TO THE EASEMENT CHANNEL
** FROM SUNRISE TERRACE UNIT 2 PHASE A-1. ROUTE IN ONE HALF STREET SECTION
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.67 FT
CHANNEL SLOPE=0.0298 FLOOD PLAIN SLOPE=0.0298
N=.013 DIST=2.16 N=-.017 DIST=38.16 N=.013 DIST=40.32
DIST ELEV DIST ELEV DIST ELEV DIST ELEV
0.0 0.67 0.16 0.00 2.16 0.13 20.16 0.42
38.16 0.13 40.16 0.00 40.32 0.67
COMPUTE TRAVEL TIME ID=15 REACH NO=1 VALLEY SECTIONS=1
LENGTH=520 FT SLOPE=0.0298
ROUTE ID=15 HYD=E20206.1 INFLOW ID=2 DT=0.0
PRINT HYD ID=15 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20207 THE PORTION OF SUNRISE TERRACE
** UNIT 2 PHASE A-1 THAT CONTRIBUTES FLOW TO THE EASEMENT CHANNEL LEADING
** TO 106TH STREET AND A PORTION OF 106TH STREET.
COMPUTE NM HYD ID=2 HYD=E20207 DA==0.0102 SM
%A=0.0 %B=50.0 %C=0.0 %D=50.0 TP=0.13333
MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20207 TO THE ROUTED FLOW IN 106TH STREET AT THE
** INTERSECTION WITH THE EASEMENT CHANNEL
ADD HYD ID=16 HYD=E20207.1 ID I=15 ID II=2
PRINT HYD ID=16 CODE=1
** ASSUME THAT THE PORTION OF THE FLOW IN 106TH STREET THAT EXCEEDS ONE HALF
** THE STREET CAPACITY WILL SPILL OVER INTO THE NORTHEAST HALF OF THE STREET
** HYD. 20207.2 = FLOW TO REMAIN ON THE SOUTH WEST SIDE OF THE STREET
** HYD. 20207.3 = FLOW TO SPILL OVER TO THE NORTHEAST SIDE OF THE STREET
DIVIDE HYD ID=16 CODE=999.0 ID=15 HYD=E20207.2 ID=3 HYD=E20207.3
TOTAL FLOW DIVIDED FLOW
5 4.9
21 20.9
46 22.0
60 30.0
PRINT HYD ID=15 CODE=1
PRINT HYD ID=3 CODE=1
** ROUTE THE FLOW ON THE NORTHEAST SIDE OF 106TH STREET DOWN TOWER BLVD TO THE
** SNOW VISTA CHANNEL. USE AVERAGE SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.67 FT
CHANNEL SLOPE=0.0298 FLOOD PLAIN SLOPE=0.0298
N=.013 DIST=2.16 N=-.017 DIST=38.16 N=.013 DIST=40.32
DIST ELEV DIST ELEV DIST ELEV DIST ELEV
0.0 0.67 0.16 0.00 2.16 0.13 20.16 0.42
38.16 0.13 40.16 0.00 40.32 0.67
COMPUTE TRAVEL TIME ID=16 REACH NO=1 VALLEY SECTIONS=1
LENGTH=950 FT SLOPE=0.0298
ROUTE ID=16 HYD=E20207.4 INFLOW ID=3 DT=0.0
PRINT HYD ID=16 CODE=1

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** COMPUTE HYDROGRAPH FOR BASIN 20208 THE PORTION OF TOWER BLVD EAST OF THE
** INTERSECTION WITH SANDPIPER DRIVE AND WEST OF THE SNOW VISTA CHANNEL
COMPUTE NM HYD      ID=2  HYD=E20208  DA==0.0022 SM
                    %A=0.0  %B=20.0  %C=0.0  %D=80.0  TP=0.13333
                    MASS RAINFALL=-1

PRINT HYD          ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20207 TO THE ROUTED FLOW IN TOWER BLVD. AT THE
** THE SNOW VISTA CHANNEL
ADD HYD            ID=17  HYD=E20208.1  ID I=16  ID II=2
PRINT HYD          ID=17 CODE=1
** ADD THE FLOW IN TOWER TO THE SNOW VISTA CHANNEL AT THE CHANNEL CROSSING
*S HYD=E20208.2 IS THE FLOW IN SNOW VISTA CHANNEL AT TOWER ROAD
ADD HYD            ID=10  HYD=E20208.2  ID I=17  ID II=11
PRINT HYD          ID=10 CODE=2
** ROUTE THE COMBINED FLOW DOWN THE SNOW VISTA CHANNEL FROM TOWER ROAD
** 500 FEET NORTH OF THE CONFLUENCE AT THE SECTION LINE. USE AVERAGE CHANNEL SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=105.5 FT
                    CHANNEL SLOPE=0.0105 FLOOD PLAIN SLOPE=0.0105
                    N=0.013 DIST=30
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0    105.5    10    100     20    100     30    105.5

COMPUTE TRAVEL TIME ID=30 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=1100 FT SLOPE=0.0105
ROUTE              ID=30 HYD=E20208.3 INFLOW ID=10 DT=0.0
PRINT HYD          ID=30 CODE=1
** ROUTE THE FLOW IN SANDPIPER ROAD FROM TOWER TO HERON ROAD. USE AVERAGE SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=3
                    MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.67 FT
                    CHANNEL SLOPE=0.0298 FLOOD PLAIN SLOPE=0.0298
                    N=.013 DIST=2.16 N=-.017 DIST=38.16 N=.013 DIST=42.32
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0.0  0.67    0.16  0.00    2.16  0.13    20.16  0.42
                    38.16 0.13    40.16 0.00    40.32 0.67

COMPUTE TRAVEL TIME ID=17 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=370 FT SLOPE=0.0298
ROUTE              ID=17 HYD=E20207.5 INFLOW ID=15 DT=0.0
PRINT HYD          ID=17 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20301 THE SOUTHEAST PORTION OF SUNRISE TERRACE
** UNIT 2 PHASE A-1 THAT DISCHARGES TO SANDPIPER DRIVE
COMPUTE NM HYD      ID=2  HYD=E20301  DA==0.0155 SM
                    %A=0.0  %B=50  %C=0.0  %D=50.0  TP=0.13333
                    MASS RAINFALL=-1

PRINT HYD          ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20301 TO THE ROUTED FLOW IN SANDPIPER DRIVE
ADD HYD            ID=15  HYD=E20301.1  ID I=17  ID II=2
PRINT HYD          ID=15 CODE=2
** ROUTE THE FLOW DOWN SANDPIPER DRIVE FROM HERON ROAD TO
** THE PROPOSED INLETS NORTH OF CONNEMARA AVENUE. USE AVERAGE SLOPE
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=5
                    MINIMUM ELEV=0.0 FT MAXIMUM ELEV=0.87 FT
                    CHANNEL SLOPE=0.014 FLOOD PLAIN SLOPE=0.014
                    N=0.030 DIST=9.0 N=-0.013 DIST=11 N=-0.017 DIST=39
                    N=0.013 DIST=41 N=0.030 DIST=50
                    DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
                    0.0  0.87    9.0  .67     9.16  0.0    11    0.13
                    25  0.28    37.0 .13     39.0  0.0    41.0  .67
                    50.0 0.87

COMPUTE TRAVEL TIME ID=16 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=200 FT SLOPE=0.014
ROUTE              ID=16 HYD=E20207.6 INFLOW ID=15 DT=0.0
PRINT HYD          ID=16 CODE=1
** FOR MODELING PURPOSES ASSUME ALL OF THE FLOW IN SANDPIPER IS INTERCEPTED
** BY THE PROPOSED SANDPIPER STORM DRAIN ABOVE THE INTERSECTION WITH CONNEMARA.
** ROUTE THE FLOW IN THE PROPOSED STORM DRAIN DOWN SANDPIPER TO PASO FINO PLACE.
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.008
                    PIPE DIA=36 N=0.013
COMPUTE TRAVEL TIME ID=12 REACH=1 NUMBER OF VALLEY SECTIONS=1
                    LENGTH=270 FT SLOPE=0.008
ROUTE              ID=12 HYD=E20301.2 INFLOW ID=16 DT=0.0
PRINT HYD          ID=12 CODE=1

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COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.011
    PIPE DIA=36 N=0.013
COMPUTE TRAVEL TIME ID=15 REACH=1 NUMBER OF VALLEY SECTIONS=1
    LENGTH=340 FT SLOPE=0.011
ROUTE ID=15 HYD=E20301.3 INFLOW ID=12 DT=0.0
PRINT HYD ID=15 CODE=1
** COMPUTE HYDROGRAPH FOR BASIN 20302 THE NORTH WEST PORTION OF SUNRISE TERRACE
** UNITS 3, 4, AND 5
COMPUTE NM HYD ID=2 HYD=E20302 DA==0.0483 SM
    %A=0.0 %B=50 %C=0.0 %D=50.0 TP=0.13333
    MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20302 TO THE SANDPIPER DR. S.D. FLOW AT THE
** INTERSECTION OF PASO FINO AND SANDPIPER DRIVE
ADD HYD ID=16 HYD=E20302.1 ID I=15 ID II=2
PRINT HYD ID=16 CODE=2
**ROUTE THE COMBINED FLOW DOWN THE PASO FINO STORM DRAIN FROM SANDPIPER TO
**HALTER DRIVE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.023
    PIPE DIA=48 N=0.013
COMPUTE TRAVEL TIME ID=15 REACH=1 NUMBER OF VALLEY SECTIONS=1
    LENGTH=360 FT SLOPE=0.023
ROUTE ID=15 HYD=E20302.2 INFLOW ID=16 DT=0.0
PRINT HYD ID=15 CODE=1
**ROUTE THE FLOW FROM THE PROPOSED PASO FINO STORM DRAIN DOWN THE PROPOSED
**HALTER DRIVE STORM DRAIN
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.006
    PIPE DIA=54 N=0.013
COMPUTE TRAVEL TIME ID=16 REACH=1 NUMBER OF VALLEY SECTIONS=1
    LENGTH=250 FT SLOPE=0.006
ROUTE ID=16 HYD=E20302.3 INFLOW ID=15 DT=0.0
PRINT HYD ID=16 CODE=1
** COMPUTE THE HYDROGRAPH FOR BASIN 20303. THE BASIN THAT CONTRIBUTES FLOW
** TO ANDLUSIAN AVENUE
COMPUTE NM HYD ID=2 HYD=E20303 DA==0.0208 SM
    %A=0.0 %B=50 %C=0.0 %D=50.0 TP=0.13333
    MASS RAINFALL=-1
PRINT HYD ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20303 TO THE FLOW IN THE PROPOSED HALTER STORM
** DRAIN AT THE INTERSECTION OF HALTER DR. & ANDALUSTAN AVE.
ADD HYD ID=20 HYD=E20303.1 ID I=16 ID II=2
PRINT HYD ID=20 CODE=2
*****
*S BEGIN RYALS OFFSITE FLOW
*****
SEDIMENT BULK CODE=1 BF=1.16
COMPUTE NM HYD ID=1 HYD=E20304 DA=0.03141 SQ MI
    PER A=97 B=0 C=3 D=0 TP=0.1333 HRS RAIN=-1
PRINT HYD ID=1 CODE=1
COMPUTE RATING CURVE CID=-1 VS NO=38 NO SEGS=1
    MIN EL=0 FT MAX EL=1 FT
    CH SLP= .037 FP SLP=.037 FT PER FT
    N END X
    .035 122
    DIST ELEV DIST ELEV DIST ELEV
    0 1 1 0 121 0 122 1
COMPUTE TRAVEL TIME ID=3 REACH=2 NO VS=1
    L=900 ft SLP=.037 ft/ft
ROUTE ID=3 HYD=E20304.5 INFLOW HYD ID=1 DT=0.0
*****
** BASIN 20305 = RYLA BASINS 353 354 AND 355
** COMPUTE HYDROGRAPH FOR BASIN 20305
SEDIMENT BULK CODE=1 BF=1.16
COMPUTE NM HYD ID=4 HYD=E20305 DA==0.0017 SM
    %A=50 %B=0.0 %C=50.0 %D=0.0 TP=0.1438
    MASS RAINFALL=-1
PRINT HYD ID=4 CODE=1
*****
SEDIMENT BULK CODE=1 BF=1.16
COMPUTE NM HYD ID=2 HYD=E20306 DA=0.01500 SQ MI
    PER A=97 B=0 C=3 D=0 TP=0.1333 HRS RAIN=-1

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PRINT HYD          ID=2  CODE=1
ADD HYD            ID=1  HYD=E20306.1  ID I=2  ID II=3
PRINT HYD          ID=1  CODE=1
ADD HYD            ID=3  HYD=E20306.2  I=1  II=4
PRINT HYD          ID=3  CODE=1
COMPUTE RATING CURVE CID=1  VS NO=32  NO SEGS=1
MIN EL=0          FT  MAX EL=5          FT
CH SLP=.001        FP SLP=.001          FT PER FT
N  END FT
.030  40
DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
0      5      15      0      25      0      40      5

*S USE L FROM MID POINT OF BASIN TO MIDPOINT OF NEXT
COMPUTE TRAVEL TIME ID=2  REACH=32 NO VS=1
L=600  ft      SLP=.001  ft/ft
ROUTE   ID=2  HYD=E20306.5  INFLOW HYD ID=3  DT=0.0
*****
SEDIMENT BULK      CODE=1  BF=1.16
COMPUTE NM HYD     ID=3  HYD=E20307 DA=0.02938 SQ MI
PER A=97 B=0      C=3    D=0      TP=0.1333 HRS RAIN=-1

PRINT HYD          ID=3  CODE=1
ADD HYD            ID=1  HYD=E20307.1  ID I=2  ID II=3
PRINT HYD          ID=1  CODE=1
COMPUTE RATING CURVE CID=1  VS NO=32  NO SEGS=1
MIN EL=0          FT  MAX EL=5          FT
CH SLP=.001        FP SLP=.001          FT PER FT
N  END FT
.030  40
DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
0      5      15      0      25      0      40      5

* USE L FROM MID-POINT OF BASIN TO MID-POINT OF NEXT
COMPUTE TRAVEL TIME ID=4  REACH=32 NO VS=1
L=250  ft      SLP=.001  ft/ft
*S HYD 20307.5 = INTO TANAGER POND *LOCATION* FROM NORTH
ROUTE   ID=4  HYD=E20307.5  INFLOW HYD ID=1  DT=0.0
*****
SEDIMENT BULK      CODE=1  BF=1.16
COMPUTE NM HYD     ID=3  HYD=E20308 DA=0.06688 SQ MI
PER A=97 B=0      C=3    D=0      TP=0.1333 HRS RAIN=-1

PRINT HYD          ID=3  CODE=1
*****
*S HYD 20309=COA SATELLITE: ASSUME 10 CFS CLEAN & NON-ERSOIVE; REAL 1993 0.5+-
STORE HYD          ID=2  HYD=E20309 DT=0.05 HR  DA=.07516 SQ MI
FLOW RATES CFS= (LEFT TO RIGHT, DOWN, LEFT TO RIGHT ...)
0      .00      .00      .00      .00      .00
.00     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51
.51     .51     .51     .51     .51     .51

*S HYD 20309.1 = INTO TANAGER POND LOCATION FROM WEST (20308+20309 (COA SATELLITE))
ADD HYD            ID=1  HYD=E20309.1  ID I=2  ID II=3
PRINT HYD          ID=1  CODE=1
ADD HYD            ID=5  HYD=E20309.2  ID I=1  ID II=4
PRINT HYD          ID=5  CODE=1
*****
SEDIMENT BULK      CODE=1  BF=1.16
COMPUTE NM HYD     ID=1  HYD=E20310 DA=.07109 SQ MI
PER A=97 B=0      C=3    D=0      TP=0.1333 HRS RAIN=-1

PRINT HYD          ID=1  CODE=1
COMPUTE RATING CURVE CID=-1 VS NO=33  NO SEGS=1
MIN EL=0          FT  MAX EL=5          FT
CH SLP=.005        FP SLP=.005          FT PER FT
N  END FT
.017  13.33
DIST  ELEV    DIST  ELEV    DIST  ELEV    DIST  ELEV
0      1.17    .01    .5      3      0      9.83    0

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13.33 1.17
COMPUTE TRAVEL TIME ID=2 REACH=33 NO VS=1
L=350 ft SLP=.005 ft/ft
ROUTE ID=2 HYD=E20310.5 INFLOW HYD ID=1 DT=0.0
*S HYD 20310.1 = AP 2 IN = TANAGER POND IN
* NEW NEW IN1 IN2
ADD HYD ID=3 HYD=E20310.1 ID I=2 ID II=5
PRINT HYD ID=3 CODE=1
*S HYD 20310.8 = AP2 OUT = TANAGER POND OUT (CURVE FROM RYALS)
* Qout=21.33 @ 52.00 FOR 24"RCP AND SILT-STOP BERM @ 49.0
ROUTE RESERVOIR ID=4 HYD=E20310.8 INFLOW ID=3 CODE=2
OUTFLOW CFS STORAGE AC-FT ELEVATION FT
0. 0.0000 49
13.42 0.1515 49.2
18.25 0.3826 49.5
18.91 0.7781 50
20.15 1.6084 51
21.33 2.4923 52
21.88 2.9549 52.5
22.44 3.4315 53
22.92 3.9222 53.5
23.54 4.4272 54
PRINT HYD ID=4 CODE=1
COMPUTE RATING CURVE CID=-1 VS NO=33 NO SEGS=-1 PIPE
S=.0015 FT/FT DIAM=2 FT N=.013
COMPUTE TRAVEL TIME ID=2 REACH=33 NO VS=1
L=900 ft SLP=.0015 ft/ft
ROUTE ID=2 HYD=E20310.6 INFLOW HYD ID=4 DT=0.0
*****
* 20311 = SOUTH END OF BASIN 302
SEDIMENT BULK CODE=1 BF=1.16
COMPUTE NM HYD ID=3 HYD=E20311 DA=.01031 SQ MI
PER A=97 B=0 C=3 D=0 TP=0.1333 HRS RAIN=-1
PRINT HYD ID=3 CODE=1
ADD HYD ID=1 HYD=E20311.1 ID I=2 ID II=3
PRINT HYD ID=1 CODE=1
*****
*S BEGIN EASTERLING'S MODEL OF RYALS ONSITE FLOWS
*****
** THIS DATA WAS OBTAINED FROM EASTERLINGS DEV MODEL
**
**ROUTE THE FLOW FROM TANAGER TO THE INTERSECTION OF ANDALUSTAN AND HALTER
**IN THE STORM DRAIN TO BE CONSTRUCTED WITH THE SUNRISE TERRACE UNITS 3,4 & 5
**PROJECT. CURRENT PLANS PREPARED BY RYALS ENGINEERING CALL FOR APPROX 800 LF
**OF 48" DIA STORM DRAIN AND 1150 LF OF 54" DIA STORM DRAIN
**USE FRICTION SLOPE FOR PIPE SLOPE.
**NOTE: PIPE LENGTH IS APPROXIMATE
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0196
PIPE DIA=48 N=0.013
COMPUTE TRAVEL TIME ID=12 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=800 FT SLOPE=0.0196
ROUTE ID=12 HYD=E20207.3 INFLOW ID=1 DT=0.0
PRINT HYD ID=12 CODE=1
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.0105
PIPE DIA=54 N=0.013
COMPUTE TRAVEL TIME ID=11 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=1150 FT SLOPE=0.0105
ROUTE ID=11 HYD=E20207.4 INFLOW ID=12 DT=0.0
PRINT HYD ID=11 CODE=1
** ADD THE FLOW FROM THE PROPOSED HALTER STORM DRAIN TO THE PROPOSED
** ANDALUSTAN STORM DRAIN AT THE INTERSECTION OF HALTER AND ANDALUSTAN
ADD HYD ID=17 HYD=E20303.2 ID I=20 ID II=11
PRINT HYD ID=17 CODE=2
**ROUTE THE COMBINED FLOW DOWN THE STORM DRAIN OUTFALL FROM THE INTERSECTION
**OF HALTER DRIVE AND ANDALUSTAN DRIVE TO THE SNOW VISTA CHANNEL
COMPUTE RATING CURVE CID=1 VALLEY SECTION NO=1 CODE=-1 SLOPE=0.009
PIPE DIA=72 N=0.013
COMPUTE TRAVEL TIME ID=16 REACH=1 NUMBER OF VALLEY SECTIONS=1
LENGTH=200 FT SLOPE=0.009
ROUTE ID=16 HYD=E20303.3 INFLOW ID=17 DT=0.0
PRINT HYD ID=16 CODE=1

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```

** COMPUTE HYDROGRAPH FOR BASIN 20312 THE SNOW VISTA CHANNEL
COMPUTE NM HYD      ID=2  HYD=E20312  DA==0.0067 SM
                    %A=0.0  %B=50.0  %C=25.0 %D=25.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ADD THE FLOW FROM BASIN 20312 TO THE ROUTED FLOW FROM THE 72" OUTFALL.
**S THIS IS THE TOTAL FLOW INTO THE EXISTING RUNDOWN CHANNEL FROM ORGINAL
**S 1980'S GORDON HERKENHOFF DESIGN.
ADD HYD             ID=3  HYD=E20313.4  I=16  II=2
PRINT HYD           ID=3  CODE=1
*****
** COMPUTE THE HYDROGRAPH FOR BASIN 20313 THE PORTION OF SUNRISE TERRACE UNIT 3
** THAT IS ADJACENT TO THE SNOW VISTA CHANNEL AND CONTRIBUTES FLOW TO THE
** TO THE PROPOSED HALTER DETENTION POND
COMPUTE NM HYD      ID=2  HYD=E20313  DA==0.0183 SM
                    %A=0.0  %B=50  %C=0.0 %D=50.0 TP=0.13333
                    MASS RAINFALL=-1
PRINT HYD           ID=2 CODE=1
** ROUTE FLOW FROM BASIN 20313 THROUGH THE PROPOSED HALTER POND
** STAGE STORAGE DISCHARGE CURVE PER MASTER DRAINAGE PLAN FOR SUNRISE TERRACE
** UNITS 3,4,AND 5 BY RYLES ENGINEERING
ROUTE RESERVOIR      ID=5  HYD=E20313.1 INFLOW ID=2      CODE=24
                    OUTFLOW CFS      STORAGE AC-FT      ELEVATION FT
                    0.00000          0.0000          88.50
                    3.68             0.1180          90.5
                    5.20             0.3172          92.5
                    6.37             0.6137          94.5
                    6.88             0.9032          95.5
                    7.13             0.9092          96.0

PRINT HYD           ID=5  CODE=1
** ADD THE FLOW FROM THE PROPOSED HALTER POND TO THE FLOW IN THE SNOW VISTA
** CHANNEL AT THE SECTION LINE.
ADD HYD             ID=10  HYD=E20208.3  ID I=5  ID II=30
PRINT HYD           ID=10  CODE=1
** ROUTE THE FLOW FROM THE PROPOSED HALTER POND DOWN THE SNOW VISTA
** CHANNEL TO THE SECTION LINE.
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=105.5 FT
                    CHANNEL SLOPE=0.0105 FLOOD PLAIN SLOPE=0.0105
                    N=0.013 DIST=30
                    DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                    0  105.5  10  100  20  100  30  105.5
COMPUTE TRAVEL TIME ID=12 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=300 FT SLOPE=0.0105
ROUTE               ID=12 HYD=E20303.4 INFLOW ID=10 DT=0.0
PRINT HYD           ID=12 CODE=1
** ADD THE FLOW FROM THE THE PROPOSED 72" DIA OUTFALL FROM THE SUNRISE
** TERRACE UNITS 3, 4, AND 5 SUBDIVISION TO THE FLOW IN THE SNOW VISTA CHANNEL
** AT THE SECTION LINE.
** THIS IS THE TOTAL FLOW IN THE SNOW VISTA CHANNEL AT THE SECTION LINE
**S HYD NO. E20303.1 IS ***** AP 22 *****
ADD HYD             ID=20  HYD=E20303.1  ID I=12  ID II=3
PRINT HYD           ID=20 CODE=2
*****
** RATING CURVE FOR AP22 TO 22.1
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                    CHANNEL SLOPE=0.0246 FLOOD PLAIN SLOPE=0.0246
                    N=0.013 DIST=34
                    DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                    0  106  12  100  22  100  34  106
COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=784 FT SLOPE=0.0246
ROUTE               ID=11 HYD=E20303.5 INFLOW ID=20 DT=0.0
PRINT HYD           ID=11 CODE=1
*****
* BASIN 20401
* UNDEVELOPED LAND NORTH OF WESTGATE HEIGHTS.
* THE BULKING FACTOR THAT WAS CALCUALTED IN EASTERLING MODEL IS 1.16.
* THIS LAND IS UNDEVELOPED. THEREFORE, A BULKING
* FACTOR OF 1.16 IS USED.

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* ENTERS SNOW VISTA CHANNEL VIA A RUNDOWN AT "22.1"
*****
*S COMPUTE HYD FOR BASIN 20401
*
SEDIMENT BULK      CODE=1  BF=1.16
COMPUTE NM HYD      ID=1  HYD=E20401 DA=0.127 SQ MI
                    %A=100 %B=0 %C=0 %D=0 TP=0.111
                    MASS RAINFALL=-1

PRINT HYD          ID=1 CODE=1
*
*****
* BASIN 20402
* UNDEVELOPED LAND WEST OF WESTGATE HEIGHTS AND THE NORTHERN PORTION OF
* WESTGATE. THE BULKING FACTOR THAT WAS CALCULATED IN EASTERLING MODEL IS
* 1.16. THIS LAND IS SIMILAR TO THAT LAND. THEREFORE, THE BULKING FACTOR
* FOR THE UNDEVELOPED LAND WAS CALCULATED TO BE 1.06.
* ENTERS SNOW VISTA CHANNEL INLETS IN GIBSON AT "22.1"
*****
*S COMPUTE HYD FOR BASIN 20402
*
SEDIMENT BULK      CODE=1  BF=1.06
COMPUTE NM HYD      ID=2  HYD=E20402 DA=0.0797 SQ MI
                    %A=59 %B=11 %C=5 %D=25 TP=0.111
                    MASS RAINFALL=-1

PRINT HYD          ID=2 CODE=1
ADD HYD            ID=3  HYD=E20402.1  I=1  II=2
PRINT HYD          ID=3  CODE=1
*S HYD NO. E20402.2 IS ***** AP 22.1 *****
ADD HYD            ID=1  HYD=E20402.2  I=3  II=11
PRINT HYD          ID=1  CODE=1
*****
** RATING CURVE FOR 22.1 TO 22.2
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                    CHANNEL SLOPE=0.012 FLOOD PLAIN SLOPE=0.012
                    N=0.013 DIST=34
                    DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                    0    106    12    100    22    100    34    106

COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=1217 FT SLOPE=0.012
ROUTE              ID=2 HYD=E20402.5 INFLOW ID=1 DT=0.0
PRINT HYD          ID=2 CODE=1
*****
* BASIN 20403
* DEVELOPED LAND CONSISTING OF THE NORTHEASTERN PORTION OF WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "22.2"
*****
*S COMPUTE HYD FOR BASIN 20403
*
COMPUTE NM HYD      ID=4  HYD=E20403 DA=0.0766 SQ MI
                    %A=0 %B=27 %C=12 %D=61 TP=0.111
                    MASS RAINFALL=-1

PRINT HYD          ID=4 CODE=1
*S HYD NO. E20403.1 IS ***** AP 22.2 *****
ADD HYD            ID=1  HYD=E20403.1 I=4 II=2
PRINT HYD          ID=1  CODE=1
*****
** RATING CURVE FOR 22.2 TO AP23
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                    MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                    CHANNEL SLOPE=0.012 FLOOD PLAIN SLOPE=0.012
                    N=0.013 DIST=34
                    DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                    0    106    12    100    22    100    34    106

COMPUTE TRAVEL TIME ID=11 REACH NO=1 VALLEY SECTIONS=1
                    LENGTH=568 FT SLOPE=0.012
ROUTE              ID=11 HYD=E20403.5 INID=1 DT=0.0
PRINT HYD          ID=11 CODE=1
*****
* BASIN 20404
* LAND EAST OF SNOW VISTA CHANNEL. THIS IS THE TRAILER PARK AND THE

```

```

* UNDEVELOPED
* LAND. THIS BASIN FLOWS INTO THE CHANNEL VIA A 42" CMP AT THE
* JUMP STRUCTURE. THE BULKING FACTOR THAT WAS CALCUALTED IN
* EASTERLING MODEL IS 1.16. THEREFORE, A BULKING FACTOR WEIGHTED TO THE
* UNDEVELOPED LAND IS CALCULATED TO BE 1.08.
* ENTERS SNOW VISTA CHANNEL AT "AP-23".
*****
*S COMPUTE HYD FOR BASIN 20404
*
SEDIMENT BULK      CODE=1  BF=1.08
COMPUTE NM HYD     ID=7  HYD=E20404 DA=0.103 SQ MI
                   %A=64 %B=0 %C=0 %D=36 TP=0.111
                   MASS RAINFALL=-1
PRINT HYD          ID=7 CODE=1
*
*****
* BASIN 20405
* DEVELOPED LAND CONSISTING OF THE MAJOR PORTION OF WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "AP-23"
*****
*S COMPUTE HYD FOR BASIN 20405
*
COMPUTE NM HYD     ID=3  HYD=E20405 DA=0.3438 SQ MI
                   %A=0 %B=27 %C=12 %D=61 TP=0.111
                   MASS RAINFALL=-1
PRINT HYD          ID=3 CODE=1
ADD HYD            ID=2  HYD=E20405.1 I=7 II=3
PRINT HYD          ID=2  CODE=1
*S HYD NO. E20405.2 IS ***** AP 23 *****
ADD HYD            ID=4  HYD=E20405.2 I=2 II=11
PRINT HYD          ID=4  CODE=1
*****
** RATING CURVE FOR AP23 TO 23.1
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                     CHANNEL SLOPE=0.012 FLOOD PLAIN SLOPE=0.012
                     N=0.013 DIST=21
                     DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                     9    106    10    100    20    100    21    106
COMPUTE RATING CURVE CID=2 VALLEY SECTION=2 NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                     CHANNEL SLOPE=0.0037 FLOOD PLAIN SLOPE=0.0037
                     N=0.013 DIST=50.1
                     DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                     9    106    10    100    50    100    50.1  106
COMPUTE TRAVEL TIME ID=2 REACH NO=1 VALLEY SECTIONS=2
                     LENGTH= 183 FT SLOPE=0.012
ROUTE              ID=2  HYD=E20405.5 INFLOW ID=4  DT=0.0
PRINT HYD          ID=2  CODE=1
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                     CHANNEL SLOPE=0.0037 FLOOD PLAIN SLOPE=0.0037
                     N=0.035 DIST=76
                     DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                     0    106    18    100    58    100    76    106
COMPUTE TRAVEL TIME ID=3 REACH NO=2 VALLEY SECTIONS=1
                     LENGTH= 342 FT SLOPE=0.0037
ROUTE              ID=3  HYD=E20405.6 INID=2  DT=0.0
PRINT HYD          ID=3  CODE=1
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                     MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                     CHANNEL SLOPE=0.0038 FLOOD PLAIN SLOPE=0.0038
                     N=0.030 DIST=76
                     DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                     0    106    18    100    58    100    76    106
COMPUTE TRAVEL TIME ID=4 REACH NO=3 VALLEY SECTIONS=1
                     LENGTH=170 FT SLOPE=0.0038
ROUTE              ID=4  HYD=E20405.7 INFLOW ID=3 DT=0.0
PRINT HYD          ID=4  CODE=1
*****
* BASIN 20501

```

```

* DEVELOPED AND UNDEVELOPED LAND CONSISTING OF THE SOUTHEAST PORTION OF
* WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "23.1"
*****
*S COMPUTE HYD FOR BASIN 20501
*
COMPUTE NM HYD      ID=2  HYD=E20501 DA=0.0391 SQ MI
                   %A=60 %B=11 %C=5 %D=24 TP=0.111
                   MASS RAINFALL=-1
PRINT HYD          ID=2 CODE=1
ADD HYD            ID=3 HYD=E20501.1 I=2 II=4
PRINT HYD          ID=3 CODE=1
*****
** RATING CURVE FOR 23.1 TO 23.2
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                   MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                   CHANNEL SLOPE=0.0038 FLOOD PLAIN SLOPE=0.0038
                   N=0.030 DIST=76
                   DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                   0    106   18   100   58   100   76   106
COMPUTE TRAVEL TIME ID=4 REACH NO=3 VALLEY SECTIONS=1
                   LENGTH=850 FT SLOPE=0.0038
ROUTE              ID=4 HYD=E20501.5 INFLOW ID=3 DT=0.0
PRINT HYD          ID=4 CODE=1
*****
* BASIN 20502
* DEVELOPED AND UNDEVELOPED LAND CONSISTING OF THE SOUTH PORTION OF
* WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "23.2"
*****
*S COMPUTE HYD FOR BASIN 20502
*
COMPUTE NM HYD      ID=1  HYD=E20502 DA=0.0781 SQ MI
                   %A=80 %B=6 %C=2 %D=12 TP=0.111
                   MASS RAINFALL=-1
PRINT HYD          ID=1 CODE=1
ADD HYD            ID=3 HYD=E20502.1 I=4 II=1
PRINT HYD          ID=3 CODE=1
*****
** RATING CURVE FOR 23.2 TO 23.3
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                   MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                   CHANNEL SLOPE=0.0038 FLOOD PLAIN SLOPE=0.0038
                   N=0.030 DIST=76
                   DIST  ELEV  DIST  ELEV  DIST  ELEV  DIST  ELEV
                   0    106   18   100   58   100   76   106
COMPUTE TRAVEL TIME ID=4 REACH NO=3 VALLEY SECTIONS=1
                   LENGTH=1225 FT SLOPE=0.0038
ROUTE              ID=4 HYD=E20502.5 INFLOW ID=3 DT=0.0
PRINT HYD          ID=4 CODE=1
*****
* BASIN 20503
* DEVELOPED AND UNDEVELOPED LAND CONSISTING OF THE SOUTH PORTION OF
* WESTGATE HEIGHTS.
* ENTERS SNOW VISTA CHANNEL INLETS AT "23.3"
*****
*S COMPUTE HYD FOR BASIN 20503
*
COMPUTE NM HYD      ID=1  HYD=E20503 DA=0.05156 SQ MI
                   %A=95 %B=0 %C=5 %D=0 TP=0.111
                   MASS RAINFALL=-1
PRINT HYD          ID=1 CODE=1
*S HYD NO. E20503.1 IS ***** AP 24 *****
ADD HYD            ID=2 HYD=E20503.1 I=4 II=1
PRINT HYD          ID=2 CODE=1
*****
** RATING CURVE FOR 23.3 TO AP03
COMPUTE RATING CURVE CID=1 VALLEY SECTION=1 NUMBER OF SEGMENTS=1
                   MINIMUM ELEV=100 FT MAXIMUM ELEV=106 FT
                   CHANNEL SLOPE=0.024 FLOOD PLAIN SLOPE=0.024
                   N=0.035 DIST=56

```

	DIST	ELEV	DIST	ELEV	DIST	ELEV	DIST	ELEV
	0	106	18	100	38	100	56	106

COMPUTE TRAVEL TIME ID=3 REACH NO=3 VALLEY SECTIONS=1
LENGTH=1800 FT SLOPE=0.0190
ROUTE ID=3 HYD=SV100E1B.HYD INFLOW ID=2 DT=0.0
PRINT HYD ID=3 CODE=1
PUNCH HYD ID=3

FINISH

APPENDIX B.1

Temporary 106th Street Swale

Street Capacity Calculations (HEC-2)

tmp#5.txt

channel calculator

Given Input Data:

Shape	Trapezoidal
Solving for	Depth of Flow
Flowrate	212.0000 cfs
Slope	0.0080 ft/ft
Manning's n	0.0250
Height	24.0000 in
Bottom width	168.0000 in
Left slope	0.1667 ft/ft (V/H)
Right slope	0.5000 ft/ft (V/H)

Computed Results:

Depth	20.0549 in
Velocity	6.1328 fps
Full Flowrate	297.7539 cfs
Flow area	34.5680 ft2
Flow perimeter	334.8099 in
Hydraulic radius	14.8675 in
Top width	328.4154 in
Area	43.9976 ft2
Perimeter	367.6235 in
Percent full	83.5622 %

Critical Information

Critical depth	19.6134 in
Critical slope	0.0087 ft/ft
Critical velocity	6.3158 fps
Critical area	33.5664 ft2
Critical perimeter	331.1372 in
Critical hydraulic radius	14.5968 in
Critical top width	324.8835 in
Specific energy	2.2558 ft
Minimum energy	2.4517 ft
Froude number	0.9620
Flow condition	Subcritical

```

1*****
* WATER SURFACE PROFILES
* VERSION OF SEPTEMBER 1988
* ERROR: 01,02
* UPDATED: 4 APRIL 1989
* RUN DATE 8/27/ 1 TIME 9:24:51
*****

```

```

*****
* U.S. ARMY CORPS OF ENGINEERS
* THE HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
* (916) 756-1104, (916) 551-1748
*****

```

```

X X XXXXXXX XXXXX
X X X X X
X X X X X
XXXXXXX XXXX X XXXXX XXXXX
X X X X X
X X X X X
X X XXXXXXX XXXXX

```

END OF BANNER

1 8/27/ 1 9:24:51

PAGE 1

THIS RUN EXECUTED 8/27/ 1 9:24:51

```

*****
HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

```

```

ERROR CORR - 01,02
MODIFICATION -

```

```

T1 SUNRISE RANCH CHANNEL 106th STREET
T2 SWALE SLOPE = 0.8%
T3 14' BOTTOM WIDTH, 1.66' DEPTH, 6:1 AND 2:1 SIDE SLOPE

```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	1	.008	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	38	43	1	2	26	4	68	3
NC	.017	.017	.017	.1	.3			
QT	3	37	125	195				

X1 1 4 0 130 0 0 0 0 0
GR 1.66 100 0 110 0 124 1.66 130

1 8/27/ 1 9:24:51 PAGE 2

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.50	.50	.56	.00	.81	.31	.00	.00	1.66
37.	0.	37.	0.	0.	8.	0.	0.	0.	1.66
.00	.00	4.48	.00	.000	.017	.000	.000	.00	106.97
.007935	0.	0.	0.	0	14	5	.00	18.85	125.82

0
1 8/27/ 1 9:24:51 PAGE 3

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	1	.008					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	0	0	0	0

1 8/27/ 1 9:24:51 PAGE 4

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	1.00	1.00	1.17	.00	1.69	.69	.00	.00	1.66
125.	0.	125.	0.	0.	19.	0.	0.	0.	1.66
.00	.00	6.65	.00	.000	.017	.000	.000	.00	103.98
.007946	0.	0.	0.	0	11	5	.00	23.63	127.61

0

1

8/27/ 1 9:24:51

PAGE 5

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
0	4	0	1	.008						
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
3	0	-1	0	0	0	0	0	0	0	0

1

8/27/ 1 9:24:51

PAGE 6

SECNO	DEPTH	CWSEL	CRWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CCHV=.100 CEHV=.300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	1.27	1.27	1.51	.00	2.17	.90	.00	.00	1.66
195.	0.	195.	0.	0.	26.	0.	0.	0.	1.66
.00	.00	7.63	.00	.000	.017	.000	.000	.00	102.35
.008006	0.	0.	0.	0	14	6	.00	26.24	128.59

0

1

8/27/ 1 9:24:51

PAGE 7

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

THIS RUN EXECUTED 8/27/ 1 9:24:51

ERROR CORR - 01,02

MODIFICATION -

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

14' BOTTOM WIDTH, 1.

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	37.00	.50	.56	4.48	18.85	1.19	.81
1.000	125.00	1.00	1.17	6.65	23.63	1.31	1.69
1.000	195.00	1.27	1.51	7.63	26.24	1.36	2.17

1

8/27/ 1 9:24:51

PAGE 8

SUMMARY OF ERRORS AND SPECIAL NOTES

```

*****
1 WATER SURFACE PROFILES
  VERSION OF SEPTEMBER 1988
  ERROR: 01,02
  UPDATED: 4 APRIL 1989
  RUN DATE 7/ 9/ 1 TIME 16:11:52
*****

```

```

*****
* U.S. ARMY CORPS OF ENGINEERS
* THE HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
* (916) 756-1104, (916) 551-1748
*****

```

```

      X   X XXXXXXX XXXXX      XXXXX
      X   X X      X   X      X   X
      X   X X      X      X      X
      XXXXXXX XXXX X      XXXXX XXXXX
      X   X X      X      X      X
      X   X X      X   X      X
      X   X XXXXXXX XXXXX      XXXXXXX

```

END OF BANNER

THIS RUN EXECUTED 7/ 9/ 1 16:11:52

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

```

T1 SUNRISER RANCH WEST STREET CAPACITY
T2 26'FF W/ MOUNTABLE CURB - CROWN
T3 SECRET OASIS

```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	1	.036	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	2	26	4	68	3
----	----	---	---	----	---	----	---

NC	.017	.017	.017	.1	.3					
QT	4	10.72	10.81	20.81	15.50					
X1	1	7	0	44	0	0	0	0	0	0
GR	.51	0	.33	8.9	0	9	.26	22	0	35
GR	.33	35.1	.51	44						

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	AÇH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.00	.23	.23	.30	.00	.47	.24	.00	.00	.51
11.	0.	11.	0.	0.	3.	0.	0.	0.	.51
.00	.00	3.89	.00	.000	.017	.000	.000	.00	8.93
.035408	0.	0.	0.	0	11	5	.00	23.53	35.07

T1
T2 LOST ARROW
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	1	.036					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	0	0	0	0
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.00	.23	.23	.30	.00	.47	.24	.00	.00	.51
11.	0.	11.	0.	0.	3.	0.	0.	0.	.51
.00	.00	3.90	.00	.000	.017	.000	.000	.00	8.93
.035450	0.	0.	0.	0	11	5	.00	23.60	35.07

T1
T2 DUKE AVENUE
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	4	0	1	.024					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3	0	-1	0	0	0	0	0	0	0
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	

SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID ENDST

*PROF 3

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.31	.31	.41	.00	.61	.29	.00	.00	.51
21.	0.	21.	0.	0.	5.	0.	0.	0.	.51
.00	.00	4.33	.00	.000	.017	.000	.000	.00	8.90
.024144	0.	0.	0.	0	14	6	.00	26.19	35.10

T1

T2 DUKE AVENUE

T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	5	0	1	.024					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

*PROF 4

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.28	.28	.36	.00	.51	.23	.00	.00	.51
16.	0.	15.	0.	0.	4.	0.	0.	0.	.51
.00	.00	3.85	.00	.000	.017	.000	.000	.00	8.91
.024033	0.	0.	0.	0	14	6	.00	26.17	35.09

THIS RUN EXECUTED 7/ 9/ 1 16:11:52

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	10.72	.23	.30	3.89	23.53	2.12	.47
1.000	10.81	.23	.30	3.90	23.60	2.11	.47
1.000	20.81	.31	.41	4.33	26.19	1.78	.61
1.000	15.50	.28	.36	3.85	26.17	1.73	.51

SUMMARY OF ERRORS AND SPECIAL NOTES

```

1*****
* WATER SURFACE PROFILES
* VERSION OF SEPTEMBER 1988
* ERROR: 01,02
* UPDATED: 4 APRIL 1989
* RUN DATE 7/ 9/ 1 TIME 16:24:57
*****

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*****
* U.S. ARMY CORPS OF ENGINEERS
* THE HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
* (916) 756-1104, (916) 551-1748
*****

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      X   X XXXXXXX XXXXX      XXXXX
      X   X X       X   X      X   X
      X   X X       X           X
      XXXXXXX XXXX   X       XXXXX XXXXX
      X   X X       X           X
      X   X X       X   X      X
      X   X XXXXXXX XXXXX      XXXXXXX

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END OF BANNER

THIS RUN EXECUTED 7/ 9/ 1 16:24:57

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

T1 SUNRISE RANCH WEST STREET CAPACITY
T2 28'FF 8" STD CURB CROWN
T3 CACTUS POINT DRIVE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	0	.006	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	38	43	1	2	26	4	68	3
NC	.017	.017	.017	.1	.3			
QT	2	47.0	20.81					
X1	1	9	0	46	0	0	0	0
GR	.87	0	.67	8.9	0	9	.125	11
GR	.125	35	0	37	.67	37.1	.87	46

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.66	.66	.65	.00	.88	.22	.00	.00	.87
------	-----	-----	-----	-----	-----	-----	-----	-----	-----

47.	0.	47.	0.	0.	12.	0.	0.	0.	.87
.00	.00	3.80	.00	.000	.017	.000	.000	.00	8.90
.005972	0.	0.	0.	0	14	0	.00	28.20	37.10

T1 DUKE AVENUE
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	1	.024					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.40	.40	.47	.00	.67	.27	.00	.00	.87
21.	0.	21.	0.	0.	5.	0.	0.	0.	.87
.00	.00	4.19	.00	.000	.017	.000	.000	.00	8.94
.023898	0.	0.	0.	0	8	5	.00	28.12	37.06

THIS RUN EXECUTED 7/ 9/ 1 16:24:57

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CACTUS POINT DRIVE

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	47.00	.66	.65	3.80	28.20	1.01	.88
1.000	20.81	.40	.47	4.19	28.12	1.76	.67

SUMMARY OF ERRORS AND SPECIAL NOTES

```

1*****
* WATER SURFACE PROFILES *
* VERSION OF SEPTEMBER 1988 *
* ERROR: 01,02 *
* UPDATED: 4 APRIL 1989 *
* RUN DATE 7/11/ 1 TIME 11:42:12 *
*****

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*****
* U.S. ARMY CORPS OF ENGINEERS *
* THE HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET, SUITE D *
* DAVIS, CALIFORNIA 95616-4687 *
* (916) 756-1104, (916) 551-1748 *
*****

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X X XXXXXXX XXXXX XXXXX
X X X X X X X
X X X X X X
XXXXXXX XXXX X XXXXX XXXXX
X X X X X
X X X X X
X X XXXXXXX XXXXX XXXXXXX

```

END OF BANNER

THIS RUN EXECUTED 7/11/ 1 11:42:12

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

T1 DESERT SAGE SUBDIVISION STREET CAPACITY
T2 28'FF MOUNTABLE CURB
T3 MESA SUNSET

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	1	.03	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	2	26	4	68	3
----	----	---	---	----	---	----	---

NC	.017	.017	.017	.1	.3					
QT	2	12.	10.							
X1	1	7	0	48	0	0	0	0	0	0
GR	.67	0	.33	9.9	0	10	.28	24	0	38
GR	.33	38.1	.67	48						

SECNO	DEPTH	CWSEL	CRWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

1.00	.25	.25	.31	.00	.47	.22	.00	.00	.67
12.	0.	12.	0.	0.	3.	0.	0.	0.	.67
.00	.00	3.76	.00	.000	.017	.000	.000	.00	9.92
.029963	0.	0.	0.	0	11	7	.00	25.33	38.08

T1
T2 SUNRISE WEST
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	.008					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.30	.30	.30	.00	.38	.08	.00	.00	.67
10.	0.	10.	0.	0.	4.	0.	0.	0.	.67
.00	.00	2.25	.00	.000	.017	.000	.000	.00	9.91
.007893	0.	0.	0.	0	15	0	.00	28.18	38.09

THIS RUN EXECUTED 7/11/ 1 11:42:12

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MESA SUNSET

SUMMARY PRINTOUT

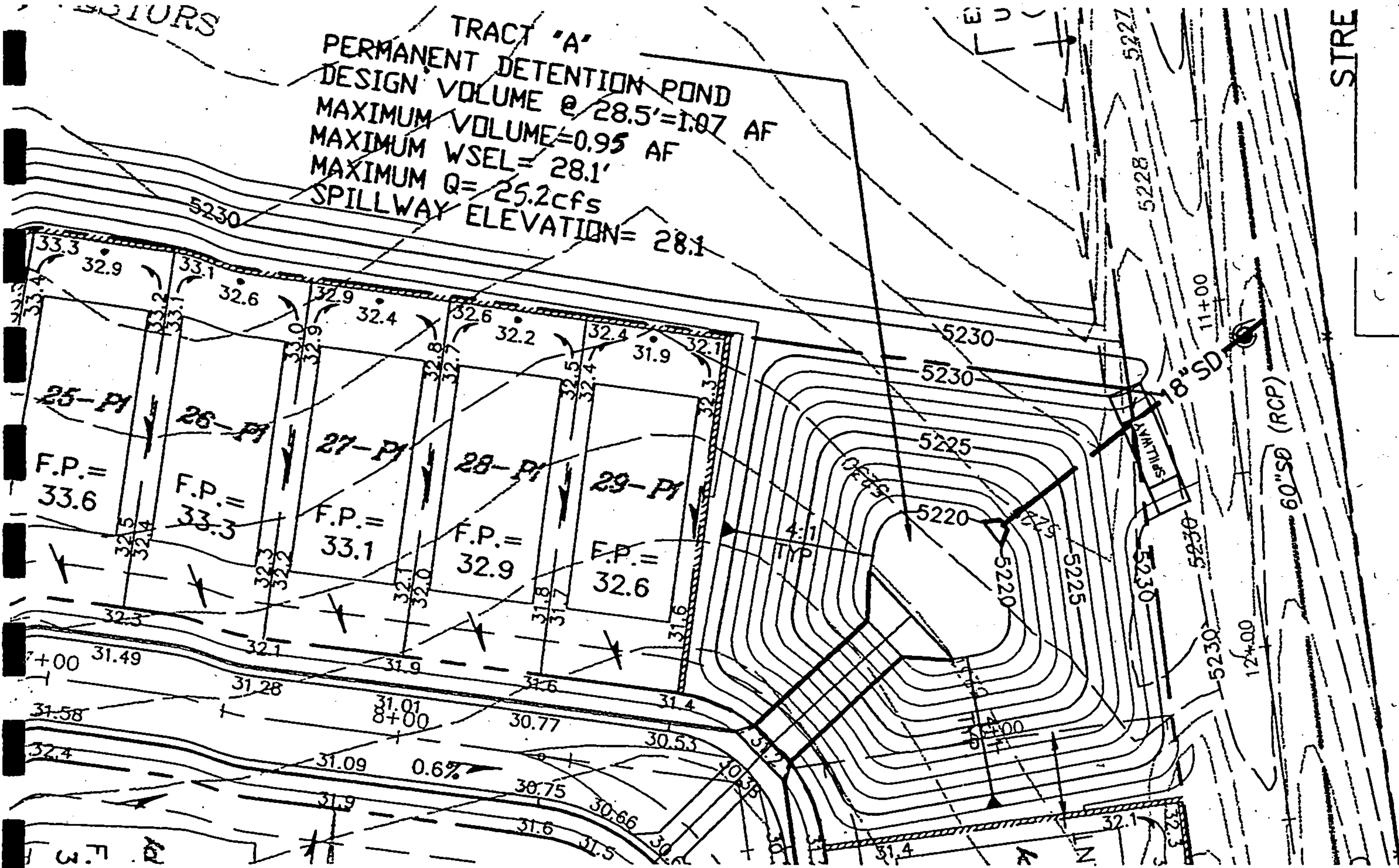
SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	12.00	.25	.31	3.76	25.33	1.97	.47
1.000	10.00	.30	.30	2.25	28.18	1.00	.38

SUMMARY OF ERRORS AND SPECIAL NOTES

APPENDIX B.2

Onsite and Offsite Detention Ponds

Rating Tables and Outfall Structures



ONSITE POND - VOLUME CALCS.

Elevation	Area (SF)	Volume (CF)	Σ Volume (CF)	Σ Volume (Ac Ft)
20	1455.6	0	0	0
21	2016.0	1728.2	1728.2	0.0397
22	2775.5	2385.7	4113.9	0.0944
23	3669.7	3212.2	7326.1	0.1682
24	4710.5	4179.3	11505.4	0.2641
25	5867.3	5278.3	16783.7	0.3853
26	7140.6	6493.5	23277.2	0.5344
27	8522.5	7821.4	31098.6	0.7139
28	10028.4	9265.2	40363.8	0.9266
29	11646.6	10827.4	51191.2	1.1752
30	13393.6	12509.9	63701.1	1.4624

$$VOLUME = \frac{1}{3} (depth) (A_1 + A_2 + \sqrt{A_1 \cdot A_2})$$



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e-mail: dmgs@swcp.com

PROJECT Sunrise Ranch West
SUBJECT Onsite Detention Pond
BY DLH DATE 9-5-01
CHECKED _____ DATE _____
SHEET _____ OF _____

Assume: No backwater effect from 60" RCP Storm Sewer

$$\text{Area (4) } 6" \text{ Dia openings} = (4) \pi (.25)^2 = 0.7854 \text{ SF}$$

$$\text{Area } 9.15" \text{ Dia. opening} = (1) \pi (r)^2 = 0.45 \text{ SF}$$

(1) Orifice Eqn bottom 4 openings: $Q = 0.6(.7854) \sqrt{64.4(x-20.5)}$

(2) Orifice Eqn next 4 openings: $Q = 0.6(.7854) \sqrt{64.4(x-21.25)}$

(3) Orifice Eqn top 9.15" diam. opening: $Q = 0.6(.45) \sqrt{64.4(x-23)}$

Elevation	Q cfs Eqn (1)	Q cfs Eqn (2)	Q cfs Eqn (3)	Q (cfs) Total
21	2.67	0	0	2.67
22	4.63	3.28	0	7.91
23	5.98	5.00	0	10.98
24	7.07	6.27	2.17	15.51
25	8.02	7.32	3.06	18.40
26	8.87	8.24	3.75	20.86
27	9.64	9.07	4.33	23.04
28	10.36	9.83	4.84	25.03
29	11.03	10.53	5.31	26.87
30	11.65	11.19	5.73	28.57



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PROJECT Sunrise Ranch West
SUBJECT Onsite Detention Pond
BY DLH DATE 9-5-01
CHECKED _____ DATE _____
SHEET _____ OF _____

Assume HGL(max.) = 24.7' constant in 60" RCP storm sewer

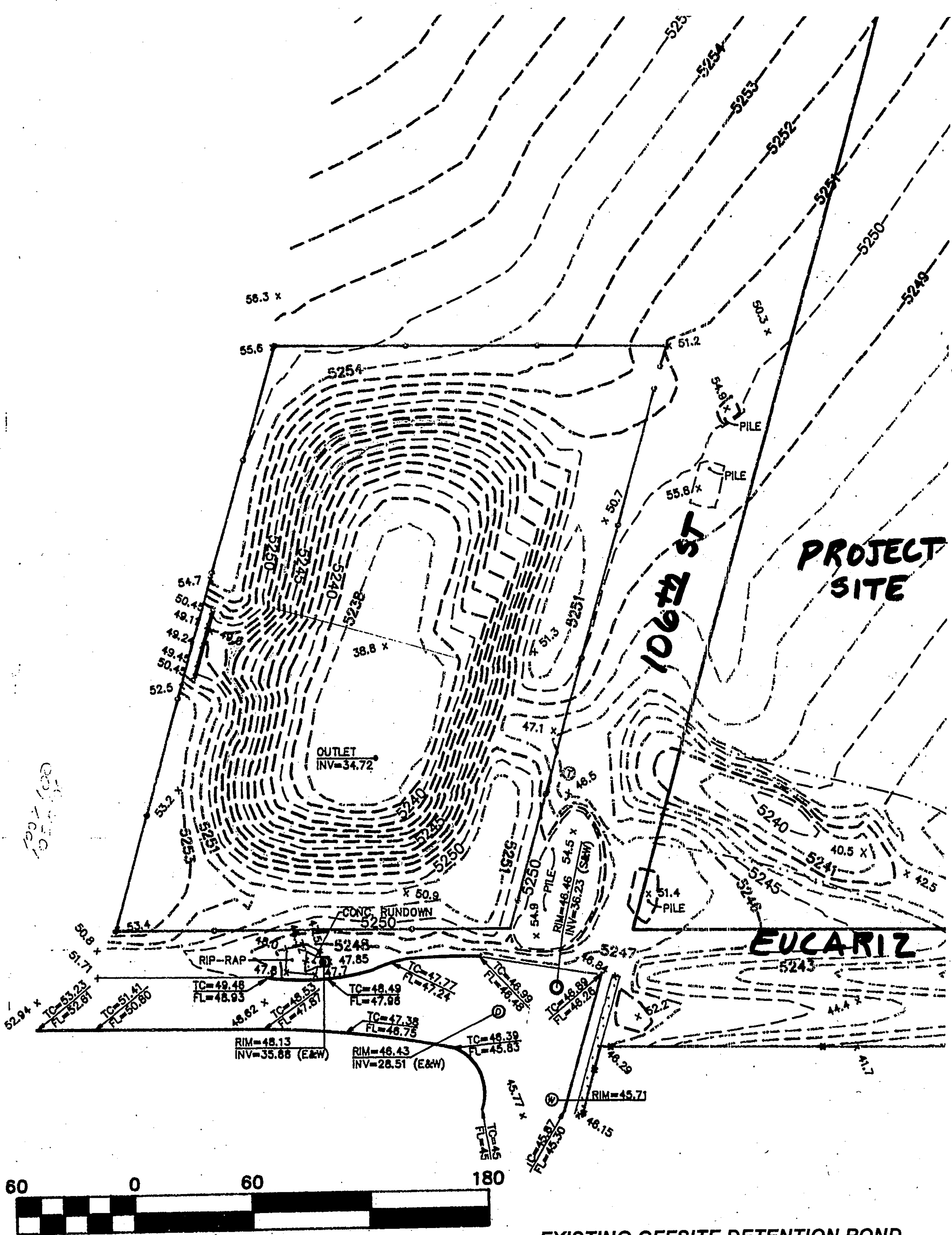
WORSE CASE SCENARIO: "Submerged orifice"

$$Q = 0.6(A_1 + A_2 + A_3) \sqrt{64.4(x - 24.7)}$$

$$Q = 0.6(.7854 + .7854 + .45) \sqrt{64.4(x - 24.7)}$$

(1.21248)

Elevation	Total Q
25	5.33
26	11.09
27	14.76
28	17.68
29	20.18
30	22.40



EXISTING OFFSITE DETENTION POND
(NW OF 106TH STREET AND EUCARIZ CORRIDOR)



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e-mail: dmgs@swcp.com

PROJECT _____

SUBJECT _____

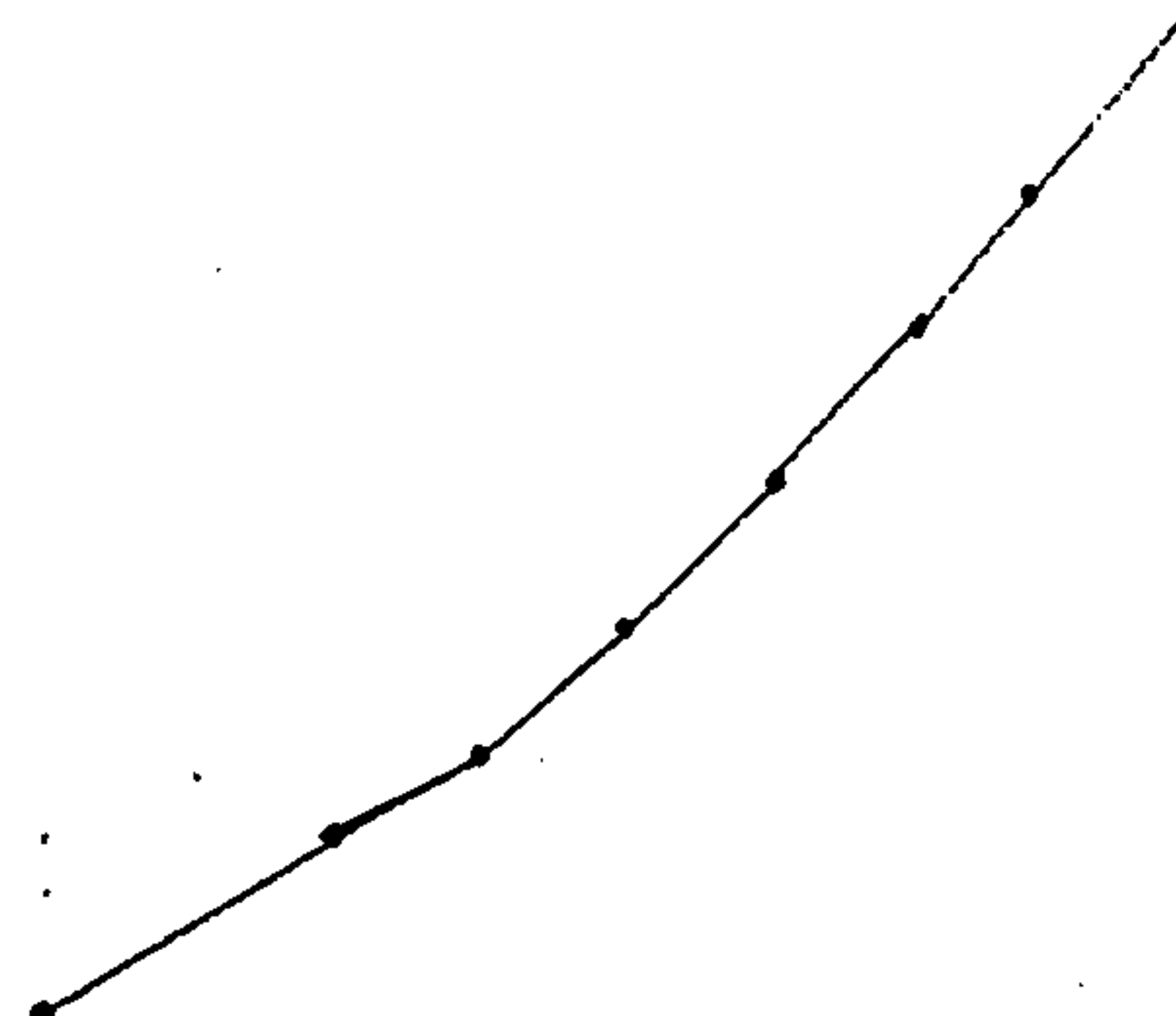
BY _____ DATE _____

CHECKED _____ DATE _____

SHEET _____ OF _____

50

ASSUME HGL @ MH3EX = 40.0' (ULTIMATE CONDITION)



(HGL)

30

10 20 30 40 50 60 70 80 Q(cfs)

50

76.5 cfs (48')

72.0 cfs (46')

66.0 cfs (44')

60.5 cfs (42')

59.5 cfs (41.5')

54 cfs (40')

50.5 cfs (39.0')

47.0 cfs (38.5')

42.0 cfs (38.0')

40

30

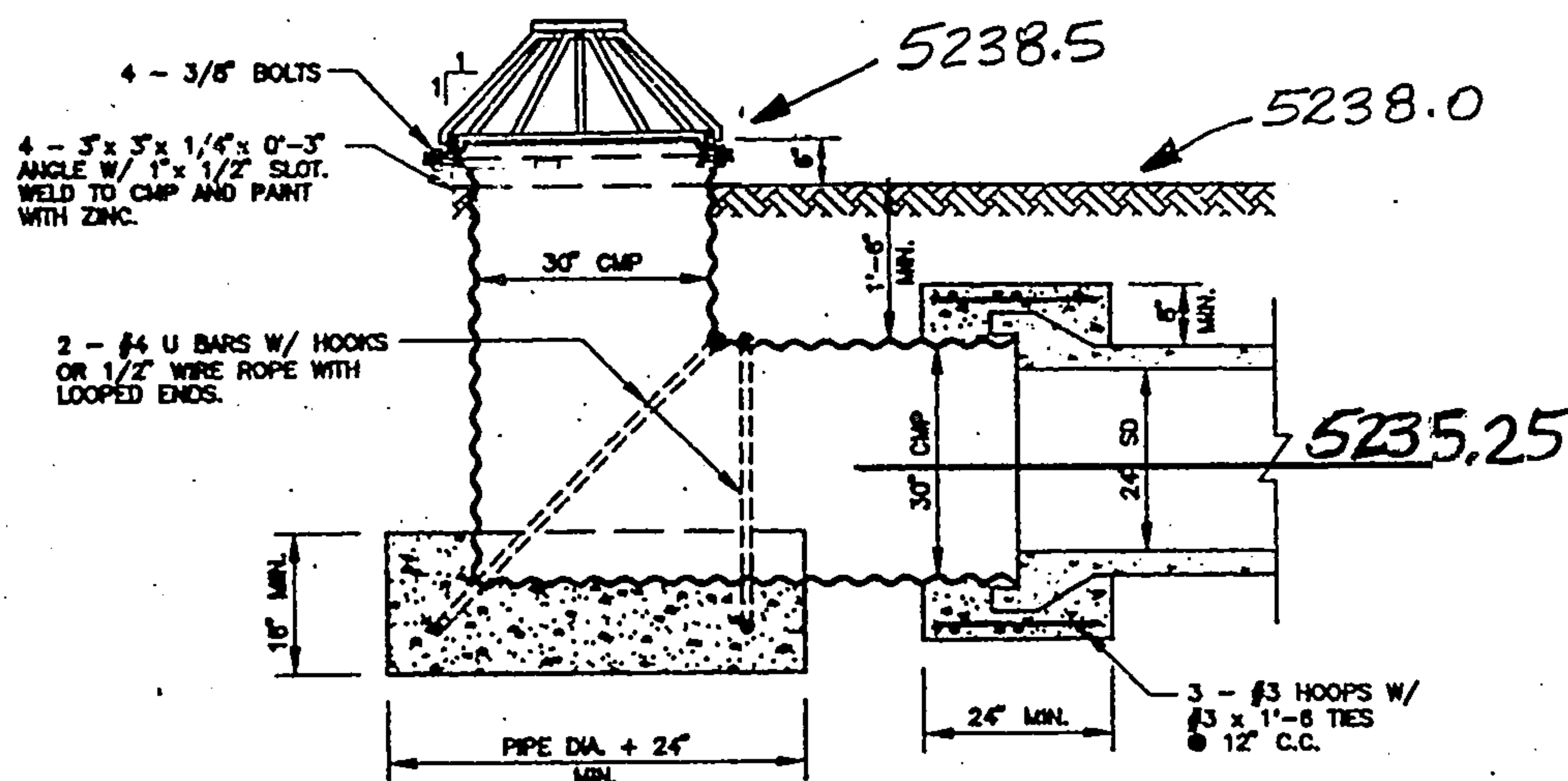


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PROJECT Sunrise Ranch West
SUBJECT Rating Curve Offsite Pond
BY _____ DATE _____
CHECKED _____ DATE _____
SHEET _____ OF _____

Revise Pond Outfall Structure - Remove CMP Inlet Structure,
Use 24" RCP as orifice opening.



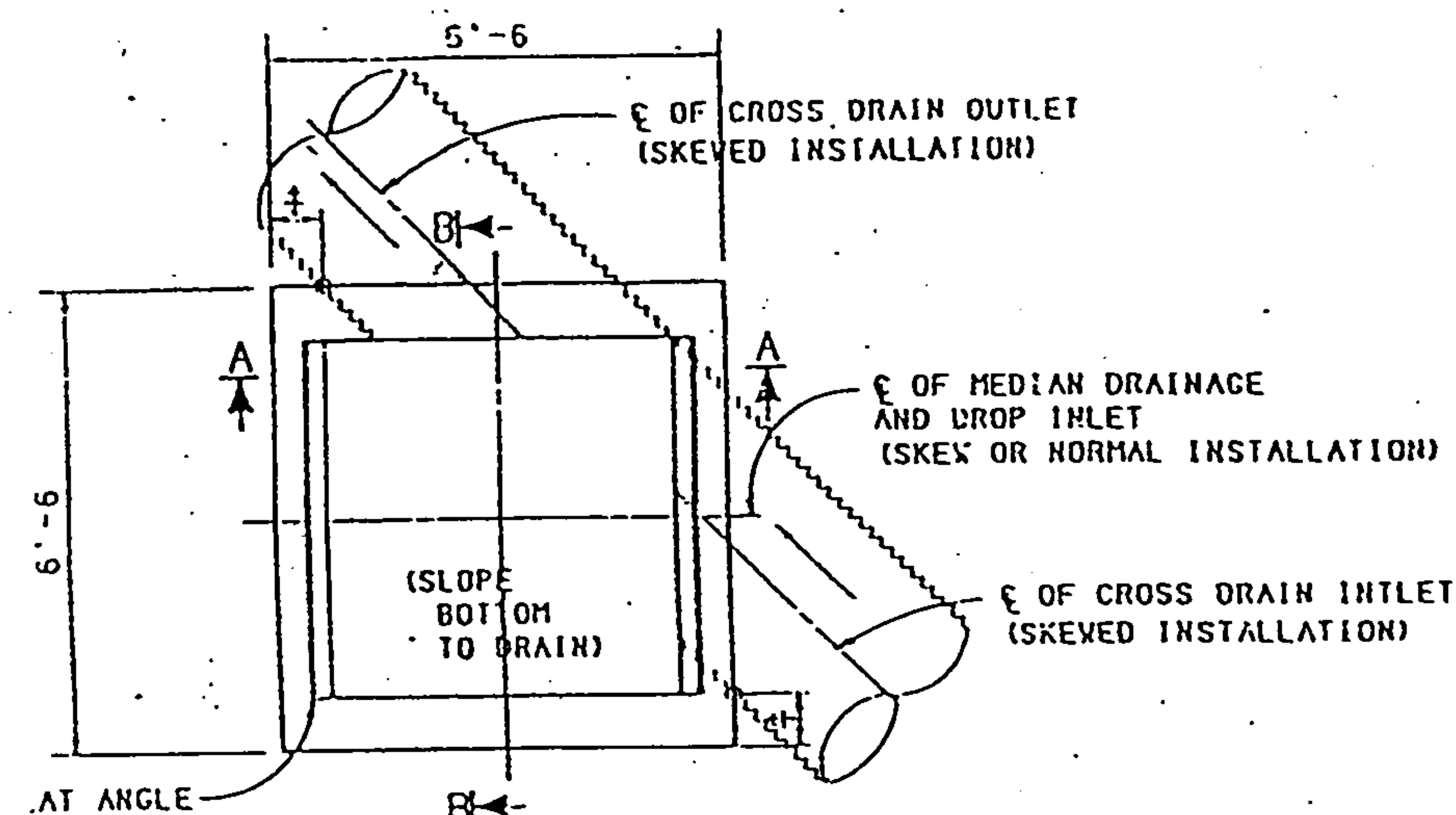
CMP INLET STRUCTURE
NOT TO SCALE

(24" RCP)
 $Q = C \cdot a \cdot \sqrt{2g \Delta h}$
 $C = 0.6$
 $a = 3.1416 \text{ SF}$

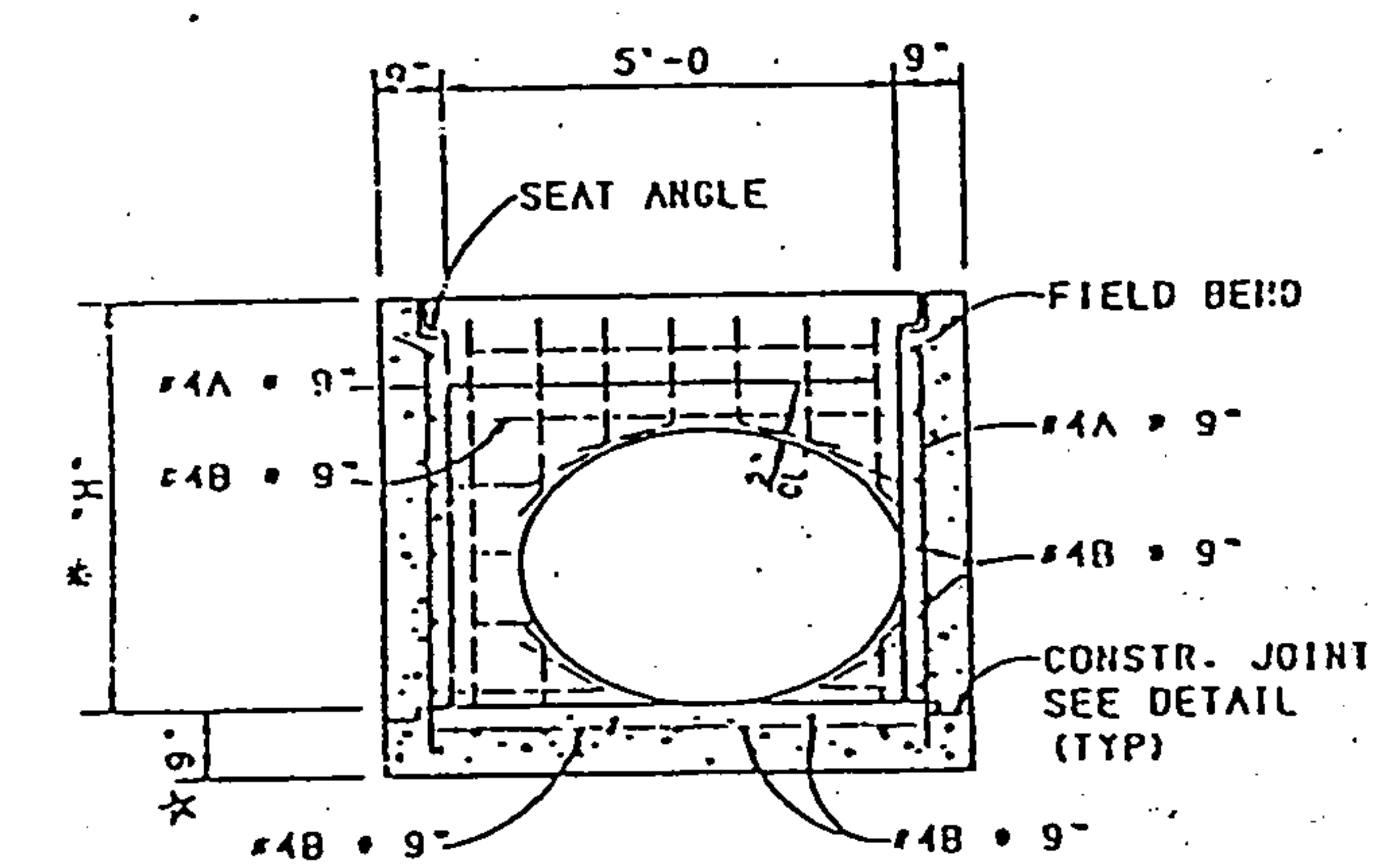
30" CMP - Weir $Q = CLH^{1.5}$
 $Q = 3.4 (7.85) (.5)^{1.5}$

$Q = 0.6 (3.1416) \sqrt{64.4 \cdot \Delta h}$

Elev.	Δh	Q(orifice)	Q(weir)
38.5	3.25	~~27.3~~ 0	
39.0	3.75	~~29.3~~	9.44 cfs
40.0	4.75	~~33.0~~	~~49.0~~
41.5	6.25	~~37.8~~	
42.0	6.75	~~39.3~~	
44.0	8.75	~~44.7~~	
46.0	10.75	~~49.6~~	
48.0	12.75	~~54.0~~	



PLAN



SECTION A-A

NOTE: FIELD CUT AND BEND REBAR AS REQUIRED TO CLEAR SEAT ANGLES AND PIPE OPENINGS.

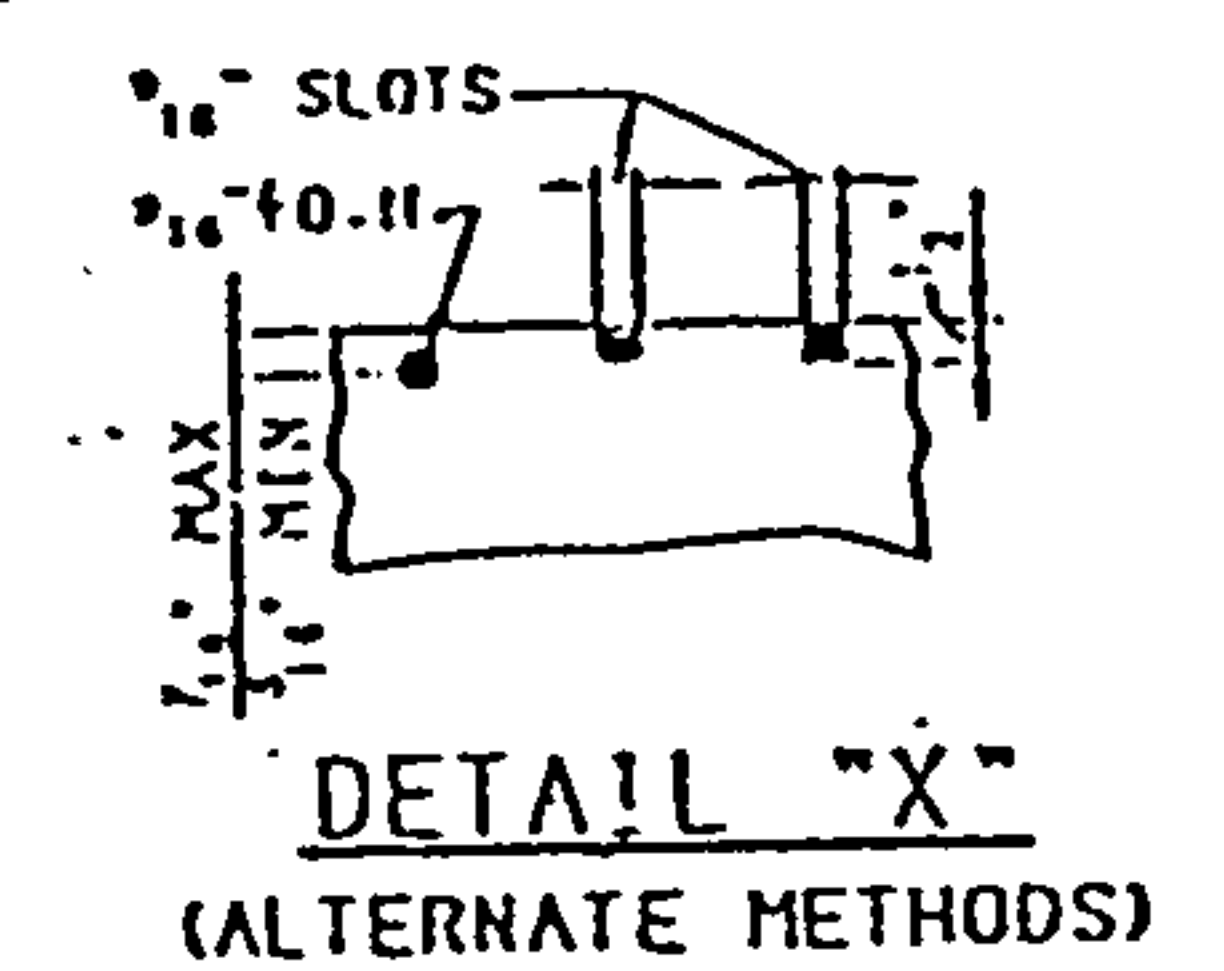
#4A	"H" PLUS 6"	REQ'D. 28
#4B	6'-3"	18 + 5.33H/A

REINFORCING STEEL DETAILS

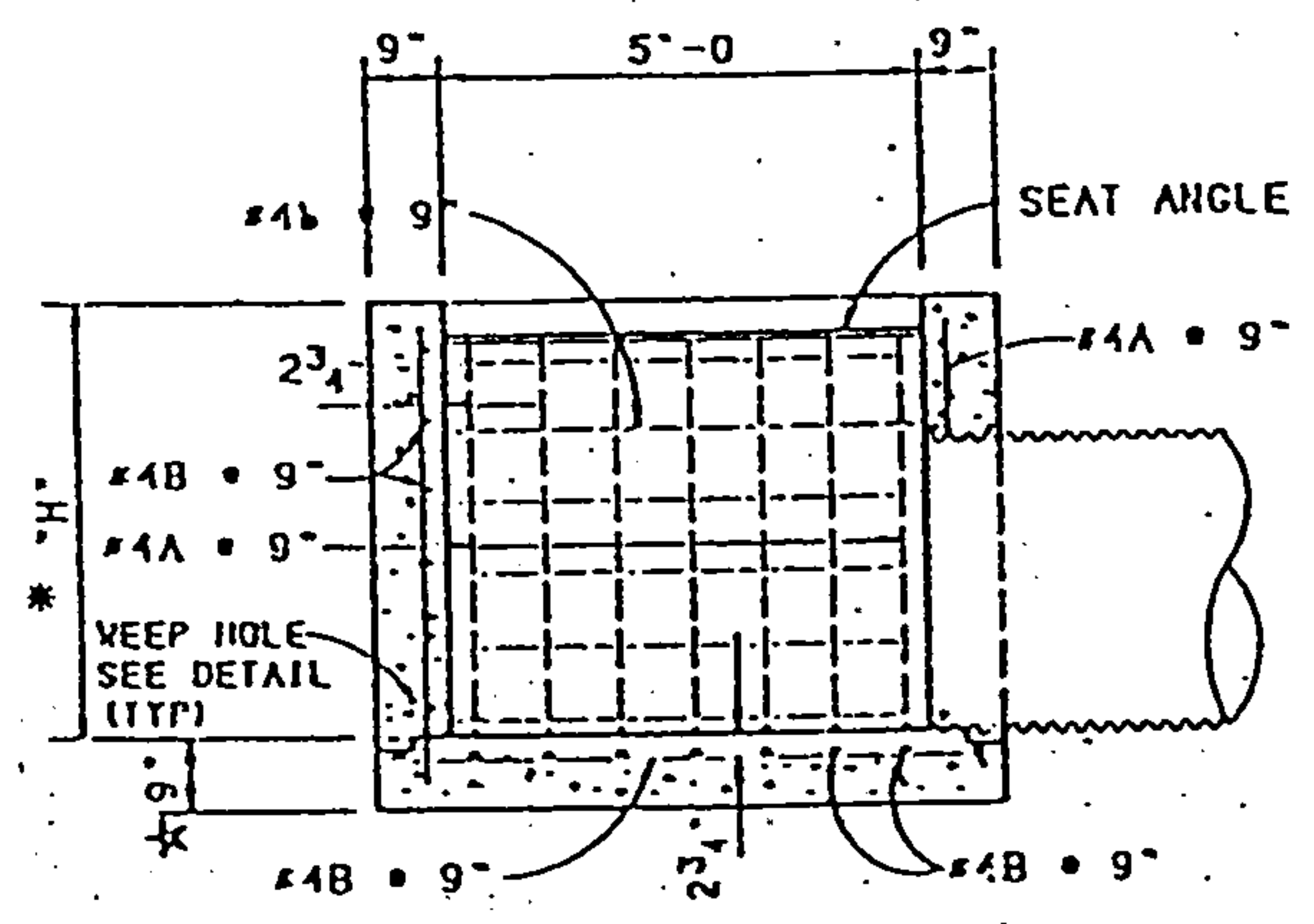
NOTE: ROUND OFF "H" TO THE NEAREST FOOT. USE SHORTER LENGTH WHEN DIMENSION FALLS ON 6".

ESTIMATED QUANTITIES	
(FOR CONTRACTOR'S INFORMATION ONLY. NOT A BID ITEM)	
CLASS "A" CONCRETE	1.102 * 0.639 "H" CU. YDS.
REINFORCING STEEL	84.50 * 40.96 "H" LBS.
STRUCTURAL STEEL (URBAN)	820 LBS.
STRUCTURAL STEEL (RURAL)	785 LBS.

NOTE: TO OBTAIN CLASS "A" CONCRETE QUANTITY, USE VALUE TABULATED ABOVE AND DEDUCT THE VOLUME OF THE PIPE OPENINGS FROM THE QUANTITY TABULATED.

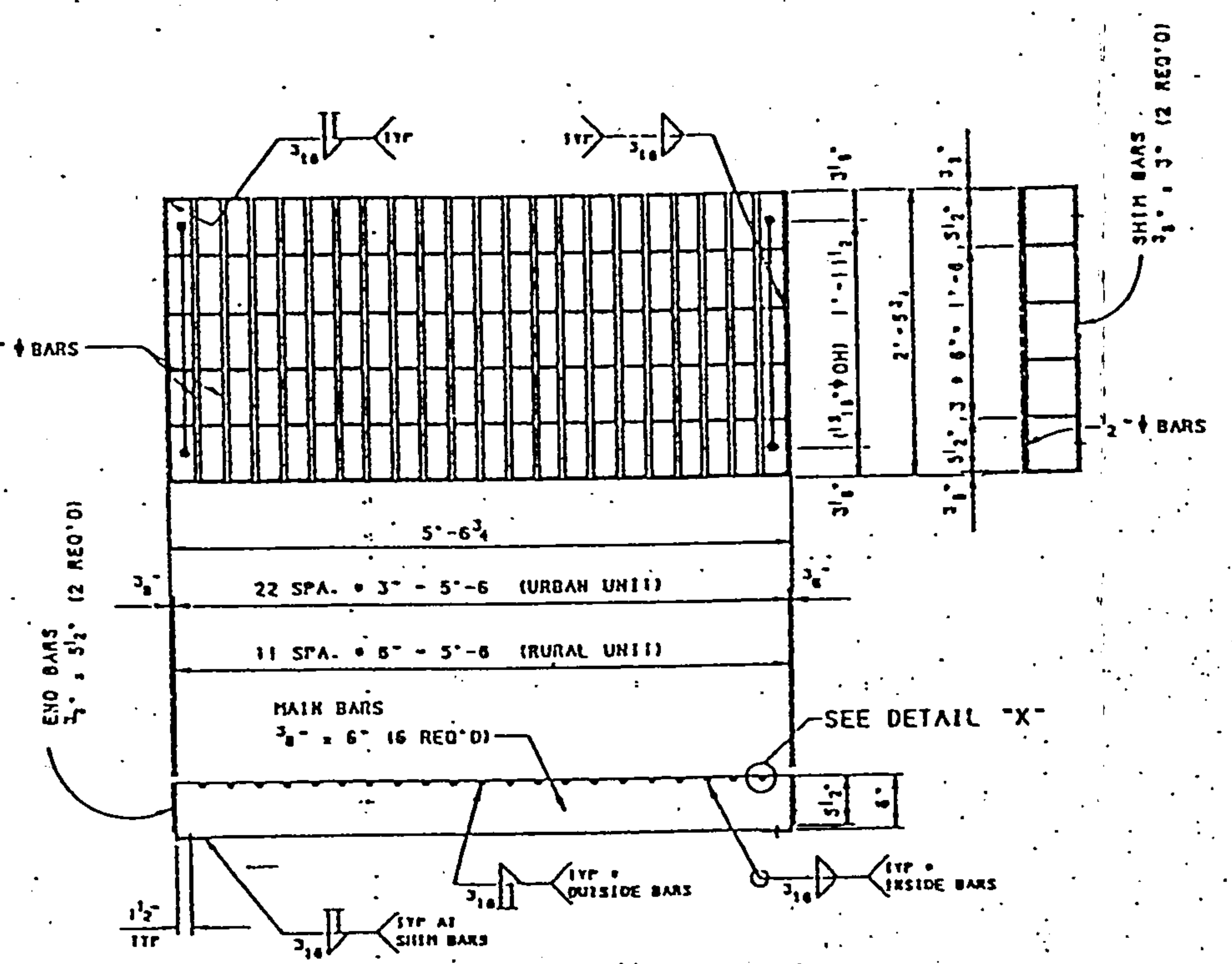


DETAIL "X"
(ALTERNATE METHODS)

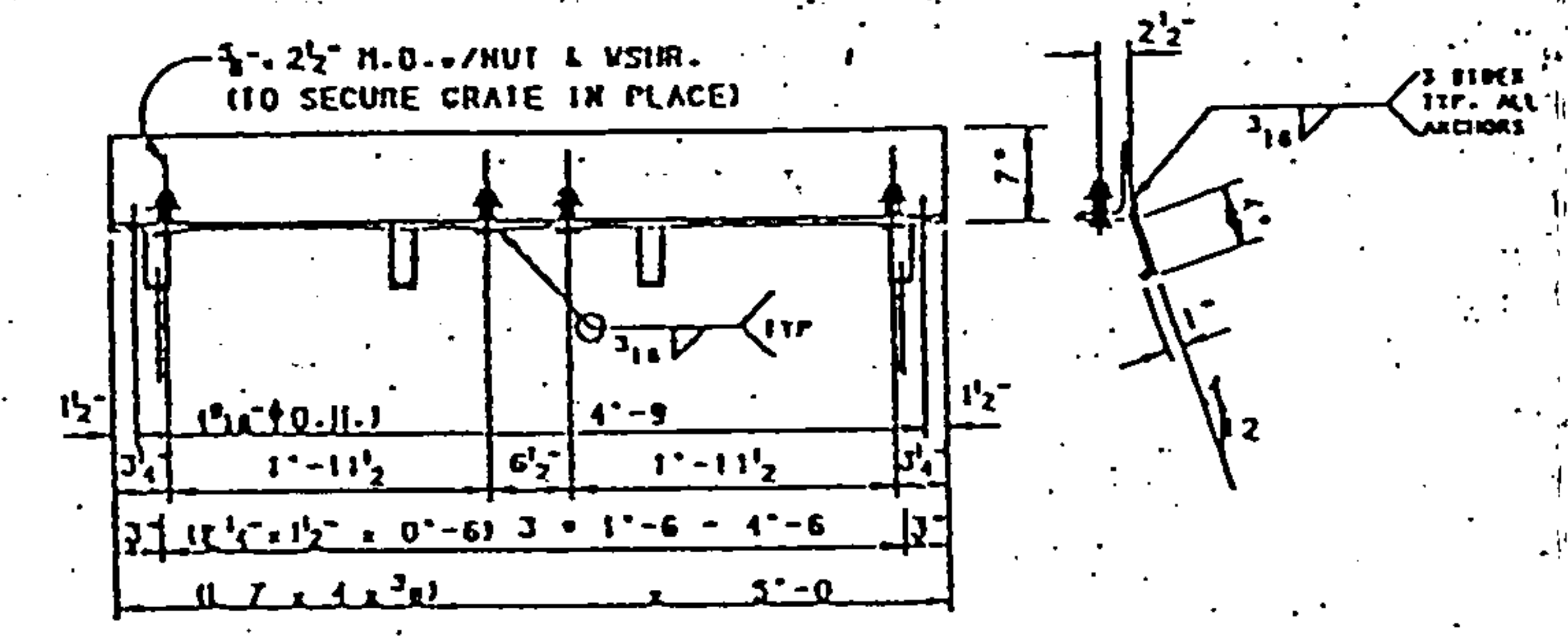


SECTION B-B

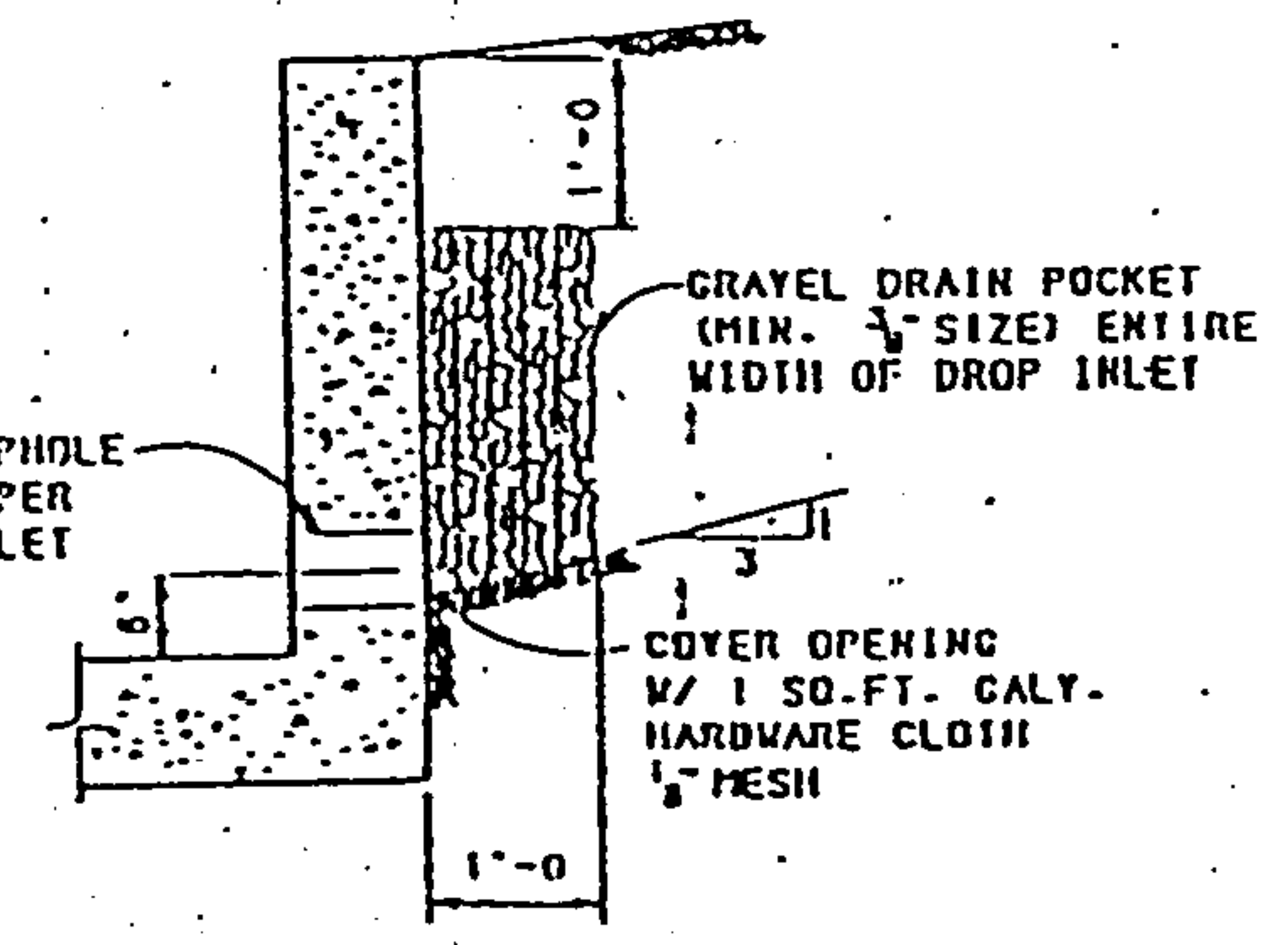
* AVERAGE BOTTOM THICKNESS USE 8 1/2" AT OUTLET AND 9 1/2" AT HIGH SIDE.
* "H" = DIA. OR RISE OF PIPE + 1'-3" MINIMUM, AND 15'-0" MAXIMUM.



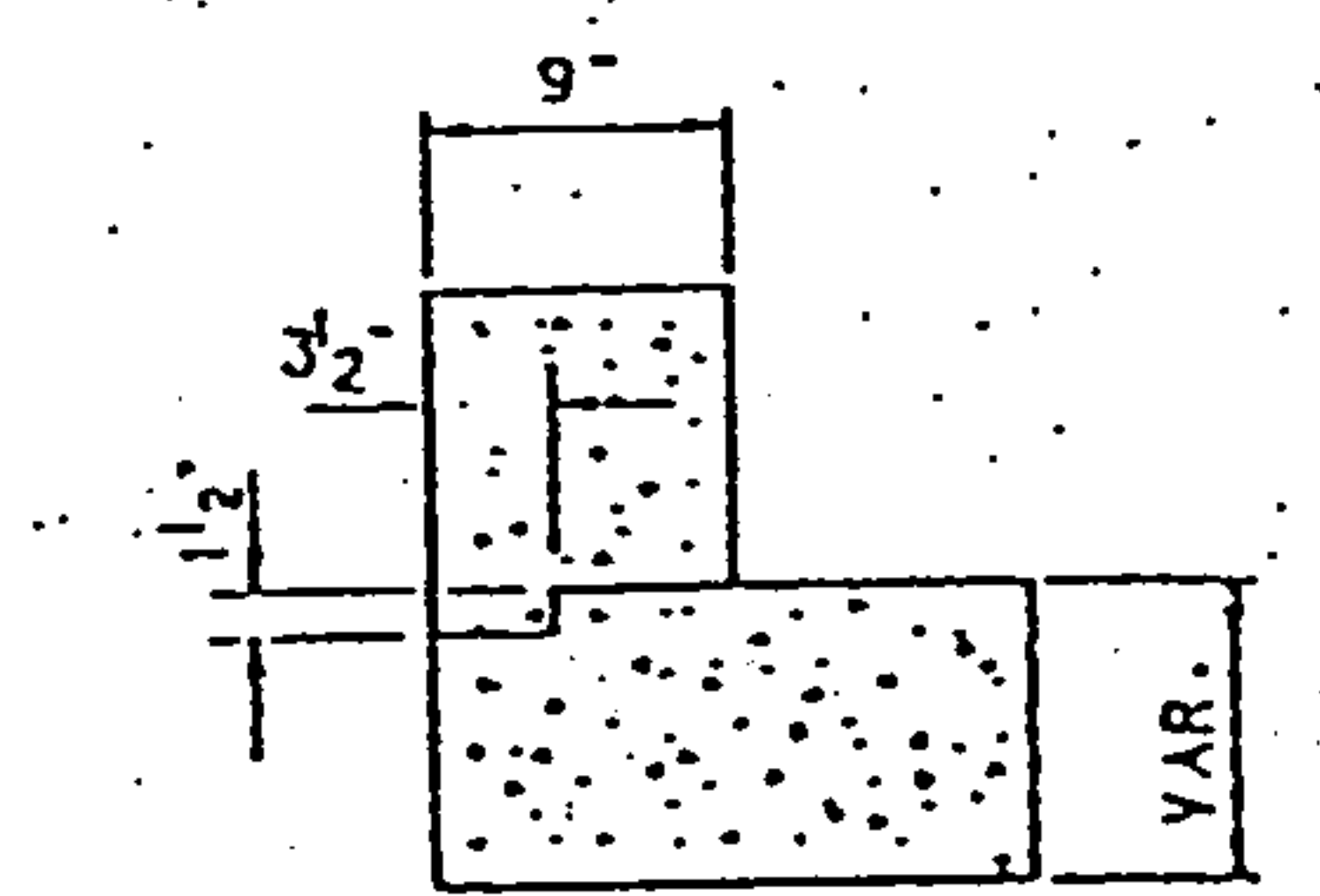
GRATE DETAILS
(2 REQUIRED)



SEAT ANGLE DETAILS



WEEP HOLE DETAIL



CONST. JOINT DETAIL

GENERAL NOTES

1. ALL CONCRETE SHALL BE CLASS "A". CHAMFER EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED ON THE DETAILS.
2. REINFORCING BARS SHALL CONFORM TO A.A.S.H.T.O. SPECIFICATION M-31, GRADE 60. DIMENSIONS REFER TO THE CENTERLINE OF BAR UNLESS OTHERWISE NOTED ON THE DETAILS.
3. STRUCTURAL STEEL SHALL CONFORM TO A.A.S.H.T.O. SPECIFICATION M-183 AND SHALL BE GIVEN A PROTECTIVE COATING IN CONFORMANCE WITH THE SPECIFICATIONS.
4. DROP INLETS MAY BE USED WITH EITHER R.C.P. OR C.H.P. C.H.P. IS SHOWN IN THE DETAILS.
5. PIPES MAY BE LOCATED ON ANY WALL AND MAY BE ANY SHAPE. DIAMETER OR SPAN OF THE PIPES WILL BE DETERMINED BY THE SKEW ANGLE AND THE REQUIRED CLEARANCE AS SHOWN ON THE PLAN VIEW.

DRAWINGS REQUIRED

ROADWAY DESIGN DRAWINGS: FOR PIPE TYPE, LOCATION, HEIGHT, SKEW ANGLE, AND NUMBER REQUIRED.

DESIGN DATA

DESIGN ACCORDING TO A.A.S.H.T.O. SPECIFICATIONS DATED 1992.

DESIGN STRESSES:
REINFORCED CONCRETE: $f_c = 1200$ psi, $f_y = 60,000$ psi, $\phi = 10$.
STRUCTURAL STEEL: $f_y = 20,000$ psi, $f_u = 36,000$ psi.

EARTH PRESSURE: 36 lb./sq. ft. EQUIV. FLUID PRESSURE 2'-0" SURCHARGE.

LIVE LOAD ON URBAN GRATING: ONE 16,000 LB. WHEEL PLUS 30X IMPACT, 15% OVERSTRESS.

NOTE: MEDIAN DROP INLETS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE UNIT PRICE BID PER EACH.

NO.	REVISIONS (OR CHANGE NOTICES)	DATE	BY
1	REVISED NOTES	1/31/92	SJM

NEW MEXICO STATE
HIGHWAY AND TRANSPORTATION
DEPARTMENT

MEDIAN DROP INLET
5'-0" x 5'-0"
DETAILS AND QUANTITIES

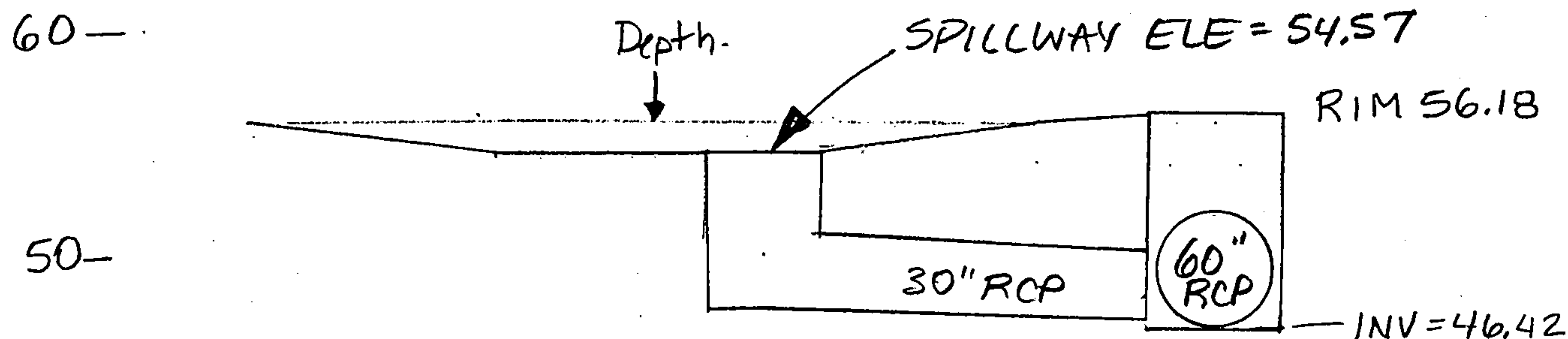
SERIAL BMDI-006



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

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

PROJECT Sunrise Ranch West
SUBJECT 5'x5' Median Drop Inlet
BY DLH DATE 9-6-01
CHECKED _____ DATE _____
SHEET _____ OF _____



HEC-2 Results :

	Q	Depth
14' Bottom width	37	0.5
1.66' depth	125	1.0
Slope = 0.8%	195	1.27

5'x5' DROP INLET L=20

$$Q_{weir} = 3.0(20)(D)^{1.5}$$

RATING TABLE

Q _{TOTAL}	Q _{INLET}	Q _{SWALE}
37	21	16
125	60	65
195	86	109

Divide HYD
(split flow)

Interim Conditions (AT-14MD)

EXHIBIT "A"

8714

LOT 1, BLOCK 2
LANDS OF THE ATRUSCO GRANT
FILED 3/28/82
(03-26)

SCALE: 1" = 80'

LOT 2, BLOCK 2
LANDS OF THE ATRUSCO GRANT
FILED 3/28/82
(03-26)

PERMANENT
DRAINAGE EASEMENT
30.828 SQ. FT.
1.3304 ACRES

POINT OF BEGINNING
LEGAL DESCRIPTION

AZ CONTROL
STATION "B-1"

PROPOSED CITY
OF ALBUQUERQUE
DRAINAGE EASEMENT

GRANTEE & GRANT
MAY BE EXEMPT
FILE 4/2/83
(01-25)

EUCAPIZ AVE. S.W.
(03'-PRIVATE ROAD)

106TH STREET S.W.
(64' DEDICATED R.O.W.)

106TH STREET S.W.
(60'-PRIVATE ROAD)

NOTES:

1. BEARINGS SHOWN ARE NEW MEXICO STATE PLANE GRID BEARINGS (CENTRAL ZONE).
2. DISTANCES ARE GROUND DISTANCES.

ALBUQUERQUE SURVEYING CO., INC.

PH. 284-2036

PAGE 2

77028-B

AUG-22-2001 13:46

FROM FIDELITY NATIONAL TITLE

5053321068

T-927 P.006/007 F-276



ALBUQUERQUE SURVEYING COMPANY INC
2119 METALLI BOULEVARD, N.E. ALBUQUERQUE, NM 87107

PHONE 505-2036
FAX 505-1796

8713

EXHIBIT "A"
LEGAL DESCRIPTION
PERMANENT DRAINAGE EASEMENT

Being that certain parcel of land situated within the Town of Arroyo Grant, within Section 29 (as projected), Township 10 North, Range 2 East, New Mexico Principal Meridian, Albuquerque, Bernalillo County, New Mexico, and being identified as the southeasterly portion of Lot 1, Block 2, Lands of the Arroyo Grant, as said Lot 1 is shown and designated on "PLAT, LANDS OF THE ARROYO GRANT WITHIN SECTIONS 28, 29, & 30, T10N, R2E, N.M.P.M.", filed in the Office of the County Clerk, Bernalillo County, New Mexico, on March 26, 1962, in Volume 03, Folio 26, and being more particularly described by metes and bounds survey as follows:

Beginning at the southeast corner of the parcel of land herein described being the point at the intersection of the northerly line of Encariz Road (private road) and the westerly line of 106th Street (private road), whence the ACS Control Station "9-L9" bears N. 70° 26' 46" E., 2,578.82 feet distance; thence,

S. 74° 57' 52" W., 290.00 feet distance to the southwest corner of the parcel of land herein described; thence,

N. 00° 18' 31" E., 305.00 feet distance to the northwest corner of the parcel of land herein described; thence,

N. 74° 57' 52" E., 290.00 feet distance to the northeast corner of the parcel of land herein described being a point on the westerly line of 106th Street (private road); thence,

S. 00° 18' 31" W., 305.00 feet distance to the southeast corner and point of beginning of the parcel of land herein described and containing 58.826 square feet (1.3504 acres), more or less.

Vladimir Jirik
Vladimir Jirik, N.M.P.S. 810464



11/18/94
Date

AUG-22-2001 13:48

FROM-FIDELITY NATIONAL TITLE

5053321088

T-027 P.005/007 F-276

95078500

EASEMENT

This grant of Easement, between S.C. Development LLC ("Grantor"), and the City of Albuquerque, a New Mexico municipal corporation ("City"), whose address is P. O. Box 1293 Albuquerque, New Mexico 87103.

1. Grant of Easement. The Grantor grants to the City an exclusive permanent easement for a ("Public Improvement") on, over, across and through the property described on Exhibit A attached hereto ("Property"), together with the right of the City to operate, maintain, repair, replace and construct the Public Improvement and the right to remove trees, bushes, undergrowth and any other obstacles upon the Property if the City determines they interfere with the appropriate use of the easement.

2. Warranties. Grantor covenants and warrants that it is the owner in fee simple of the Property and that it has a good lawful right to convey the Property or any part thereof and that the Grantor will forever warrant and defend the title to the Property against all claims from all persons or entities.

3. Binding on Grantor's Property. The grant and other provisions of this Easement constitute covenants running with title to the Property for the benefit of the City and its successors and assigns until terminated.

Witness my hand and seal this 14 day of August, 1995.

GRANTOR:

By: Charles A. Vogel
Its: President
Dated: 8-7-95

STATE OF NEW MEXICO)

COUNTY OF BERNALILLO) ss

This instrument was acknowledged before me on August 7, 1995 by Charles A. Vogel President of S.C. Development LLC, on behalf of the Company.

[Signature]
Notary Public

My Commission Expires:

8-7-99

STATE OF NEW MEXICO
COUNTY OF BERNALILLO
NOTARY PUBLIC

1995 AUG -8 PM 12:16

85-18-8712-8714
CO. CLERK
-10013

j:\work\assessments\m

AUG-22-2001 13:48

FROM-FIDELITY NATIONAL TITLE

6059321068

T-927 P.004/007 F-276

EXHIBIT "A"

5830

LOT 1, BLOCK 8
LANDS OF THE ATRISCO GRANT
FILED 3/30/62
(21-23)

SCALE: 1" = 60'

LOT 2, BLOCK 8
LANDS OF THE ATRISCO GRANT
FILED 3/26/62
(21-26)

PERMANENT
DRAINAGE EASEMENT
59,316 SQ. FT.
1.3564 ACRES

POINT OF BEGINNING
LEGAL DESCRIPTION

106TH STREET S.W.
(50'-PRIVATE ROAD)

105 CONTROL
STATION "7-15"

PROPOSED CITY
OF LONGFORD
DRAINAGE EASEMENT

DRAINAGE EASEMENT
E.O. 12812
FILED 8/5/83
(21-24)

EUCARIZ AVE. S.W.
(80'-PRIVATE ROAD)

106TH STREET S.W.
(60' INDICATED R.O.W.)

NOTES:

1. BEARINGS SHOWN ARE NEW MOUNTAIN PLANE GRID BEARINGS (CENTRAL ZONE).
2. DISTANCES ARE GROUND DISTANCES.

AUG-22-2001 13:47

FROM-FIDELITY NATIONAL TITLE

6053321068

T-927 P.003/007 F-276

5829



ALBUQUERQUE SURVEYING COMPANY INC.
 1000 MICHAEL BLVD. SUITE 100 ALBUQUERQUE, NM 87102
 PHONE 505-261-1000
 FAX 505-261-1001

EXHIBIT "A"
 LEGAL DESCRIPTION
 PERMANENT DRAINAGE EASEMENT

Being that certain parcel of land situated within the Town of Arteson
 Grant, within Section 29 (as projected), Township 10 North, Range 2 East, New
 Mexico Principal Meridian, Bernalillo County, New Mexico, and being
 identified as the southeasterly portion of Lot 1, Block 2, Lands of the Arteson
 Grant, as said Lot 1 is shown and designated on "PLAT, LOTS OF THE ARTESON GRANT
 WITHIN SECTIONS 18, 19, & 20, T10N, R2E, N.M.P.M.", filed in the office of the
 County Clerk, Bernalillo County, New Mexico, on March 26, 1982, in Volume 23,
 Folio 26, and being more particularly described by metes and bounded survey as
 follows:

Beginning at the southeast corner of the parcel of land herein described
 being the point at the intersection of the northerly line of Cummins Road
 (private road) and the westerly line of 104th Street (private road), whence the
 ACS Control Station "9-29" bears N. 70° 26' 14" E., 2,578.92 foot distance;
 thence,

S. 74° 57' 52" W., 200.00 foot distance to the southeast corner of the
 parcel of land herein described; thence,

N. 00° 18' 11" E., 104.00 foot distance to the northeast corner of the
 parcel of land herein described; thence,

N. 74° 57' 52" E., 200.00 foot distance to the northeast corner of the
 parcel of land herein described being a point on the westerly line of 104th
 Street (private road); thence,

S. 00° 18' 11" W., 105.00 foot distance to the southeast corner and point
 of beginning of the parcel of land herein described and containing 38,926 square
 feet (1.3504 acres), area of land.

Mark H. S.
 FIDELITY NATIONAL TITLE, N.M.P.S. 120264

11/15/94
 10420



AUG-22-2001 13:47

FROM-FIDELITY NATIONAL TITLE

5828

95029565

PERMANENT EASEMENT

Grant of Permanent Easement, between SANTA FE PROPERTIES
SUNRISE TERRACE LIMITED PARTNERSHIP
 ("Grantor"), whose address is 1323 CAYO DE PERALTA SANTA FE the City
 of Albuquerque, a New Mexico municipal corporation ("City"), whose address is
 P.O. Box 2235, Albuquerque, New Mexico, 87103.

Grantor grants to the City an exclusive, permanent easement ("Easement")
 in, over, upon and across the real property described in Exhibit "A" attached
 hereto ("Property") for the construction, installation, maintenance, repair,
 modification, replacement and operation of SEWERAGE
 together with the right to remove trees, bushes, undergrowth and any other
 obstacles upon the Property if the City determines they interfere with the
 appropriate use of this Easement.

Grantor covenants and warrants that Grantor is the owner in fee simple of
 the Property, that Grantor has a good lawful right to convey the Property or
 any part thereof and that Grantor will forever warrant and defend the title to
 the Property against all claims from all persons or entities.

The grant and other provisions of this Easement constitute covenants
 running with the land for the benefit of the City and its successors and
 assigns until terminated.

WITNESS my hand and seal this 13th day of March, 1995.

GRANTOR:

[Signature]
 Bradley M. Odegard
 Secretary of Santa Fe Properties
 Real Estate Co., Inc., a NM Corp.,
 General Partner

STATE OF NEW MEXICO)

COUNTY OF BERNALILLO)

The foregoing instrument was acknowledged before me this 13th day of
 March, 1995 by Bradley M. Odegard, as aforesaid, on behalf of said Partnership.

Notary Public

STATE OF NEW MEXICO

55 MAR 24 1995

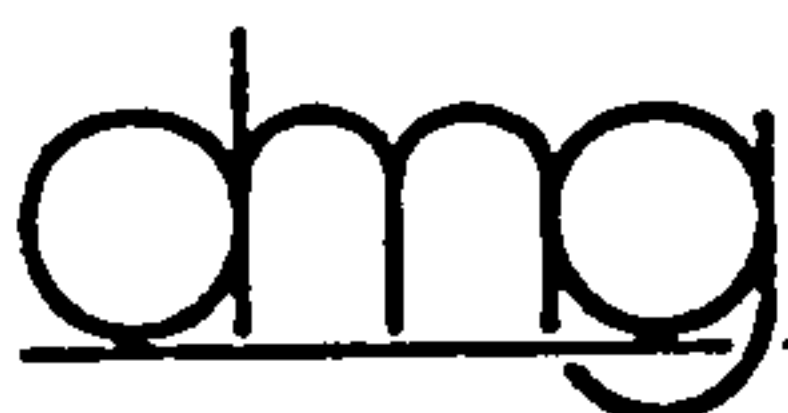
95-7 5828-5730

APPENDIX B.3

Floodplain Analysis (HEC-RAS)

Erosion Setback Calculations

HEC RAS cross sections



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

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

PROJECT Sunrise Ranch Unit 2
SUBJECT Erosion Setback Calcs.
BY DLH DATE 10-4-00
CHECKED _____ DATE _____
SHEET _____ OF _____

SB 20101 (upstream subbasin, source: Amole Hubbell Drainage
Management Plan.)

$$100\text{yr} - 24\text{hr } Q_{\text{peak}} = 212 \text{ cfs}$$

$$\text{Dominant Discharge } Q_d = 0.2 Q_{100} \text{ (Eqn 3.77)*}$$

$$Q_d = 0.2(212 \text{ cfs}) = 42.4 \text{ cfs}$$

$$S_c = 0.037 Q_d^{-.133} = .02248 \quad S = \frac{28.6 - 20.3}{375} = .02213$$

$$\text{For } Q_d = 42.4 \text{ cfs}$$

$$\Rightarrow \Delta_{\text{max}} = 11.5 Q_d^{0.4} \quad \text{WHEN } S \geq S_c \text{ and } Q_d \leq 200 \text{ cfs}$$

$$\Delta_{\text{max}} = 11.5(42.4)^{0.4} \text{ (Eqn. 3.81a)*}$$

$$\Delta_{\text{max}} = 51.5'$$

$$\Rightarrow \Delta_{\text{max}} = 6.2 Q_d^{0.375} S^{-.188} \quad \text{WHEN } S < S_c \text{ and } Q_d \leq 200 \text{ cfs}$$

$$\Delta_{\text{max}} = 6.2(42.4)^{.375} (.02213)^{-.188} \text{ (Eqn. 3.82a)*}$$

$$= 6.2(4.076)(2.047)$$

$$\Delta_{\text{max}} = 51.7'$$

SOURCE: SEDIMENT AND EROSION DESIGN GUIDE,
AMAFCA, MARCH 1994.

HEC-RAS Plan: Plan 01 Reach: SUNRISE

River Sta.	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
2426	212.00	58.70	60.35	60.42	60.64	0.040053	4.31	49.24	136.40	1.26
2378	212.00	58.00	58.90	58.94	59.21	0.026185	4.48	47.34	89.90	1.09
2246	212.00	54.00	54.70	54.76	55.02	0.033220	4.55	46.60	103.38	1.19
2188	212.00	52.20	53.09	53.11	53.35	0.026706	4.10	51.72	113.88	1.07
2131	212.00	50.50	51.30	51.36	51.60	0.032494	4.36	48.62	113.06	1.17
1991	212.00	47.20	48.06	48.06	48.29	0.024247	3.84	55.23	124.82	1.05
1916	212.00	45.25	46.15	46.16	46.41	0.025518	4.08	52.00	111.53	1.05
1804	212.00	42.60	43.46	43.47	43.73	0.024565	4.18	50.72	101.85	1.04
1739	212.00	40.80	41.58	41.61	41.86	0.029760	4.25	49.89	112.85	1.13
1579	212.00	37.50	38.32	38.32	38.54	0.024131	3.75	56.53	131.82	1.01
1509	212.00	35.00	36.25	36.29	36.57	0.027916	4.54	46.68	91.06	1.12
1469	212.00	33.00	34.87	35.23	35.49	0.022568	6.33	33.51	33.68	1.12
1450	212.00	32.20	33.83	34.24	34.88	0.039689	8.22	25.80	26.69	1.47
1420	212.00	30.50	32.92	33.12	33.80	0.021570	7.55	28.07	20.43	1.14
1375	212.00	28.60	31.75	31.91	32.76	0.021599	8.07	26.26	16.27	1.12
1302	212.00	27.00	29.63	29.89	30.74	0.026010	8.44	25.13	17.43	1.24
1262	212.00	24.90	26.96	27.50	28.69	0.047124	10.53	20.14	15.79	1.64
1202	212.00	23.90	26.61	26.61	27.13	0.018782	5.74	36.95	36.89	1.01
1153	212.00	22.85	24.58	24.90	25.69	0.032076	8.45	25.10	20.98	1.36
1130	212.00	22.65	24.56	24.65	25.26	0.021592	6.73	31.50	27.69	1.11
1102	212.00	22.30	24.18	24.19	24.73	0.018074	5.91	35.89	33.80	1.01
1076	212.00	21.80	23.46	23.54	24.07	0.021752	6.25	33.92	33.80	1.10
1048	212.00	21.40	22.94	22.95	23.46	0.019144	5.82	36.41	36.66	1.03
1000	212.00	20.30	22.15	22.15	22.73	0.017591	6.10	34.75	30.52	1.01

HEC-RAS Plan: Plan 01 Reach: SUNRISE

River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
2426	212.00	58.70	60.35	60.42	60.64	0.040053	4.31	49.24	136.40	1.26
2409.33*	212.00	58.47	59.89	59.93	60.15	0.028032	4.09	51.79	118.41	1.09
2392.86*	212.00	58.23	59.34	59.41	59.69	0.029902	4.70	45.11	88.01	1.16
2376	212.00	58.00	58.90	58.94	59.21	0.026185	4.48	47.34	89.90	1.09
2357.42*	212.00	57.43	58.24	58.33	58.63	0.036511	5.01	42.30	87.09	1.27
2338.85*	212.00	56.86	57.69	57.73	58.01	0.029580	4.59	46.17	92.55	1.15
2320.28*	212.00	56.29	57.07	57.14	57.42	0.033808	4.77	44.47	93.15	1.22
2301.71*	212.00	55.71	56.48	56.54	56.81	0.031615	4.61	45.97	96.23	1.18
2283.14*	212.00	55.14	55.89	55.95	56.21	0.030977	4.53	46.81	99.20	1.16
2264.57*	212.00	54.57	55.30	55.35	55.61	0.030208	4.44	47.71	102.05	1.15
2246	212.00	54.00	54.70	54.76	55.02	0.033220	4.55	46.60	103.38	1.19
2226.86*	212.00	53.40	54.21	54.22	54.47	0.023995	4.03	52.60	109.59	1.03
2207.33*	212.00	52.80	53.61	53.67	53.93	0.034588	4.57	46.43	105.55	1.21
2188	212.00	52.20	53.09	53.11	53.35	0.026706	4.10	51.72	113.88	1.07
2169.*	212.00	51.63	52.47	52.53	52.77	0.033945	4.41	48.11	113.78	1.19
2150.*	212.00	51.07	51.92	51.94	52.18	0.027956	4.10	51.65	117.47	1.09
2131	212.00	50.50	51.30	51.36	51.60	0.032494	4.36	48.62	113.06	1.17
2111.*	212.00	50.03	50.79	50.89	51.15	0.043584	4.82	43.99	109.70	1.34
2091.*	212.00	49.56	50.26	50.42	50.76	0.069540	5.66	37.43	104.04	1.66
2071.*	212.00	49.09	49.69	49.95	50.60	0.159748	7.66	27.66	91.14	2.45
2051.*	212.00	48.61	49.17	49.47	50.38	0.232030	8.83	24.01	84.59	2.92
2031.*	212.00	48.14	48.76	49.01	49.60	0.141083	7.34	28.88	92.48	2.31
2011.*	212.00	47.67	48.55	48.54	48.76	0.022659	3.71	57.17	129.33	0.98
1991	212.00	47.20	48.06	48.06	48.29	0.024247	3.84	55.23	124.82	1.05
1972.25*	212.00	46.71	47.57	47.59	47.82	0.027182	4.03	52.56	120.15	1.07
1953.5*	212.00	46.23	47.11	47.12	47.36	0.025921	4.01	52.92	117.95	1.05
1934.75*	212.00	45.74	46.63	46.65	46.88	0.025541	4.03	52.56	114.66	1.05
1916	212.00	45.25	46.15	46.16	46.41	0.025518	4.08	52.00	111.53	1.05
1897.33*	212.00	44.81	45.70	45.72	45.96	0.025840	4.12	51.45	109.64	1.06
1878.86*	212.00	44.37	45.25	45.27	45.52	0.025785	4.14	51.16	107.92	1.06
1860.*	212.00	43.92	44.81	44.82	45.07	0.024865	4.12	51.50	106.77	1.04
1841.33*	212.00	43.48	44.36	44.37	44.62	0.024764	4.14	51.16	104.71	1.04
1822.86*	212.00	43.04	43.92	43.92	44.18	0.023721	4.10	51.67	103.91	1.03
1804	212.00	42.60	43.46	43.47	43.73	0.024565	4.18	50.72	101.85	1.04
1787.75*	212.00	42.15	42.95	43.01	43.28	0.032880	4.57	46.36	101.27	1.19
1771.5*	212.00	41.70	42.53	42.55	42.80	0.025789	4.14	51.25	108.40	1.06
1755.25*	212.00	41.25	42.03	42.08	42.33	0.031036	4.37	48.53	108.71	1.15
1739	212.00	40.80	41.58	41.61	41.86	0.029760	4.25	49.89	112.85	1.13
1719.*	212.00	40.39	41.08	41.20	41.49	0.052049	5.19	40.88	104.36	1.46
1699.*	212.00	39.97	40.53	40.78	41.41	0.147852	7.52	28.21	90.28	2.37
1679.*	212.00	39.56	40.40		40.60	0.019850	3.61	58.79	125.60	0.93
1659.*	212.00	39.15	39.98	39.96	40.19	0.021448	3.69	57.53	126.07	0.96
1639.*	212.00	38.74	39.58		39.77	0.019243	3.52	60.21	130.25	0.91
1619.*	212.00	38.33	39.15	39.14	39.36	0.022279	3.69	57.48	129.44	0.98
1599.*	212.00	37.91	38.77		38.95	0.017704	3.37	62.95	136.76	0.87
1579	212.00	37.50	38.32	38.32	38.54	0.024131	3.75	56.53	131.82	1.01
1561.6*	212.00	36.88	37.78	37.83	38.06	0.032843	4.28	49.48	119.04	1.17
1544.*	212.00	36.25	37.32	37.33	37.56	0.024772	3.96	53.58	117.58	1.03
1526.5*	212.00	35.63	36.77	36.82	37.08	0.030743	4.47	47.43	101.87	1.15
1509	212.00	35.00	36.25	36.29	36.57	0.027916	4.54	46.68	91.06	1.12
1489.*	212.00	34.00	35.70	35.74	36.00	0.027026	4.44	47.71	93.78	1.10
1469	212.00	33.00	34.87	35.23	35.49	0.022568	6.33	33.51	33.68	1.12
1450	212.00	32.20	33.83	34.24	34.88	0.039689	8.22	25.80	26.69	1.47
1435.*	212.00	31.35	32.97	33.34	34.13	0.061289	8.62	24.60	32.90	1.76
1420	212.00	30.50	32.92	33.12	33.80	0.021570	7.55	28.07	20.43	1.14
1405.*	212.00	29.87	32.31	32.60	33.42	0.028420	8.45	25.09	18.87	1.29
1390.*	212.00	29.23	31.87	32.17	33.00	0.027909	8.55	24.80	17.83	1.28
1375	212.00	28.60	31.75	31.91	32.76	0.021599	8.07	26.26	16.27	1.12
1356.75*	212.00	28.20	31.11	31.42	32.31	0.027031	8.79	24.13	15.77	1.25
1338.5*	212.00	27.80	30.62	30.91	31.78	0.026872	8.64	24.54	16.59	1.25

HEC-RAS Plan: Plan 01 Reach: SUNRISE (continued)

River Sta.	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
1320.25*	212.00	27.40	30.11	30.39	31.26	0.027282	8.60	24.64	17.12	1.26
1302	212.00	27.00	29.63	29.89	30.74	0.026010	8.44	25.13	17.43	1.24
1285.33*	212.00	26.30	28.61	29.09	30.15	0.040352	9.97	21.27	16.04	1.52
1268.66*	212.00	25.60	27.77	28.29	29.43	0.044627	10.33	20.52	15.85	1.60
1252	212.00	24.90	26.96	27.50	28.69	0.047124	10.53	20.14	15.79	1.64
1235.33*	212.00	24.57	26.78	27.08	27.85	0.032603	8.30	25.55	22.07	1.36
1218.66*	212.00	24.23	26.95		27.39	0.013228	5.35	39.66	33.87	0.87
1202	212.00	23.90	26.61	26.61	27.13	0.018782	5.74	36.95	36.89	1.01
1185.66*	212.00	23.55	25.69	26.01	26.70	0.028494	8.05	26.33	21.49	1.28
1169.33*	212.00	23.20	25.09	25.43	26.20	0.032019	8.44	25.11	20.91	1.36
1153	212.00	22.85	24.58	24.90	25.69	0.032076	8.45	25.10	20.98	1.36
1141.5*	212.00	22.75	24.66	24.79	25.44	0.022620	7.09	29.89	25.09	1.14
1130	212.00	22.65	24.56	24.65	25.26	0.021592	6.73	31.50	27.69	1.11
1116*	212.00	22.47	24.38	24.44	25.00	0.019718	6.32	33.54	30.36	1.06
1102	212.00	22.30	24.18	24.19	24.73	0.018074	5.91	35.89	33.80	1.01
1089*	212.00	22.05	23.71	23.87	24.43	0.027025	6.82	31.08	31.94	1.22
1076	212.00	21.80	23.46	23.54	24.07	0.021752	6.25	33.92	33.80	1.10
1061*	212.00	21.60	23.20	23.24	23.74	0.020291	5.92	35.82	36.79	1.06
1048	212.00	21.40	22.94	22.95	23.46	0.019144	5.82	36.41	36.66	1.03
1030.66*	212.00	21.03	22.74	22.69	23.20	0.015885	5.45	38.89	37.60	0.94
1015.33*	212.00	20.67	22.56		22.97	0.012726	5.17	41.03	36.37	0.86
1000	212.00	20.30	22.15	22.15	22.73	0.017591	6.10	34.75	30.52	1.01



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e-mail: dmgs@swcp.com

PROJECT Sunrise Ranch West
SUBJECT Arroyo Cross Sections
BY D.H. DATE 8-20-01
CHECKED _____ DATE _____
SHEET _____ OF _____

STA 1804	STA 1916	STA 1991
100 45.0	100 TB 48.0	100 50.0 TB
160 TB 45.0	148 47.0	145 49.0
248 44.0	198 46.0	185 48.0
292 43.0	250 45.25	260 47.2
325 42.6	295 46.0	304 48.0
355 43.0	342 47.0	357 49.0
395 44.0	405 TB 48.0	440 50.0 TB
460 TB 45.0		
STA 2131	STA 2188	STA 2246
100 TB 53.0	100 TB 55.0	100 TB 57.0
205 52.0	195 54.0	165 56.0
292 51.0	245 53.0	215 55.0
340 50.5	315 52.2	260 54.0
370 51.0	350 53.0	290 54.0
398 52.0	400 54.0	350 55.0
450 TB 53.0	470 TB 55.0	385 56.0
		460 TB 57.0
STA 2376	STA 2426	
100 TB 60.0	100 TB 61.0	
172 59.0	190 60.0	
200 58.0	200 59.0	
215 58.0	205 58.7	
270 59.0	210 59.0	
445 TB 60.0	218 60.0	
	438 TB 61.0	



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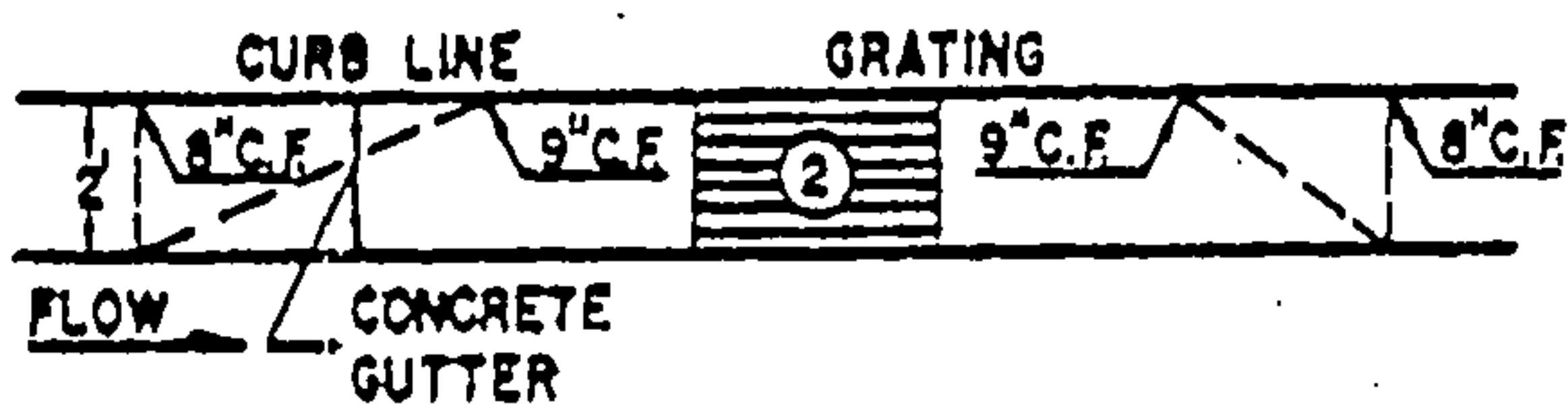
PROJECT Sunrise Ranch West
SUBJECT Arroyo Cross Sections
BY DLH DATE 8.20.01
CHECKED _____ DATE _____
SHEET _____ OF _____

STA 1420	STA 1450	STA 1469
100 TB 35.8	100 TB 36.5	100 TB 37.0
140 35.0	154 36.0	175 36.0
153 34.0	166 35.0	185 35.0
160 33.0	176 34.0	194 34.0
164 32.0	183 33.0	202 33.0
168 31.0	188 32.2	206 33.0
172 30.5	194 32.2	212 34.0
175 31.0	198 33.0	221 35.0
178 32.0	205 34.0	360 35.3
181 33.0	250 34.9	460 TB 36.0
184 34.0	345 34.6	
200 TB 35.7	430 TB 35.0	
285 34.5		
330 33.8		
390 33.0		
STA 1509	STA 1579	STA 1739
100 TB 38.0	100 TB 40.0	100 43.0
200 37.0	212 39.0	200 43.0 TB
212 36.0	228 38.0	275 42.0
224 35.0	250 37.5	330 41.0
230 35.0	315 38.0	350 40.8
264 36.0	440 39.0	375 41.0
410 37.0	520 TB 40.0	438 42.0
500 TB 38.0		490 43.0 TB

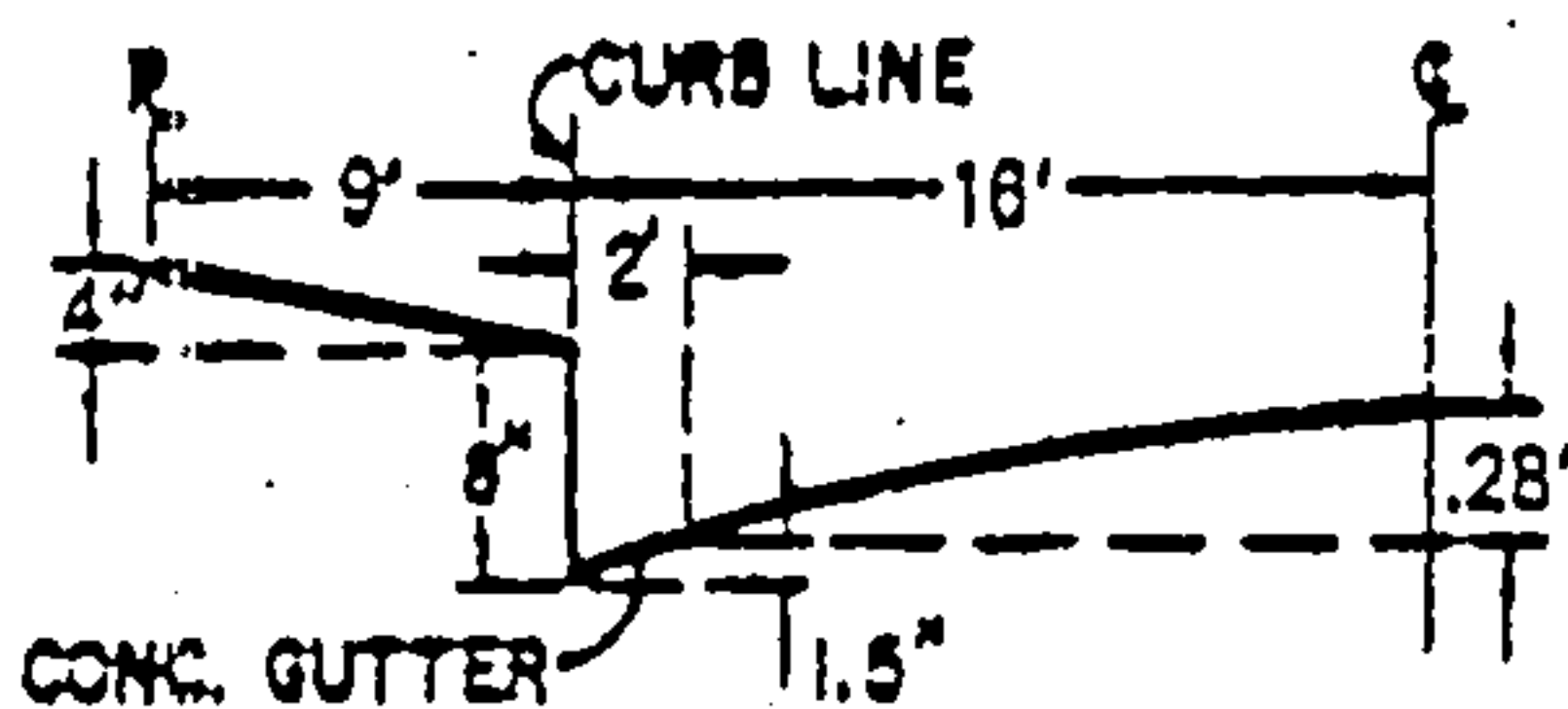
APPENDIX C.1

Inlet Calculations (106th Street)

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



GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

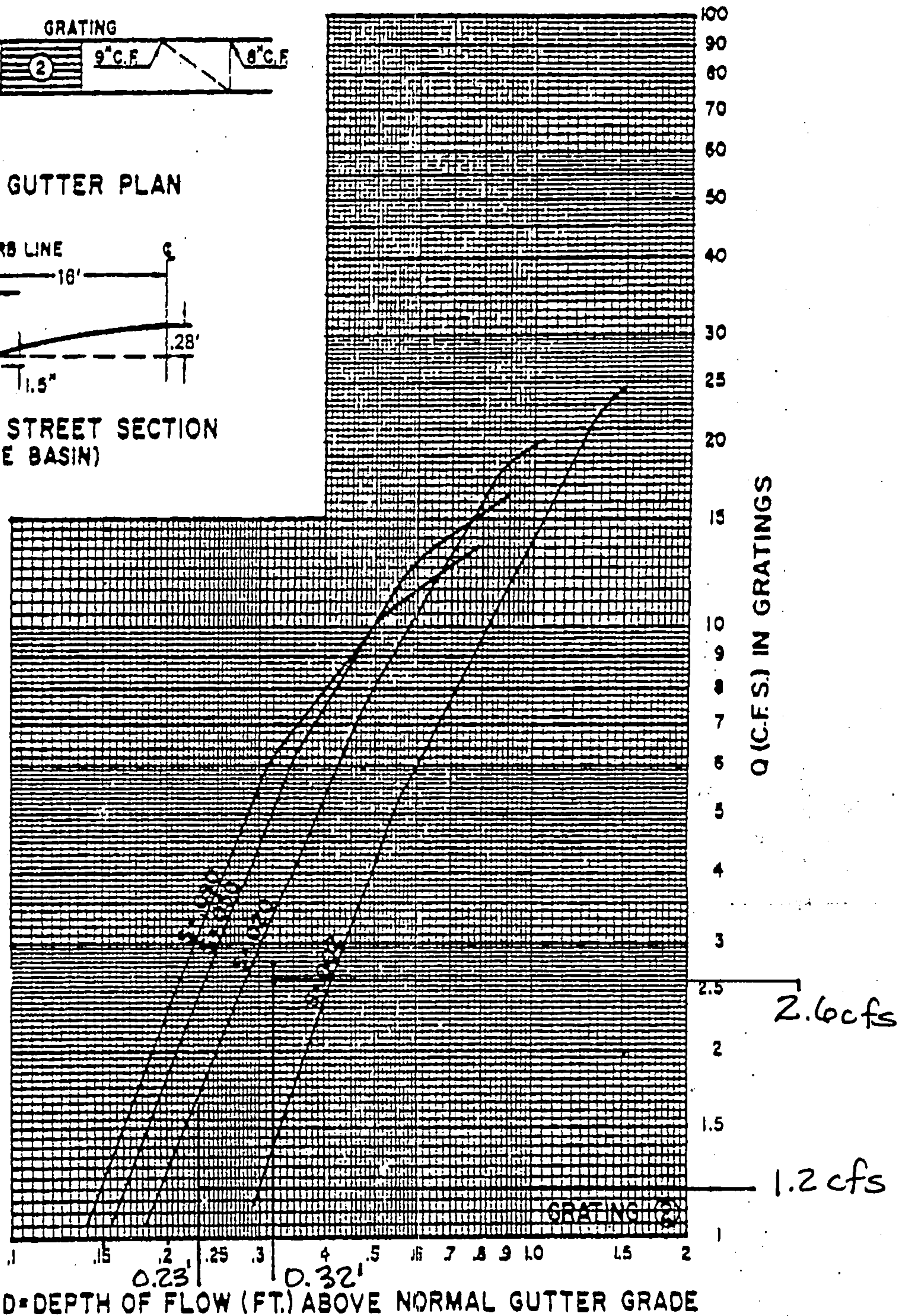


PLATE 22.3 D-5

106th St Inlet

3.8 cfs
- 2.6 cfs

1.2 cfs

```

1*****
* WATER SURFACE PROFILES
* VERSION OF SEPTEMBER 1988
* ERROR: 01,02
* UPDATED: 4 APRIL 1989
* RUN DATE 8/23/ 1 TIME 14:33:27
*****

```

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*****
* U.S. ARMY CORPS OF ENGINEERS
* THE HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
* (916) 756-1104, (916) 551-1748
*****

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X X XXXXXXX XXXXX
X X X X X
X X X X
XXXXXXX XXXX X XXXXX XXXXX
X X X X X
X X X X X
X X XXXXXXX XXXXX
XXXXXXX

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END OF BANNER

THIS RUN EXECUTED 8/23/ 1 14:33:27

```

*****
HEC2 RELEASE DATED SEP 88 UPDATED APR 1989
ERROR CORR - 01,02
MODIFICATION -
*****

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```

T1 SUNRISE RANCH WEST STREET CAPACITY CALCULATIONS
T2 24'FF W/ STD CURB, NO CROWN, 2.% CROSS SLOPE
T3 106 TH STREET

```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	1	.015	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	2	26	4	68	3
NC	.017	.017	.017	.1	.3		
QT	1	3.89					
X1	1	5	0	33	0	0	0
GR	.85	0	.67	8.9	0	9	.125
							11
							.565
							33

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.32	.32	.35	.00	.43	.11	.00	.00	.85
4	0.	4.	0.	0.	1.	0.	0.	0.	.56
.00	.00	2.65	.00	.000	.017	.000	.000	.00	8.95
.015175	0.	0.	0.	0	11	6	.00	11.78	20.73

THIS RUN EXECUTED 8/23/ 1 14:33:27

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

106 TH STREET

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	3.89	.32	.35	2.65	11.78	1.32	.43

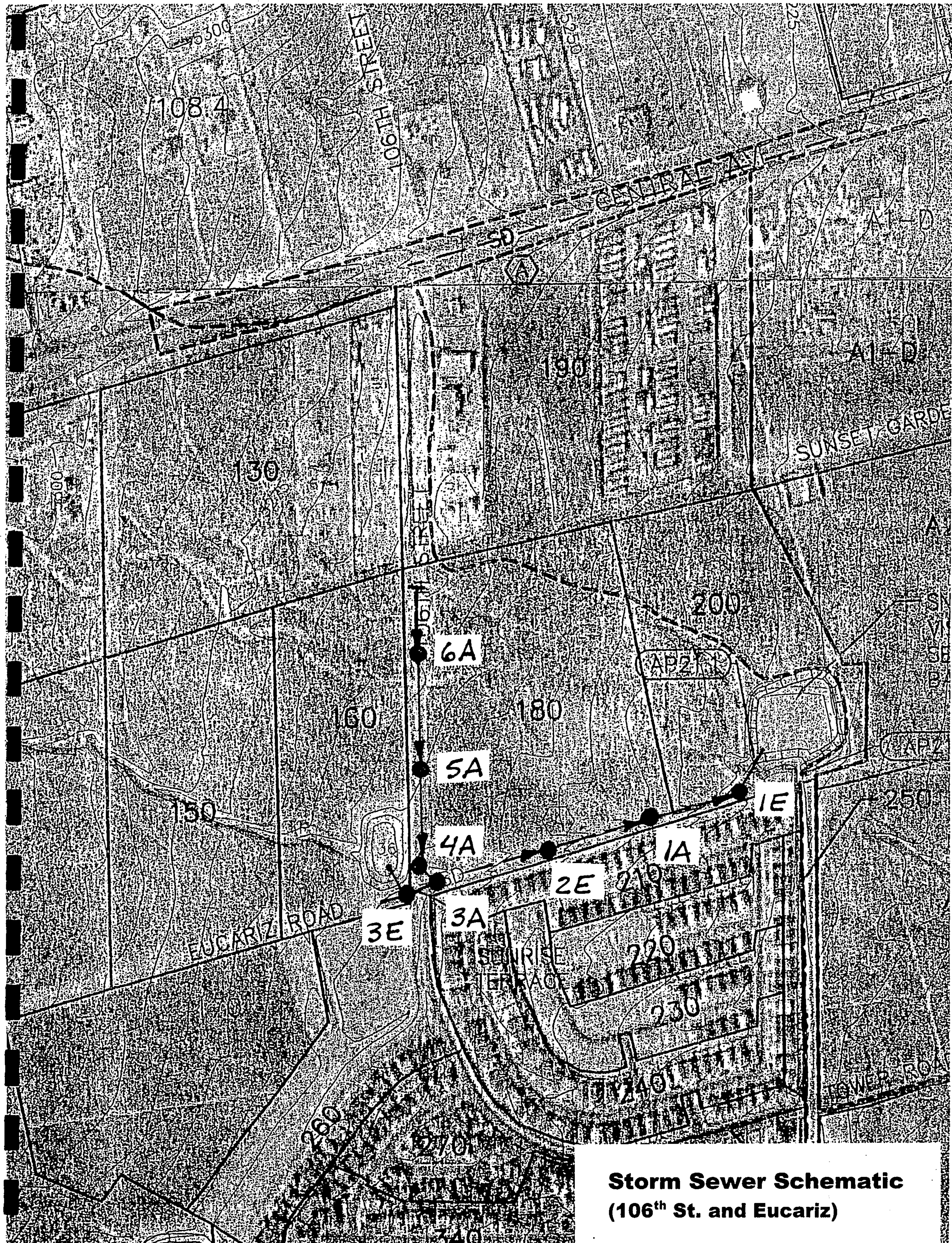
SUMMARY OF ERRORS AND SPECIAL NOTES

APPENDIX C.2

Storm Sewer Analysis

(106th street and Eucariz)

Interim Conditions and Developed Conditions



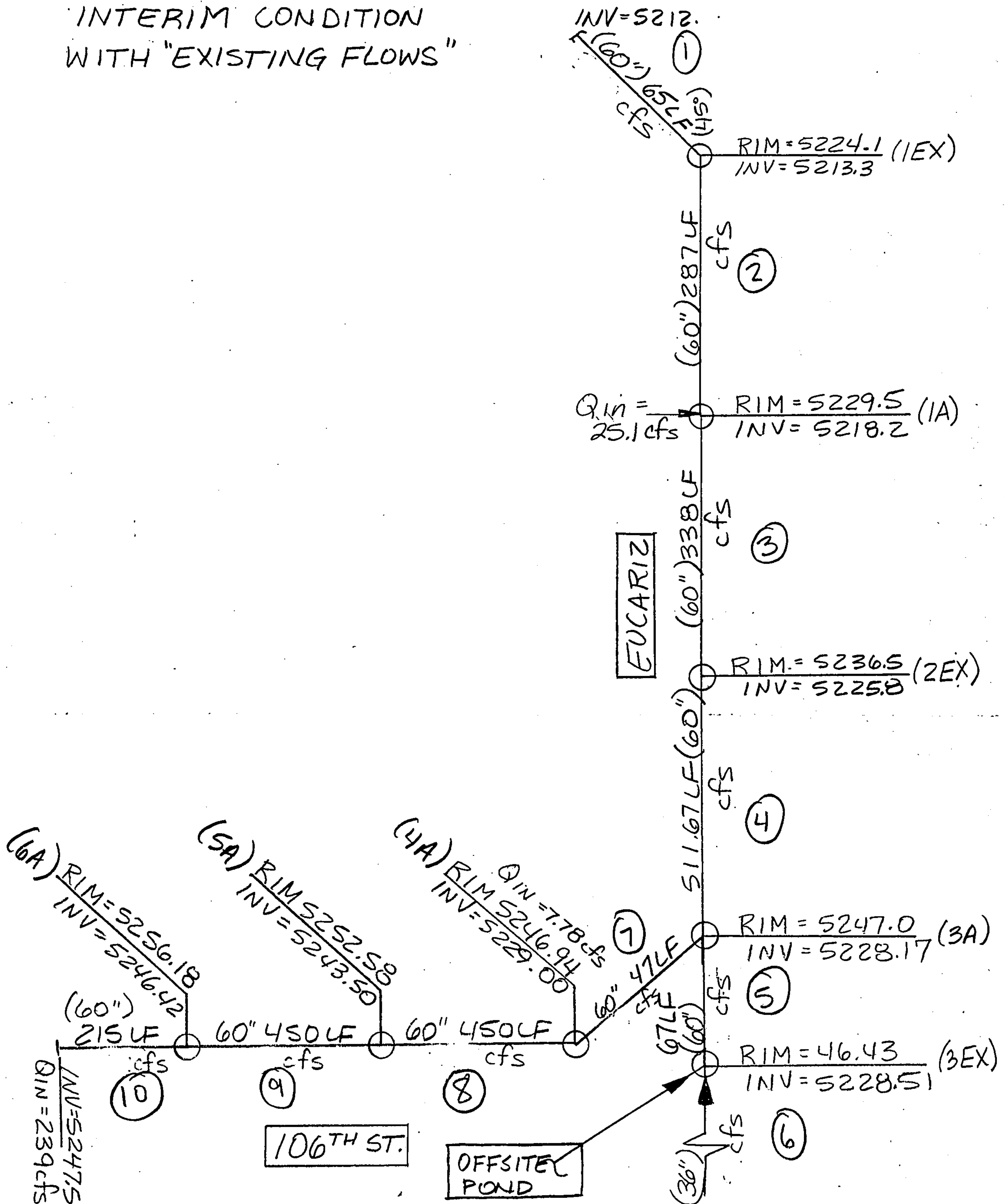


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PROJECT Sunrise Ranch West
SUBJECT 106th St. Storm Sewer
BY DLH DATE 8-24-01
CHECKED _____ DATE _____
SHEET _____ OF _____

INTERIM CONDITION
WITH "EXISTING FLOWS"



1
0
HYDRAULIC REPORT FOR

PRELIMINARY

STORM SEWER DESIGN

INTERIM CONDITION

(Sunset Gardens-Eucariz)

Mark Goodwin & Associates

DLH

September 7, 2001

LINE 1 / Q = 190.0 / HT = 60 / WID = 60 / N = .013 / L = 65 / JLC = .2

SNOWPND-MH1EX / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5216.02	48.25	5212.00	11.10	5217.93	46.68	-1	17.12
UPSTRM	5217.15	46.17	5213.30	11.72	5219.28	50.54	5.8	16.21

Drainage area (ac)	=	0	Slope of invert (%)	=	2.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.070
Time of conc (min)	=	13	Critical depth (in)	=	46.15
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)	=	190	Confluence angle (deg)	=	0
Default Q (cfs)	=	190	Natural ground elev (ft)	=	5224.1
Line capac. (cfs)	=	368.3	Line storage (cuft)	=	1083

LINE 2 / Q = 190.0 / HT = 60 / WID = 60 / N = .013 / L = 287 / JLC = .1

MH1EX-MH1A / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5217.57	51.29	5213.30	10.49	5219.28	40.53	5.8	18.11
UPSTRM	5222.05	46.17	5218.20	11.72	5224.18	50.54	6.29	16.21

Drainage area (ac)	=	0	Slope of invert (%)	=	1.707
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.707
Time of conc (min)	=	11	Critical depth (in)	=	46.15
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)	=	190	Confluence angle (deg)	=	45
Default Q (cfs)	=	190	Natural ground elev (ft)	=	5229.5
Line capac. (cfs)	=	340.4	Line storage (cuft)	=	4926

LINE 3 / Q = 165.0 / HT = 60 / WID = 60 / N = .013 / L = 338 / JLC = .15

MH1A-MH2EX / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5222.26	48.73	5218.20	9.64	5223.70	46.68	6.29	17.12
UPSTRM	5229.39	43.03	5225.80	10.95	5231.25	54.05	5.7	15.07

Drainage area (ac)	=	0	Slope of invert (%)	=	2.248
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.232
Time of conc (min)	=	9	Critical depth (in)	=	43.01
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)	=	165	Confluence angle (deg)	=	0
Default Q (cfs)	=	165	Natural ground elev (ft)	=	5236.5
Line capac. (cfs)	=	390.6	Line storage (cuft)	=	5440

LINE 4 / Q = 165.0 / HT = 60 / WID = 60 / N = .013 / L = 512 / JLC = .1

MH2EX-MH3A / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5229.66	46.38	5225.80	10.12	5231.26	50.21	5.7	16.30
UPSTRM	5231.95	45.40	5228.17	10.35	5233.62	51.49	13.83	15.94

Drainage area (ac)	=	0	Slope of invert (%)	=	0.463
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.461
Time of conc (min)	=	7	Critical depth (in)	=	43.01
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)	=	165	Confluence angle (deg)	=	0
Default Q (cfs)	=	165	Natural ground elev (ft)	=	5247
Line capac. (cfs)	=	177.2	Line storage (cuft)	=	8254

LINE 5 / Q = 75.0 / HT = 60 / WID = 60 / N = .013 / L = 67 / JLC = .1

MH3A-MH3EX / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5232.12	47.40	5228.17	4.48	5232.43	48.51	13.83	16.72
UPSTRM	5232.12	43.29	5228.51	4.94	5232.50	53.78	12.89	15.17

Drainage area (ac)	=	0	Slope of invert (%)	=	0.507
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.097
Time of conc (min)	=	3	Critical depth (in)	=	29.00
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)	=	75	Confluence angle (deg)	=	0
Default Q (cfs)	=	75	Natural ground elev (ft)	=	5246.4
Line capac. (cfs)	=	185.5	Line storage (cuft)	=	1068

LINE 6 / Q = 0.0 / HT = 60 / WID = 60 / N = .013 / L = 500 / JLC = .1

MH3EX-SB150 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5232.16	43.75	5228.51	0.00	5232.16	53.24	12.89	15.37
UPSTRM	5242.00	0.04	5242.00	0.00	5242.00	3.00	13	0.00

Drainage area (ac)	=	0	Slope of invert (%)	=	2.698
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.969
Time of conc (min)	=	0	Critical depth (in)	=	0.00
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)	=	0	Confluence angle (deg)	=	0
Default Q (cfs)	=	0	Natural ground elev (ft)	=	5260
Line capac. (cfs)	=	427.8	Line storage (cuft)	=	3843

LINE 7 / Q = 90.0 / HT = 60 / WID = 60 / N = .013 / L = 47 / JLC = .15

MH3A-MH4A / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5232.12	47.40	5228.17	5.38	5232.57	48.51	13.83	16.72
UPSTRM	5231.65	31.78	5229.00	8.53	5232.78	59.89	12.89	10.56

Drainage area (ac)	=	0	Slope of invert (%)	=	1.766
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.440
Time of conc (min)	=	6	Critical depth (in)	=	31.76
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)	=	50
Default Q (cfs)	=	90	Natural ground elev (ft)	=	5246.9
Line capac. (cfs)	=	346.2	Line storage (cuft)	=	641

LINE 8 / Q = 90.0 / HT = 60 / WID = 60 / N = .013 / L = 450 / JLC = .15

MH 4A-MH 5A / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5231.82	33.81	5229.00	7.88	5232.78	59.50	12.89	11.42
UPSTRM	5246.15	31.78	5243.50	8.53	5247.28	59.89	4	10.56

Drainage area (ac)	=	0	Slope of invert (%)	=	3.222
Runoff coefficient	=	0	Slope energy grade line (%)	=	3.221
Time of conc (min)	=	4	Critical depth (in)	=	31.76
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)	=	40
Default Q (cfs)	=	90	Natural ground elev (ft)	=	5252.5
Line capac. (cfs)	=	467.6	Line storage (cuft)	=	4946

LINE 9 / Q = 90.0 / HT = 60 / WID = 60 / N = .013 / L = 450 / JLC = .15

MH 5A - MH 6A / DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5246.32	33.81	5243.50	7.88	5247.28	59.50	4	11.42
UPSTRM	5249.07	31.78	5246.42	8.53	5250.20	59.89	4.68	10.56

Drainage area (ac)	=	0	Slope of invert (%)	=	0.649
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.648
Time of conc (min)	=	1	Critical depth (in)	=	31.76
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)	=	0
Default Q (cfs)	=	90	Natural ground elev (ft)	=	5256.1
Line capac. (cfs)	=	209.8	Line storage (cuft)	=	4946

LINE 10 / Q = 90.0 / HT = 60 / WID = 60 / N = .013 / L = 215 / JLC = .1

MH 6A - STUB / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5249.24	33.81	5246.42	7.88	5250.20	59.50	4.68	11.42
UPSTRM	5250.15	31.78	5247.50	8.53	5251.28	59.89	4.5	10.56

Drainage area (ac)	=	0	Slope of invert (%)	=	0.502
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.500
Time of conc (min)	=	0	Critical depth (in)	=	31.76
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)	=	0
Default Q (cfs)	=	90	Natural ground elev (ft)	=	5257
Line capac. (cfs)	=	184.6	Line storage (cuft)	=	2363

LINE 11 / Q = 75.0 / HT = 24 / WID = 24 / N = .013 / L = 131.75 / JLC = .1

MH3EX-POND / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5232.16	24.00	5228.51	23.88	5241.01	0.00	15.89	3.14
UPSTRM	5247.53	24.00	5234.72	23.87	5256.38	0.00	11.27	3.14

Drainage area (ac)	=	0	Slope of invert (%)	=	4.714
Runoff coefficient	=	0	Slope energy grade line (%)	=	11.670
Time of conc (min)	=	0	Critical depth (in)	=	23.99
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)	=	75	Confluence angle (deg)	=	70
Default Q (cfs)	=	75	Natural ground elev (ft)	=	5248
Line capac. (cfs)	=	49.1	Line storage (cuft)	=	414

LINE 12 / Q = 90.0 / HT = 30 / WID = 30 / N = .013 / L = 10 / JLC = .15

MH6A-DROP INLET / DNLN = 10

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5250.26	30.00	5247.00	18.34	5255.48	0.00	7.5	4.91
UPSTRM	5251.53	30.00	5247.50	18.33	5256.75	0.00	4.5	4.91

Drainage area (ac)	=	0	Slope of invert (%)	=	5.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	4.821
Time of conc (min)	=	0	Critical depth (in)	=	29.85
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)	=	90
Default Q (cfs)	=	90	Natural ground elev (ft)	=	5254.5
Line capac. (cfs)	=	91.7	Line storage (cuft)	=	49

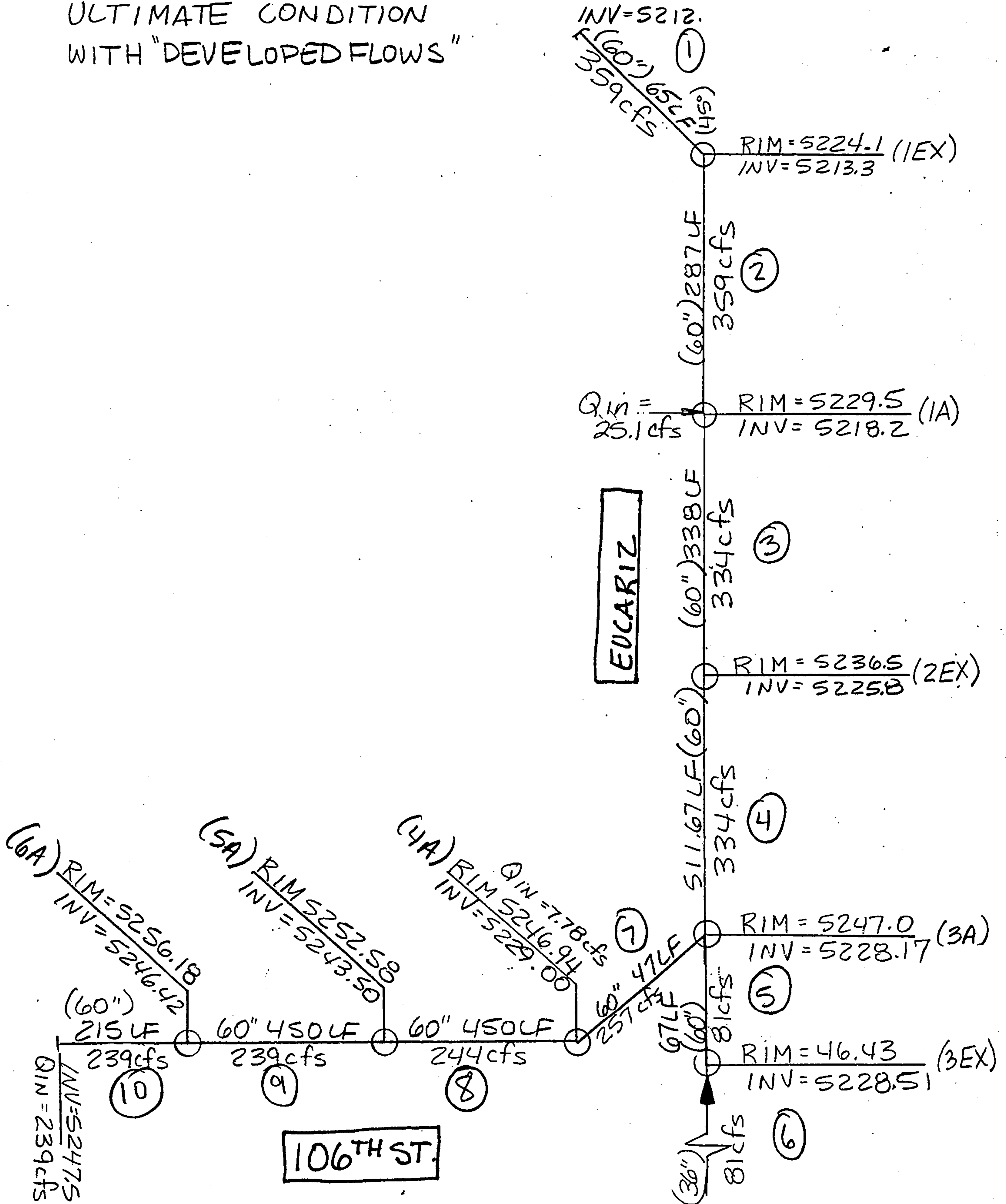


D. Mark Goodwin & Associates, P.A.
Consulting Engineers

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

ULTIMATE CONDITION
WITH "DEVELOPED FLOWS"

PROJECT Sunrise Ranch West
SUBJECT 106th St. Storm Sewer
BY DLH DATE 8-24-01
CHECKED _____ DATE _____
SHEET _____ OF _____



HYDRAULIC REPORT FOR

PRELIMINARY

106th STREET

STORM SEWER DESIGN

(Sunset Gardens-Eucariz)

Mark Goodwin & Associates

DLH

August 24, 2001

LINE 1 / Q = 359.0 / HT = 60 / WID = 60 / N = .013 / L = 65 / JLC = .2

SNOWPND-MH1EX / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5216.02	48.26	5212.00	21.21	5223.01	47.61	-1	16.92
UPSTRM	5217.32	48.26	5213.30	21.21	5224.31	47.61	5.8	16.92

Drainage area (ac)	=	0	Slope of invert (%)	=	2.000
Runoff coefficient	=	0	Slope energy grade line (%)	=	2.000
Time of conc (min)	=	13	Critical depth (in)	=	58.27
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)	=	359	Confluence angle (deg)	=	0
Default Q (cfs)	=	359	Natural ground elev (ft)	=	5224.1
Line capac. (cfs)	=	368.3	Line storage (cuft)	=	1100

LINE 2 / Q = 359.0 / HT = 60 / WID = 60 / N = .013 / L = 287 / JLC = .1

MH1EX-MH1A / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5218.72	60.00	5213.30	18.29	5223.91	0.00	5.8	19.63
UPSTRM	5224.17	60.00	5218.20	18.28	5229.36	0.00	6.29	19.63

Drainage area (ac)	=	0	Slope of invert (%)	=	1.707
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.900
Time of conc (min)	=	11	Critical depth (in)	=	58.27
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)	=	359	Confluence angle (deg)	=	45
Default Q (cfs)	=	359	Natural ground elev (ft)	=	5229.5
Line capac. (cfs)	=	340.4	Line storage (cuft)	=	5635

LINE 3 / Q = 334.0 / HT = 60 / WID = 60 / N = .013 / L = 338 / JLC = .1

MH1A-MH2EX / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5224.69	60.00	5218.20	17.01	5229.19	0.00	6.29	19.63
UPSTRM	5230.62	57.79	5225.80	17.22	5235.22	22.62	5.7	19.40

Drainage area (ac)	=	0	Slope of invert (%)	=	2.248
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.784
Time of conc (min)	=	9	Critical depth (in)	=	57.73
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)	=	334	Confluence angle (deg)	=	0
Default Q (cfs)	=	334	Natural ground elev (ft)	=	5236.5
Line capac. (cfs)	=	390.6	Line storage (cuft)	=	6597

LINE 4 / Q = 334.0 / HT = 60 / WID = 60 / N = .013 / L = 512 / JLC = .1

MH2EX-MH3A / DNLN = 3

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5231.08	60.00	5225.80	17.01	5235.57	0.00	5.7	19.63
UPSTRM	5239.50	60.00	5228.17	17.01	5243.99	0.00	13.83	19.63

Drainage area (ac)	=	0	Slope of invert (%)	=	0.463
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.645
Time of conc (min)	=	6	Critical depth (in)	=	57.73
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)	=	334	Confluence angle (deg)	=	0
Default Q (cfs)	=	334	Natural ground elev (ft)	=	5247
Line capac. (cfs)	=	177.2	Line storage (cuft)	=	10052

LINE 5 / Q = 81.0 / HT = 60 / WID = 60 / N = .013 / L = 67 / JLC = .1

MH3A-MH3EX / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5239.95	60.00	5228.17	4.13	5240.21	0.00	13.83	19.63
UPSTRM	5240.01	60.00	5228.51	4.13	5240.28	0.00	12.89	19.63

Drainage area (ac)	=	0	Slope of invert (%)	=	0.507
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.097
Time of conc (min)	=	3	Critical depth (in)	=	30.13
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)	=	81	Confluence angle (deg)	=	0
Default Q (cfs)	=	81	Natural ground elev (ft)	=	5246.4
Line capac. (cfs)	=	185.5	Line storage (cuft)	=	1315

LINE 6 / Q = 81.0 / HT = 60 / WID = 60 / N = .013 / L = 500 / JLC = .1

MH3EX-SB150 / DNLN = 5

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5240.04	60.00	5228.51	4.13	5240.30	0.00	12.89	19.63
UPSTRM	5244.63	30.28	5242.00	8.16	5245.66	60.00	13	9.93

Drainage area (ac)	=	0	Slope of invert (%)	=	2.698
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.071
Time of conc (min)	=	0	Critical depth (in)	=	30.13
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)	=	81	Confluence angle (deg)	=	0
Default Q (cfs)	=	81	Natural ground elev (ft)	=	5260
Line capac. (cfs)	=	427.8	Line storage (cuft)	=	7391

LINE 7 / Q = 257.0 / HT = 60 / WID = 60 / N = .013 / L = 47 / JLC = .1

MH3A-MH4A / DNLN = 4

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5239.95	60.00	5228.17	13.09	5242.61	0.00	13.83	19.63
UPSTRM	5240.41	60.00	5229.00	13.09	5243.07	0.00	12.89	19.63

Drainage area (ac)	=	0	Slope of invert (%)	=	1.766
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.973
Time of conc (min)	=	6	Critical depth (in)	=	54.90
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)	=	257	Confluence angle (deg)	=	50
Default Q (cfs)	=	257	Natural ground elev (ft)	=	5246.9
Line capac. (cfs)	=	346.2	Line storage (cuft)	=	923

LINE 8 / Q = 244.0 / HT = 60 / WID = 60 / N = .013 / L = 450 / JLC = .1

MH 4A-MH 5A / DNLN = 7

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5240.67	60.00	5229.00	12.43	5243.07	0.00	12.89	19.63
UPSTRM	5247.93	53.20	5243.50	13.26	5250.66	38.03	4	18.41

Drainage area (ac)	=	0	Slope of invert (%)	=	3.222
Runoff coefficient	=	0	Slope energy grade line (%)	=	1.687
Time of conc (min)	=	4	Critical depth (in)	=	53.11
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)	=	244	Confluence angle (deg)	=	40
Default Q (cfs)	=	244	Natural ground elev (ft)	=	5252.5
Line capac. (cfs)	=	467.6	Line storage (cuft)	=	8559

LINE 9 / Q = 239.0 / HT = 60 / WID = 60 / N = .013 / L = 450 / JLC = .1

MH 5A - MH 6A / DNLN = 8

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5248.21	56.48	5243.50	12.39	5250.59	25.64	4	19.29
UPSTRM	5251.83	60.00	5246.42	12.17	5254.13	0.00	4.68	19.63

Drainage area (ac)	=	0	Slope of invert (%)	=	0.649
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.786
Time of conc (min)	=	1	Critical depth (in)	=	53.11
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)	=	239	Confluence angle (deg)	=	0
Default Q (cfs)	=	239	Natural ground elev (ft)	=	5256.1
Line capac. (cfs)	=	209.8	Line storage (cuft)	=	8758

LINE 10 / Q = 239.0 / HT = 60 / WID = 60 / N = .013 / L = 215 / JLC = .1

MH 6A - STUB / DNLN = 9

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	5252.06	60.00	5246.42	12.17	5254.36	0.00	4.68	19.63
UPSTRM	5254.10	60.00	5247.50	12.17	5256.40	0.00	4.5	19.63

Drainage area (ac)	=	0	Slope of invert (%)	=	0.502
Runoff coefficient	=	0	Slope energy grade line (%)	=	0.842
Time of conc (min)	=	0	Critical depth (in)	=	53.11
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)	=	239	Confluence angle (deg)	=	0
Default Q (cfs)	=	239	Natural ground elev (ft)	=	5257
Line capac. (cfs)	=	184.6	Line storage (cuft)	=	4221

Y10

Y9

Y8

Y7

Y6

Y5

Y4

Y3

Y2

Y1

NEXT SHEET NO. L-7



Legend

- Lateral Stubout Inlet Connector
- Collector
- Reservoir Drain Siphon
- Double Pipe
- Force Main
- Abandon Lines

- Manhole
- Inlet Catch Basin
- Junction Box
- Vault
- Standpipe/Riser
- Surface Flow
- Pipe Flow
- Water Course Holding Ponds Dams
- Well
- Reservoir
- Pump Station

NEXT SHEET NO. L-8

0 100 200 400 600

SCALE
MAP GRID

L-08

Notes:

1. Map is for information only and is subject to corrections. (Corrections call 768-3608.)
2. Features are drawn for general representation of facilities.
3. Refer to as-built drawing for true representation.

4-30-14

Sunrise ranch discussion for improving
106th north of Sunset ~~west~~ to Fairview
west st.

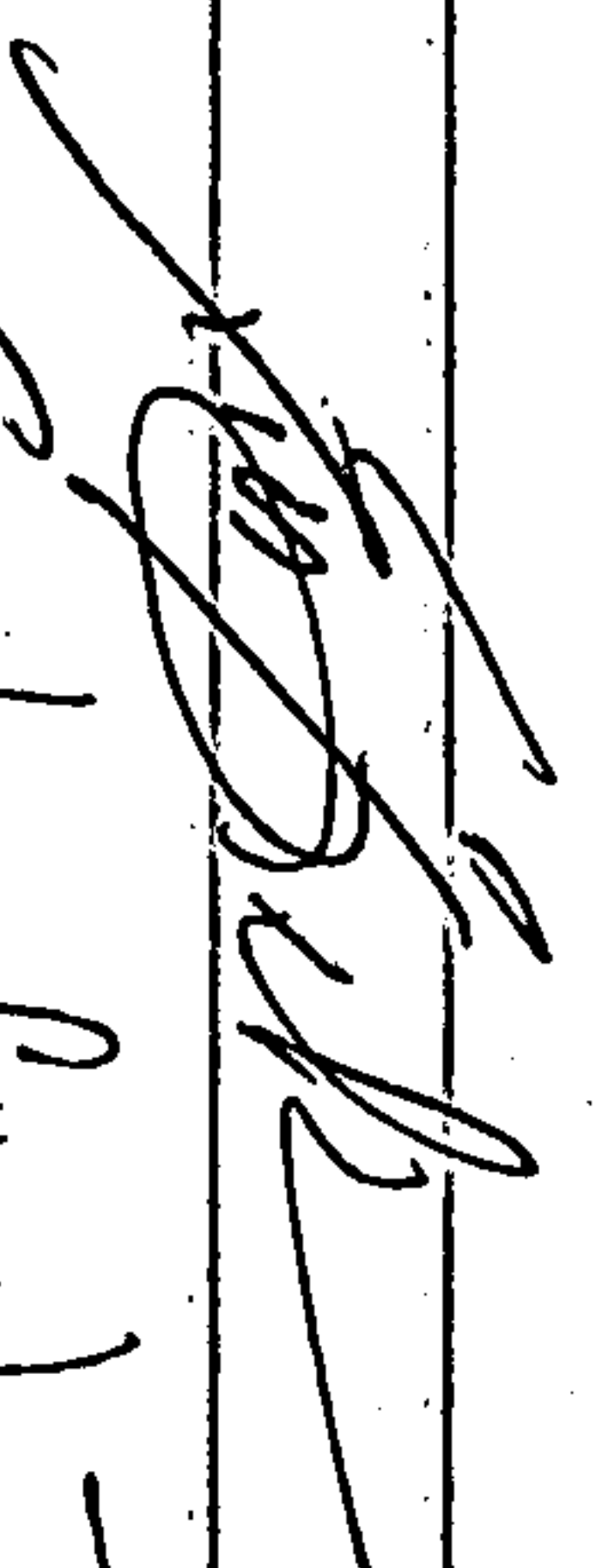
Submit snow drainage report to
route flows to the pad south west
of the side,

City agreed to allow temporary
parking ^{at intersection} and to cap the storm drain. A
manhole will not be required in
Fairview. Sunset Gardens.

The city is requiring the street and
storm drain improvements be built.

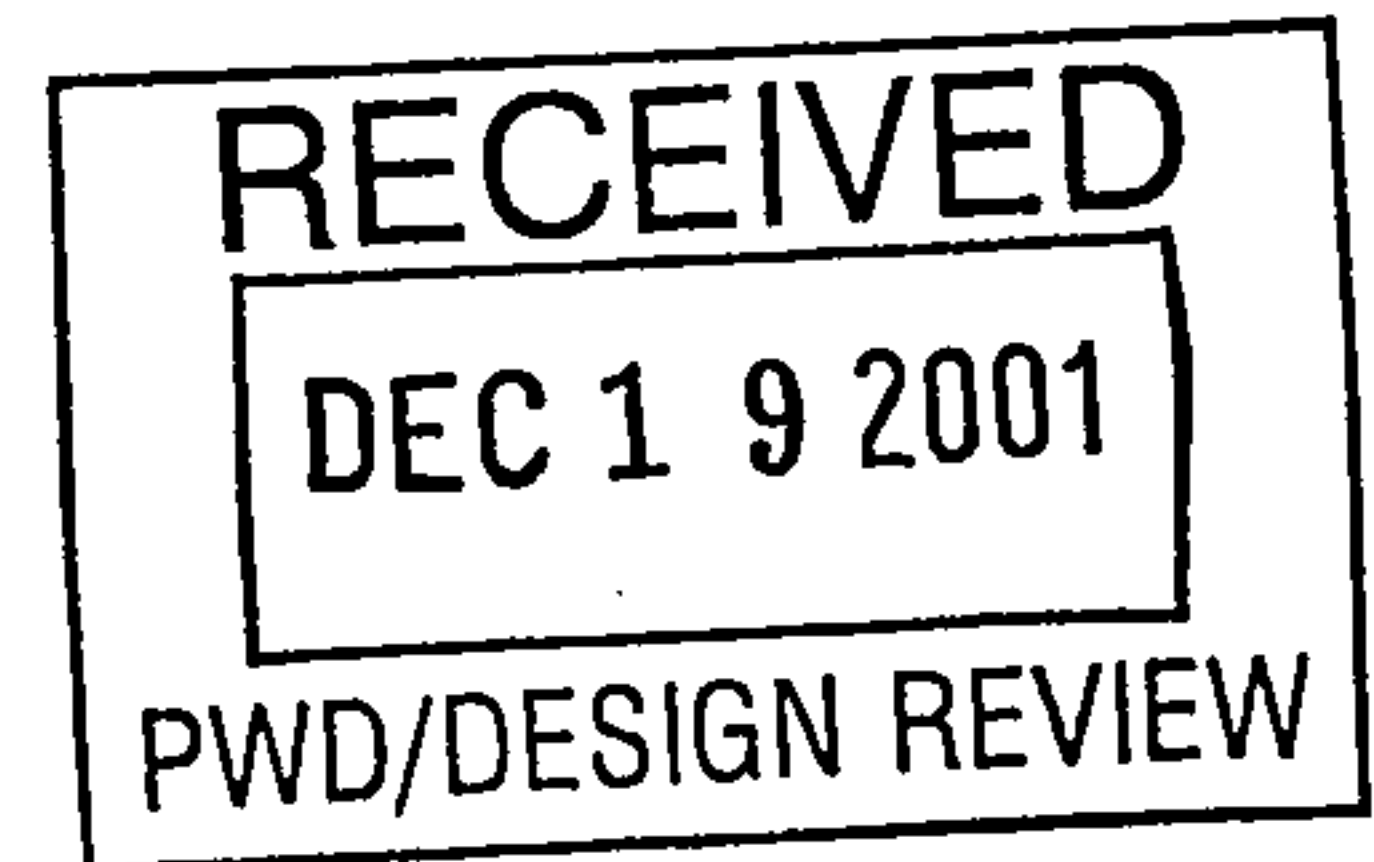
at mtg: Kristal Metro, Rick Baltrane
Curtis Chenn, Bryan Woller, Shahab Biazan


Shahab Biazan

Allen City Engineer. 
Gale S. Lund. JMC

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

P.O. Box 90606 ♦ Albuquerque, NM 87199
(505) 828-2200 ♦ (505) 797-9539 fax
e-mail: dmng@swcp.com



LETTER OF TRANSMITTAL

TO: Nancy Musinski
One Stop
Plaza del Sol

DATE: December 19, 2001

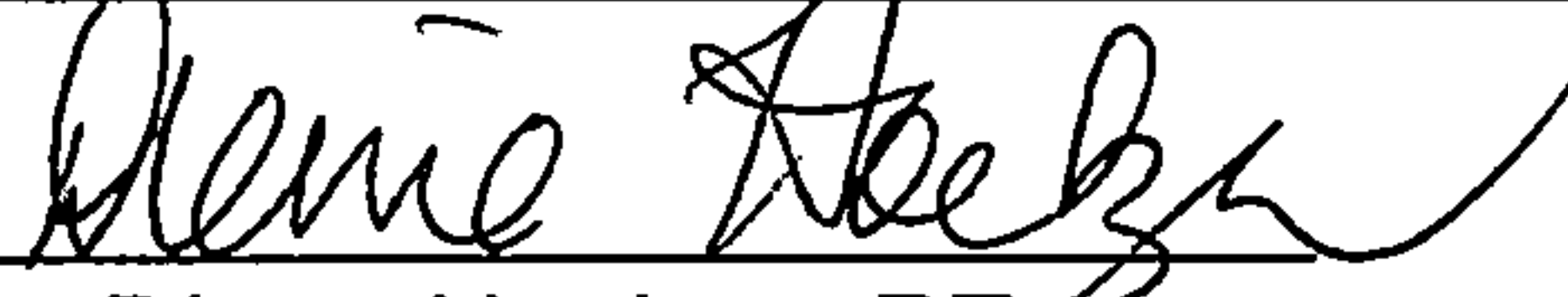
RE: Sunrise Ranch West
Project No. 675781

We are sending:

Copies	Date	Description
1		Grading & Drainage Plan - mylar

☒ For signature ☐ For your information
☒ As requested ☐ For your review and comments

NOTES: Call Bernadette from our office when this is ready for pick up. Thanks.

Project Engineer: 
Diane Hoelzer, PE

UNIT 1 ONLY:
Approved for Rough Grading
Danym Dinevski
12-19-2001
CITY OF ALBUQUERQUE, HYDROLOGY

SCALE: 1" = 50'

LANDS OF
CAPITAL INVESTORS

TRACT "A"
PERMANENT DETENTION POND
DESIGN VOLUME @ 29.0' = 1,175 AF
MAXIMUM VOLUME = 0.9494 AF
MAXIMUM WSEL = 28.1'
SPILLWAY ELEVATION = 28.1

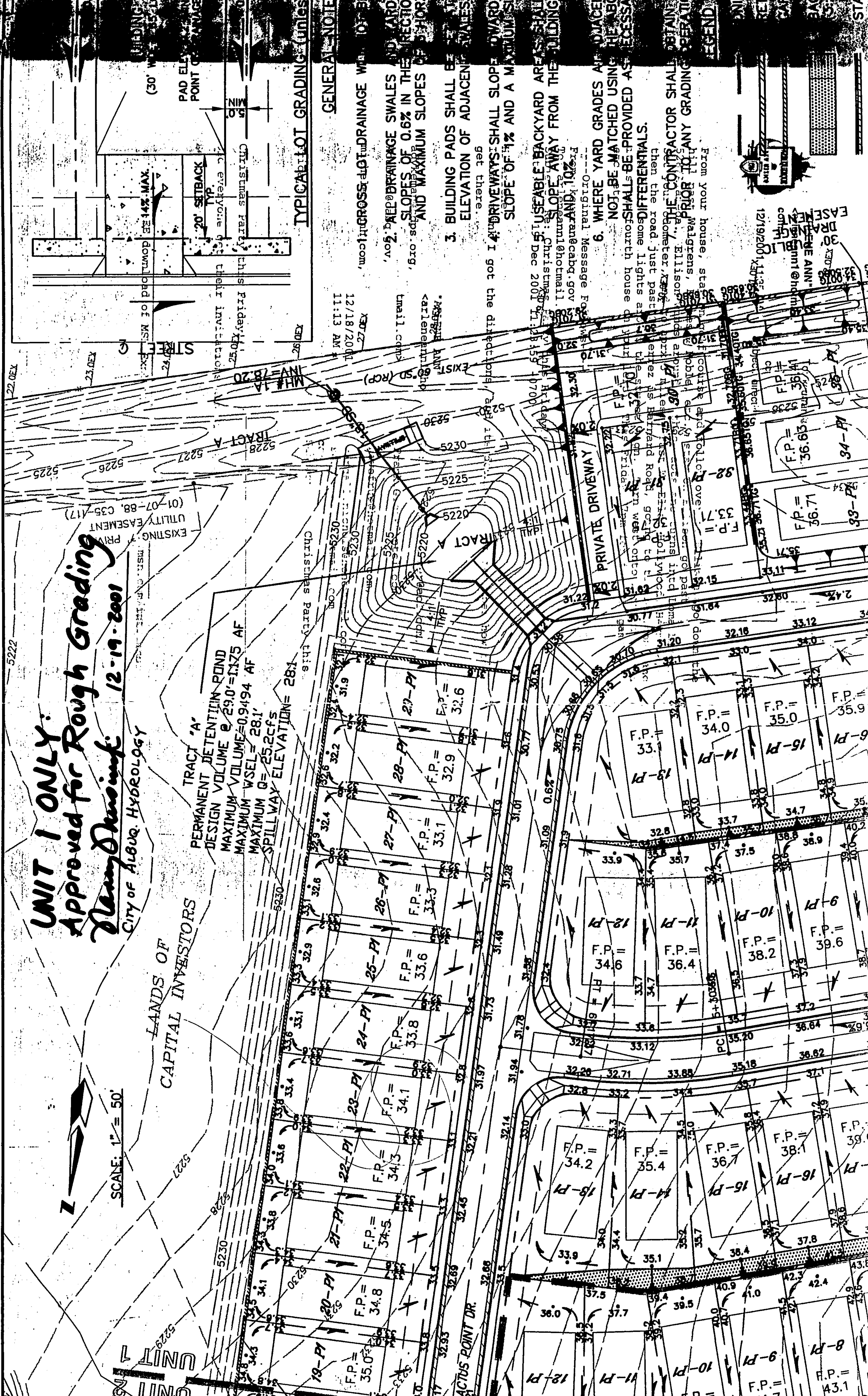
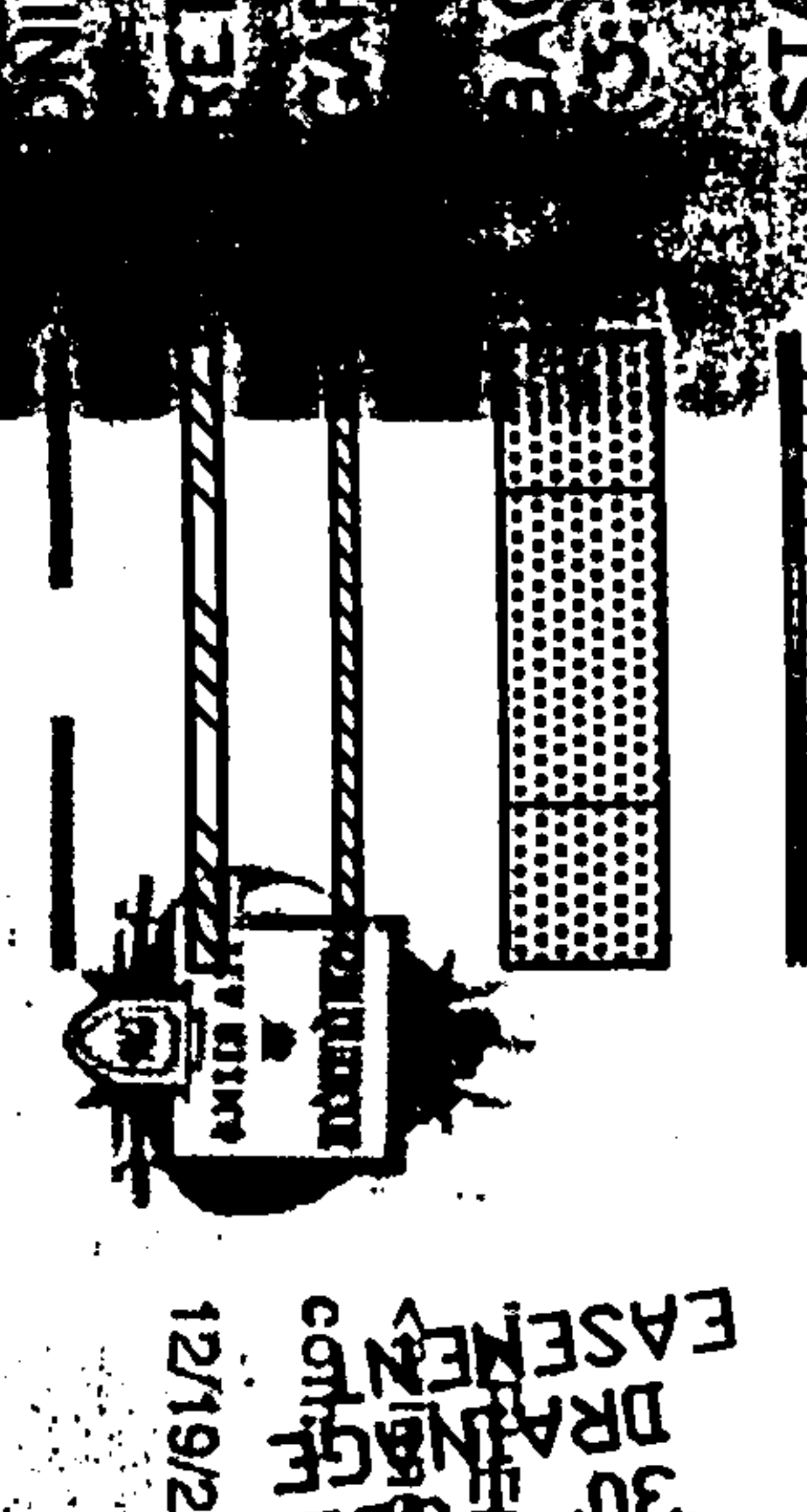
TYPICAL LOT GRADING (unless otherwise noted)

GENERAL NOTES

1. CROSS LOT DRAINAGE WITH 10% BE
2. DRAINAGE SWALES AND YARD SLOPES OF 0.6% IN THE DIRECTION AND MAXIMUM SLOPES OF 5% HORIZ
3. BUILDING PADS SHALL BE AT THE ELEVATION OF ADJACENT PAVES
4. DRIVEWAYS SHALL SLOPE TOWARDS SLOPE OF 1% AND A MAXIMUM SLOPE OF 5% HORIZ
5. USEABLE BACKYARD AREAS SHALL SLOPE AWAY FROM THE BUILDING AND 10% HORIZ
6. WHERE YARD GRADES ARE ADJACENT, THEY SHALL BE MATCHED USING THE ABOVE SLOPES. DIFFERENTIALS SHALL BE PROVIDED AS NECESSARY TO MAINTAIN PROPER DRAINAGE.

THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE CITY OF ALBUQUERQUE PRIOR TO ANY GRADING OPERATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR THE COST OF THE SAME.

LEGEND





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

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

December 18, 2001

Ms. Nancy Musinski, PE
Plaza del Sol
Hydrology Dept.
P.O. Box 1293
Albuquerque, NM 87103

**Re: Revised Drainage Plan for Sunrise Ranch West
Engineer's stamp 12-18-01 (L8/D14)**

Dear Ms. Musinski,

I am submitting a revised Drainage Report and Grading and Drainage Plan for the above referenced project.
In response to your comment letter dated December 17, 2001:

1. I have revised the Typical Lot detail and General Note 5 to accommodate your concerns.
2. Manhole #3A has been moved into 106th street right-of way.

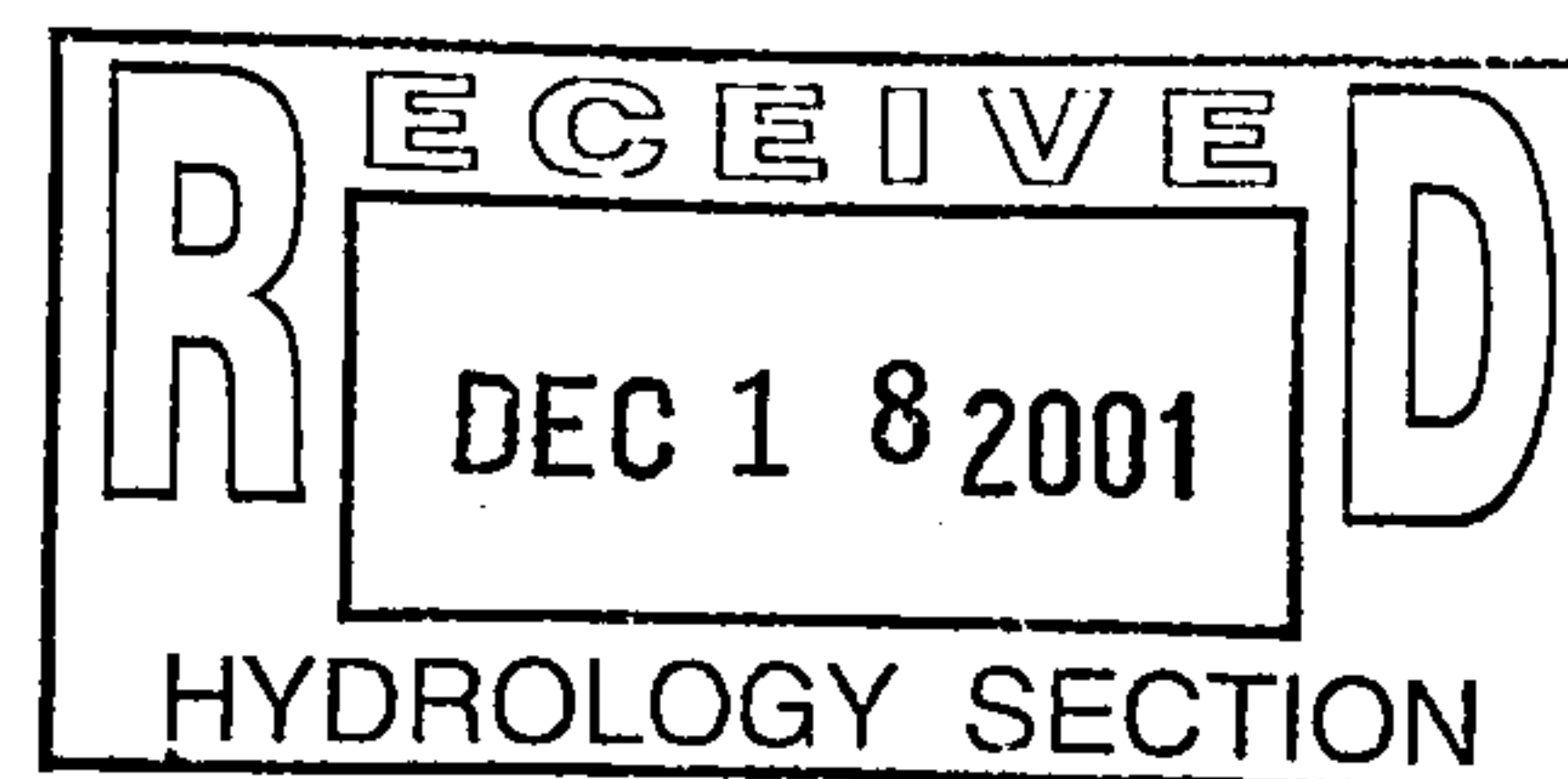
If you have any questions, please call me.

Sincerely,

MARK GOODWIN AND ASSOCIATES, P.A.

Diane Hoelzer, P.E.

file: sunrise.wst/dr_
4ltr.wpd





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 17, 2001

Diane Hoelzer, P.E.
D. Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

Re: Sunrise Ranch West Grading & Drainage Plan, Engineer's stamp dated 12-10-01 (L8/D14)

Dear Ms. Hoelzer,

Based on the information provided in your submittal dated December 11, 2001, the above referenced plan cannot be approved for Grading Permit until the following issues are addressed:

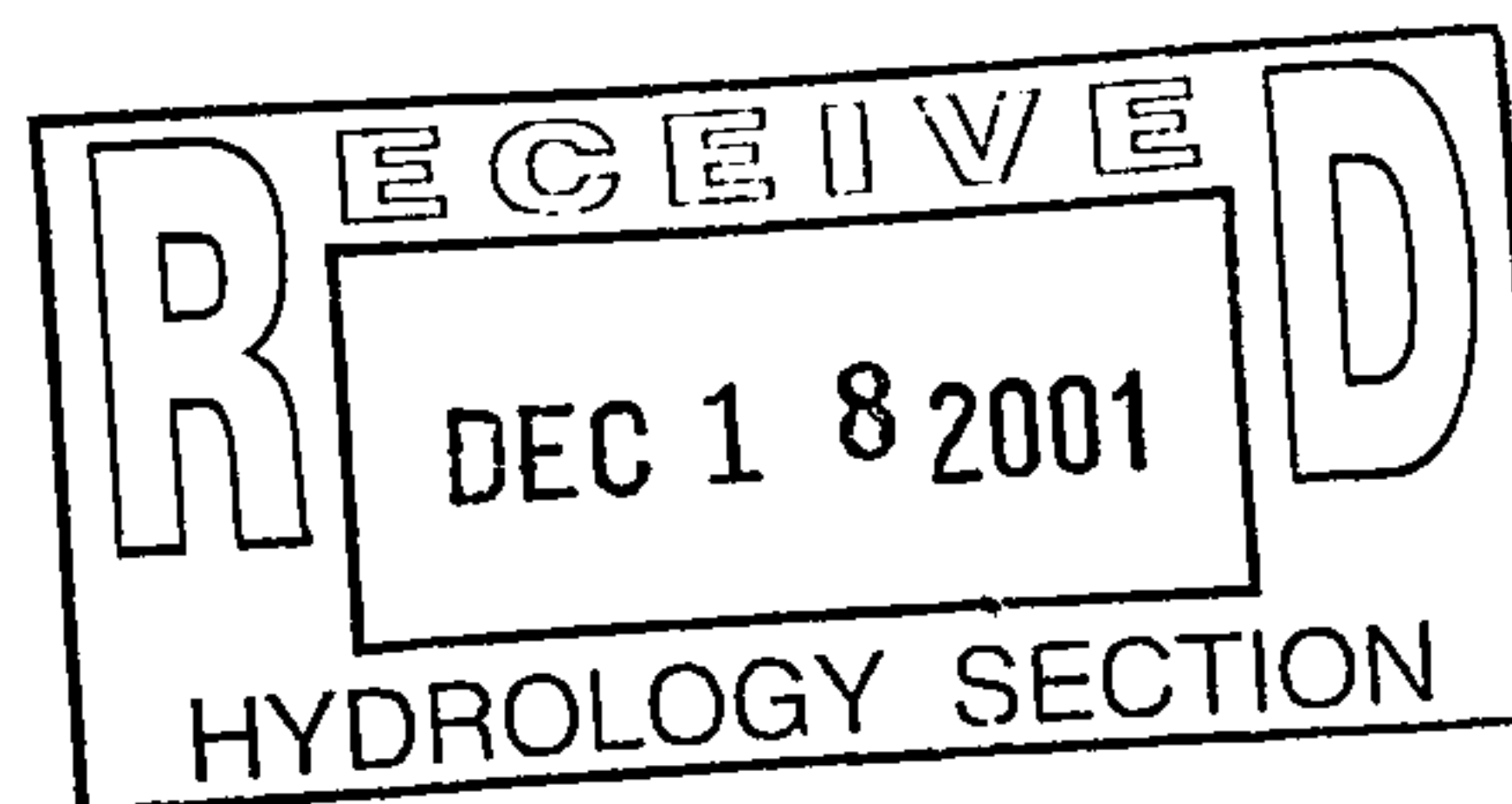
- 1) Since the previous submittal, you have detailed the retention areas and fine-tuned the grading along the south side of the site. However, I see a problem where you removed the 3- to 4-foot high retaining wall between Lots 40 and 41-43, and provided 4:1 slope areas instead. With this revision to the grading, the 4:1 slope begins 10 feet from the rear of the building pad. Therefore, Lots 41-43 no longer follow the criteria for usable backyard areas that you established in General Note 5 and in the schematic diagram for Typical Lot Grading.
- 2) Manhole #3A must be located in the street right of way, for your information. This item may be resolved at DRC.

If you have any questions, please call me at 924-3988.

Sincerely,

Nancy Musinski, P.E.
Hydrology/Utility Development
City of Albuquerque Public Works

xc: Terri Martin, COA Hydrology
File





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 17, 2001

Diane Hoelzer, P.E.
D. Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

Re: Sunrise Ranch West Grading & Drainage Plan, Engineer's stamp dated 12-10-01 (L8/D14)

Dear Ms. Hoelzer,

Based on the information provided in your submittal dated December 11, 2001, the above referenced plan cannot be approved for Grading Permit until the following issues are addressed:

- 1) Since the previous submittal, you have detailed the retention areas and fine-tuned the grading along the south side of the site. However, I see a problem where you removed the 3- to 4-foot high retaining wall between Lots 40 and 41-43, and provided 4:1 slope areas instead. With this revision to the grading, the 4:1 slope begins 10 feet from the rear of the building pad. Therefore, Lots 41-43 no longer follow the criteria for usable backyard areas that you established in General Note 5 and in the schematic diagram for Typical Lot Grading.
- 2) Manhole #3A must be located in the street right of way, for your information. This item may be resolved at DRC.

If you have any questions, please call me at 924-3988.

Sincerely,

Nancy Musinski, P.E.
Hydrology/Utility Development
City of Albuquerque Public Works

xc: Terri Martin, COA Hydrology
File

DRAINAGE INFORMATION SHEET

(REV.11/01/2001)

PROJECT TITLE: Sunrise Ranch West ZONE ATLAS#: L8 / D14
DRB#: 1000934 EPC# WORKORDER#: 675781
LEGAL DESCRIPTION: Tract 2, 3, 4, 5, Block 9, Lands of Atrisco Grant
CITY ADDRESS:

ENGINEERING FIRM:	<u>Mark Goodwin & Associates, PA</u>	CONTACT:	<u>Diane Hoelzer, PE</u>
ADDRESS:	<u>PO Box 90606, ABQ, NM 87199</u>	PHONE:	<u>828-2200</u>
OWNER:	<u>Longford Homes @ 106th Street, LP</u>	CONTACT:	<u></u>
ADDRESS:	<u>7301 Jefferson NE, Ste. G, ABQ, NM</u>	PHONE:	<u>761-9911</u>
ARCHITECT:	<u></u>	CONTACT:	<u></u>
ADDRESS:	<u></u>	PHONE:	<u></u>
SURVEYOR:	<u>ALS</u>	CONTACT:	<u>Tim Aldrich</u>
ADDRESS:	<u>4109 Montgomery Blvd. NE, ABQ, NM 87107</u>	PHONE:	<u>884-1990</u>
CONTRACTOR:	<u>Franklins Earthmoving</u>	CONTACT:	<u>John Ellis</u>
ADDRESS:	<u>2425 Jeffersopn NE, ABQ, NM 87110</u>	PHONE:	<u>884-6947</u>

TYPE OF SUBMITTAL:

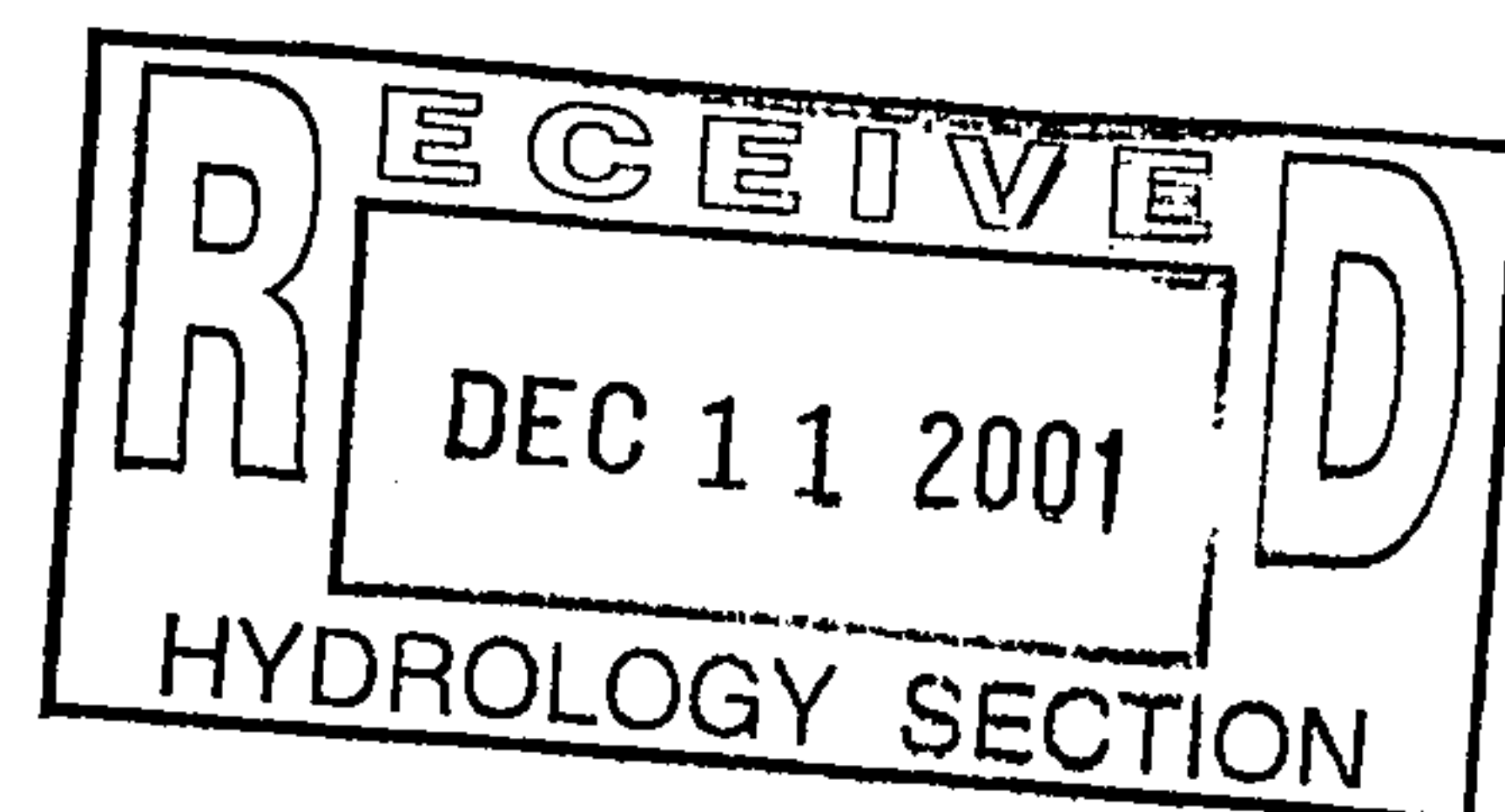
☐ DRAINAGE REPORT
☒ DRAINAGE PLAN (revised 12-10-01)
☐ CONCEPTUAL GRADING & DRAINAGE PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERTIFICATION (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ ENGINEER'S CERTIFICATION (TCL)
☐ ENGINEER'S CERTIFICATION (DRB APPR. SITE PLAN)
☐ OTHER

PRE-DESIGN MEETING:

☐ YES
☐ NO
☐ COPY PROVIDED

CHECK TYPE OF APPROVAL SOUGHT:

☐ SIA / FINANCIAL GUARANTY 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)



DATE SUBMITTED: December 11, 2001
BY: Diane Hoelzer

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).
3. **Drainage Report:** Required for subdivisions containing more than ten (10) lots or constituting five (5) acres or more.



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

November 28, 2001

Diane Hoelzer, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

**Re: Sunrise Ranch West Amended Grading Plan
Engineer's Stamp dated 11-19-01 (L8/D14)**

Dear Ms. Hoelzer,

Based upon the information provided in your submittal dated 11-19-01, the above referenced plan is approved for Preliminary Plat action by the DRB. This will be the plan that must be certified for Release of Financial Guarantee. Once that board has approved the amendment, please submit mylars for my signature, thus allowing you to obtain a Rough Grading Permit.

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: file



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 14, 2003

Kevin C. Daggett
Daggett Engineering & Surveying
2125 Corte De Chamisa, NW
Albuquerque, New Mexico 87120

RE: Drainage Inspection for Sunrise Ranch West Unit 2 (L8-D14)

Dear Mr. Daggett:

As part of the close out package for the referenced site I had sent a letter dated October 22, 2003 concerning drainage problems that I had observed in the field. I was asked as part of the close out to check the corrections to the drainage problems. I observed on my visit a problem in the detention pond at the corner of 106th Street and Eucariz Avenue. The constructed asphalt swale is collapsing at the end where it exits into the detention pond. Also, there is erosion down the side of the detention pond. The runoff from your project is causing this problem. If this situation is not corrected it will continue to be a maintenance problem in the future. Please contact this office so that we can discuss the corrections that will be needed.

If you have any questions please call me at 924-3982.

Sincerely,

Carlos A. Montoya
City Floodplain Administrator

C: Diane Hoelzer, Mark Goodwin and Associates
Matt Cline, Arroyo Maintenance
Jim Pung, Senior Engineer



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 18, 2003

Diane Hoelzer, P.E.
Mark Goodwin & Assoc.
P.O. Box 90606
Albuquerque, New Mexico 87199

**RE: SUNRISE RANCH WEST UNIT 1 AND UNIT 2 (L-8/D14)
ENGINEERS CERTIFICATION
ENGINEERS STAMP DATED 4/17/2002 and 2/5/2003
ENGINEERS CERTIFICATION DATED 2/5/2003**

Dear Diane:

Based upon the information provided on your 2/5/2003 submittal, the above referenced project is approved for Engineers Certification acceptance.

However, prior to release of financial guaranty, the LOMR must be accepted by FEMA.

If you have any questions, please call me at 924-3981.

Sincerely,

Teresa A. Martin
Hydrology Plan Checker
Development & Bldg. Ser. Division
BA

C: Arlene Portillo, COA- Unit 1- # 675781, Unit 2- #675782
✓ Drainage File



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

October 22, 2002

Diane Hoelzer
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, New Mexico 87199

RE: Grading and Drainage Plan For Sunrise Ranch West (L8-D14)

Dear Ms. Hoelzer:

I visited the referenced subdivision on October 21, 2002 and observed the following problems.

1. The temporary asphalt drainage swale in 106th Street has been constructed above the existing ground. The west swale bank is diverting the offsite runoff and not allowing it to enter into the asphalt swale. The diversion of this runoff is causing deep erosion cuts in the existing detention pond. The asphalt swale diversion will need to be corrected and the erosion cuts will have to be filled and compacted.
2. Further north of the above problem I observed the offsite runoff is being diverted and not allowed to enter the interim drop structure. I know that you are in construction of this phase, however, this is a 100-year floodplain protection for the subdivision. The grading of the floodplain is diverting the flows to other unprotected areas. Please correct the diversion of the floodplain and complete the interim drop structure as quickly as you can.

Please address these problems as quickly as you can. We will hold up the final close out for the subdivision. If you have any questions please contact me at 924-3982.

Sincerely,

Carlos A. Montoya
City Floodplain Administrator

C: David Cates, Construction Engineer
Matt Cline, Arroyo Maintenance



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

September 11, 2001

Diane Hoelzer, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: Sunrise Ranch West Drainage Report
Engineer's Stamp dated 9-7-01 (L8/D14)

Dear Ms. Hoelzer,

Based upon the information provided in your submittal dated 9-7-01, the above referenced site is approved for Preliminary Plat action by the DRB.

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

Sincerely,

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: file

8-3-11

Sunrise Ranch West

build SD to middle of intersection
in Sunset Gardens - manhole not req'd
in Sunset Gardens

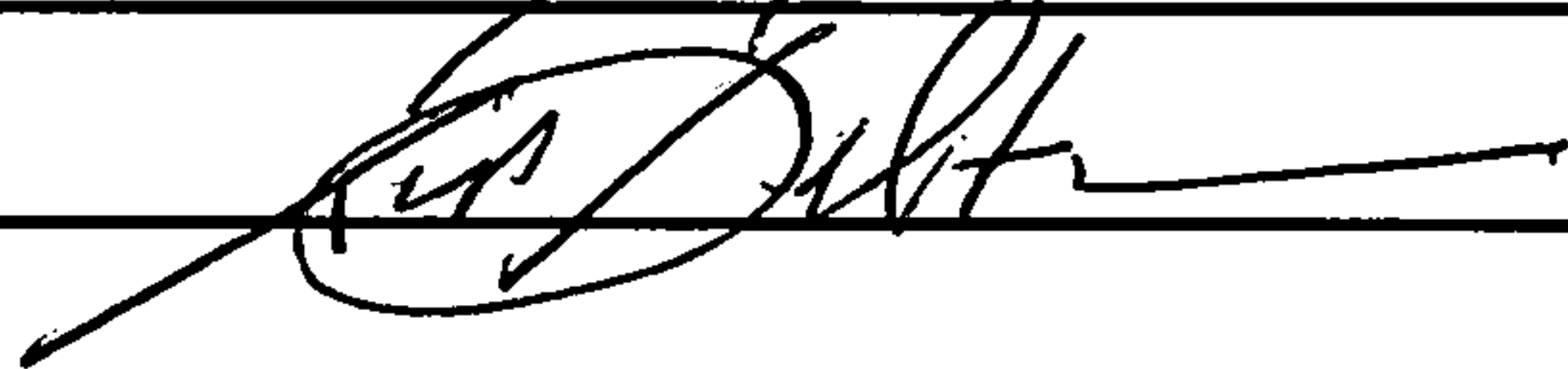
supplement to Drainage report

submit a ~~grading~~ plan to analyze/
grade the swale on the west side of
106th st, prior to work order

ok to do on old datum

cc

Cynthia Chen





City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

December 18, 2001

Diane Hoelzer, P.E.
D. Mark Goodwin & Associates, PA
P.O. Box 90606
Albuquerque, NM 87199

Re: Sunrise Ranch West Grading & Drainage Plan, Engineer's stamp dated 12-18-01 (L8/D14)

Dear Ms. Hoelzer,

Based on the information provided in your submittal dated December 18, 2001, the above referenced plan is approved for Grading Permit. Please submit a mylar copy of the grading plan to our office for signature in order to obtain a Grading Permit.

If you have any questions, please call me at 924-3988.

Sincerely,

Nancy Musinski, P.E.
Hydrology/Utility Development
City of Albuquerque Public Works

xc: Terri Martin, COA Hydrology
File



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

May 3, 2002

Diane Hoelzer
Mark Goodwin & Associates
P.O. Box 90606
Albuquerque, New Mexico 87111

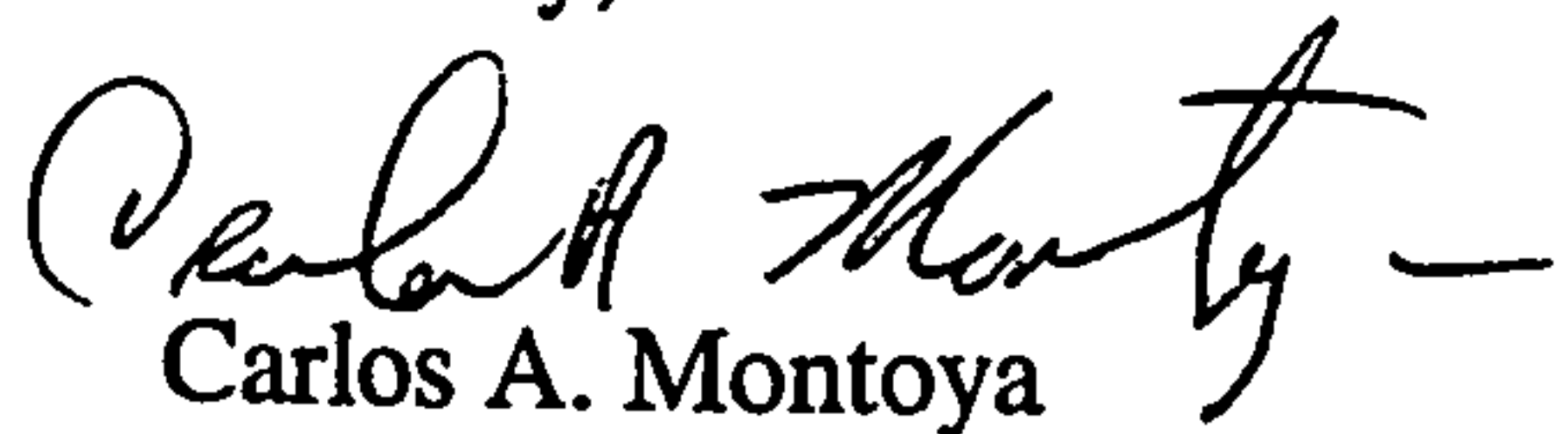
RE: Drainage Report for Sunrise Ranch West (L8-D14) Dated April 18, 2002

Dear Ms. Hoelzer:

I visited the referenced subdivision on April 2, 2002 and observed that Phase I has homes under construction and Phase II has been graded. The existing floodplain has been removed, and the proposed roads and house pads are graded for Phase II. The floodplain was going to be blocked in the future with both a proposed channel in 106th Street and a 60-inch storm drain. The channel has not been constructed. I'm unsure of the location of the floodplain. Because the floodplain has been changed the upstream channel in 106th Street needs to be constructed. Also, a drainage covenant needs to be processed for maintenance of the temporary channel in 106th Street. Was the 60-inch storm drain in 106th Street placed under the street?

If you have any questions please call me at 924-3982.

Sincerely,


Carlos A. Montoya
City Floodplain Administrator

C: Lynn Mazur, AMAFCA

```

1*****
* WATER SURFACE PROFILES
* VERSION OF SEPTEMBER 1988
* ERROR: 01,02
* UPDATED: 4 APRIL 1989
* RUN DATE 9/11/ 1 TIME 16:26:21
*****

```

```

          X   X XXXXXXXX XXXXX
          X   X X      X   X
          X   X X      X
          XXXXXXXX XXXX X      XXXXX
          X   X X      X
          X   X X      X   X
          X   X XXXXXXXX XXXXX

```

```

*****
* U.S. ARMY CORPS OF ENGINEERS
* THE HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
* (916) 756-1104, (916) 551-1748
*****

```

END OF BANNER

THIS RUN EXECUTED 9/11/ 1 16:26:21

```

*****
HEC2 RELEASE DATED SEP 88 UPDATED APR 1989
ERROR CORR - 01,02
MODIFICATION -
*****

```

```

T1      SUNRISE RANCH CHANNEL 106th STREET
T2      SWALE SLOPE = 0.8%
T3      9' BOTTOM WIDTH, 1.66' DEPTH, 2:1 SIDE SLOPE

```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	1	.008	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	2	26	4	68	3
----	----	---	---	----	---	----	---

NC	.017	.017	.017	.1	.3					
QT	4	37	125	195	105					
X1	1	4	0	130	0	0	0	0	0	0
GR	1.66	100	0	110	0	119	1.66	129		

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	.61	.61	.68	.00	.96	.35	.00	.00	1.66
37.	0.	37.	0.	0.	8.	0.	0.	0.	1.66

.00	.00	4.74	.00	.000	.017	.000	.000	.00	106.30
.007982	0.	0.	0.	0	15	5	.00	16.40	122.70

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	1	.008					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

*PROF 2

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	1.16	1.16	1.34	.00	1.87	.71	.00	.00	1.66
125.	0.	125.	0.	0.	19.	0.	0.	0.	1.66
.00	.00	6.74	.00	.000	.017	.000	.000	.00	103.01
.008011	0.	0.	0.	0	14	6	.00	22.97	125.99

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	4	0	1	.008					

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

*PROF 3

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	1.45	1.45	1.68	.00	2.35	.90	.00	.00	1.66
195.	0.	195.	0.	0.	26.	0.	0.	0.	1.66
.00	.00	7.62	.00	.000	.017	.000	.000	.00	101.29
.008020	0.	0.	0.	0	17	6	.00	26.41	127.71

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	5	0	1	.008					
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4	0	-1	0	0	0	0	0	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK	ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

*PROF 4

CCHV= .100 CEHV= .300

*SECNO 1.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

1.00	1.07	1.07	1.23	.00	1.70	.63	.00	.00	1.66
105.	0.	105.	0.	0.	16.	0.	0.	0.	1.66
.00	.00	6.38	.00	.000	.017	.000	.000	.00	103.57
.007845	0.	0.	0.	0	11	5	.00	21.86	125.43

THIS RUN EXECUTED 9/11/ 1 16:26:21

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02

MODIFICATION -

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

9' BOTTOM WIDTH, 1.6

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	TOPWID	FRCH	EG
1.000	37.00	.61	.68	4.74	16.40	1.21	.96
1.000	125.00	1.16	1.34	6.74	22.97	1.32	1.87
1.000	195.00	1.45	1.68	7.62	26.41	1.36	2.35
1.000	105.00	1.07	1.23	6.38	21.86	1.29	1.70

SUMMARY OF ERRORS AND SPECIAL NOTES



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 20, 2001

Diane Hoelzer, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: **Sunrise Ranch West Additional Comments** (L8/D14)

File

Dear Ms. Hoelzer,

Per our meeting, I would like you to investigate accepting the detained basin 300 runoff (approximately 22 cfs) into the existing 60-inch SD in Eucariz. Since the as-built conditions of the Sunrise Terrace Subdivision will not allow for basin 300 to drain per the original Amole-Hubbard Master Plan, it has no other route but to go east to the Snow Vista Pond (in the Eucariz SD).

I have searched our available files and have not found any documentation of ownership or maintenance of the pond in basin 160B at this time. I can defer this requirement to the time of your CLOMR in order to facilitate approval of your project.

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

Sincerely,

Bradley L. Bingham

Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: Lynn Mazur, AMAFCA
file



City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

August 6, 2001

Diane Hoelzer, PE
Mark Goodwin & Associates
P.O. 90606
Albuquerque, NM 87199

Re: Sunrise Ranch West Drainage Report
Engineer's Stamp dated 7-13-01 (L8/D14)

Dear Ms. Hoelzer,

Based upon the information provided in your submittal dated 7-13-01, the above referenced plan cannot be approved for Preliminary Plat until the following comments are addressed:

- Because your project drains to the Snow Vista detention facility, AMAFCA review and concurrence will be required.
- You will need to include Basin 300 in your analysis of the Eucariz storm drain or explain how this basin was modified to drain elsewhere.
- Please indicate on the grading plan the erosion setback and the limits of the floodplain. A drainage easement, dedicated to AMAFCA, should encompass the erosion setback area.
- Please provide preliminary profiles for Sunset Gardens and 106th. Storm drain (and inlets) will need to be identified and financially guaranteed in 106th. There should be no surface drainage to the Eucariz "swale" unless you want to hard line it. A pipe gate and drivepad shall be required.
- Please remove references to sideyard private drainage easements. Include the detail of side yard swales previously provided to your office. Street slopes should be shown on the grading plan.
- With respect to the temporary asphalt diversion swale, please show spot elevations every 200'. The 2:1 tie-slope will need to end at the existing property line.

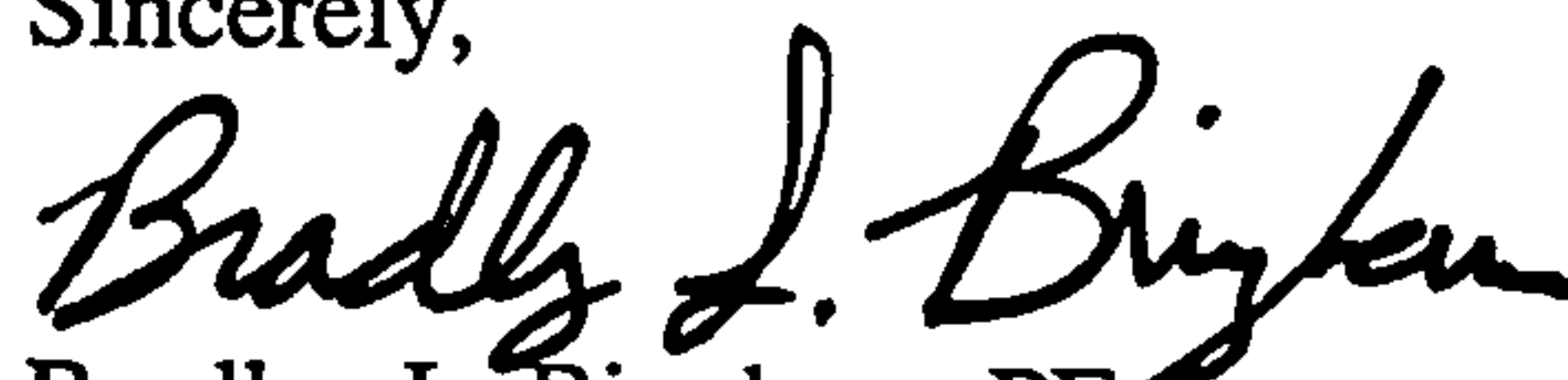
- Please provide documentation of ownership of the easement on Eucariz and the pond in Basin 160B.
- Please place design grades (pads and backyard spots) from adjoining lots from Sunrise Ranch, Unit 2. Also, add dimensions to your wall detail adjoining this subdivision.
- Increasing the size of the outlet pipe from the pond in Basin 160 is not the ultimate condition for this basin. It is wiser to increase the size of the pond than increase the pipe, then install a smaller pipe upon later development (the

AMAFCA's comments are as follows:

- It would be helpful to include in the Drainage Report a table comparing flow rates and, for the ponds, storage volumes and water surface elevations, for the major drainage facilities. Include flow rates for existing, interim and developed conditions.
- The outflow rating curve for the proposed 42-inch riser pipe in the existing Sunrise Terrace pond should begin at elevation 38.5 and include orifice flow through the 6-inch holes.
- The SIA should include a provision for restoring grading within the FEMA floodplain should the project not be completed. This is similar to what was done for the Desert Ridge Trails Subdivision.
- For the revised Amole-Hubbell DMP AHYMO files, put a "FINISH" after the Snow Vista Channel confluence.

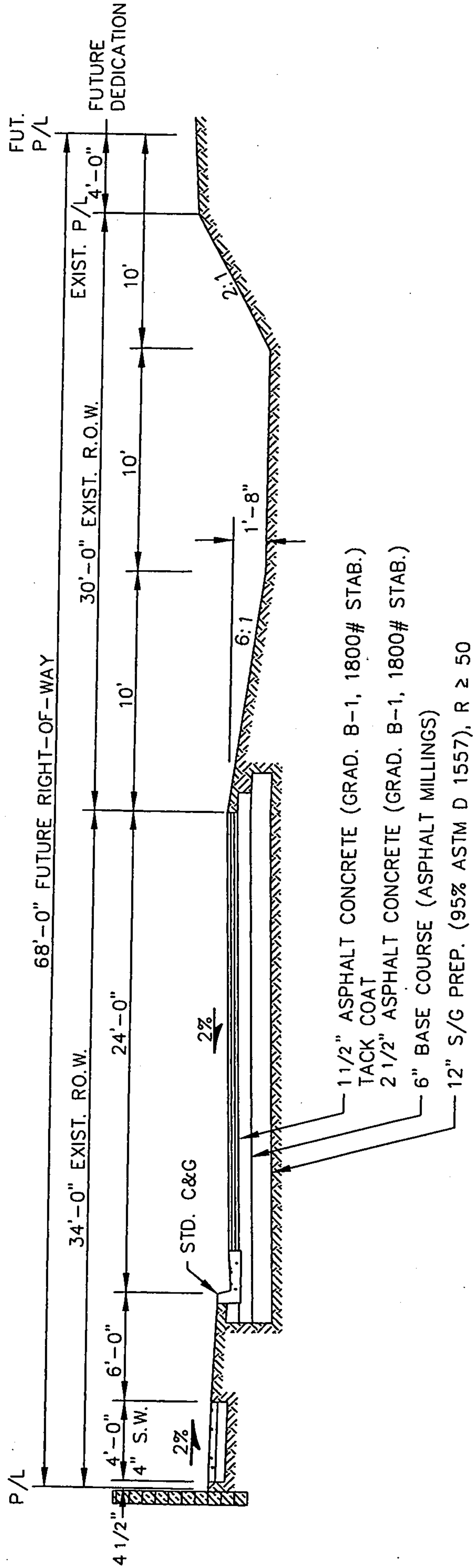
If you have any questions about my comments, you can contact me at 924-3986. If you have any questions about AMAFCA's comments, contact Lynn Mazur at 884-2215.

Sincerely,



Bradley L. Bingham, PE
Sr. Engineer, Hydrology

C: Lynn Mazur, AMAFCA
file



TYPICAL X-SECTION - 106TH STREET S.W.
(COLLECTOR STREET)

1/8" = 1'-0"