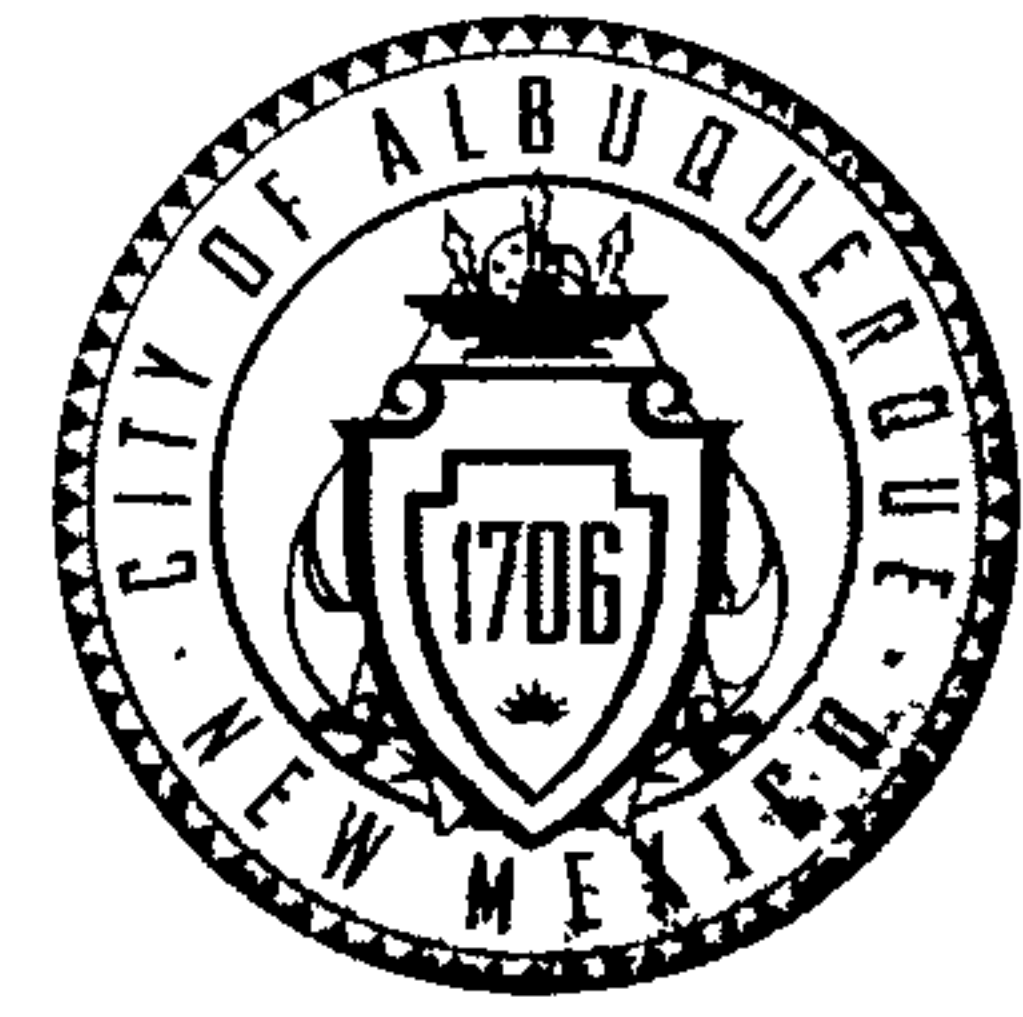


CITY OF ALBUQUERQUE



Richard J. Berry, Mayor

November 1, 2016

Scott J. Steffen, P.E.
Bohannon Huston
7601 Jefferson NE, Suite 100
Albuquerque, NM, 87109

**RE: Montecito Vistas Units 1-4
Grading & Drainage Plan and Report
Stamp Date 8-16-2016 / Hydrology File: D09D005
Revisions Dated 10-13-2016**

Dear Mr. Steffen:

Based upon the information provided in your submittal received 10-18-2016, the above-referenced Plan/Report is approved for Preliminary Plat and Site Plan for Subdivision.

Prior to ESC Grading Permit, the following must be addressed/acknowledged:

PO Box 1293

Albuquerque

New Mexico 87103

www.cabq.gov

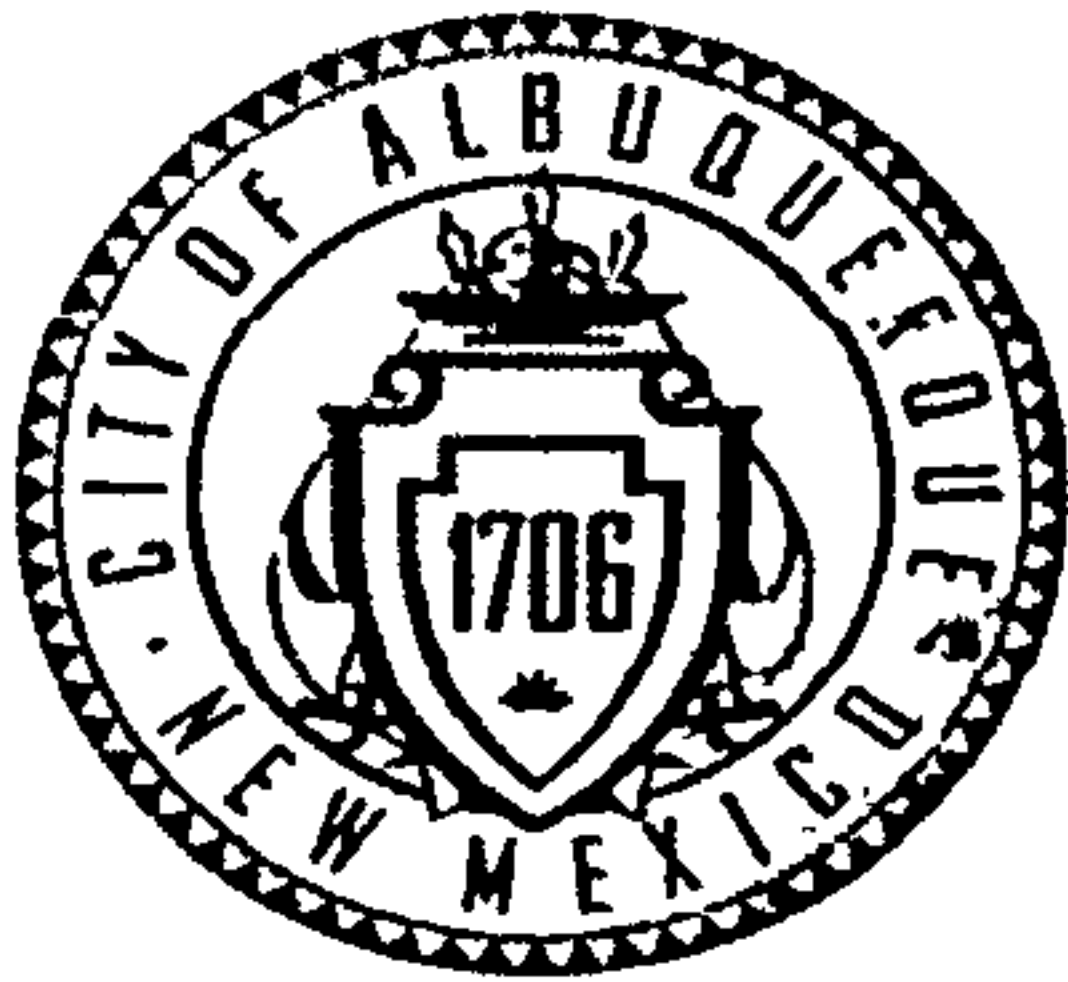
1. An ESC Plan will need to be approved before approval can be given for ESC Grading Permit. An approved ESC Plan and ESC Grading Permit are required prior to any grading on this project.
2. The 60" storm drain outfall will need a designed outlet structure that includes a permanent erosion control/energy dissipation feature. This item will need to be approved by the City Engineer prior to DRC sign off.
3. The 8" PVC that conveys flows from the bermed offsite area (Sheet 4) should be designed with elements to reduce the likelihood of clogging, such as a domed grate stand pipe. Also, please consider piping the flows directly to the swale instead of routing the flows between the retaining walls. This can be addressed prior to DRC sign off, if that element is designed with the work order.

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

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development Review Services

DRB: 1009506
Orig: Drainage file



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: MONTECITO VISTAS UNITS 1-4 Building Permit #: City Drainage #: D09/D005
DRB#: 1009506 EPC#: Work Order#:
Legal Description: Tracts 7- 8, 9A-C, 10B-C, 24-25, 26A-B & 27 Volcano Cliffs Subdivision Unit 6 and Tract 14 Volcano Cliffs Subdivision Unit 9
City Address:

Engineering Firm: BOHANNAN HUSTON INC Contact: SCOTT STEFFEN
Address: 7500 JEFFERSON ST NE COURTYARD I ALBUQUERQUE NM 87109
Phone#: 823-1000 Fax#: E-mail: SSTEFFEN@BHINC.COM

Owner: PULTE GROUP Contact: KEVIN PATTON
Address: 7601 JEFFERSON ST NE STE 320 ALBUQUERQUE NM 87109
Phone#: 505-761-9606 Fax#: E-mail:

Architect: Contact:
Address:
Phone#: Fax#: E-mail:

Other Contact: Contact:
Address:
Phone#: Fax#: E-mail:

Check all that Apply:

DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ ARCHITECT CERTIFICATION
☐ CONCEPTUAL G & D PLAN
☒ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☒ DRAINAGE REPORT
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)

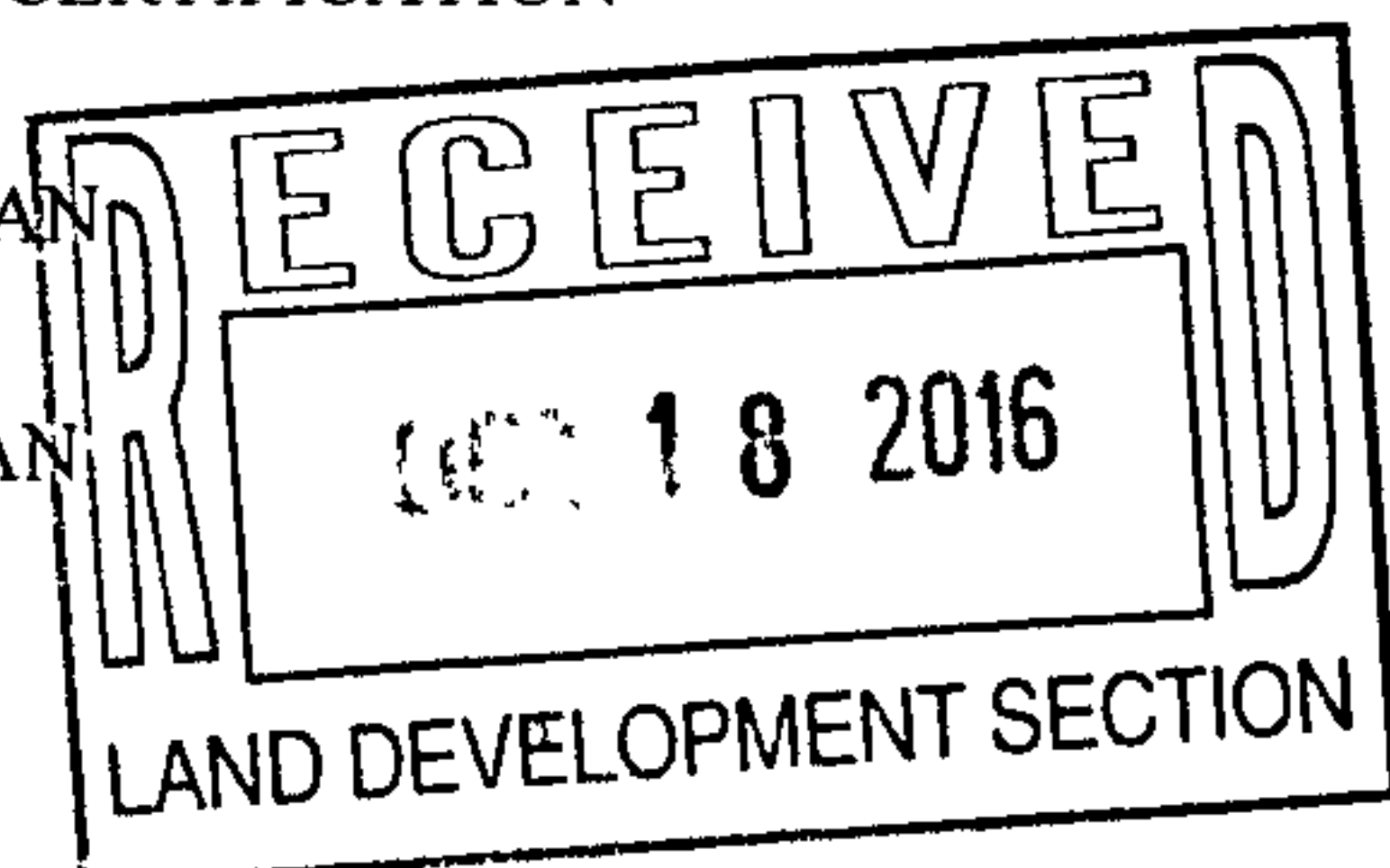
☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☒ Yes ☐ No

DATE SUBMITTED: 10/18/16 By: SCOTT STEFFEN

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY
☒ PRELIMINARY PLAT APPROVAL
☒ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☒ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT APPROVAL
☐ GRADING/ PAD CERTIFICATION
☐ WORK ORDER APPROVAL
☐ CLOMR/LOMR
☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____



COA STAFF ELECTRONIC SUBMITTAL RECEIVED. _____

Courtyard I
7500 Jefferson St. NE
Albuquerque, NM
87109-4335

www.bhinc.com

voice: 505.823.1000

facsimile: 505.798.7988

toll free: 800.877.5332

CLIENT/COURIER TRANSMITTAL

To: Abiel Carrillo
Hydrology Section
City of Albuquerque
600 2nd St NW

Requested by: Scott Steffen

Date: October 18, 2016

Time Due: ☒ This A.M.
☐ This P.M.
☐ Rush _____
☐ By Tomorrow

Phone: 924-3986

Job No.: 20160398.011.01.cdpabq

Job Name: Montecito Vistas

DELIVERY VIA

☒ Courier ☐ Federal Express
☐ Mail ☐ UPS
☐ Other

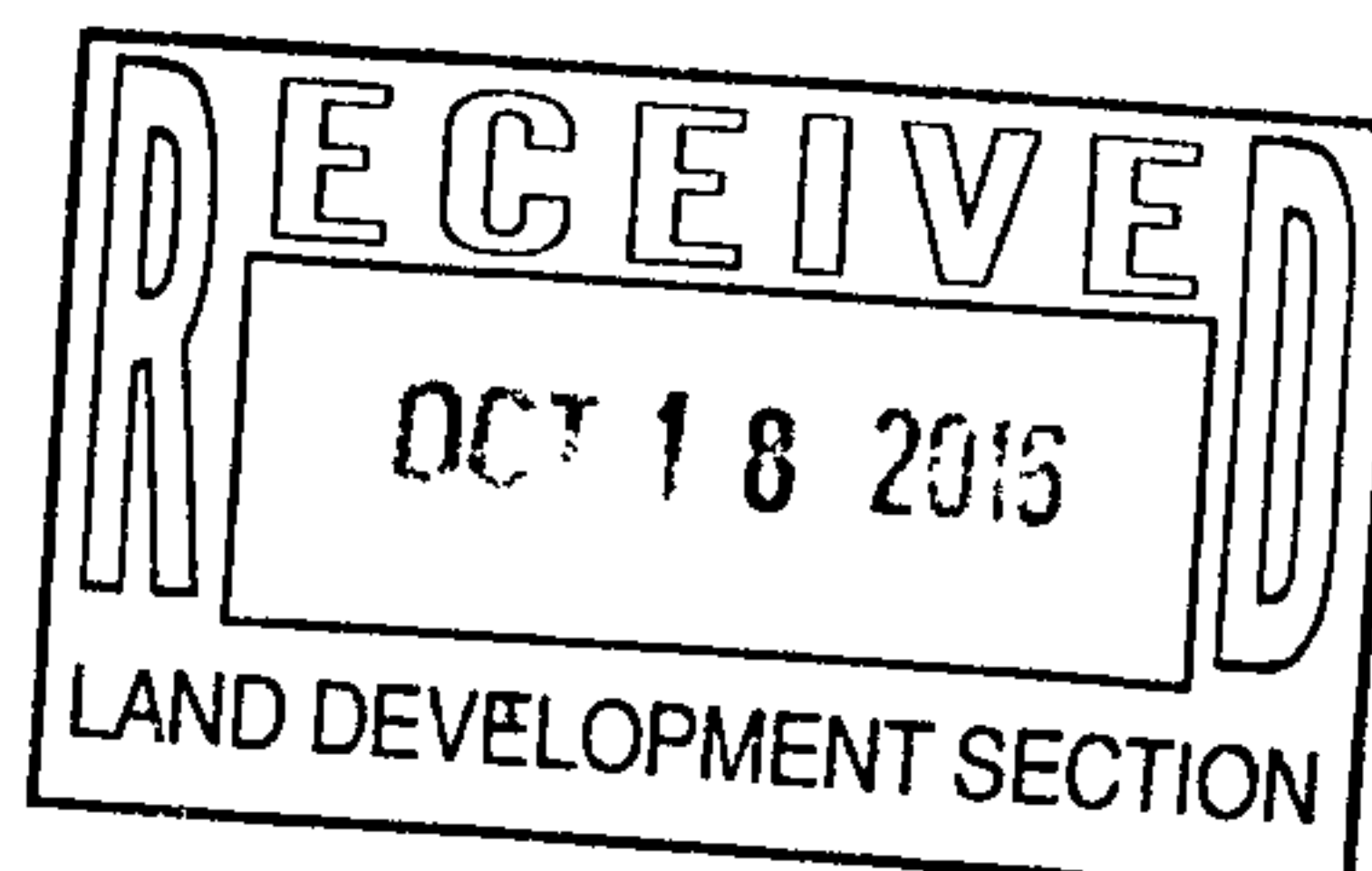
PICK UP

Item: _____

<u>ITEM NO.</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
-----------------	-----------------	--------------------

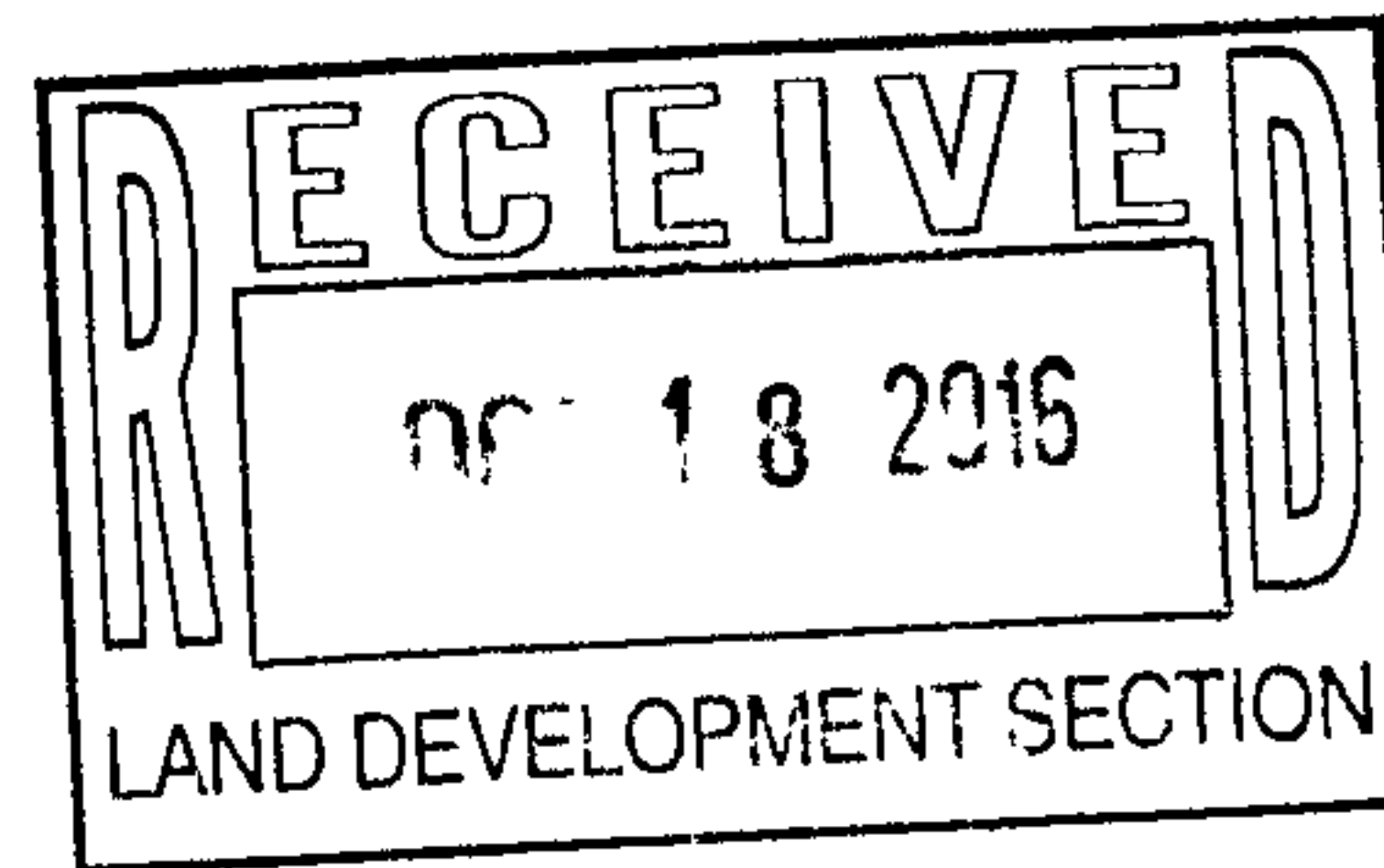
1	1	Drainage report Addendum #1 submittal package
---	---	---

COMMENTS / INSTRUCTIONS



REC'D BY: _____ DATE: _____ TIME: _____

October 18, 2016



Abiel Carrillo, P. E.
Hydrology Section
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Montecito Vistas Units 1-4, Drainage Report (D09/D005) Addendum #1

Dear Abiel:

This letter is an addendum to the previously approved drainage report for Montecito Vistas Units 1-4 (MV DR). The purpose of this addendum is to modify the drainage design of the lots in Basin 6-D.2F and the drainage outfall to the Middle Branch of the Boca Negra Arroyo from an open channel to a pipe.

The grading/drainage design for lots along the east side of Vista Luces Street has been revised from the lots draining to the rear to the lots draining to the front. The following items are included in this addendum as a result of this design modification:

- The private storm drain that extended into the HOA Tract (Tract F, Unit 2) to convey the flow to the Vista Luces Street storm drain is no longer necessary. The Storm Drain Network Map has been updated to reflect the removal of the private storm drain.
- Tract F has been replaced by an additional lot in Unit 2.
- The runoff conveyed in Vista Luces Street increases by 8 cfs, the runoff from Basin 6-D.2F, with 5 cfs draining to the northern sump and 3 cfs draining to the southern sump. The street capacity analysis for Vista Luces Street has been revised to reflect this change.
- The first flush for the lots in Basin 6-D.2F will be accommodated by a combination of ponding between the back of curb and sidewalk and onsite front yard ponding as described in the "First Flush Requirements" section of the approved drainage report. The paragraph regarding backyard ponds being utilized for the first flush for lots in Basin 6-D.2F is no longer valid.
- The drainage outfall to the Middle Branch of the Boca Negra Arroyo has been modified from an open channel to a pipe. The Storm Drain Network Map has been revised to reflect the storm drain pipe outfall.

Included for your review are the revised AHYMO input, output and summary output information, revised grading plan, revised street hydraulics for Vista Luces Street, and the revised Storm Drain Network Map.

Engineering ▲

Spatial Data ▲

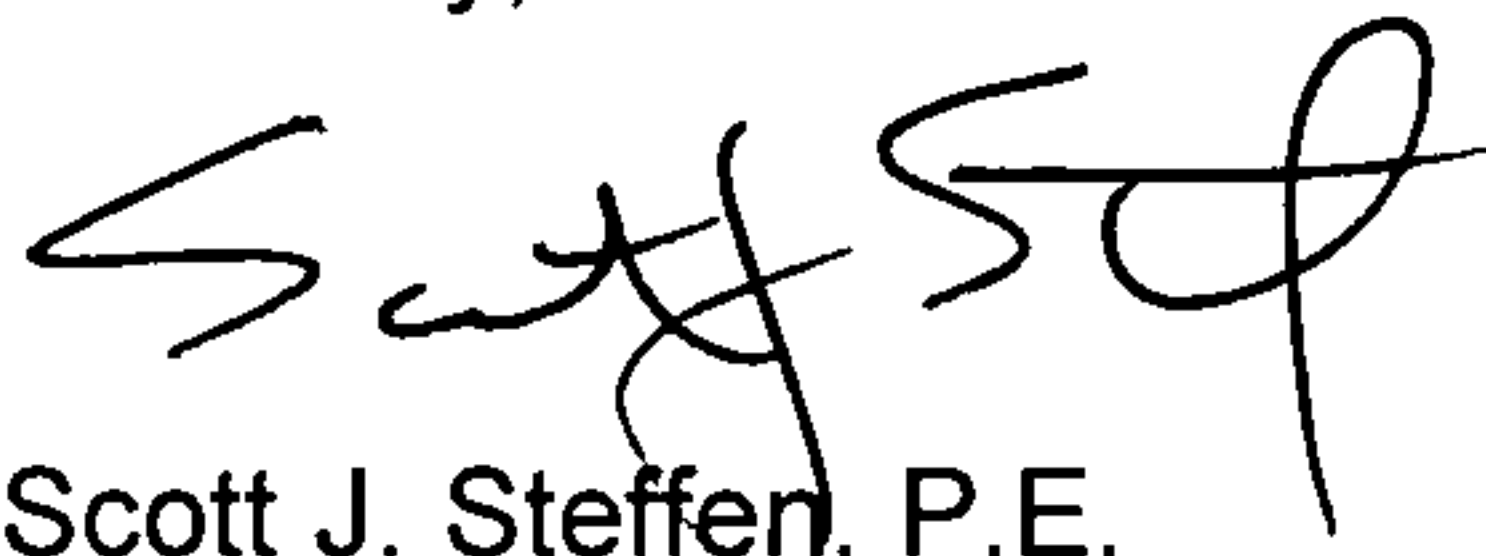
Advanced Technologies ▲

Abiel Carrillo, P.E.
Planning Department
October 18, 2016
Page 2

The revised lot drainage design is consistent with the rest of the lots in Montecito Vistas and does not change the developed runoff discharging from Montecito Vistas to the Middle Branch of the Boca Negra Arroyo. Changing the storm drainage outfall to the Middle Branch of the Boca Negra Arroyo from an open channel to a pipe does not significantly impact the storm drain hydraulics. The proposed revisions in this Addendum do not change the results and conclusions of the previously approved drainage report.

If you have any questions or require further information, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Scott J. Steffen', written over a horizontal line.

Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

Enclosures

cc: Rick Beltramo, Wexford Construction

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
INPUT FILE = DEV_Cond.HYM

- VERSION: 1997.02c

RUN DATE (MON/DAY/YR) =05/12/2016
USER NO.= AHYMO-S-9702c1BohanHu-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED										
*S 100 YEAR - 6 HOUR STORM										
*S										
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS										
*S MONTECITO WEST DMP UPDATE WITH MONTEICITO VISTA DEVELOPMENT 5/12/16										
START										TIME= .00
LOCATION			DEFAULT							
RAINFALL TYPE= 1										RAIN6= 2.210
*S										

* COMPUTE OFFSITE "D" BASINS *										

*S										
*S										
*S COMPUTE BASIN OS-D *****										
*S NO CHANGE FROM MONTECITO WEST DMP										
COMPUTE NM HYD	OS_D	-	17	.23780	174.20	5.322	.41961	1.533	1.145 PER IMP=	.00
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****										
ROUTE MCUNGE	100.01	17	50	.23780	170.91	5.282	.41646	1.833	1.123 CCODE =	.1
*S COMPUTE BASIN 15-D *****										
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF										
*S NO CHANGE FROM MONTECITO WEST DMP										
COMPUTE NM HYD	15_D	-	15	.15060	177.15	5.638	.70193	1.500	1.838 PER IMP=	16.00
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****										
ADD HYD	101.00	15&50	33	.38840	213.08	10.920	.52715	1.800	.857	
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****										
ROUTE MCUNGE	100.01	33	40	.38840	210.93	10.881	.52527	2.067	.849 CCODE =	.1
*S COMPUTE BASIN 9-D.1 *****										
*S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN										
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF										
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6										
COMPUTE NM HYD	9_D.1	-	9	.06030	68.56	2.691	.83686	1.567	1.777 PER IMP=	20.00
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****										
ADD HYD	104.00	40& 9	44	.44870	223.13	13.572	.56714	2.067	.777	
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****										
ROUTE MCUNGE	104.10	44	30	.44870	218.30	13.539	.56577	2.300	.760 CCODE =	.1
*S COMPUTE BASIN 6-D.1 *****										
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED										
*S 0.065625 SQ MI FROM BASIN										
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6										
COMPUTE NM HYD	6_D.1	-	6	.04590	39.17	1.218	.49739	1.533	1.333 PER IMP=	4.00
*S										
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****										
*S										
ADD HYD	AP_OFF	30& 6	55	.49460	220.51	14.757	.55942	2.300	.697	

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 = 2 NOTATION
*S COMPUTE BASIN 9-D.2 *****										
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF										
*S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6										
COMPUTE NM HYD	9_D.2	-	5	.00967	15.64	.539	1.04568	1.500	2.527	PER IMP= 34.00
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****										
ROUTE MCUNGE	100.01	5	7	.00967	15.09	.536	1.04013	1.767	2.439	CCODE = .1
*S COMPUTE BASIN 6-D.2*****										
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)										
*S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6										
*S										

COMPUTE MONTECITO VISTAS UNITS 1-4 ONSITE BASINS										

*S										
*S										
*S										
*S										
*S COMPUTE BASIN 6-D.2A *****										
COMPUTE NM HYD	6_D.2A	-	31	.01709	32.89	1.138	1.24844	1.500	3.007	PER IMP= 41.00
*S COMPUTE BASIN 6-D.2B *****										
COMPUTE NM HYD	6_D.2B	-	32	.01623	31.42	1.091	1.26047	1.500	3.025	PER IMP= 42.00
*S COMPUTE BASIN 6-D.2C *****										
COMPUTE NM HYD	6_D.2C	-	33	.00590	10.78	.359	1.14016	1.500	2.854	PER IMP= 32.00
*S COMPUTE BASIN 6-D.2D *****										
COMPUTE NM HYD	6_D.2D	-	34	.01071	19.43	.644	1.12813	1.500	2.835	PER IMP= 31.00
*S COMPUTE BASIN 6-D.2E *****										
COMPUTE NM HYD	6_D.2E	-	35	.00242	4.61	.158	1.22438	1.500	2.981	PER IMP= 39.00
*S COMPUTE BASIN 6-D.2F *****										
COMPUTE NM HYD	6_D.2F	-	36	.00418	7.96	.273	1.22438	1.500	2.977	PER IMP= 39.00
*S ADD 9-D.2 TO 6-D.2A *****										
ADD HYD	6_9D.2A	7&31	39	.02676	33.64	1.674	1.17314	1.500	1.964	
*S ADD 6-D.2B TO 6_9D.2A *****										
ADD HYD	6_9D.2AB	32&39	41	.04299	65.06	2.765	1.20611	1.500	2.365	
*S ADD 6-D.2C TO 6_9D.2AB *****										
ADD HYD	6_9D.2ABC	33&41	42	.04889	75.84	3.124	1.19814	1.500	2.424	
*S ADD 6_D.2D TO 6_9D.2ABC *****										
ADD HYD	6_9D.2ABCD	34&42	43	.05960	95.27	3.769	1.18556	1.500	2.498	
*S ADD 6_D.2E TO 6_9D.2ABCD *****										
ADD HYD	6_D.2ABCDE	35&43	46	.06202	99.88	3.926	1.18706	1.500	2.516	
*S ADD 6_D.2F TO 6_9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6_9D.2*****										
ADD HYD	6_9D.2ABCDEF	36&46	47	.06620	107.84	4.199	1.18942	1.500	2.545	
*S COMPUTE BASIN 6-D.3*****										
*S UPDATED TO SHOW 30% OPEN SPACE										
*S NO CHANGE FROM MONTECITO WEST DMP										
COMPUTE NM HYD	6_D.3	-	9	.01828	29.55	1.019	1.04568	1.500	2.526	PER IMP= 34.00
*S***** ROUTE OFFSITE FLOW THRU 850' OF 36" RCP PIPE										
ROUTE MCUNGE	RT.2AB2	9	10	.01828	29.41	1.019	1.04577	1.533	2.514	CCODE = .2
*S										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
*S										
*S										
*S										
*S										
*S										
*S	COMPUTE BASIN A-1.1									
*S	ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF									
*S	NO CHANGE FROM MONTECITO WEST DMP									
COMPUTE NM HYD	A_1.1	-	60	.08421	51.19	1.964	.43725	1.567	.950	PER IMP= .00
*S	COMPUTE BASIN A-1.2									
*S	UPDATED TO SHOW 30% OPEN SPACE									
*S	DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6									
COMPUTE NM HYD	A_1.2	-	65	.01261	20.39	.703	1.04568	1.500	2.527	PER IMP= 34.00
*S	ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE									
ADD HYD	A_1.1_1.2	60&65	66	.09682	68.67	2.667	.51650	1.567	1.108	
*S										
*S										
*S										
*S										
*S										
*S	COMPUTE BASIN E-1.1									
COMPUTE NM HYD	1_E.1	-	21	.00613	9.92	.342	1.04568	1.500	2.528	PER IMP= 34.00
*S	COMPUTE BASIN E-1.3									
*S	UPDATED TO SHOW 30% OPEN SPACE									
*S	NO CHANGE FROM MONTECITO WEST DMP									
COMPUTE NM HYD	E_1.3	-	70	.08120	102.27	3.249	.75028	1.500	1.968	PER IMP= 16.00
*S	COMPUTE BASIN E-1.4									
*S	UPDATED TO SHOW 30% OPEN SPACE									
*S	NO CHANGE FROM MONTECITO WEST DMP									
COMPUTE NM HYD	E_1.4	-	75	.13593	144.66	5.076	.70019	1.533	1.663	PER IMP= 14.00
*S										
*S										
*S										
*S										
*S	NO CHANGE FROM MONTECITO WEST DMP									
*S										
*S	COMPUTE BASIN 6-D.4									
COMPUTE NM HYD	6_D.4	-	2	.01578	30.55	1.061	1.26047	1.500	3.025	PER IMP= 42.00
*S	COMPUTE BASIN 6-D.5									
COMPUTE NM HYD	6_D.5	-	3	.00752	13.73	.457	1.14016	1.500	2.853	PER IMP= 32.00
*S	COMPUTE BASIN 6-D.6									
COMPUTE NM HYD	6_D.6	-	4	.00644	4.95	.141	.41046	1.533	1.202	PER IMP= .00
*S	COMPUTE BASIN 6-D.7									
COMPUTE NM HYD	6 D.7	-	1	.00524	9.96	.341	1.22285	1.500	2.971	PER IMP= 39.00

[illegible]

```

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED
*S 100 YEAR - 6 HOUR STORM
*S
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
*
*S MONTECITO WEST DMP UPDATE WITH MONTEICITO VISTA DEVELOPMENT 5/12/16
*
*CONVERT TO NMHYMO
START TIME=0.0 HR PUNCH CODE=0
*****
LOCATION NM
*
*****
*
*****
*100 YEAR - 6 HOUR
RAINFALL TYPE=1 RAIN QUARTER=0
RAIN ONE=1.73 IN RAIN SIX=2.23 IN
RAIN DAY=2.60 IN DT=0.033333 HRS

*S
*S *****
*S * COMPUTE OFFSITE "D" BASINS *
*S *****
*S
*S
*S
*S
*S COMPUTE BASIN OS-D *****
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0750 K=0.7
LENGTH=700 FT SLOPE=0.04286 K=2.0
LENGTH=2900 FT SLOPE=0.03793 K=3.0

COMPUTE NM HYD ID=17 HYD=OS_D AREA=0.2378 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=17 CODE=1
*
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****
*
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

```

```

ROUTE MCUNGE          ID=50  HYD=100.01  INFLOW ID=17  DT=0HR  L=4900
                        NS=0   SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=50          CODE=1
*
*S COMPUTE BASIN 15-D *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=3   ISLOPE=-1
                        LENGTH=400 FT  SLOPE=0.050 K=0.7
                        LENGTH=500 FT  SLOPE=0.020 K=2.0
                        LENGTH=1200 FT  SLOPE=0.02167 K=3.0

COMPUTE NM HYD          ID=15  HYD=15_D  AREA=0.1506 SQ MI
                        PER A=68.0  PER B=8.0  PER C=8.0  PER D=16.0
                        TP=0.0 HR  MASS RAIN=-1
PRINT HYD             ID=15          CODE=1
*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
ADD HYD               ID=33  HYD NO=101.0 ID I=15 ID II=50
PRINT HYD             ID=33  CODE=1
*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                        MIN ELEV=0 MAX ELEV=3.80
                        CH SLOPE=0.038  FP SLOPE=0.038
                        N=0.038  DIST=32.0
                        DIST  ELEV      DIST  ELEV
                        0.0      5.0    6.0    0.0
                        26.0  0.0    32.0  5.0

ROUTE MCUNGE          ID=40  HYD=100.01  INFLOW ID=33  DT=0HR  L=4900
                        NS=0   SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=40          CODE=1
*
*S COMPUTE BASIN 9-D.1 *****
*S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=3   ISLOPE=-1
                        LENGTH=400 FT  SLOPE=0.0084 K=0.7
                        LENGTH=0 FT  SLOPE=0.0 K=2.0

```

LENGTH=1600 FT SLOPE=0.0250 K=3.0

```
COMPUTE NM HYD          ID=9  HYD=9_D.1  AREA=0.0603 SQ MI
                        PER A=40.0  PER B=21.0  PER C=19.0  PER D=20.0
                        TP=0.0 HR  MASS RAIN=-1
PRINT HYD              ID=9      CODE=1
*
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
ADD HYD                ID=44    HYD NO=104.0 ID I=40 ID II=9
PRINT HYD              ID=44    CODE=1
*
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
*
COMPUTE RATING CURVE  CID=1    VS NO=1    NO SEGS=1
                        MIN ELEV=0 MAX ELEV=3.80
                        CH SLOPE=0.038    FP SLOPE=0.038
                        N=0.038    DIST=32.0
                        DIST  ELEV    DIST  ELEV
                          0.0    5.0   6.0   0.0
                          26.0  0.0   32.0  5.0

ROUTE MCUNGE          ID=30  HYD=104.1  INFLOW ID=44  DT=0HR  L=4900
                        NS=0    SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=30      CODE=1
*
*S COMPUTE BASIN 6-D.1 *****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED
*S 0.065625 SQ MI FROM BASIN
*
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=3    ISLOPE=-1
                        LENGTH=400 FT  SLOPE=0.05 K=0.7
                        LENGTH=0 FT  SLOPE=0.0084 K=2.0
                        LENGTH=2800 FT  SLOPE=0.03286 K=3.0

COMPUTE NM HYD          ID=6  HYD=6_D.1  AREA=0.0459 SQ MI
                        PER A=85.0  PER B=8.0  PER C=3.0  PER D=4.0
                        TP=0.0 HR  MASS RAIN=-1
PRINT HYD              ID=6      CODE=1
*S
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
*S

ADD HYD                ID=55    HYD NO=AP_OFF ID I=30 ID II=6
PRINT HYD              ID=55    CODE=1
*
*S COMPUTE BASIN 9-D.2 *****
```

```

*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=1    ISLOPE=0
                        LENGTH=1800 FT  SLOPE=0.0372 K=3.0
                        Kn=.021  CR=.5

COMPUTE NM HYD          ID=5  HYD=9_D.2  AREA=0.00945 SQ MI
                        PER A=43.0  PER B=10.0  PER C=27.0  PER D=20.0
                        TP=0.0 HR  MASS RAIN=-1
PRINT HYD              ID=5          CODE=20
*
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
*
COMPUTE RATING CURVE  CID=1    VS NO=1    NO SEGS=1
                        MIN ELEV=0 MAX ELEV=3.80
                        CH SLOPE=0.0433    FP SLOPE=0.0433
                        N=0.038    DIST=32.0
                        DIST  ELEV    DIST  ELEV
                        0.0    5.0    6.0    0.0
                        26.0  0.0    32.0  5.0

ROUTE MCUNGE           ID=7  HYD=100.01  INFLOW ID=5  DT=0HR  L=1200
                        NS=0    SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=7          CODE=1
*
*S COMPUTE BASIN 6-D.2*****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)
*
*S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6
*
*COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
*                        NK=1    ISLOPE=0
*                        LENGTH=1200 FT  SLOPE=0.0433 K=3.0
*                        Kn=.021  CR=.5
*
*
*COMPUTE NM HYD          ID=7  HYD=6_D.2  AREA=0.047369 SQ MI
*                        PER A=42  PER B=15  PER C=15  PER D=28
*                        TP=0.0 HR  MASS RAIN=-1
*PRINT HYD              ID=7          CODE=20
*
*S
*S
*S      *****
*S      *COMPUTE MONTECITO VISTAS UNITS 1-4 ONSITE BASINS*
*S      *****
*S
*S

```

```

*S
*S COMPUTE BASIN 6-D.2A *****
*
COMPUTE NM HYD          ID=31 HYD=6_D.2A  AREA=0.01709  PER A=0 PER B=29.5
                        PER C=29.5 PER D=41  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=31  CODE=1
*
*S COMPUTE BASIN 6-D.2B *****
COMPUTE NM HYD          ID=32 HYD=6_D.2B  AREA=0.016231 PER A=0 PER B=29
                        PER C=29 PER D=42  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=32  CODE=1
*
*S COMPUTE BASIN 6-D.2C *****
COMPUTE NM HYD          ID=33 HYD=6_D.2C  AREA=0.005902 PER A=0 PER B=34
                        PER C=34 PER D=32  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=33  CODE=1
*
*S COMPUTE BASIN 6-D.2D *****
COMPUTE NM HYD          ID=34 HYD=6_D.2D  AREA=0.01071  PER A=0 PER B=34.5
                        PER C=34.5 PER D=31  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=34  CODE=1
*
*S COMPUTE BASIN 6-D.2E *****
COMPUTE NM HYD          ID=35 HYD=6_D.2E  AREA=0.002415 PER A=0 PER B=30.5
                        PER C=30.5 PER D=39  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=35  CODE=1
*
*S COMPUTE BASIN 6-D.2F *****
COMPUTE NM HYD          ID=36 HYD=6_D.2F  AREA=0.004180 PER A=0 PER B=30
                        PER C=30 PER D=40ss TP=0.13333  RAINFALL=-1
PRINT HYD              ID=36  CODE=1
*
*S ADD 9-D.2 TO 6-D.2A *****
ADD HYD                ID=39  HYD NO=6_9D.2A ID I=7 ID II=31
PRINT HYD              ID=39  CODE=1
*
*S ADD 6-D.2B TO 6_9D.2A *****
ADD HYD                ID=41  HYD NO=6_9D.2AB ID I=32 ID II=39
PRINT HYD              ID=41  CODE=1
*
*S ADD 6-D.2C TO 6_9D.2AB *****
ADD HYD                ID=42  HYD NO=6_9D.2ABC ID I=33 ID II=41
PRINT HYD              ID=42  CODE=1
*
*S ADD 6_D.2D TO 6_9D.2ABC *****
ADD HYD                ID=43  HYD NO=6_9D.2ABCD ID I=34 ID II=42
PRINT HYD              ID=43  CODE=1
*
*S ADD 6_D.2E TO 6_9D.2ABCD *****
ADD HYD                ID=46  HYD NO=6_D.2ABCDE ID I=35 ID II=43
PRINT HYD              ID=46  CODE=1
*

```

```

*S ADD 6_D.2F TO 6_9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6_9D.2*****
ADD HYD          ID=47    HYD NO=6_9D.2ABCDEF ID I=36 ID II=46
PRINT HYD        ID=47    CODE=1
*
*
*S COMPUTE BASIN 6-D.3*****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                   NK=1    ISLOPE=0
                   LENGTH=600 FT  SLOPE=0.0433 K=3.0
                   Kn=.021  CR=.5

COMPUTE NM HYD      ID=9    HYD=6_D.3  AREA=0.018277 SQ MI
                   PER A=30.0  PER B=18  PER C=18  PER D=34
                   TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=9      CODE=20
*
*S***** ROUTE OFFSITE FLOW THRU 850' OF 36" RCP PIPE
COMPUTE RATING CURVE CID=10  VS NO=1  CODE=-1
                   SLP=0.0273
                   DIA=36 INCHES  N=0.013
ROUTE MCUNGE      ID=10  HYD= RT.2AB2  INFLOW ID=9  DT=0HR  L=850
                   NS=0    SLOPE=.0273  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=10      CODE=1
*S
*S
*S
*S
*S      *****
*S      *  COMPUTE OFFSITE "A" BASINS  *
*S      *****
*S
*S COMPUTE BASIN A-1.1 *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                   NK=3    ISLOPE=-1
                   LENGTH=400 FT  SLOPE=0.0340 K=0.7
                   LENGTH=1600 FT  SLOPE=0.0361 K=2.0
                   LENGTH=2800 FT  SLOPE=0.0346 K=3.0

COMPUTE NM HYD      ID=60  HYD=A_1.1  AREA=0.08421 SQ MI
                   PER A=90.0  PER B=5.0  PER C=5.0  PER D=0.0
                   TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=60      CODE=20
*

```

```

*S COMPUTE BASIN A-1.2 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=1  ISLOPE=0
                        LENGTH=3200 FT  SLOPE=0.0325 K=3.0
                        Kn=.021  CR=.5

COMPUTE NM HYD          ID=65  HYD=A_1.2  AREA=0.012613 SQ MI
                        PER A=30.0  PER B=18.0  PER C=18.0  PER D=34.0
                        TP=0.0 HR  MASS RAIN=-1
PRINT HYD              ID=65  CODE=20
*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD                ID=66  HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD              ID=66  CODE=1
*
*S
*S
*S      *****
*S      * COMPUTE OFFSITE "E" BASINS *
*S      *****
*S
*S
*S COMPUTE BASIN E-1.1 *****
*
COMPUTE NM HYD          ID=21  HYD=1_E.1  AREA=0.006128  PER A=30.0 PER B=18.0
                        PER C=18.0 PER D=34  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=21  CODE=1
*
*S COMPUTE BASIN E-1.3 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=1  ISLOPE=0
                        LENGTH=3800 FT  SLOPE=0.0325 K=3.0
                        Kn=.021  CR=.5

COMPUTE NM HYD          ID=70  HYD=E_1.3  AREA=0.08120 SQ MI
                        PER A=52.0  PER B=16.0  PER C=16.0  PER D=16.0
                        TP=0.0 HR  MASS RAIN=-1
PRINT HYD              ID=70  CODE=20
*
*S COMPUTE BASIN E-1.4 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP

```

```

*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=1  ISLOPE=0
                        LENGTH=5200 FT  SLOPE=0.0325 K=3.0
                        Kn=.021  CR=.5

COMPUTE NM HYD          ID=75 HYD=E_1.4  AREA=0.13593 SQ MI
                        PER A=60.0  PER B=13.0  PER C=13.0  PER D=14.0
                        TP=0.0 HR  MASS RAIN=-1
PRINT HYD              ID=75  CODE=20
*
*S
*S *****
*S *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*
*S *****
*S
*S NO CHANGE FROM MONTECITO WEST DMP
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD          ID=2 HYD=6_D.4  AREA=0.015778  PER A=0  PER B=29
                        PER C=29  PER D=42  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=2  CODE=1
*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD          ID=3 HYD=6_D.5  AREA=0.007522  PER A=0  PER B=34
                        PER C=34  PER D=32  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=3  CODE=1
*
*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD          ID=4 HYD=6_D.6  AREA=0.006441  PER A=100  PER B=0
                        PER C=0  PER D=0  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=4  CODE=1
*
*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD          ID=1 HYD=6_D.7  AREA=0.005236  PER A=0  PER B=31
                        PER C=30  PER D=39  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=1  CODE=1
*
*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD          ID=20 HYD=6_D.8  AREA=0.010762  PER A=0  PER B=30
                        PER C=29  PER D=41  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=20  CODE=1
*
*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD          ID=22 HYD=1_E.2  AREA=0.001177  PER A=0  PER B=29
                        PER C=29  PER D=42  TP=0.13333  RAINFALL=-1
PRINT HYD              ID=22  CODE=1
*
*S ADD E_1.1 TO E_1.2 *****
ADD HYD                ID=71  HYD NO=E.1_2  ID I=21  ID II=22

```

```

PRINT HYD          ID=71    CODE=1
*
*S ADD 6_D.8 TO E_1.1_1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****
ADD HYD            ID=72    HYD NO=AP2_ON ID I=71 ID II=20
PRINT HYD          ID=72    CODE=1
*
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****
ADD HYD            ID=11    HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD          ID=11    CODE=1
*
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****
ADD HYD            ID=12    HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD          ID=12    CODE=1
*
*S
*S
*S          *****
*S          * COMPUTE ANALYSIS POINTS *
*S          *****
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD AP_OFF TO 6_9D.2 (DIVERT FLOWS) TO GET NEW AP_OFF *****
*
ADD HYD            ID=25    HYD NO=AP_OFF.NEW ID I=55 ID II=47
PRINT HYD          ID=25    CODE=1
*S
*S ADD AP2_ON TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD            ID=24    HYD NO=AP_2 ID I=25 ID II=72
PRINT HYD          ID=24    CODE=1
*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S DIVIDE 6D.3 FOR 30.0% RETAINAGE
DIVIDE HYD          ID=10    PER=-70.0 ID I=12 HYD NO=6D.3_OUT
                                ID II=13 HYD NO=6D.3_RETAIN
*
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD            ID=14    HYD NO=AP_1 ID I=12 ID II=11
PRINT HYD          ID=14    CODE=1
*S
*S
*S          *****
*S          *COMPUTE VISTA VIEJA AVENUE FLOW*
*S          *****
*S
*S
*S COMPUTE VISTA VIEJA AVE *****

```

```
*  
COMPUTE NM HYD          ID=90 HYD=VV1  AREA=0.013219  PER A=0  PER B=0  
PER C=10  PER D=90  TP=0.13333  RAINFALL=-1  
PRINT HYD          ID=90  CODE=1  
*  
  
FINISH
```

AHYMO PROGRAM (AHYMO_97) - - Version: 1997.02c
RUN DATE (MON/DAY/YR) = 10/17/2016
START TIME (HR:MIN:SEC) = 14:39:36 USER NO.= AHYMO-S-9702c1BohanHu-AH
INPUT FILE = DEV_Cond.HYM

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED
*S 100 YEAR - 6 HOUR STORM
*S
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
*
*S MONTECITO WEST DMP UPDATE WITH MONTEICTO VISTA DEVELOPMENT 5/12/16
*

*CONVERT TO NMHYMO

START TIME=0.0 HR PUNCH CODE=0

LOCATION NM

Soil infiltration values (LAND FACTORS) for this location are not available.
The following default values were used.

Land Treatment	Initial Abstr.(in)	Unif. Infilt.(in/hour)
A	0.65	1.67
B	0.50	1.25
C	0.35	0.83
D	0.10	0.04

*

*

*100 YEAR - 6 HOUR

RAINFALL

TYPE=1 RAIN QUARTER=0

RAIN ONE=1.73 IN RAIN SIX=2.23 IN
RAIN DAY=2.60 IN DT=0.033333 HRS

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

DT = .033333 HOURS END TIME = 5.999940 HOURS

.0000	.0039	.0079	.0120	.0162	.0205	.0248
.0293	.0338	.0385	.0432	.0481	.0531	.0583
.0636	.0690	.0746	.0804	.0863	.0924	.0988
.1053	.1121	.1192	.1265	.1342	.1421	.1505
.1592	.1685	.1782	.1830	.1881	.1935	.2053
.2316	.2720	.3301	.4094	.5136	.6465	.8119
1.0137	1.2004	1.2786	1.3445	1.4032	1.4566	1.5058
1.5514	1.5941	1.6341	1.6717	1.7072	1.7407	1.7725
1.8025	1.8310	1.8581	1.8838	1.9082	1.9145	1.9205
1.9263	1.9318	1.9372	1.9423	1.9474	1.9522	1.9570
1.9616	1.9661	1.9704	1.9747	1.9789	1.9830	1.9870
1.9909	1.9947	1.9985	2.0022	2.0058	2.0094	2.0129
2.0163	2.0197	2.0231	2.0263	2.0296	2.0328	2.0359
2.0391	2.0421	2.0452	2.0481	2.0511	2.0540	2.0569
2.0598	2.0626	2.0654	2.0681	2.0708	2.0735	2.0762
2.0788	2.0815	2.0840	2.0866	2.0891	2.0917	2.0942
2.0966	2.0991	2.1015	2.1039	2.1063	2.1087	2.1110
2.1133	2.1156	2.1179	2.1202	2.1224	2.1247	2.1269
2.1291	2.1313	2.1335	2.1356	2.1377	2.1399	2.1420
2.1441	2.1462	2.1482	2.1503	2.1523	2.1543	2.1564
2.1584	2.1604	2.1623	2.1643	2.1662	2.1682	2.1701
2.1720	2.1739	2.1758	2.1777	2.1796	2.1815	2.1833
2.1852	2.1870	2.1888	2.1906	2.1924	2.1942	2.1960
2.1978	2.1996	2.2013	2.2031	2.2048	2.2066	2.2083
2.2100	2.2117	2.2134	2.2151	2.2168	2.2185	2.2201
2.2218	2.2235	2.2251	2.2267	2.2284	2.2300	

*S

*S

*S

* COMPUTE OFFSITE "D" BASINS *

*S

*S

*S

*S

*S COMPUTE BASIN OS-D *****

*

*S NO CHANGE FROM MONTECITO WEST DMP

*

COMPUTE LT TP

LCODE=1 UPLAND/LAG TIME TRANSITION METHOD

NK=3 ISLOPE=-1

LENGTH=400 FT SLOPE=0.0750 K=0.7

LENGTH=700 FT SLOPE=0.04286 K=2.0

LENGTH=2900 FT SLOPE=0.03793 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.075000	.7000

SHALLOW FLOW PORTION	700.0	.042860	2.0000
CHANNEL FLOW PORTION	2900.0	.037930	3.0000
TOTAL BASIN	4000.0	.042500	2.2199

TIME OF CONCENTRATION (HRS)= .2428 TIME TO PEAK (HRS)= .1619 LAG TIME (HRS)= .1821

COMPUTE NM HYD ID=17 HYD=OS_D AREA=0.2378 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1
 TIME TO PEAK (hrs)= .1619

K = .177439HR TP = .161864HR K/TP RATIO = 1.096227 SHAPE CONSTANT, N = 3.224148
 UNIT PEAK = 440.17 CFS UNIT VOLUME = 1.000 B = 299.61 P60 = 1.7300
 AREA = .237800 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=17 CODE=1

HYDROGRAPH FROM AREA OS_D

RUNOFF VOLUME = .42925 INCHES = 5.4440 ACRE-FEET
 PEAK DISCHARGE RATE = 178.23 CFS AT 1.533 HOURS BASIN AREA = .2378 SQ. MI.

*
 *S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****
 *

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.038 FP SLOPE=0.038
 N=0.038 DIST=32.0
 DIST ELEV DIST ELEV
 0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=50 HYD=100.01 INFLOW ID=17 DT=0HR L=4900
 NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 195 TABLE PTS= 20
 DT= .033333 QMED= 89.11 CKMED= 9.2361
 WIDTH MED= 21.73 NREACH= 9 DX= 544.44

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	6.59	4.04	1.451	.012	.991	.188	-.179	20.5	.992	.098	-.090
.60	12.4	65.0	.260	21.4	8.44	5.23	1.860	.017	.988	.305	-.293	48.0	.989	.253	-.242
.80	16.8	105.1	.217	21.9	10.01	6.27	2.206	.023	.986	.381	-.366	84.1	.987	.346	-.332
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.510	.029	.984	.435	-.418	127.9	.985	.409	-.394
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.781	.035	.982	.476	-.458	178.9	.983	.456	-.439
1.40	30.4	267.8	.154	23.4	13.73	8.82	3.027	.040	.980	.508	-.488	236.6	.981	.493	-.474
1.60	35.1	335.1	.142	23.8	14.76	9.55	3.253	.046	.979	.535	-.513	300.7	.979	.522	-.501
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.462	.052	.977	.557	-.534	371.1	.978	.546	-.524
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.657	.057	.976	.576	-.551	447.4	.976	.567	-.543
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.840	.063	.974	.592	-.566	529.7	.975	.584	-.559
2.40	54.9	663.8	.113	25.8	18.20	12.09	4.012	.068	.973	.606	-.579	617.8	.974	.599	-.573
2.60	60.1	760.4	.108	26.2	18.94	12.65	4.175	.074	.972	.619	-.591	711.5	.972	.613	-.585
2.80	65.4	862.5	.103	26.7	19.65	13.19	4.330	.079	.971	.630	-.601	810.9	.971	.625	-.596
3.00	70.8	970.3	.099	27.2	20.32	13.70	4.478	.085	.969	.640	-.610	915.8	.970	.635	-.605
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 6 OCCURRED 1 TIMES. AVERAGE NUMBER ITERATIONS = 1.0881

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=50 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .42602 INCHES = 5.4031 ACRE-FEET
PEAK DISCHARGE RATE = 174.68 CFS AT 1.833 HOURS BASIN AREA = .2378 SQ. MI.

*
*S COMPUTE BASIN 15-D *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.050 K=0.7
LENGTH=500 FT SLOPE=0.020 K=2.0
LENGTH=1200 FT SLOPE=0.02167 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	500.0	.020000	2.0000
CHANNEL FLOW PORTION	1200.0	.021670	3.0000
TOTAL BASIN	2100.0	.026669	1.8265

TIME OF CONCENTRATION (HRS)= .1956 TIME TO PEAK (HRS)= .1304 LAG TIME (HRS)= .1467

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=15 HYD=15_D AREA=0.1506 SQ MI
PER A=68.0 PER B=8.0 PER C=8.0 PER D=16.0
TP=0.0 HR MASS RAIN=-1
TIME TO PEAK (hrs)= .1333

K = .074721HR TP = .133333HR K/TP RATIO = .560410 SHAPE CONSTANT, N = 6.857998
UNIT PEAK = 92.978 CFS UNIT VOLUME = .9995 B = 514.49 P60 = 1.7300
AREA = .024096 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .149656HR TP = .133333HR K/TP RATIO = 1.122422 SHAPE CONSTANT, N = 3.152041
UNIT PEAK = 278.93 CFS UNIT VOLUME = .9999 B = 293.99 P60 = 1.7300
AREA = .126504 SQ MI IA = .60714 INCHES INF = 1.55000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA 15_D

RUNOFF VOLUME = .71331 INCHES = 5.7292 ACRE-FEET
PEAK DISCHARGE RATE = 179.81 CFS AT 1.500 HOURS BASIN AREA = .1506 SQ. MI.

*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
ADD HYD ID=33 HYD NO=101.0 ID I=15 ID II=50
PRINT HYD ID=33 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = .53741 INCHES = 11.1323 ACRE-FEET
PEAK DISCHARGE RATE = 217.66 CFS AT 1.800 HOURS BASIN AREA = .3884 SQ. MI.

*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
*

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=40 HYD=100.01 INFLOW ID=33 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 220 TABLE PTS= 20
DT= .033333 QMED= 108.83 CKMED= 10.7047
WIDTH MED= 21.96 NREACH= 8 DX= 612.50

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	6.59	4.04	1.290	.010	.991	.131	-.122	20.5	.993	.040	-.032
.60	12.4	65.0	.260	21.4	8.44	5.23	1.653	.015	.988	.251	-.239	48.0	.990	.197	-.187
.80	16.8	105.1	.217	21.9	10.01	6.27	1.961	.021	.986	.329	-.315	84.1	.987	.293	-.280
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.231	.026	.984	.386	-.370	127.9	.985	.359	-.344
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.472	.031	.982	.429	-.411	178.9	.983	.408	-.392
1.40	30.4	267.8	.154	23.4	13.73	8.82	2.691	.036	.981	.463	-.444	236.6	.982	.447	-.428
1.60	35.1	335.1	.142	23.8	14.76	9.55	2.892	.041	.979	.491	-.471	300.7	.980	.478	-.458
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.077	.046	.978	.515	-.493	371.1	.978	.503	-.482
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.251	.051	.976	.535	-.511	447.4	.977	.525	-.502
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.413	.056	.975	.552	-.527	529.7	.976	.544	-.519
2.40	54.9	663.8	.113	25.8	18.20	12.09	3.566	.061	.974	.568	-.541	617.8	.974	.560	-.535
2.60	60.1	760.4	.108	26.2	18.94	12.65	3.711	.066	.972	.581	-.554	711.5	.973	.575	-.548
2.80	65.4	862.5	.103	26.7	19.65	13.19	3.849	.071	.971	.593	-.565	810.9	.972	.587	-.559
3.00	70.8	970.3	.099	27.2	20.32	13.70	3.981	.075	.970	.604	-.575	915.8	.971	.599	-.570
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.106	.080	.969	.614	-.583	1026.3	.970	.609	-.579
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.227	.085	.968	.624	-.592	1142.4	.968	.619	-.587
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.343	.090	.967	.632	-.599	1263.8	.967	.628	-.595
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.431	.095	.966	.638	-.604	1390.8	.966	.636	-.602

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 1 TIMES. AVERAGE NUMBER ITERATIONS = 1.1634

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
---------------	-----------------	------------	--------------------	---------------	-------------	--------------	---	---	----	----	----	--------------	------	------	------

.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	5.17	4.04	1.013	.013	.987	.013	.000	20.5	.992	.008	.000
.60	12.4	65.0	.260	21.4	5.23	5.23	1.025	.025	.976	.024	.000	48.0	.982	.018	.000
.80	16.8	105.1	.217	21.9	5.30	6.27	1.039	.039	.963	.037	.000	84.1	.969	.031	.000
1.00	21.2	152.5	.189	22.4	5.38	7.19	1.054	.054	.948	.052	.000	127.9	.956	.044	.000
1.20	25.7	206.9	.169	22.9	5.47	8.04	1.071	.071	.934	.066	.000	178.9	.941	.059	.000
1.40	30.4	267.8	.154	23.4	5.56	8.82	1.089	.089	.919	.081	.000	236.6	.926	.074	.000
1.60	35.1	335.1	.142	23.8	5.65	9.55	1.107	.107	.903	.097	.000	300.7	.911	.089	.000
1.80	39.9	408.4	.133	24.3	5.75	10.24	1.126	.126	.888	.112	.000	371.1	.896	.104	.000
2.00	44.8	487.7	.125	24.8	5.84	10.89	1.145	.145	.874	.126	.000	447.4	.881	.119	.000
2.20	49.8	572.9	.118	25.3	5.94	11.50	1.164	.164	.859	.141	.000	529.7	.866	.134	.000
2.40	54.9	663.8	.113	25.8	6.04	12.09	1.183	.183	.845	.155	.000	617.8	.852	.148	.000
2.60	60.1	760.4	.108	26.2	6.14	12.65	1.203	.203	.831	.169	.000	711.5	.838	.162	.000
2.80	65.4	862.5	.103	26.7	6.24	13.19	1.222	.222	.818	.182	.000	810.9	.825	.175	.000
3.00	70.8	970.3	.099	27.2	6.34	13.70	1.242	.242	.805	.195	.000	915.8	.812	.188	.000
3.20	76.3	1083.5	.096	27.7	6.44	14.20	1.261	.261	.793	.207	.000	1026.3	.799	.201	.000
3.40	81.9	1202.3	.093	28.2	6.54	14.68	1.281	.281	.781	.219	.000	1142.4	.787	.213	.000
3.60	87.6	1326.5	.090	28.6	6.64	15.15	1.300	.300	.769	.231	.000	1263.8	.775	.225	.000
3.80	93.3	1456.2	.087	29.1	6.73	15.60	1.319	.319	.758	.242	.000	1390.8	.764	.236	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 32 TIMES. AVERAGE NUMBER ITERATIONS = 1.1244
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=40 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .53549 INCHES = 11.0923 ACRE-FEET
 PEAK DISCHARGE RATE = 215.27 CFS AT 2.067 HOURS BASIN AREA = .3884 SQ. MI.

*
 *S COMPUTE BASIN 9-D.1 *****
 *S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.0084 K=0.7
 LENGTH=0 FT SLOPE=0.0 K=2.0
 LENGTH=1600 FT SLOPE=0.0250 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.008400	.7000
SHALLOW FLOW PORTION	.0	.010000	2.0000
CHANNEL FLOW PORTION	1600.0	.025000	3.0000
TOTAL BASIN	2000.0	.021680	1.4138

TIME OF CONCENTRATION (HRS)= .2669 TIME TO PEAK (HRS)= .1779 LAG TIME (HRS)= .2002

COMPUTE NM HYD ID=9 HYD=9_D.1 AREA=0.0603 SQ MI
 PER A=40.0 PER B=21.0 PER C=19.0 PER D=20.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1779

K = .096969HR TP = .177925HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 35.672 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 1.7300
 AREA = .012060 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .191415HR TP = .177925HR K/TP RATIO = 1.075821 SHAPE CONSTANT, N = 3.283381
 UNIT PEAK = 82.467 CFS UNIT VOLUME = .9999 B = 304.17 P60 = 1.7300
 AREA = .048240 SQ MI IA = .53938 INCHES INF = 1.36025 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA 9_D.1

RUNOFF VOLUME = .84944 INCHES = 2.7318 ACRE-FEET
 PEAK DISCHARGE RATE = 69.46 CFS AT 1.567 HOURS BASIN AREA = .0603 SQ. MI.

*
 *S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
 ADD HYD ID=44 HYD NO=104.0 ID I=40 ID II=9

PRINT HYD ID=44 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = .57768 INCHES = 13.8241 ACRE-FEET
PEAK DISCHARGE RATE = 227.60 CFS AT 2.067 HOURS BASIN AREA = .4487 SQ. MI.

*
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
*

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=30 HYD=104.1 INFLOW ID=44 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 228 TABLE PTS= 20
DT= .033333 QMED= 113.80 CKMED= 10.7047
WIDTH MED= 22.01 NREACH= 8 DX= 612.50

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	6.59	4.04	1.290	.010	.991	.131	-.122	20.5	.993	.040	-.032
.60	12.4	65.0	.260	21.4	8.44	5.23	1.653	.015	.988	.251	-.239	48.0	.990	.197	-.187
.80	16.8	105.1	.217	21.9	10.01	6.27	1.961	.021	.986	.329	-.315	84.1	.987	.293	-.280
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.231	.026	.984	.386	-.370	127.9	.985	.359	-.344
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.472	.031	.982	.429	-.411	178.9	.983	.408	-.392
1.40	30.4	267.8	.154	23.4	13.73	8.82	2.691	.036	.981	.463	-.444	236.6	.982	.447	-.428
1.60	35.1	335.1	.142	23.8	14.76	9.55	2.892	.041	.979	.491	-.471	300.7	.980	.478	-.458
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.077	.046	.978	.515	-.493	371.1	.978	.503	-.482
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.251	.051	.976	.535	-.511	447.4	.977	.525	-.502
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.413	.056	.975	.552	-.527	529.7	.976	.544	-.519
2.40	54.9	663.8	.113	25.8	18.20	12.09	3.566	.061	.974	.568	-.541	617.8	.974	.560	-.535
2.60	60.1	760.4	.108	26.2	18.94	12.65	3.711	.066	.972	.581	-.554	711.5	.973	.575	-.548
2.80	65.4	862.5	.103	26.7	19.65	13.19	3.849	.071	.971	.593	-.565	810.9	.972	.587	-.559
3.00	70.8	970.3	.099	27.2	20.32	13.70	3.981	.075	.970	.604	-.575	915.8	.971	.599	-.570
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.106	.080	.969	.614	-.583	1026.3	.970	.609	-.579
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.227	.085	.968	.624	-.592	1142.4	.968	.619	-.587
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.343	.090	.967	.632	-.599	1263.8	.967	.628	-.595
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.431	.095	.966	.638	-.604	1390.8	.966	.636	-.602
MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 6 TIMES. AVERAGE NUMBER ITERATIONS = 1.1844															
DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	5.17	4.04	1.013	.013	.987	.013	.000	20.5	.992	.008	.000
.60	12.4	65.0	.260	21.4	5.23	5.23	1.025	.025	.976	.024	.000	48.0	.982	.018	.000
.80	16.8	105.1	.217	21.9	5.30	6.27	1.039	.039	.963	.037	.000	84.1	.969	.031	.000
1.00	21.2	152.5	.189	22.4	5.38	7.19	1.054	.054	.948	.052	.000	127.9	.956	.044	.000
1.20	25.7	206.9	.169	22.9	5.47	8.04	1.071	.071	.934	.066	.000	178.9	.941	.059	.000
1.40	30.4	267.8	.154	23.4	5.56	8.82	1.089	.089	.919	.081	.000	236.6	.926	.074	.000
1.60	35.1	335.1	.142	23.8	5.65	9.55	1.107	.107	.903	.097	.000	300.7	.911	.089	.000

1.80	39.9	408.4	.133	24.3	5.75	10.24	1.126	.126	.888	.112	.000	371.1	.896	.104	.000
2.00	44.8	487.7	.125	24.8	5.84	10.89	1.145	.145	.874	.126	.000	447.4	.881	.119	.000
2.20	49.8	572.9	.118	25.3	5.94	11.50	1.164	.164	.859	.141	.000	529.7	.866	.134	.000
2.40	54.9	663.8	.113	25.8	6.04	12.09	1.183	.183	.845	.155	.000	617.8	.852	.148	.000
2.60	60.1	760.4	.108	26.2	6.14	12.65	1.203	.203	.831	.169	.000	711.5	.838	.162	.000
2.80	65.4	862.5	.103	26.7	6.24	13.19	1.222	.222	.818	.182	.000	810.9	.825	.175	.000
3.00	70.8	970.3	.099	27.2	6.34	13.70	1.242	.242	.805	.195	.000	915.8	.812	.188	.000
3.20	76.3	1083.5	.096	27.7	6.44	14.20	1.261	.261	.793	.207	.000	1026.3	.799	.201	.000
3.40	81.9	1202.3	.093	28.2	6.54	14.68	1.281	.281	.781	.219	.000	1142.4	.787	.213	.000
3.60	87.6	1326.5	.090	28.6	6.64	15.15	1.300	.300	.769	.231	.000	1263.8	.775	.225	.000
3.80	93.3	1456.2	.087	29.1	6.73	15.60	1.319	.319	.758	.242	.000	1390.8	.764	.236	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 18 TIMES. AVERAGE NUMBER ITERATIONS = 1.1351
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=30 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = .57627 INCHES = 13.7905 ACRE-FEET
 PEAK DISCHARGE RATE = 222.92 CFS AT 2.300 HOURS BASIN AREA = .4487 SQ. MI.

*
 *S COMPUTE BASIN 6-D.1 *****
 *S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED
 *S 0.065625 SQ MI FROM BASIN
 *
 *S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.05 K=0.7
 LENGTH=0 FT SLOPE=0.0084 K=2.0
 LENGTH=2800 FT SLOPE=0.03286 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	2800.0	.032860	3.0000
TOTAL BASIN	3200.0	.035003	2.2201

TIME OF CONCENTRATION (HRS)= .2140 TIME TO PEAK (HRS)= .1427 LAG TIME (HRS)= .1605

COMPUTE NM HYD ID=6 HYD=6_D.1 AREA=0.0459 SQ MI
 PER A=85.0 PER B=8.0 PER C=3.0 PER D=4.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1427

K = .077756HR TP = .142672HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 6.7725 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.7300
 AREA = .001836 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .173853HR TP = .142672HR K/TP RATIO = 1.218557 SHAPE CONSTANT, N = 2.920000
 UNIT PEAK = 85.006 CFS UNIT VOLUME = .9996 B = 275.23 P60 = 1.7300
 AREA = .044064 SQ MI IA = .62812 INCHES INF = 1.60875 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA 6_D.1

RUNOFF VOLUME = .50718 INCHES = 1.2416 ACRE-FEET
 PEAK DISCHARGE RATE = 39.87 CFS AT 1.533 HOURS BASIN AREA = .0459 SQ. MI.

*S
 *S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
 *S

ADD HYD ID=55 HYD NO=AP_OFF ID I=30 ID II=6
 PRINT HYD ID=55 CODE=1

HYDROGRAPH FROM AREA AP_OFF

RUNOFF VOLUME = .56986 INCHES = 15.0320 ACRE-FEET
 PEAK DISCHARGE RATE = 225.17 CFS AT 2.300 HOURS BASIN AREA = .4946 SQ. MI.

*
 *S COMPUTE BASIN 9-D.2 *****
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=1800 FT SLOPE=0.0372 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	1800.0	.037200	3.0000
TOTAL BASIN	1800.0	.037200	3.0000

TIME OF CONCENTRATION (HRS)= .0864 TIME TO PEAK (HRS)= .0576 LAG TIME (HRS)= .0648

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
 REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=5 HYD=9_D.2 AREA=0.00945 SQ MI
 PER A=43.0 PER B=10.0 PER C=27.0 PER D=20.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 7.4600 CFS UNIT VOLUME = .9978 B = 526.28 P60 = 1.7300
 AREA = .001890 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141791HR TP = .133333HR K/TP RATIO = 1.063436 SHAPE CONSTANT, N = 3.320711
 UNIT PEAK = 17.407 CFS UNIT VOLUME = .9993 B = 307.00 P60 = 1.7300
 AREA = .007560 SQ MI IA = .53000 INCHES INF = 1.33400 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=20

HYDROGRAPH FROM AREA 9_D.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	2.0	4.000	.1	6.000	.1		
.667	.0	2.667	.3	4.667	.1	6.667	.0		
1.333	1.9	3.333	.1	5.333	.1				

RUNOFF VOLUME = .86130 INCHES = .4341 ACRE-FEET
 PEAK DISCHARGE RATE = 13.45 CFS AT 1.500 HOURS BASIN AREA = .0095 SQ. MI.

*
 *S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
 *

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.0433 FP SLOPE=0.0433
 N=0.038 DIST=32.0
 DIST ELEV DIST ELEV
 0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	11.12	20.48
.40	8.19	35.31	20.96
.60	12.43	69.41	21.44
.80	16.77	112.16	21.92
1.00	21.20	162.80	22.40
1.20	25.73	220.83	22.88

	1.40	30.35	285.88	23.36
	1.60	35.07	357.66	23.84
	1.80	39.89	435.97	24.32
	2.00	44.80	520.65	24.80
	2.20	49.81	611.55	25.28
	2.40	54.91	708.59	25.76
	2.60	60.11	811.67	26.24
	2.80	65.41	920.73	26.72
	3.00	70.80	1035.72	27.20
	3.20	76.29	1156.61	27.68
	3.40	81.87	1283.37	28.16
	3.60	87.55	1415.97	28.64
	3.80	93.33	1554.41	29.12

ROUTE MCUNGE ID=7 HYD=100.01 INFLOW ID=5 DT=0HR L=1200
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 202 TABLE PTS= 20
DT= .033333 QMED= 6.72 CKMED= 2.7482
WIDTH MED= 20.29 NREACH= 8 DX= 150.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	4.53	2.75	3.622	.021	.991	.569	-.560	3.5	.994	.397	-.391
.40	8.2	35.3	.077	21.0	7.03	4.31	5.624	.042	.987	.700	-.687	21.9	.989	.650	-.639
.60	12.4	69.4	.060	21.4	9.01	5.58	7.206	.063	.985	.758	-.743	51.2	.986	.733	-.719
.80	16.8	112.2	.050	21.9	10.68	6.69	8.548	.084	.983	.792	-.775	89.8	.984	.777	-.760
1.00	21.2	162.8	.043	22.4	12.15	7.68	9.723	.105	.981	.815	-.796	136.6	.982	.805	-.786
1.20	25.7	220.8	.039	22.9	13.47	8.58	10.775	.126	.979	.832	-.811	191.0	.980	.824	-.804
1.40	30.4	285.9	.035	23.4	14.66	9.42	11.729	.146	.977	.845	-.822	252.6	.978	.839	-.817
1.60	35.1	357.7	.033	23.8	15.76	10.20	12.604	.167	.976	.855	-.831	321.0	.976	.850	-.826
1.80	39.9	436.0	.030	24.3	16.77	10.93	13.414	.188	.974	.863	-.837	396.1	.975	.859	-.834
2.00	44.8	520.6	.029	24.8	17.71	11.62	14.169	.208	.973	.870	-.843	477.6	.974	.867	-.840
2.20	49.8	611.6	.027	25.3	18.60	12.28	14.877	.228	.972	.876	-.847	565.4	.972	.873	-.845
2.40	54.9	708.6	.026	25.8	19.43	12.90	15.544	.248	.970	.881	-.851	659.4	.971	.878	-.849
2.60	60.1	811.7	.025	26.2	20.22	13.50	16.176	.268	.969	.885	-.855	759.5	.970	.883	-.853
2.80	65.4	920.7	.024	26.7	20.97	14.08	16.777	.288	.968	.889	-.857	865.6	.969	.887	-.856
3.00	70.8	1035.7	.023	27.2	21.69	14.63	17.350	.308	.967	.893	-.860	977.6	.968	.891	-.859
3.20	76.3	1156.6	.022	27.7	22.37	15.16	17.899	.328	.966	.896	-.862	1095.6	.966	.894	-.861
3.40	81.9	1283.4	.021	28.2	23.03	15.68	18.425	.347	.965	.899	-.864	1219.4	.965	.897	-.863
3.60	87.6	1416.0	.021	28.6	23.67	16.17	18.932	.367	.964	.901	-.865	1349.1	.964	.900	-.865
3.80	93.3	1554.4	.020	29.1	24.14	16.66	19.313	.388	.963	.903	-.866	1484.6	.963	.903	-.866

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 5 TIMES. AVERAGE NUMBER ITERATIONS = 1.0646

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	1.34	2.75	1.071	.071	.934	.066	.000	3.5	.977	.023	.000
.40	8.2	35.3	.077	21.0	1.50	4.31	1.197	.197	.835	.165	.000	21.9	.884	.116	.000
.60	12.4	69.4	.060	21.4	1.67	5.58	1.339	.339	.747	.253	.000	51.2	.789	.211	.000
.80	16.8	112.2	.050	21.9	1.85	6.69	1.484	.484	.674	.326	.000	89.8	.708	.292	.000
1.00	21.2	162.8	.043	22.4	2.03	7.68	1.627	.627	.615	.385	.000	136.6	.643	.357	.000
1.20	25.7	220.8	.039	22.9	2.21	8.58	1.767	.767	.566	.434	.000	191.0	.589	.411	.000
1.40	30.4	285.9	.035	23.4	2.38	9.42	1.903	.903	.526	.474	.000	252.6	.545	.455	.000
1.60	35.1	357.7	.033	23.8	2.54	10.20	2.035	1.035	.491	.509	.000	321.0	.508	.492	.000
1.80	39.9	436.0	.030	24.3	2.70	10.93	2.163	1.163	.462	.538	.000	396.1	.476	.524	.000
2.00	44.8	520.6	.029	24.8	2.86	11.62	2.288	1.288	.437	.563	.000	477.6	.449	.551	.000
2.20	49.8	611.6	.027	25.3	3.01	12.28	2.409	1.409	.415	.585	.000	565.4	.426	.574	.000
2.40	54.9	708.6	.026	25.8	3.16	12.90	2.527	1.527	.396	.604	.000	659.4	.405	.595	.000
2.60	60.1	811.7	.025	26.2	3.30	13.50	2.643	1.643	.378	.622	.000	759.5	.387	.613	.000
2.80	65.4	920.7	.024	26.7	3.44	14.08	2.755	1.755	.363	.637	.000	865.6	.370	.630	.000
3.00	70.8	1035.7	.023	27.2	3.58	14.63	2.865	1.865	.349	.651	.000	977.6	.356	.644	.000
3.20	76.3	1156.6	.022	27.7	3.72	15.16	2.973	1.973	.336	.664	.000	1095.6	.343	.657	.000
3.40	81.9	1283.4	.021	28.2	3.85	15.68	3.078	2.078	.325	.675	.000	1219.4	.330	.670	.000
3.60	87.6	1416.0	.021	28.6	3.98	16.17	3.181	2.181	.314	.686	.000	1349.1	.319	.681	.000
3.80	93.3	1554.4	.020	29.1	4.10	16.66	3.282	2.282	.305	.695	.000	1484.6	.309	.691	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 2 OCCURRED 220 TIMES. AVERAGE NUMBER ITERATIONS = 1.0475

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .85651 INCHES = .4317 ACRE-FEET
PEAK DISCHARGE RATE = 13.10 CFS AT 1.767 HOURS BASIN AREA = .0095 SQ. MI.

*
*S COMPUTE BASIN 6-D.2*****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)
*
*S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6
*
*COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
* NK=1 ISLOPE=0
* LENGTH=1200 FT SLOPE=0.0433 K=3.0
* Kn=.021 CR=.5
*

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*
*COMPUTE NM HYD      ID=7  HYD=6_D.2  AREA=0.047369 SQ MI
*                    PER A=42  PER B=15  PER C=15  PER D=28
*                    TP=0.0 HR  MASS RAIN=-1
*PRINT HYD          ID=7      CODE=20
*
*S
*S
*S      *****
*S      *COMPUTE MONTECITO VISTAS UNITS 1-4 ONSITE BASINS*
*S      *****
*S
*S
*S
*S COMPUTE BASIN 6-D.2A *****
*
COMPUTE NM HYD      ID=31 HYD=6_D.2A  AREA=0.01709  PER A=0  PER B=29.5
                    PER C=29.5  PER D=41  TP=0.13333  RAINFALL=-1

K = .072665HR  TP = .133330HR  K/TP RATIO = .545000  SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 27.657  CFS  UNIT VOLUME = .9990  B = 526.28  P60 = 1.7300
AREA = .007007 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR  TP = .133330HR  K/TP RATIO = .891759  SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 26.742  CFS  UNIT VOLUME = 1.000  B = 353.61  P60 = 1.7300
AREA = .010083 SQ MI  IA = .42500 INCHES  INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=31  CODE=1

                    HYDROGRAPH FROM AREA 6_D.2A

RUNOFF VOLUME = 1.26357 INCHES  = 1.1517 ACRE-FEET
PEAK DISCHARGE RATE = 33.19 CFS  AT 1.500 HOURS  BASIN AREA = .0171 SQ. MI.

*
*S COMPUTE BASIN 6-D.2B *****
COMPUTE NM HYD      ID=32 HYD=6_D.2B  AREA=0.016231  PER A=0  PER B=29
                    PER C=29  PER D=42  TP=0.13333  RAINFALL=-1

K = .072665HR  TP = .133330HR  K/TP RATIO = .545000  SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.908  CFS  UNIT VOLUME = .9989  B = 526.28  P60 = 1.7300
AREA = .006817 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR  TP = .133330HR  K/TP RATIO = .891759  SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 24.967  CFS  UNIT VOLUME = .9999  B = 353.61  P60 = 1.7300
AREA = .009414 SQ MI  IA = .42500 INCHES  INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=32  CODE=1

                    HYDROGRAPH FROM AREA 6_D.2B

RUNOFF VOLUME = 1.27567 INCHES  = 1.1043 ACRE-FEET
PEAK DISCHARGE RATE = 31.70 CFS  AT 1.500 HOURS  BASIN AREA = .0162 SQ. MI.

*
*S COMPUTE BASIN 6-D.2C *****
COMPUTE NM HYD      ID=33 HYD=6_D.2C  AREA=0.005902  PER A=0  PER B=34
                    PER C=34  PER D=32  TP=0.13333  RAINFALL=-1

K = .072665HR  TP = .133330HR  K/TP RATIO = .545000  SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.4548  CFS  UNIT VOLUME = .9978  B = 526.28  P60 = 1.7300
AREA = .001889 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR  TP = .133330HR  K/TP RATIO = .891759  SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 10.644  CFS  UNIT VOLUME = .9992  B = 353.61  P60 = 1.7300
AREA = .004013 SQ MI  IA = .42500 INCHES  INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=33  CODE=1

                    HYDROGRAPH FROM AREA 6_D.2C

RUNOFF VOLUME = 1.15465 INCHES  = .3635 ACRE-FEET
PEAK DISCHARGE RATE = 10.88 CFS  AT 1.500 HOURS  BASIN AREA = .0059 SQ. MI.

```

```

*
*S COMPUTE BASIN 6-D.2D *****
COMPUTE NM HYD      ID=34 HYD=6_D.2D AREA=0.01071 PER A=0 PER B=34.5
                      PER C=34.5 PER D=31 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.105 CFS    UNIT VOLUME = .9985    B = 526.28    P60 = 1.7300
AREA = .003320 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR    TP = .133330HR    K/TP RATIO = .891759    SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 19.599 CFS    UNIT VOLUME = .9998    B = 353.61    P60 = 1.7300
AREA = .007390 SQ MI    IA = .42500 INCHES    INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```

```

PRINT HYD      ID=34    CODE=1

```

HYDROGRAPH FROM AREA 6_D.2D

```

RUNOFF VOLUME = 1.14255 INCHES    = .6526 ACRE-FEET
PEAK DISCHARGE RATE = 19.62 CFS AT 1.500 HOURS    BASIN AREA = .0107 SQ. MI.

```

```

*
*S COMPUTE BASIN 6-D.2E *****
COMPUTE NM HYD      ID=35 HYD=6_D.2E AREA=0.002415 PER A=0 PER B=30.5
                      PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.7176 CFS    UNIT VOLUME = .9965    B = 526.28    P60 = 1.7300
AREA = .000942 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR    TP = .133330HR    K/TP RATIO = .891759    SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 3.9070 CFS    UNIT VOLUME = .9972    B = 353.61    P60 = 1.7300
AREA = .001473 SQ MI    IA = .42500 INCHES    INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```

```

PRINT HYD      ID=35    CODE=1

```

HYDROGRAPH FROM AREA 6_D.2E

```

RUNOFF VOLUME = 1.23937 INCHES    = .1596 ACRE-FEET
PEAK DISCHARGE RATE = 4.65 CFS AT 1.500 HOURS    BASIN AREA = .0024 SQ. MI.

```

```

*
*S COMPUTE BASIN 6-D.2F *****
COMPUTE NM HYD      ID=36 HYD=6_D.2F AREA=0.004180 PER A=0 PER B=30
                      PER C=30 PER D=40ss TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.5997 CFS    UNIT VOLUME = .9976    B = 526.28    P60 = 1.7300
AREA = .001672 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR    TP = .133330HR    K/TP RATIO = .891759    SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 6.6515 CFS    UNIT VOLUME = .9984    B = 353.61    P60 = 1.7300
AREA = .002508 SQ MI    IA = .42500 INCHES    INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```

```

PRINT HYD      ID=36    CODE=1

```

HYDROGRAPH FROM AREA 6_D.2F

```

RUNOFF VOLUME = 1.25147 INCHES    = .2790 ACRE-FEET
PEAK DISCHARGE RATE = 8.08 CFS AT 1.500 HOURS    BASIN AREA = .0042 SQ. MI.

```

```

*
*S ADD 9-D.2 TO 6-D.2A *****
ADD HYD      ID=39    HYD NO=6_9D.2A ID I=7 ID II=31
PRINT HYD    ID=39    CODE=1

```

HYDROGRAPH FROM AREA 6_9D.2A

RUNOFF VOLUME = 1.11860 INCHES = 1.5833 ACRE-FEET
PEAK DISCHARGE RATE = 33.61 CFS AT 1.500 HOURS BASIN AREA = .0265 SQ. MI.

*
*S ADD 6-D.2B TO 6_9D.2A *****
ADD HYD ID=41 HYD NO=6_9D.2AB ID I=32 ID II=39
PRINT HYD ID=41 CODE=1

HYDROGRAPH FROM AREA 6_9D.2AB

RUNOFF VOLUME = 1.17820 INCHES = 2.6876 ACRE-FEET
PEAK DISCHARGE RATE = 65.32 CFS AT 1.500 HOURS BASIN AREA = .0428 SQ. MI.

*
*S ADD 6-D.2C TO 6_9D.2AB *****
ADD HYD ID=42 HYD NO=6_9D.2ABC ID I=33 ID II=41
PRINT HYD ID=42 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABC

RUNOFF VOLUME = 1.17534 INCHES = 3.0510 ACRE-FEET
PEAK DISCHARGE RATE = 76.20 CFS AT 1.500 HOURS BASIN AREA = .0487 SQ. MI.

*
*S ADD 6_D.2D TO 6_9D.2ABC *****
ADD HYD ID=43 HYD NO=6_9D.2ABCD ID I=34 ID II=42
PRINT HYD ID=43 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABCD

RUNOFF VOLUME = 1.16942 INCHES = 3.7036 ACRE-FEET
PEAK DISCHARGE RATE = 95.82 CFS AT 1.500 HOURS BASIN AREA = .0594 SQ. MI.

*
*S ADD 6_D.2E TO 6_9D.2ABCD *****
ADD HYD ID=46 HYD NO=6_D.2ABCDE ID I=35 ID II=43
PRINT HYD ID=46 CODE=1

HYDROGRAPH FROM AREA 6_D.2ABCDE

RUNOFF VOLUME = 1.17215 INCHES = 3.8633 ACRE-FEET
PEAK DISCHARGE RATE = 100.47 CFS AT 1.500 HOURS BASIN AREA = .0618 SQ. MI.

*
*S ADD 6_D.2F TO 6_9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6_9D.2*****
ADD HYD ID=47 HYD NO=6_9D.2ABCDEF ID I=36 ID II=46
PRINT HYD ID=47 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABCDEF

RUNOFF VOLUME = 1.17717 INCHES = 4.1422 ACRE-FEET
PEAK DISCHARGE RATE = 108.55 CFS AT 1.500 HOURS BASIN AREA = .0660 SQ. MI.

*
*
*S COMPUTE BASIN 6-D.3*****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=600 FT SLOPE=0.0433 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

.47	.7	5.8	.029	2.2	11.83	8.26	1.670	.010	.993	.254	-.246	4.0	.993	.201	-.194
.63	1.1	10.5	.024	2.4	13.92	9.83	1.966	.013	.991	.329	-.320	8.0	.992	.294	-.286
.78	1.5	16.4	.021	2.6	15.71	11.18	2.218	.017	.989	.382	-.371	13.3	.990	.357	-.348
.94	1.9	23.4	.019	2.8	17.23	12.38	2.432	.021	.988	.421	-.409	19.8	.989	.403	-.392
1.09	2.3	31.3	.018	2.9	18.50	13.43	2.612	.025	.986	.450	-.436	27.3	.987	.437	-.424
1.25	2.8	40.0	.016	3.0	19.55	14.35	2.760	.030	.984	.472	-.456	35.6	.985	.463	-.448
1.41	3.3	49.4	.016	3.0	20.37	15.16	2.875	.035	.982	.489	-.471	44.6	.983	.482	-.465
1.56	3.7	59.1	.015	3.0	20.94	15.86	2.956	.041	.980	.500	-.479	54.2	.981	.496	-.477
1.72	4.2	69.0	.014	3.0	21.07	16.46	2.975	.047	.977	.503	-.479	64.0	.978	.503	-.481
1.88	4.7	78.8	.014	3.0	20.68	16.94	2.919	.055	.972	.497	-.469	73.8	.975	.501	-.476
2.03	5.1	88.3	.014	3.0	19.70	17.33	2.781	.064	.967	.480	-.446	83.5	.970	.490	-.460
2.19	5.5	97.2	.013	3.0	18.06	17.60	2.549	.077	.957	.448	-.406	92.8	.963	.467	-.430
2.35	5.9	105.2	.013	3.0	15.62	17.75	2.205	.097	.941	.394	-.336	101.2	.951	.426	-.377
2.50	6.3	111.8	.013	3.0	12.16	17.76	1.717	.132	.907	.298	-.205	108.5	.929	.356	-.286
2.66	6.6	116.6	.013	3.0	7.12	17.61	1.006	.235	.790	.107	.102	114.2	.875	.228	-.103
2.81	6.9	118.5	.014	3.0	4.24	17.21	.598	.402	.598	.000	.402	117.6	.693	.053	.254

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 4 TIMES. AVERAGE NUMBER ITERATIONS = 1.0794
 Equations solved using the Ponce correction to C2
 PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA RT.2AB2

RUNOFF VOLUME = 1.05960 INCHES = 1.0329 ACRE-FEET
 PEAK DISCHARGE RATE = 29.72 CFS AT 1.533 HOURS BASIN AREA = .0183 SQ. MI.

*S
 *S
 *S
 *S *****
 *S * COMPUTE OFFSITE "A" BASINS *
 *S *****
 *S
 *S COMPUTE BASIN A-1.1 *****
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S NO CHANGE FROM MONTECITO WEST DMP
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.0340 K=0.7
 LENGTH=1600 FT SLOPE=0.0361 K=2.0
 LENGTH=2800 FT SLOPE=0.0346 K=3.0

BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
 USE Kn= .0160 AND Lca/L= .50000

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.034000	.7000
SHALLOW FLOW PORTION	1600.0	.036100	2.0000
CHANNEL FLOW PORTION	2800.0	.034600	3.0000
TOTAL BASIN	4800.0	.035050	2.0799

LAG EQUATION FACTORS:	Kn=	TOTAL BASIN LENGTH (FT)=
	.0160	4800.0
TOTAL BASIN SLOPE (FT/FT)=	.035050	CENTROUD LENGTH (FT)= 2400.0

TIME OF CONCENTRATION (HRS)= .2889 TIME TO PEAK (HRS)= .1926 LAG TIME (HRS)= .2167

COMPUTE NM HYD ID=60 HYD=A_1.1 AREA=0.08421 SQ MI
 PER A=90.0 PER B=5.0 PER C=5.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1
 TIME TO PEAK (hrs)= .1926

K = .231321HR TP = .192581HR K/TP RATIO = 1.201165 SHAPE CONSTANT, N = 2.958575
 UNIT PEAK = 121.75 CFS UNIT VOLUME = .9998 B = 278.43 P60 = 1.7300
 AREA = .084210 SQ MI IA = .62750 INCHES INF = 1.60700 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=60 CODE=20

HYDROGRAPH FROM AREA A_1.1

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	2.000	10.9	4.000	.4	6.000	.0		
.667	.0	2.667	2.5	4.667	.1	6.667	.0		
1.333	.2	3.333	1.0	5.333	.1				

RUNOFF VOLUME = .44665 INCHES = 2.0060 ACRE-FEET
PEAK DISCHARGE RATE = 52.27 CFS AT 1.567 HOURS BASIN AREA = .0842 SQ. MI.

*
*S COMPUTE BASIN A-1.2 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=3200 FT SLOPE=0.0325 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	3200.0	.032500	3.0000
TOTAL BASIN	3200.0	.032500	3.0000

TIME OF CONCENTRATION (HRS)= .1644 TIME TO PEAK (HRS)= .1096 LAG TIME (HRS)= .1233

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.

REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=65 HYD=A_1.2 AREA=0.012613 SQ MI
PER A=30.0 PER B=18.0 PER C=18.0 PER D=34.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 16.927 CFS UNIT VOLUME = .9987 B = 526.28 P60 = 1.7300
AREA = .004288 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .140880HR TP = .133333HR K/TP RATIO = 1.056601 SHAPE CONSTANT, N = 3.341788
UNIT PEAK = 19.267 CFS UNIT VOLUME = .9993 B = 308.60 P60 = 1.7300
AREA = .008325 SQ MI IA = .52727 INCHES INF = 1.32636 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=65 CODE=20

HYDROGRAPH FROM AREA A_1.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	3.6	4.000	.1	6.000	.1		
.667	.0	2.667	.5	4.667	.1	6.667	.0		
1.333	3.9	3.333	.2	5.333	.1				

RUNOFF VOLUME = 1.05951 INCHES = .7127 ACRE-FEET
PEAK DISCHARGE RATE = 20.62 CFS AT 1.500 HOURS BASIN AREA = .0126 SQ. MI.

*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD ID=66 HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD ID=66 CODE=1

HYDROGRAPH FROM AREA A_1.1_1.2

RUNOFF VOLUME = .52648 INCHES = 2.7187 ACRE-FEET
PEAK DISCHARGE RATE = 69.94 CFS AT 1.567 HOURS BASIN AREA = .0968 SQ. MI.

*
*S
*S *****
*S * COMPUTE OFFSITE "E" BASINS *
*S *****
*S
*S
*S
*S COMPUTE BASIN E-1.1 *****
*

COMPUTE NM HYD ID=21 HYD=1_E.1 AREA=0.006128 PER A=30.0 PER B=18.0
PER C=18.0 PER D=34 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.2240 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.7300
AREA = .002084 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .140877HR TP = .133330HR K/TP RATIO = 1.056601 SHAPE CONSTANT, N = 3.341788
UNIT PEAK = 9.3611 CFS UNIT VOLUME = .9985 B = 308.60 P60 = 1.7300
AREA = .004044 SQ MI IA = .52727 INCHES INF = 1.32636 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=21 CODE=1

HYDROGRAPH FROM AREA 1_E.1

RUNOFF VOLUME = 1.05951 INCHES = .3463 ACRE-FEET
PEAK DISCHARGE RATE = 10.03 CFS AT 1.500 HOURS BASIN AREA = .0061 SQ. MI.

*
*S COMPUTE BASIN E-1.3 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=3800 FT SLOPE=0.0325 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	3800.0	.032500	3.0000
TOTAL BASIN	3800.0	.032500	3.0000

TIME OF CONCENTRATION (HRS)= .1952 TIME TO PEAK (HRS)= .1301 LAG TIME (HRS)= .1464

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=70 HYD=E_1.3 AREA=0.08120 SQ MI
PER A=52.0 PER B=16.0 PER C=16.0 PER D=16.0
TP=0.0 HR MASS RAIN=-1
TIME TO PEAK (hrs)= .1333

K = .073103HR TP = .133333HR K/TP RATIO = .548271 SHAPE CONSTANT, N = 7.052186
UNIT PEAK = 51.032 CFS UNIT VOLUME = .9991 B = 523.72 P60 = 1.7300
AREA = .012992 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .147411HR TP = .133333HR K/TP RATIO = 1.105586 SHAPE CONSTANT, N = 3.197897
UNIT PEAK = 152.23 CFS UNIT VOLUME = 1.000 B = 297.58 P60 = 1.7300
AREA = .068208 SQ MI IA = .56429 INCHES INF = 1.43000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=70 CODE=20

HYDROGRAPH FROM AREA E_1.3

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	14.5	4.000	.4	6.000	.4		
.667	.0	2.667	2.3	4.667	.4	6.667	.0		
1.333	12.7	3.333	.7	5.333	.4				

RUNOFF VOLUME = .76220 INCHES = 3.3008 ACRE-FEET
PEAK DISCHARGE RATE = 103.73 CFS AT 1.500 HOURS BASIN AREA = .0812 SQ. MI.

*
*S COMPUTE BASIN E-1.4 *****
*S UPDATED TO SHOW 30% OPEN SPACE

```

*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                   NK=1  ISLOPE=0
                   LENGTH=5200 FT  SLOPE=0.0325 K=3.0
                   Kn=.021  CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
      LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
SHEET FLOW PORTION      .0      .000000      .0000
SHALLOW FLOW PORTION      .0      .000000      .0000
CHANNEL FLOW PORTION      5200.0      .032500      3.0000
TOTAL BASIN      5200.0      .032500      3.0000

LAG EQUATION FACTORS:      Kn= .0210      TOTAL BASIN LENGTH (FT)= 5200.0
TOTAL BASIN SLOPE (FT/FT)= .032500      CENTROUD LENGTH (FT)= 2600.0

TIME OF CONCENTRATION (HRS)= .2385      TIME TO PEAK (HRS)= .1590      LAG TIME (HRS)= .1789

COMPUTE NM HYD      ID=75 HYD=E 1.4  AREA=0.13593 SQ MI
                   PER A=60.0  PER B=13.0  PER C=13.0  PER D=14.0
                   TP=0.0 HR  MASS RAIN=-1

TIME TO PEAK (hrs)= .1590

K = .088708HR  TP = .159019HR  K/TP RATIO = .557844  SHAPE CONSTANT, N = 6.898126
UNIT PEAK = 61.800  CFS  UNIT VOLUME = .9994  B = 516.41  P60 = 1.7300
AREA = .019030 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .174685HR  TP = .159019HR  K/TP RATIO = 1.098519  SHAPE CONSTANT, N = 3.217671
UNIT PEAK = 219.89  CFS  UNIT VOLUME = 1.000  B = 299.11  P60 = 1.7300
AREA = .116900 SQ MI  IA = .58198 INCHES  INF = 1.47953 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD      ID=75  CODE=20

HYDROGRAPH FROM AREA E_1.4

      TIME      FLOW      TIME      FLOW      TIME      FLOW      TIME      FLOW
      HRS      CFS      HRS      CFS      HRS      CFS      HRS      CFS
      .000      .0      2.000      24.2      4.000      .8      6.000      .6
      .667      .0      2.667      4.5      4.667      .6      6.667      .0
      1.333      13.5      3.333      1.5      5.333      .6      7.333      .0

RUNOFF VOLUME = .71155 INCHES  = 5.1585 ACRE-FEET
PEAK DISCHARGE RATE = 146.85 CFS AT 1.533 HOURS  BASIN AREA = .1359 SQ. MI.

*
*S
*S *****
*S *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*
*S *****
*S
*S NO CHANGE FROM MONTECITO WEST DMP
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD      ID=2 HYD=6_D.4  AREA=0.015778  PER A=0  PER B=29
                   PER C=29  PER D=42  TP=0.13333  RAINFALL=-1

K = .072665HR  TP = .133330HR  K/TP RATIO = .545000  SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.157  CFS  UNIT VOLUME = .9989  B = 526.28  P60 = 1.7300
AREA = .006627 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR  TP = .133330HR  K/TP RATIO = .891759  SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 24.270  CFS  UNIT VOLUME = .9999  B = 353.61  P60 = 1.7300
AREA = .009151 SQ MI  IA = .42500 INCHES  INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD      ID=2  CODE=1

HYDROGRAPH FROM AREA 6_D.4

RUNOFF VOLUME = 1.27567 INCHES  = 1.0735 ACRE-FEET
PEAK DISCHARGE RATE = 30.82 CFS AT 1.500 HOURS  BASIN AREA = .0158 SQ. MI.

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```

*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD      ID=3 HYD=6_D.5 AREA=0.007522 PER A=0 PER B=34
                      PER C=34 PER D=32 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.5010    CFS    UNIT VOLUME = .9982    B = 526.28    P60 = 1.7300
AREA = .002407 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR    TP = .133330HR    K/TP RATIO = .891759    SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 13.566    CFS    UNIT VOLUME = .9995    B = 353.61    P60 = 1.7300
AREA = .005115 SQ MI    IA = .42500 INCHES    INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=3    CODE=1

                      HYDROGRAPH FROM AREA 6_D.5

RUNOFF VOLUME = 1.15465 INCHES    = .4632 ACRE-FEET
PEAK DISCHARGE RATE = 13.87 CFS AT 1.500 HOURS BASIN AREA = .0075 SQ. MI.

*
*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD      ID=4 HYD=6_D.6 AREA=0.006441 PER A=100 PER B=0
                      PER C=0 PER D=0 TP=0.13333 RAINFALL=-1

K = .167251HR    TP = .133330HR    K/TP RATIO = 1.254412    SHAPE CONSTANT, N = 2.844647
UNIT PEAK = 12.990    CFS    UNIT VOLUME = .9983    B = 268.90    P60 = 1.7300
AREA = .006441 SQ MI    IA = .65000 INCHES    INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=4    CODE=1

                      HYDROGRAPH FROM AREA 6_D.6

RUNOFF VOLUME = .42038 INCHES    = .1444 ACRE-FEET
PEAK DISCHARGE RATE = 5.07 CFS AT 1.500 HOURS BASIN AREA = .0064 SQ. MI.

*
*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD      ID=1 HYD=6_D.7 AREA=0.005236 PER A=0 PER B=31
                      PER C=30 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.0603    CFS    UNIT VOLUME = .9980    B = 526.28    P60 = 1.7300
AREA = .002042 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119137HR    TP = .133330HR    K/TP RATIO = .893552    SHAPE CONSTANT, N = 3.968104
UNIT PEAK = 8.4571    CFS    UNIT VOLUME = .9989    B = 353.04    P60 = 1.7300
AREA = .003194 SQ MI    IA = .42623 INCHES    INF = 1.04344 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=1    CODE=1

                      HYDROGRAPH FROM AREA 6_D.7

RUNOFF VOLUME = 1.23783 INCHES    = .3457 ACRE-FEET
PEAK DISCHARGE RATE = 10.05 CFS AT 1.500 HOURS BASIN AREA = .0052 SQ. MI.

*
*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD      ID=20 HYD=6_D.8 AREA=0.010762 PER A=0 PER B=30
                      PER C=29 PER D=41 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.417    CFS    UNIT VOLUME = .9988    B = 526.28    P60 = 1.7300
AREA = .004412 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119145HR    TP = .133330HR    K/TP RATIO = .893613    SHAPE CONSTANT, N = 3.967809
UNIT PEAK = 16.812    CFS    UNIT VOLUME = .9996    B = 353.02    P60 = 1.7300

```

AREA = .006350 SQ MI IA = .42627 INCHES INF = 1.04356 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 6_D.8

RUNOFF VOLUME = 1.26203 INCHES = .7244 ACRE-FEET
PEAK DISCHARGE RATE = 20.88 CFS AT 1.500 HOURS BASIN AREA = .0108 SQ. MI.

*
*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD ID=22 HYD=1_E.2 AREA=0.001177 PER A=0 PER B=29
PER C=29 PER D=42 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.9512 CFS UNIT VOLUME = .9932 B = 526.28 P60 = 1.7300
AREA = .000494 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118898HR TP = .133330HR K/TP RATIO = .891759 SHAPE CONSTANT, N = 3.976619
UNIT PEAK = 1.8105 CFS UNIT VOLUME = .9929 B = 353.61 P60 = 1.7300
AREA = .000683 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=22 CODE=1

HYDROGRAPH FROM AREA 1_E.2

RUNOFF VOLUME = 1.27567 INCHES = .0801 ACRE-FEET
PEAK DISCHARGE RATE = 2.31 CFS AT 1.500 HOURS BASIN AREA = .0012 SQ. MI.

*
*S ADD E_1.1 TO E_1.2 *****
ADD HYD ID=71 HYD NO=E.1_2 ID I=21 ID II=22
PRINT HYD ID=71 CODE=1

HYDROGRAPH FROM AREA E.1_2

RUNOFF VOLUME = 1.09426 INCHES = .4263 ACRE-FEET
PEAK DISCHARGE RATE = 12.34 CFS AT 1.500 HOURS BASIN AREA = .0073 SQ. MI.

*

```

*S ADD 6_D.8 TO E_1.1_1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****
ADD HYD          ID=72    HYD NO=AP2_ON ID I=71 ID II=20
PRINT HYD        ID=72    CODE=1

                                HYDROGRAPH FROM AREA AP2_ON

RUNOFF VOLUME =      1.19418 INCHES      =      1.1507 ACRE-FEET
PEAK DISCHARGE RATE =      33.22 CFS AT  1.500 HOURS  BASIN AREA =   .0181 SQ. MI.

*
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****
ADD HYD          ID=11    HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD        ID=11    CODE=1

                                HYDROGRAPH FROM AREA 6D.4_7

RUNOFF VOLUME =      1.26622 INCHES      =      1.4191 ACRE-FEET
PEAK DISCHARGE RATE =      40.86 CFS AT  1.500 HOURS  BASIN AREA =   .0210 SQ. MI.

*
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****
ADD HYD          ID=12    HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD        ID=12    CODE=1

                                HYDROGRAPH FROM AREA 6D.5_6

RUNOFF VOLUME =      .81592 INCHES      =      .6076 ACRE-FEET
PEAK DISCHARGE RATE =      18.93 CFS AT  1.500 HOURS  BASIN AREA =   .0140 SQ. MI.

*
*S
*S          *****
*S          * COMPUTE ANALYSIS POINTS *
*S          *****
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD AP_OFF TO 6_9D.2 (DIVERT FLOWS) TO GET NEW AP_OFF *****
*
ADD HYD          ID=25    HYD NO=AP_OFF.NEW ID I=55 ID II=47
PRINT HYD        ID=25    CODE=1

                                HYDROGRAPH FROM AREA AP_OFF.NEW

RUNOFF VOLUME =      .64134 INCHES      =      19.1743 ACRE-FEET
PEAK DISCHARGE RATE =      234.54 CFS AT  2.000 HOURS  BASIN AREA =   .5606 SQ. MI.

*S
*S ADD AP2_ON TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD          ID=24    HYD NO=AP_2 ID I=25 ID II=72
PRINT HYD        ID=24    CODE=1

                                HYDROGRAPH FROM AREA AP_2

RUNOFF VOLUME =      .65860 INCHES      =      20.3250 ACRE-FEET
PEAK DISCHARGE RATE =      240.34 CFS AT  2.000 HOURS  BASIN AREA =   .5786 SQ. MI.

*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S DIVIDE 6D.3 FOR 30.0% RETAINAGE
DIVIDE HYD        ID=10    PER=-70.0      ID I=12 HYD NO=6D.3_OUT
                                           ID II=13 HYD NO=6D.3_RETAIN
*
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD          ID=14    HYD NO=AP_1 ID I=12 ID II=11
PRINT HYD        ID=14    CODE=1

```

HYDROGRAPH FROM AREA AP_1

RUNOFF VOLUME = 1.18801 INCHES = 2.1421 ACRE-FEET
PEAK DISCHARGE RATE = 61.33 CFS AT 1.500 HOURS BASIN AREA = .0338 SQ. MI.

*S
*S
*S
*S
*S
*S
*S
*S

COMPUTE VISTA VIEJA AVENUE FLOW

```

*S COMPUTE VISTA VIEJA AVE *****
*
COMPUTE NM HYD      ID=90 HYD=VV1  AREA=0.013219  PER A=0  PER B=0
                    PER C=10 PER D=90  TP=0.13333  RAINFALL=-1

K = .072665HR      TP = .133330HR      K/TP RATIO = .545000      SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 46.960  CFS      UNIT VOLUME = .9991      B = 526.28      P60 = 1.7300
AREA = .011897 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .104311HR      TP = .133330HR      K/TP RATIO = .782353      SHAPE CONSTANT, N = 4.591870
UNIT PEAK = 3.8951  CFS      UNIT VOLUME = .9972      B = 392.87      P60 = 1.7300
AREA = .001322 SQ MI      IA = .35000 INCHES      INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=90  CODE=1

                        HYDROGRAPH FROM AREA VV1

RUNOFF VOLUME = 1.87328 INCHES      = 1.3207 ACRE-FEET
PEAK DISCHARGE RATE = 33.20 CFS AT 1.500 HOURS      BASIN AREA = .0132 SQ. MI.

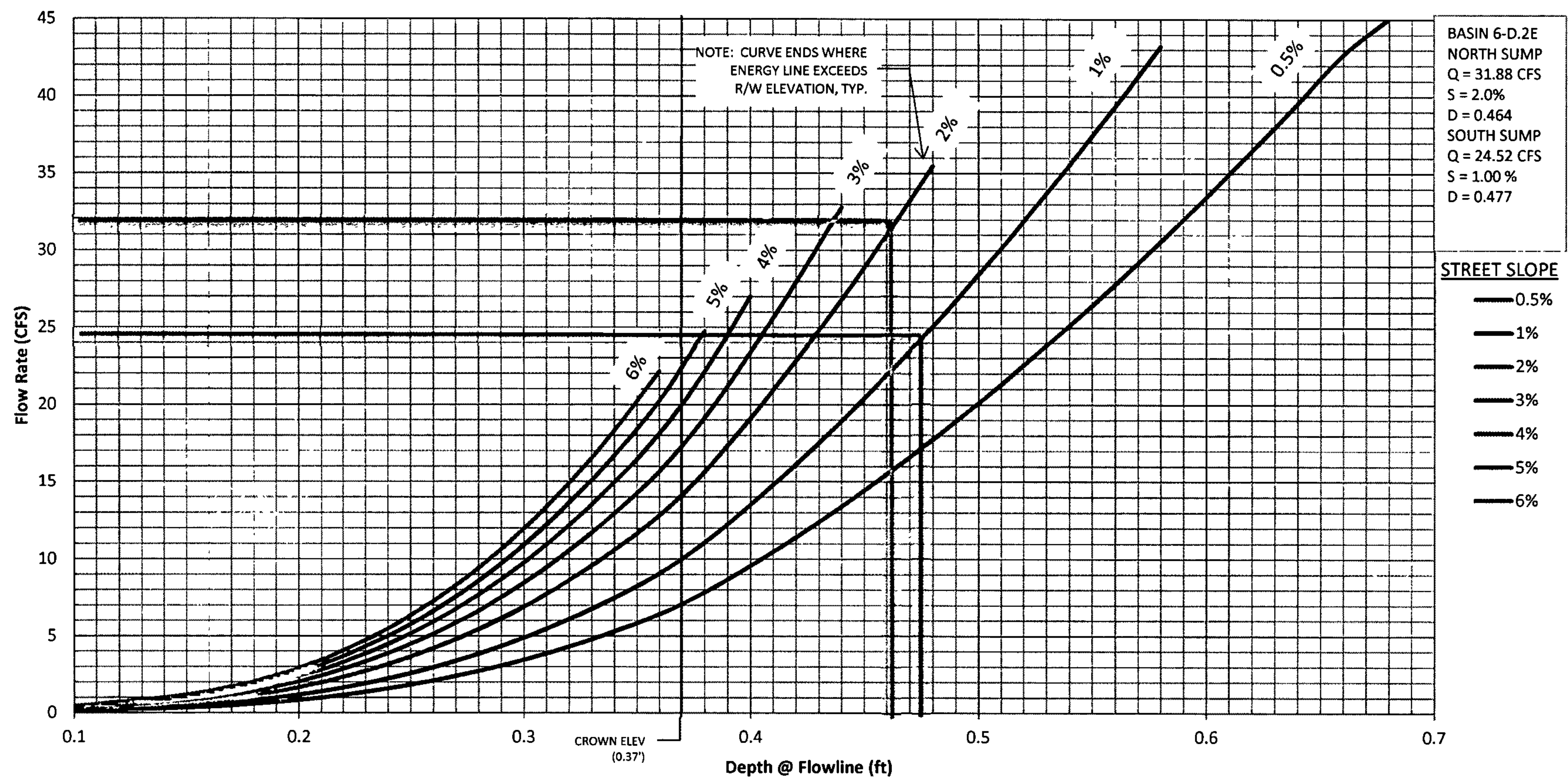
*

FINISH

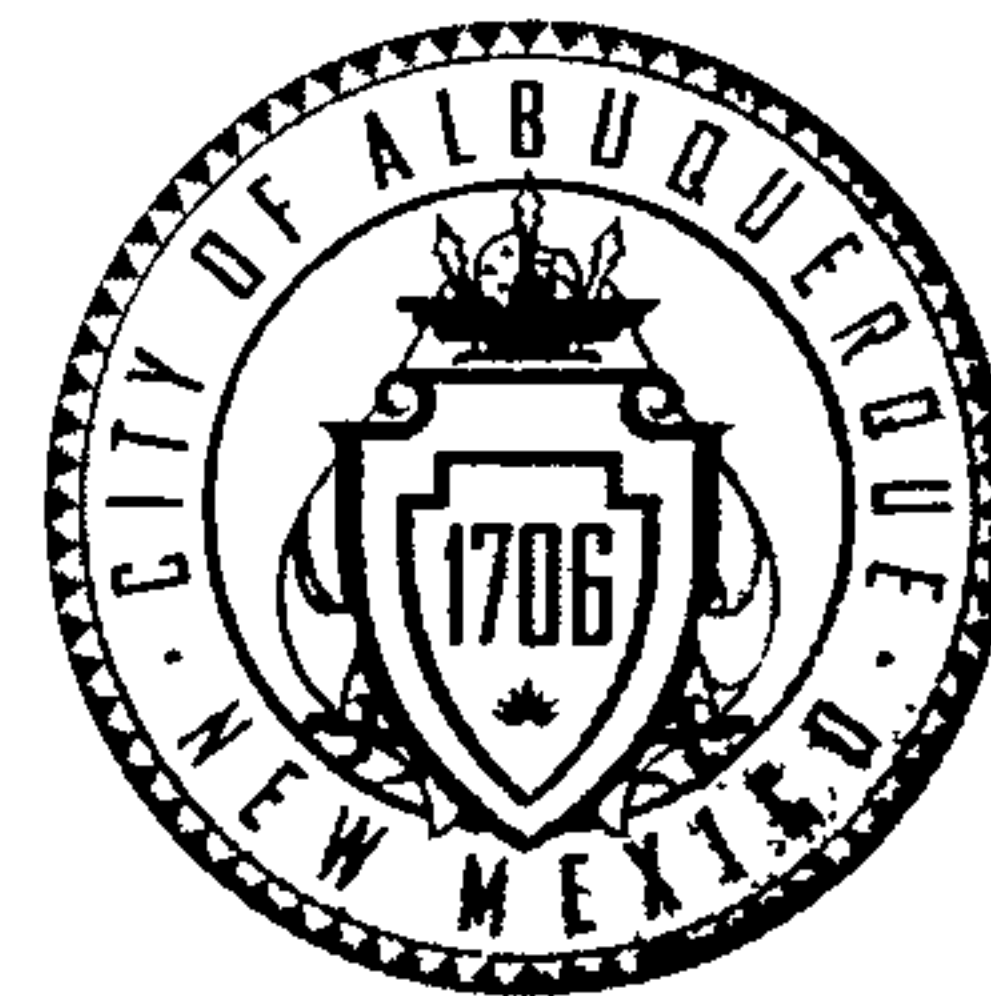
NORMAL PROGRAM FINISH      END TIME (HR:MIN:SEC) = 14:39:36

```

28' F-F Vista Luces Street Hydraulics (Full Street Section)



CITY OF ALBUQUERQUE



Richard J. Berry, Mayor

September 19, 2016

Scott J. Steffen, P.E.
Bohannon Huston
7601 Jefferson NE, Suite 100
Albuquerque, NM, 87109

**RE: Montecito Vistas Units 1-4
Grading & Drainage Plan and Report
Stamp Date 8-16-2016 / Hydrology File: D09D005**

Dear Mr. Steffen:

Based upon the information provided in your submittal received 8-17-2016, the above-referenced is approved for ESC Grading Permit. Prior to Building Permit approval, Engineer Certification per the DPM checklist will be required.

PO Box 1293

Albuquerque

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

New Mexico 87103

Sincerely,

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

www.cabq.gov

DRB: 1009506
Orig: Drainage file

Harmon Rita T.

From: Scott Steffen <ssteffen@bhinc.com>
Sent: Thursday, September 15, 2016 4:47 PM
To: Harmon Rita T.
Cc: Carrillo, Abiel X.
Subject: RE: Montecito Vistas Grading Plan and walls

Rita,

I spoke w/Kevin about this and he coordinated w/Pulte's land development manager who oversees construction. The land development manager stated that Pulte will be grading and building retaining walls for the entire site at the same time.

Thanks,

Scott J. Steffen
Vice President
Community Development and Planning
Bohannon Huston
Courtyard I
7500 Jefferson St. NE
Albuquerque, NM 87109-4335
www.bhinc.com
voice: 505.823.1000 **facsimile:** 505.798.7988 **toll free:** 800.877.5332

From: Harmon Rita T. [<mailto:rharmon@cabq.gov>]
Sent: Thursday, September 15, 2016 10:50 AM
To: Scott Steffen <ssteffen@bhinc.com>
Cc: Carrillo, Abiel X. <acarrillo@cabq.gov>
Subject: Montecito Vistas Grading Plan and walls

Scott,

Per comment from Abiel and the response to it, it was understood that an interim grading plan was not needed since the entire subdivision was going to be graded at the same time. This implies that retaining walls and walls that direct flows would also be built. Walls along the western edge of the subdivision that direct offsite flows away from the subdivision would also be built.

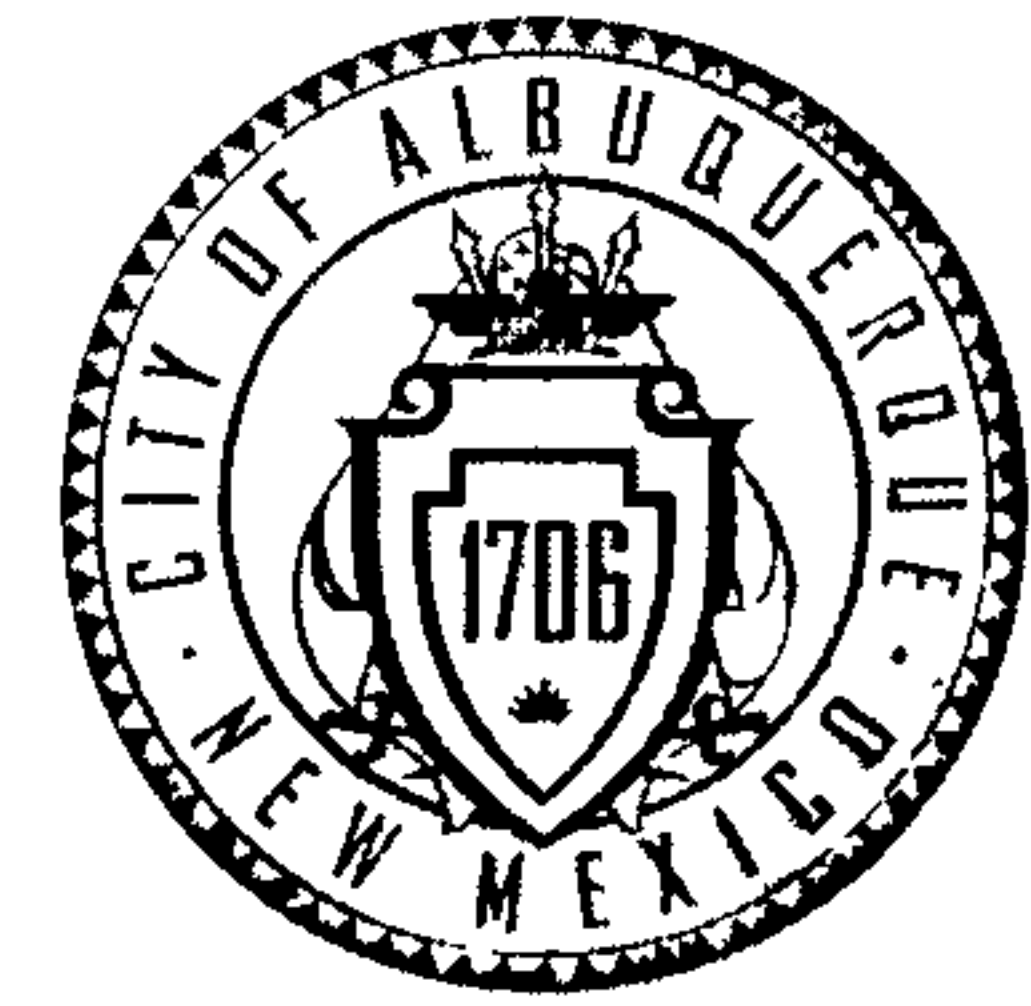
However, at DRC yesterday, Kevin Patton acting on behalf of the developer stated that these walls were not going to be built yet. Therefore an interim grading plan showing how the offsite flows will be managed will need to be submitted prior to ESC Permit approval (Grading Permit).

Are the retaining walls in Units 3 and 4 intended to be built? If not, then an interim grading plan would be needed for this condition as well.

Rita Harmon, P.E.

Senior Engineer, Hydrology Section
City of Albuquerque Planning Department
Development & Review Services Division
600 2nd St. NW, Suite 201
Albuquerque, NM 87102
t 505-924-3695

CITY OF ALBUQUERQUE



Richard J. Berry, Mayor

August 20, 2016

Scott J. Steffen, P.E.
Bohannon Huston
7601 Jefferson NE, Suite 100
Albuquerque, NM, 87109

**RE: Montecito Vistas Units 1-4
Grading & Drainage Plan and Report
Stamp Date 8-16-2016 / Hydrology File: D09D005**

Dear Mr. Steffen:

Based upon the information provided in your submittal received 8-17-2016, the above-referenced is approved for Preliminary Plat and Site Plan for Subdivision.

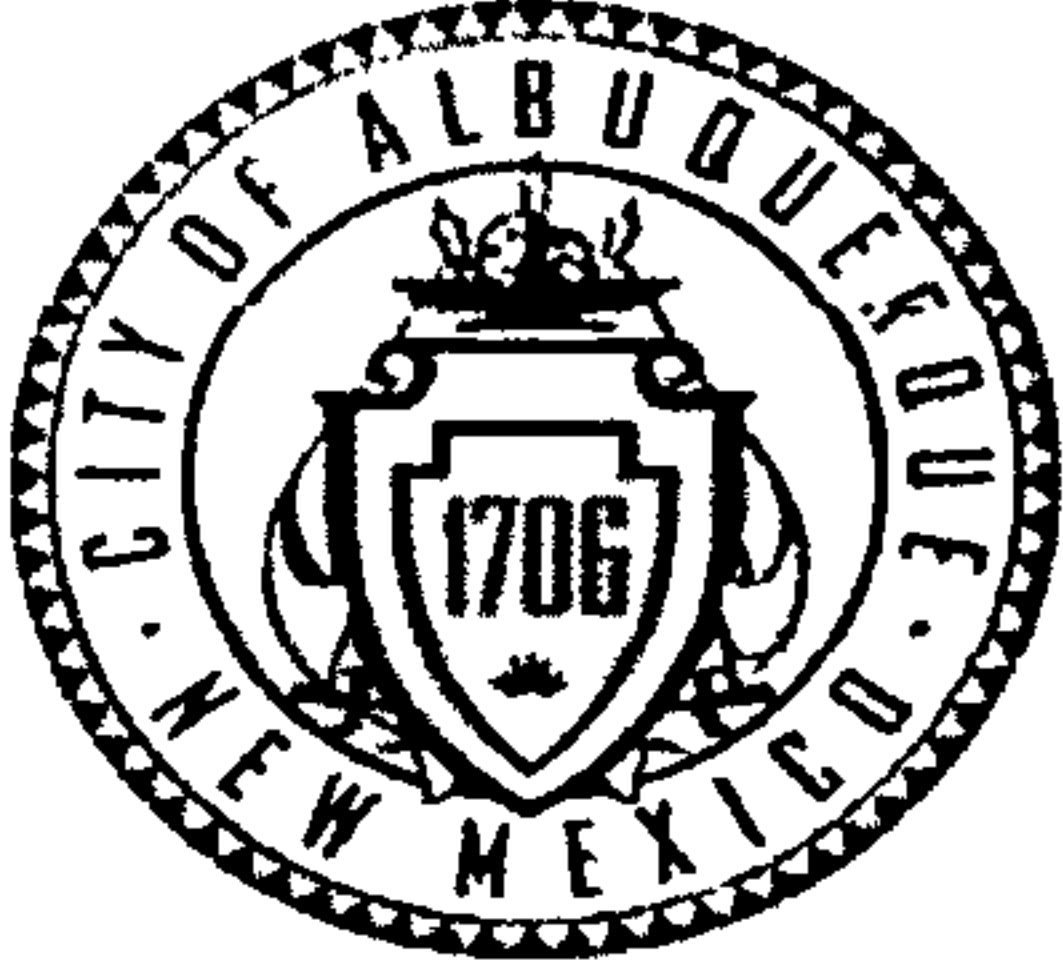
An ESC Plan will need to be approved before approval can be given for ESC Grading Permit. An approved ESC Plan and ESC Grading Permit are required prior to any grading on this project.

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

Sincerely,

Abiel Carrillo, P.E.
Principal Engineer, Planning Dept.
Development Review Services

DRB: 1009506
Orig: Drainage file



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: MONTECITO VISTAS UNITS 1-4 Building Permit #: _____ City Drainage #: D09/D005
DRB#: 1009506 EPC#: _____ Work Order#: _____
Legal Description: Tracts 7- 8, 9A-C, 10B-C, 24-25, 26A-B & 27 Volcano Cliffs Subdivision Unit 6 and Tract 14 Volcano Cliffs Subdivision Unit 9
City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: SCOTT STEFFEN
Address: 7500 JEFFERSON ST NE COURTYARD I ALBUQUERQUE NM 87109
Phone#: 823-1000 Fax#: _____ E-mail: SSTEFFEN@BHINC.COM

Owner: PULTE GROUP Contact: KEVIN PATTON
Address: 7601 JEFFERSON ST NE STE 320 ALBUQUERQUE NM 87109
Phone#: 505-761-9606 Fax#: _____ E-mail: _____

Architect: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Other Contact: _____ Contact: _____
Address: _____
Phone#: _____ Fax#: _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ ARCHITECT CERTIFICATION

☐ CONCEPTUAL G & D PLAN
☒ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☒ DRAINAGE REPORT
☐ CLOMR/LOMR

☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)

☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☒ Yes ☐ No

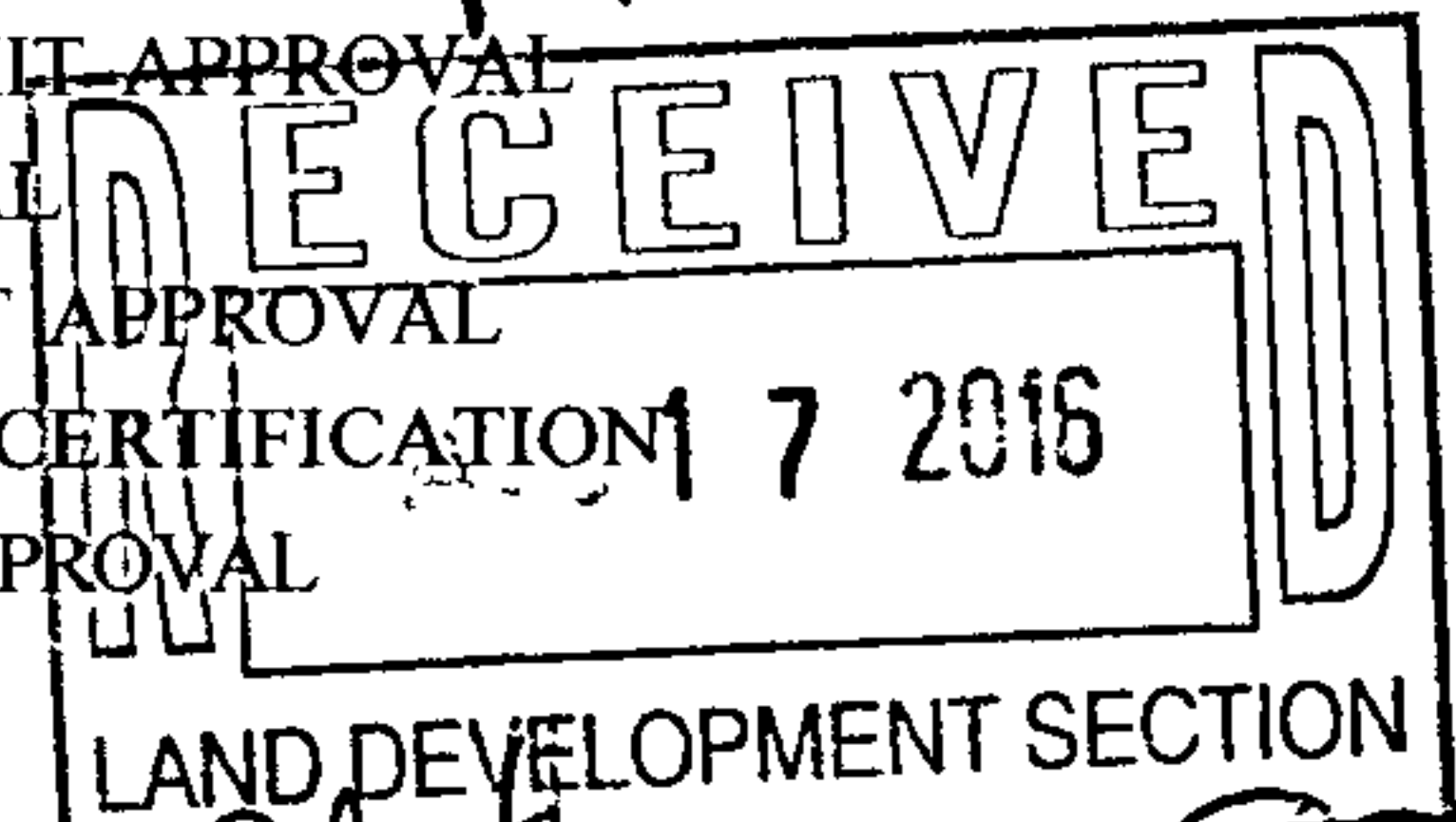
DATE SUBMITTED: 8/17/16 By: SCOTT STEFFEN

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY

☒ PRELIMINARY PLAT APPROVAL
☒ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☒ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT APPROVAL
☐ GRADING/ PAD CERTIFICATION
☐ WORK ORDER APPROVAL
☐ CLOMR/LOMR

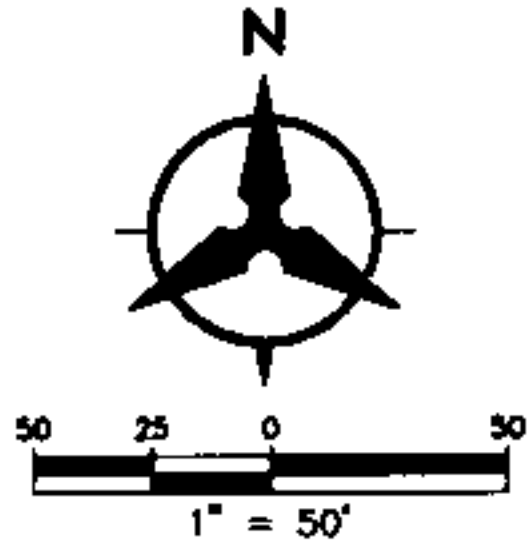
☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____



COA STAFF ELECTRONIC SUBMITTAL RECEIVED. _____

PRELIMINARY PLAT FOR
MONTECITO VISTAS UNIT 2

LOTS 1 - 25 & TRACTS A-F
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
SECTION 20 & 21
T 11 N, R 2 E, NMPM
AUGUST 2016



LEGAL DESCRIPTION

Tract 1, Montecito Vistas Unit 1 City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "SUBDIVISION PLAT OF MONTECITO VISTAS UNIT 1 (LOTS 1-42 & TRACTS 1-3, A-H), CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on _____ in Plat Book _____ Page _____, as Document No. _____

GENERAL NOTES

- EXISTING ZONING: SJ-2, VORR RURAL RESIDENTIAL
PROPOSED ZONING: SJ-2, VORR RURAL RESIDENTIAL
PROPOSED DEVELOPMENT DENSITY: PRIVATE COMMONS DEVELOPMENT
- PROPOSED ACREAGE: 7.16 AC
NUMBER OF LOTS: 25
PROPOSED DENSITY: 3.40 DU/AC
- MIN. LOT DIMENSIONS:
MINIMUM LOT AREA: 25' X 110' (2,750 SQ FT)
- STREETS AND STORM DRAIN IMPROVEMENTS ARE PUBLIC TO BE OWNED AND MAINTAINED BY THE CITY OF ALBUQUERQUE. SEWER AND WATER ARE PUBLIC TO BE OWNED AND MAINTAINED BY THE ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY.
- LOT SETBACKS SHALL CONFORM TO PRIVATE COMMONS DEVELOPMENT ZONING REQUIREMENTS.
- TRACTS A-D AND F SHALL BE DESIGNATED AS PRIVATE PARCELED COMMONS AREA. THE TRACTS WILL BE OWNED AND MAINTAINED BY THE MONTECITO VISTAS HOA AND HAVE A BLANKET LAND USE EASEMENT & RESTRICTIVE COVENANTS.
- TRACTS A-F SHALL BE OWNED AND MAINTAINED BY THE MONTECITO VISTAS HOA.

PRIVATE COMMONS DEVELOPMENT

EXCESS PARCELED COMMONS AREA FROM UNIT 1 PLAT: 8.81 ACRES
UNIT 2 TRACTS A-D & F, PRIVATE PARCELED COMMONS AREA: 0.86 ACRES
AVAILABLE OPEN SPACE ACREAGE: 7.16 ACRES
UNIT 2 LOTS, STREETS, HOA TRACTS: 7.16 ACRES
UNIT 2 300' OPEN SPACE REQUIREMENT: 2.15 ACRES
EXCESS PARCELED COMMONS AREA APPLIED TO UNITS 3-4: 5.51 ACRES

SITE DATA

ZONE ARLAS NO.: D-09-2
ZONING: SJ-2, VORR
MILES OF FULL WIDTH STREETS CREATED: 0.25 MILES
NO. OF EXISTING LOTS: 1
NO. OF LOTS CREATED: 25
NO. OF HOA TRACTS CREATED: 6
NO. OF PRIVATE COMMONS AREA TRACTS CREATED: 5

LEGEND

- SUBDIVISION BOUNDARY LINE
- EXISTING LOT LINE
- NEW LOT LINE
- EXISTING TRACT LINE
- ADJOINING PROPERTY LINE
- CENTERLINE MONUMENT TO BE INSTALLED
- CITY OF ALBUQUERQUE SURVEY CONTROL MONUMENT

Bohannon & Huston

MONTECITO
VISTAS
UNIT 1
TRACT 2

TRACT 11-B
VOLCANO CLIFFS SUBDIVISION
UNIT 6
(03-16-1979, C14-146)

TRACT 11-C
VOLCANO CLIFFS SUBDIVISION
UNIT 6
(03-16-1979, C14-146)

TRACT 23
VOLCANO CLIFFS SUBDIVISION
UNIT 6
(06-18-1970, D4-81)

ACS Monument "3-D9"
NAD 1983 CENTRAL ZONE
X=149570.251
Y=1517158.905
Z=5375.458 (NAVD 1988)
G-G=0 999970250
Mapping Angle=-016°44'11"

ACS Monument "2-D8"
NAD 1983 CENTRAL ZONE
X=1493615.357
Y=1515761.743
Z=5441.398 (NAVD 1988)
G-G=0 999667790
Mapping Angle=-016°58'43"

KEYED NOTES

- (A) 10' PUBLIC UTILITY EASEMENT GRANTED WITH THIS PLAT
- (B) EXISTING 47' TEMPORARY ACCESS EASEMENT
- (C) 20' PUBLIC WATERLINE EASEMENT GRANTED TO THE ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY WITH THIS PLAT
- (D) 20' STORM DRAIN EASEMENT
- (E) PRIVATE ACCESS EASEMENT FOR THE USE AND BENEFIT OF LOT 25
- (F) 15' PRIVATE DRAINAGE EASEMENT ON LOTS 8-11, FOR THE USE AND BENEFIT OF EACH LOT AND TO BE MAINTAINED BY EACH LOT

BOUNDARY CURVE TABLE				
ID	ARC	RADIUS	DELTA	TANGENT
C1	80.20'	251.50'	181°16'13"	40.44'
C2	286.40'	848.50'	20°00'53"	149.73'
C3	16.39'	25.00'	37°33'06"	8.50'
C4	20.47'	25.00'	48°55'15"	10.85'
C5	36.54'	43.50'	48°07'42"	19.43'
C6	23.51'	480.50'	02°48'14"	11.76'
C7	136.28'	355.50'	21°57'53"	68.99'
C8	375.31'	748.53'	28°41'22"	191.68'
C9	121.17'	109.87'	83°11'30"	67.58'

BOUNDARY TANGENT TABLE		
ID	BEARING	LENGTH
T1	N89°40'11"W	177.05'
T2	S00°09'49"W	44.22'
T3	N89°40'11"W	50.04'
T4	N87°30'44"W	41.83'
T5	N82°11'19"W	67.65'
T6	N07°13'35"E	119.77'
T7	N07°05'01"E	47.13'
T8	N06°52'07"E	176.19'
T9	N04°03'53"E	124.99'
T10	S89°50'07"E	4.38'
T11	S00°11'11"W	82.84'

PRELIMINARY PLAT FOR
MONTECITO VISTAS UNIT 1
LOTS 1 - 42 & TRACTS 1 - 5, A-H
CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
SECTION 20 & 21
T 11 N, R 2 E, NMPM
AUGUST 2016



1" = 100'

LEGAL DESCRIPTION

Tracts 24-25 and 27, together with a portion of vacated Rialto Road of Valencio City Subdivision Unit 6, City of Albuquerque, Bernalillo County, New Mexico as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico, on June 18, 1970, Book D4, Page 81, and Tracts 98-C of Valencio City Subdivision Unit 6, City of Albuquerque, Bernalillo County, New Mexico as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico, on March 18, 1978, Book C14, Page 146, and Tracts 108-C of Valencio City Subdivision Unit 6, City of Albuquerque, Bernalillo County, New Mexico as the same is shown and designated on the plat thereof, filed in the office of the County Clerk of Bernalillo County, New Mexico, on August 12, 1970, Book D4, Page 83, and Tracts 1 and 2, Montecito Vistas, City of Albuquerque, Bernalillo County, New Mexico, as the same is shown and designated on the plat entitled "TRUCK LAND PLAT OF MONTECITO VISTAS, CITY OF ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO", filed in the office of the County Clerk of Bernalillo County, New Mexico, on _____ in Part Book _____, Page _____, on Document No. _____.

GENERAL NOTES

- EXISTING ZONING: SU-2, VOR RURAL RESIDENTIAL. PROPOSED ZONING: SU-2, VOR RURAL RESIDENTIAL. PROPOSED DEVELOPMENT DENSITY: PRIVATE COMMONS DEVELOPMENT.
- PROPOSED ACREAGE: 12.80 AC. NUMBER OF LOTS: 42. PROPOSED DENSITY: 3.5 DU/AC.
- MIN LOT DIMENSIONS: 55' X 110'. MINIMUM LOT AREA: 6,050 SQFT.
- STREETS AND STORM DRAIN IMPROVEMENTS ARE PUBLIC TO BE OWNED AND MAINTAINED BY THE CITY OF ALBUQUERQUE. SEWER AND WATER ARE PUBLIC TO BE OWNED AND MAINTAINED BY THE ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY.
- LOT SETBACKS SHALL CONFORM TO PRIVATE COMMONS DEVELOPMENT ZONING REQUIREMENTS.
- NO INDIVIDUAL LOTS SHALL BE ALLOWED DIRECT ACCESS TO VISTA NEVA AVENUE.
- TRACTS 5, E & F SHALL BE DESIGNATED AS PRIVATE PARCELED COMMONS AREA. THE TRACTS WILL BE OWNED AND MAINTAINED BY THE MONTECITO VISTAS HOA AND HAVE A BLANKET LAND USE EASEMENT & RESTRICTIVE COVENANTS.
- TRACT 2 SHALL BE DESIGNATED AS A PUBLIC PARCELED COMMONS AREA. THE TRACT WILL BE DEDICATED TO THE CITY OF ALBUQUERQUE TO BE MAINTAINED AS PUBLIC OPEN SPACE BY THE CITY OPEN SPACE DIVISION.
- TRACTS A-D AND G-H SHALL BE OWNED AND MAINTAINED BY THE MONTECITO VISTAS HOA.
- CONSTRUCTION OF VISTA NEVA AVENUE WILL NOT ENCROACH ON CITY-OWNED MAJOR PUBLIC OPEN SPACE.
- TRACTS 1, 3 AND 4 ARE REMAINDER PARCELS TO BE SUBDIVIDED AS PART OF MONTECITO VISTAS UNITS 2-4, RESPECTIVELY.

SITE DATA

ZONE ATLAS NO.	D-09-2
ZONING	SU-2, VOR
MILES OF FULL WIDTH STREETS CREATED	0.00 MILES
NO. OF EXISTING LOTS	12
NO. OF LOTS CREATED	42
NO. OF HOA TRACTS CREATED	8
NO. OF PRIVATE COMMONS AREA TRACTS CREATED	3
NO. OF PUBLIC COMMONS AREA TRACTS CREATED	1
NO. OF REMAINDER TRACTS CREATED	5

LEGEND

	SUBDIVISION BOUNDARY LINE
	EXISTING LOT LINE
	NEW LOT LINE
	NEW TRACT LINE
	ADJOINING PROPERTY LINE
	CENTERLINE MONUMENT TO BE INSTALLED
	CITY OF ALBUQUERQUE SURVEY CONTROL MONUMENT

Bohannon & Huston

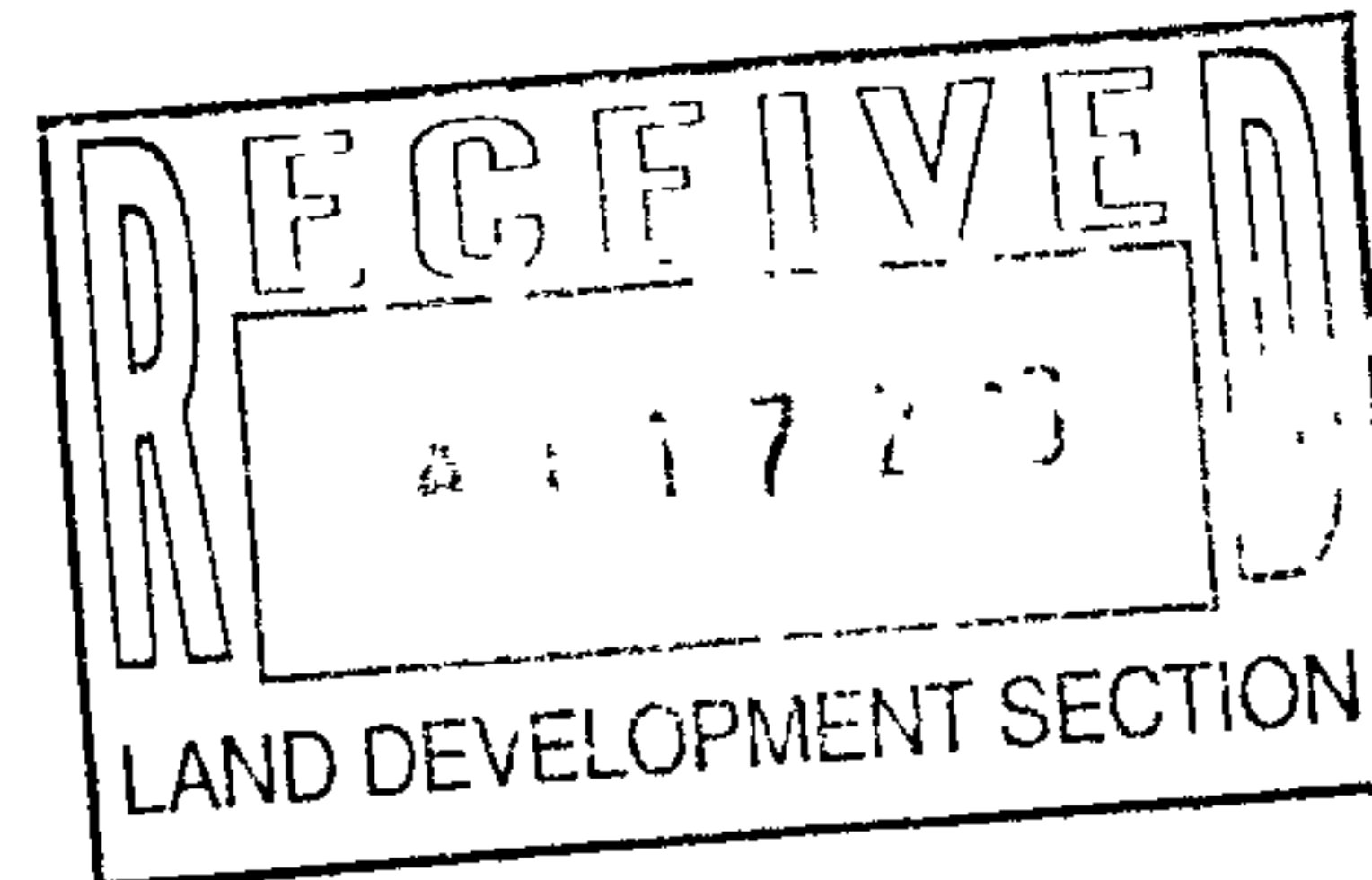
KEYED NOTES

- TRACT LINE TO BE ELIMINATED BY THIS PLAT
- 7' PUBLIC UTILITY EASEMENT TO BE VACATED WITH THIS PLAT
- 14' PUBLIC UTILITY EASEMENT TO BE VACATED WITH THIS PLAT
- EXISTING 30' DRAINAGE EASEMENT
- 25' PUBLIC SANITARY SEWER EASEMENT GRANTED TO THE ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY AUTHORITY WITH THIS PLAT
- 47' TEMPORARY ACCESS EASEMENT GRANTED WITH THIS PLAT
- 10' PUBLIC UTILITY EASEMENT GRANTED WITH THIS PLAT
- 50' ACCESS EASEMENT TO BE VACATED WITH THIS PLAT
- 30' STORM DRAIN EASEMENT GRANTED WITH THIS PLAT
- 20' PUBLIC PEDESTRIAN ACCESS EASEMENT GRANTED WITH THIS PLAT
- BLANKET DRAINAGE EASEMENT ON TRACT 5 GRANTED WITH THIS PLAT
- 15' PRIVATE DRAINAGE EASEMENT ON LOTS 8-10, FOR THE USE AND BENEFIT OF EACH LOT AND TO BE MAINTAINED BY EACH LOT

ID	BEARING	LENGTH
T1	N08°41'16"W	968.54'
T2	S00°16'44"W	880.15'
T3	N08°52'25"W	529.87'
T4	S00°16'28"W	910.48'
T5	S88°54'34"E	1800.94'
T6	N00°18'50"E	1045.07'
T7	N00°12'02"E	50.00'
T8	N00°09'53"E	478.92'
T9	S86°52'25"W	72.85'
T10	S30°43'53"W	109.86'
T11	S78°06'49"W	184.13'
T12	N00°17'38"E	380.44'

PORTION OF RIALTO ROAD TO BE VACATED WITH THIS PLAT

August 17, 2016



Abiel Carrillo, P. E.
Planning Department
Hydrology Review Section
City of Albuquerque
P. O. Box 1293
Albuquerque, NM 87103

Re: Montecito Vistas Units 1-4, Grading and Drainage Plan (D09/D005)

Dear Abiel:

This letter provides a written response to your comments dated July 6, 2016:

1. *Clarify the numbering of the Development phases. The title of this report is Montecito Vistas Units 1-4, the Report for the previous Montecito Vistas development is Montecito Vistas Units 1 & 2, and the Plates within this report are titled Montecito Vistas Units 3-6. It appears that this report should be titled Montecito Vistas Units 3-6. The Plat calls them Units 1-4. **The previous report is Montecito West Units 1 and 2. The proposed development is Montecito Vistas Units 1-4. The Plates in the report have been changed to match this name.***
2. *Show the phase limits on the Grading Plan; the sheet titles only approximate the quadrant limits. Add the phase/unit limits to the Storm Drain Network Map. **The Unit boundaries have been shown on the storm drain network map. They are not shown on the grading plan as the overlap retaining wall symbology.***
3. *The Grading Plan should include a conceptual phasing plan to show interim facilities that will be needed. A detailed phasing plan can be produced prior to Grading Permit. **The entire site will be graded at the same time. Therefore, no interim grading/drainage facilities will be required. The reason for grading the entire site at once is due to the presence of basalt rock and the desire to complete all blasting prior to infrastructure and home construction.***
4. *The AHYMO analysis routes Basin 9-D.1 completely through AP 9-D.1, but there appears to be a minor flowpath directing offsite flows from Basin 9-D.1 to the proposed de-siltation pond at the west end of Retablo Road. Is this a negligible contribution? If it is not, flows could be routed away from the stub. **The contribution is negligible, approximately 1.3 cfs of developed flow. When the tract south of Retablo Road, where the minor flow path is located,***

Engineering ▲

Spatial Data ▲

Advanced Technologies ▲

develops, it will be required to discharge its flows north to the Middle Branch of the Boca Negra Arroyo.

5. *Clarify in the report what the 4W Water Zone is. The 5W/4W water zone boundary is labeled on the overall basin map (Exhibit 2).* ✓

6. *N/A*

7. *Rear lot ponding for first flush management is strongly discouraged. The report proposes to turn a wall back 4-inches from the ground near the low point of the yard for the easternmost lots. It would be expected that several home owners would eventually fill in the 4 inches with landscaping or purposely to straight grade from the edge of the house pad to the invert of the block.*

↪ **Not addressed.**

- *Considering the comment above, the spillway of the first flush pond should not drain to the adjacent development, the overflow would need to be routed to future right of way, or to an available storm drain (possibly surface flow between the two retaining walls to the inlet north of lot 19). A concrete channel is proposed between the upper and middle walls. The channel will drain to the open space area between Lot 19, Unit 1 and Lot 8, Unit 2. The flow from the channel will discharge to SDP5. See channel detail on Grading Details sheet.*

8. *Clarify how the northeastern outfall channel ties to the Boca Negra Arroyo middle branch, it is described as a 455 long channel, but the alignment is not shown. Preliminary alignment is shown on the storm drain exhibit and grading plan. Alignment is subject to change based on Open Space approval.*

- *Does it get constructed with Unit 1/Unit 3? The Unit 1 and 2 infrastructure will be constructed at the same time. It will get built at that time.*
- *The current FEMA FIRM shows that the Arroyo is a floodway, show the approximate limits of the floodway in relation to the construction of the channel. If grading for the channel will affect the floodway, a CLOMR could be triggered. Floodway is shown on the storm drain exhibit. It is beyond the limits of the grading plan.*

9. *The Report needs to include an assessment of the Vista Vieja Roadway section's hydraulic capacity downstream. It appears that the first available inlets are at the Vista del Sol intersection. Per our meeting on August 8, 2016 the drainage report text has been modified to require Basin A-1.1 to discharge to the Middle Branch of the Boca Negra Arroyo. The report notes that future*

analysis will be required at the time of development to determine the allow discharge to the arroyo and volume to the Boca Negra Dam.

- *It appears that the Vista Vieja roadway is intended to drain to the Boca Negra Dam, if that is the case, runoff from Vista Vieja from this project could be diverted through the subdivision. **Per the Boca Negra Dam FAR it is not intended to drain to the Boca Negra Dam.***

10. *Page 8 of the report describes the capacity that is available in the Boca Negra Arroyo, and the benefit of having a time gap between the peak discharge of this subdivision and the farther reaches of the watershed. However, the flows eventually combine in the Boca Negra Dam. The report should address if the increase in discharge proposed, although small (+3%) is consisted with the documentation for the Dam (does the benefit of the time gap extend to the Dam). Specifically, the 2014 Final Summary Report of the Boca Negra Dam, by Wilson & Co. should be included in the background materials that are researched for this report (I have a copy if you'd like to check it out). **The FAR is added to the list of background materials. The increase in flow in the Boca Negra Arroyo does not impact the Boca Negra Dam. See added Boca Negra Dam section in the report.***

11. *The Open Space tracts are proposed to be graded to drain to the adjacent roadways. What will be proposed to control sediment, and to manage the concentrated flows across the pedestrian paths? **For the open space areas that will be left native, there are no controls for sediment at this time. Pedestrian paths through this area could be slightly elevated to control sediment. For the landscaped open space areas there will be depressed areas to control sediment. Paths would be designed to prevent concentrated flows across the paths.***

ok, only need in areas that are disturbed.

- *Are there opportunities to provide de-siltation areas, or to depress these tracts? **Yes, the final grading of these areas will depend on the landscape plan and will be adjusted once the landscape plan is complete.***
- *Are there significant impervious trails/areas within these tracts that need to be incorporated into the drainage model? **No** — *just minor trails**

12. *The design and layout of SDP5/IN13 should be planned to fully capture runoff from the open tract, as well as to control the inflow of sediment. **See revised grading plan. Construction plans will set the top of grate .5' above the proposed grade for sediment control.***

Abiel Carrillo, P.E.
Planning Department
August 17, 2016
Page 4

13. *An approved ESC Plan will be required prior to approval for Grading Permit.*
Okay

14. *Minor Comments*

- *Show matchlines on the grading plan* **Matchlines would overlap retaining wall symbology and are therefore not shown.**
- *If available, please include the basin ID map for the developed condition AHYMO model, specifically, to assist in matching the channel numbering to the overall basin map. Alternatively, label the channel numbers on one of the exhibits.* **We don't have a basin ID map for the developed condition AHYMO model. Added channel numbers to the overall developed conditions basin map.**
- *Page 7 of the report and the storm drain map mentions a 108 cfs design flow rate for the outfall channel, but the Q in the table is 111.* **The correct discharge is 108 cfs. The channel analysis and Table 3 have been updated to reflect 108 cfs.**

If you have any questions or require further information in order to approve the Grading and Drainage Plan, please feel free to contact me at 823-1000.

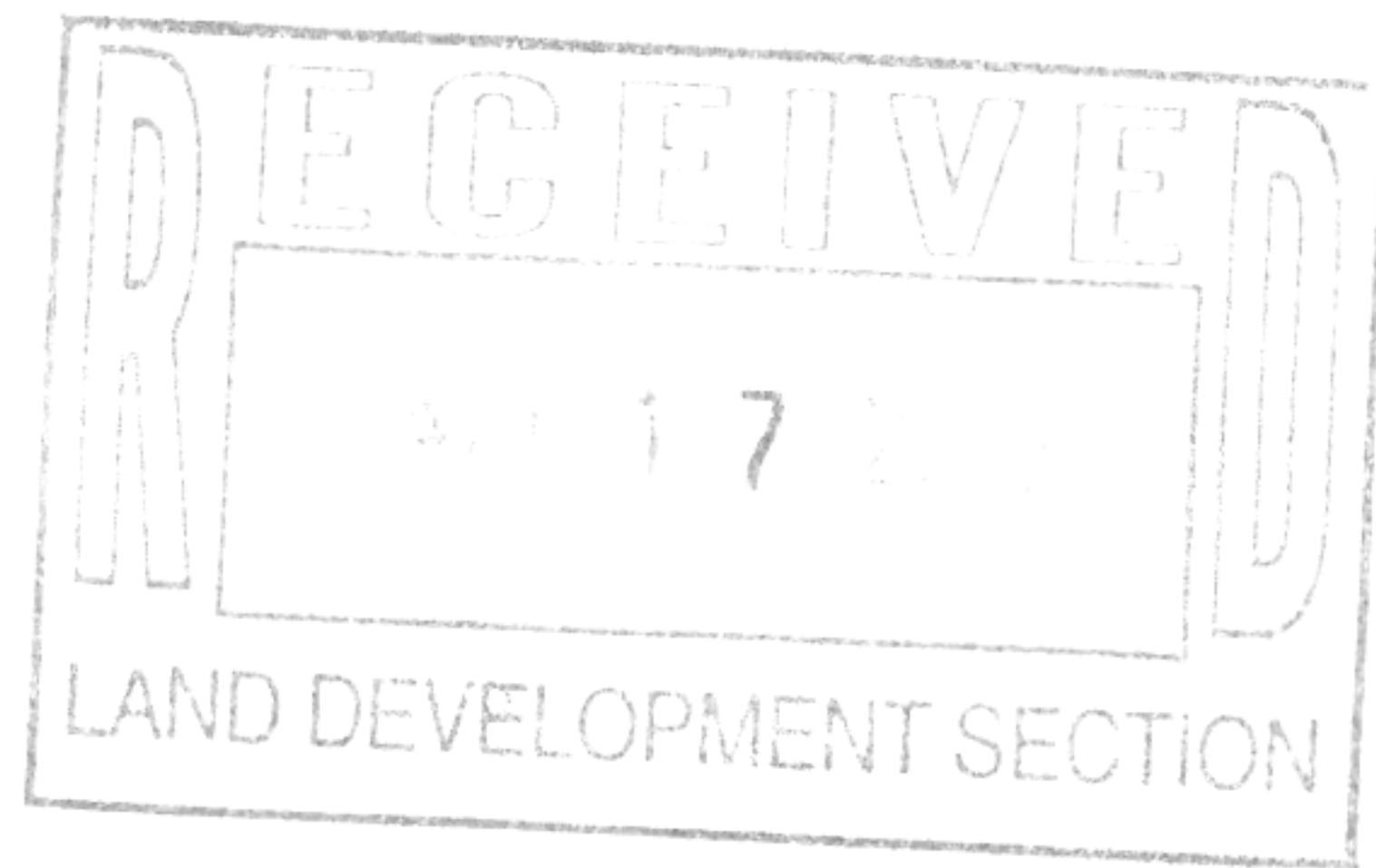
Sincerely,



Scott J. Steffen, P.E.
Vice President
Community Development and Planning Group

Enclosures

DRAINAGE REPORT FOR MONTECITO VISTAS SUBDIVISION UNITS 1 THROUGH 4



MAY 2016

REVISED AUGUST 2016

Prepared for:

Pulte Homes of New Mexico

7601 Jefferson Street NE – Suite 320

Albuquerque, NM 87109

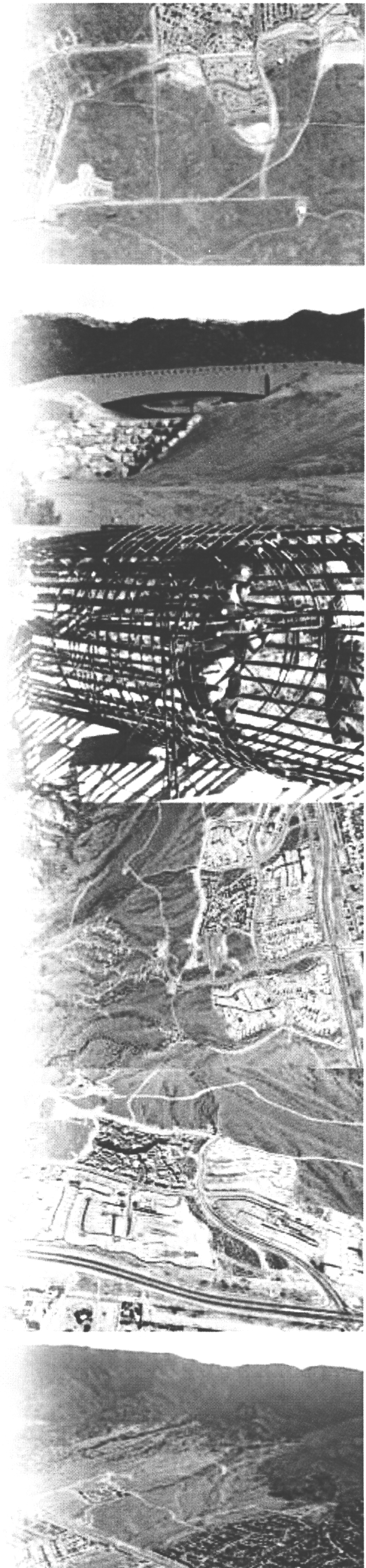
Prepared by:

Bohannon  Huston

Engineering

Spatial Data

Advanced Technologies



**DRAINAGE REPORT
FOR
MONTECITO VISTAS
SUBDIVISION
UNITS 1 THROUGH 4**

**MAY 20, 2016
REVISED AUGUST 16, 2016**

Prepared for:
**PULTE HOMES OF NEW MEXICO
7601 JEFFERSON STREET NE, SUITE 320
ALBUQUERQUE, NM 87109**

Prepared by:
**BOHANNAN HUSTON, INC.
COURTYARD I
7500 JEFFERSON STREET NE
ALBUQUERQUE, NM 87109**



Prepared by:

Erica Newman 8.16.16
Erica Newman, E.I. Date
Design Engineer

Scott Steffen 8/16/16
Scott J. Steffen, P.E. Date
Project Manager

Bohannon  Huston

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TABLES

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APPENDICES

APPENDIX A - EXISTING CONDITIONS AHYMO SUMMARY,
APPENDIX B - DEVELOPED CONDITIONS AHYMO SUMMARY,
APPENDIX C - STREET HYDRAULICS AND STORM DRAIN INLET ANALYSIS
APPENDIX D - OPEN CHANNEL OUTFALL ALTERNATIVE SECTIONS

EXHIBITS

EXHIBIT 1 - PRELIMINARY PLAT
EXHIBIT 2 - OVERALL BASIN MAP
EXHIBIT 3 - ON-SITE BASIN MAP
EXHIBIT 4 - GRADING PLAN
EXHIBIT 5 - STORM DRAIN CAPACITY CALCULATIONS

I. PURPOSE

This report establishes a drainage management plan for the Montecito Vistas Subdivision. The proposed development consists of 136 single family detached residential lots on approximately 36.7 acres which will be developed in four units (Units 1 through 4). This project is located within the Volcano Cliffs Sector Plan area, in northwest Albuquerque, west of the Montecito West Unit 1 Subdivision. Montecito Vistas is in the Boca Negra Arroyo Watershed and drains to the Boca Negra Dam through storm drains in the Vista Vieja Subdivision. This report follows the developed drainage patterns established by the Montecito West Units 1 and 2 Drainage Report, which allows fully developed discharge from the proposed development to the Middle Branch of the Boca Negra Arroyo. This report is submitted in support of grading approval and preliminary plat approval by the DRB.

II. CONCEPTS AND METHODOLOGIES

Drainage conditions were analyzed utilizing the 100-year, 6-hour storm event ($P_{60}=1.72$ in, $P_{360}=2.21$ in, $P_{1440}=2.58$ in), in accordance with the City of Albuquerque DPM. The Arid-lands Hydrologic Model (AHYMO) was utilized to determine peak flow rates for design of the storm drainage improvements within the project. The results are included in Appendices A and B. Street capacity and storm drain inlet calculations supporting this study are located in **Appendix C**.

The overall drainage concept for this project is to match existing capacities of two storm drains at the west boundary of the Vista Vieja Subdivision. The northern storm drain (SD 1) accepts flow from the Middle Branch of the Boca Negra Arroyo and has a capacity of 250 cfs. The southern storm drain (SD 2) accepts surface flow from a low point at the west boundary of Montecito Estates Unit 4 and has a capacity of 62 cfs.

The following documents were referenced in the preparation of this report:

- *Vista Vieja Drainage Report* prepared by Wilson & Company, Inc., dated October 2004.
- *Boca Negra Detention Dam, Final Analysis Report* prepared by Wilson & Company, Inc. dated November 2014.
- *Montecito West Subdivision Units 1 and 2 Drainage Report* prepared by Bohannon Huston, Inc., dated January 2014.
- *Amendment to the Montecito West Subdivision Units 1 and 2 Drainage Report* prepared by Bohannon Huston, Inc., dated March 2014.

The two storm drains were sized to accept flow from Drainage Basin D in the Vista Vieja Drainage Report (VVDR). A third storm drain (SD 3) in Scenic Road on the north side of Vista Vieja was sized to accept flow from Drainage Basin E in the VVDR. The VVDR assumes all residential lands west of Vista Vieja would develop at six dwelling units (DU) per acre. The Volcano Cliffs Sector Development Plan zoned the property in this area to Volcano Cliffs Rural Residential. Development densities are limited to a maximum of 1 DU/gross acre, or the land can be developed as a Private Commons Development which limits the density to 3 DU/gross acres. In addition, the City of Albuquerque has acquired land surrounding the Middle Branch of the Boca Negra Arroyo for permanent open space. As a result, the Vista Vieja hydrologic analysis was revised as part of the *Montecito West Units 1 and 2 Drainage Report* to reflect the current densities allowed and the City owned open space.

The hydrologic analysis presented in this report modifies the AHYMO analysis in the *Amendment to the Montecito West Subdivision Units 1 and 2 Drainage Report* to reflect the changes in land treatments as a result of the proposed development. There have been no changes to the land use west of Montecito West Units 1 and 2 that require incorporation into this analysis.

III. SITE LOCATION AND CHARACTERISTICS

Montecito Vistas Units 1 through 4 will be developed in four units. Units 1 and 2 will consist of the easterly portion of the project and will be constructed at the same time. Units 3 and 4 will consist of the westerly portion of the project and will be constructed at the same time. The entire project will be graded at one time. Access to both units will be from Vista Vieja Avenue NW.

The land comprising Montecito Vistas is currently undeveloped with grades ranging from two percent to twelve percent. The site generally slopes from west to east.

IV. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

Runoff from land to the west of the site (Basin 9-D.2) drains through the Montecito Vistas site. The majority of the runoff from VVDR Basin D is carried by the Middle Branch of the Boca Negra Arroyo north of the site and does not impact the site. Land to the south of Montecito Vistas drains via sheet flow and does not impact the site. The land to the east (Basin 6-D.3) is lower in elevation and does not impact the site.

A summary of the existing offsite and onsite flows is presented in the table below.

**Table 1 – Montecito West Onsite and Offsite Existing Conditions
Basin Data Table**

100 Year – 6 Hour Storm						
Basin ID	Area (AC.)	LAND TREATMENT				Q(100) (CFS)
		A	B	C	D	
OS-D	152.2	95.0%	5.0%	0.0%	0.0%	174.2
15-D	96.4	95.0%	5.0%	0.0%	0.0%	123.9
9-D.1	38.6	95.0%	5.0%	0.0%	0.0%	37.1
6-D.1	28.9	95.0%	5.0%	0.0%	0.0%	34.4
9-D.2	6.2	95.0%	5.0%	0.0%	0.0%	7.6
6-D.2	36.7	95.0%	5.0%	0.0%	0.0%	45.3
6-D.3	11.7	95.0%	5.0%	0.0%	0.0%	14.4
6-D.4	10.1	0.0%	29.0%	29.0%	42.0%	30.6
6-D.5	4.8	0.0%	34.0%	34.0%	32.0%	13.7
6-D.6	4.1	100.0%	0.0%	0.0%	0.0%	5.0
6-D.7	3.4	0.0%	31.0%	30.0%	39.0%	10.0
6-D.8	6.9	0.0%	30.0%	29.0%	41.0%	20.7
A-1.1	53.6	95.0%	5.0%	0.0%	0.0%	48.6
A-1.2	7.7	95.0%	5.0%	0.0%	0.0%	9.4
E-1.1	3.9	95.0%	5.0%	0.0%	0.0%	4.8
E-1.2	0.8	95.0%	5.0%	0.0%	0.0%	1.0
E-1.3	52.0	95.0%	5.0%	0.0%	0.0%	64.6
E-1.4	87.0	95.0%	5.0%	0.0%	0.0%	96.0

V. DEVELOPED HYDRAULIC AND HYDROLOGIC CONDITIONS

The “D” drainage basins from the VVDR were subdivided into basins based on which storm drain system they drain toward. Montecito Vistas falls mainly within Basin 6-D.2 from the *Montecito West Units 1 and 2 Drainage Report*. It also includes a small portion of Basins 9-D.2 and A-1.2. Basins 9-D.2 and 6-D.2 are required to convey discharge to the Middle Branch of the Boca Negra Arroyo in the developed condition per the *Montecito West Units 1 and 2 Drainage Report*.

A. OFFSITE FLOWS

Flows from the “D” Basins (OS-D, 15D, 9-D.1, 6-D.1, and 9-D.2) as shown on the Developed Conditions Basin Map drain to the Middle Branch of the Boca Negra Arroyo and SD 1 (250 cfs capacity). Flow from Montecito Vistas will discharge to the Middle Branch of the Boca Negra Arroyo within Basin 6-D.1. Flow from Basin 9-D.2 will be conveyed through

the project site and discharge to the Middle Branch of the Boca Negra Arroyo. Runoff from Basins 6-D.3 and 6-D.4 through 6-D.7 drain toward SD 2 (62 cfs capacity). The proposed development does not impact the flows to SD 2 and therefore, the analysis from the *Montecito West Units 1 and 2 Drainage Report* for SD 2 remains unchanged in this report.

Offsite flows from the “E” Basins as shown on the Developed Conditions Basin Map do not impact the site. The analysis from the *Montecito West Units 1 and 2 Drainage Report* for the “E” Basins remains unchanged in this report. Allowable discharge from Basins E-1.3 and E-1.4 in the developed condition may be limited due to capacity constraints in the Scenic Road storm drain (capacity=94 cfs). An analysis will be required to determine allowable discharge in these three basins at the time of development. This analysis is beyond the scope of the Montecito Vistas drainage plan.

Offsite flows from the “A” Basins (A-1.1 and A-1.2) as shown on the Developed Conditions Basin Map discharge to the Vista Vieja Avenue Right-of-Way south of Montecito Vistas. Vista Vieja Avenue does not have capacity to additional flows from the “A” Basins. Runoff from Basin A-1.1, including Vista Vieja Avenue, will be required to discharge to the Middle Branch of the Boca Negra Arroyo (SD 1). This will require an analysis at the time of development to show how the flows would get to SD1 and the allowable discharge to the Arroyo such that the downstream capacity of SD1 would not be exceeded and that there would be no impact on the storage volume at the Boca Negra Dam. Runoff from Basin A-1.2, not including Vista Vieja Avenue will be required to discharge to SD2. This will require analysis at the time of development of the on-site detention criteria to meet the allowable discharge to SD2.

B. ONSITE FLOWS

Developed flows from Montecito Vistas will be conveyed via the internal street network, collected by the internal storm drain network, which discharges to the Middle Branch of the Boca Negra Arroyo and SD1. Total flow from Basins 6-D.2A through 6-D.2F is 107.8 cfs. The 250 cfs capacity of SD 1 is adequate to accept fully developed flows from Montecito Vistas Units 1-4. These flows are described in **Appendix A**. For reference, see **Exhibit 2** for basin locations and **Exhibit 3** for the storm drain and inlet locations.

Basin 6-D.2A (32.9 cfs) drains to two Type A single grate inlets (Inlets # 11 and 12) at the east end of Vista Bosquejo Road. These inlets intercept 7.0 cfs each, with 18.9 cfs of bypass to the southern sump in Basin 6-D.2E. Basin 6-D.2B (31.4 cfs) drains to four Type A single grate inlets (Inlets #5 through 8) at the east end of Vista Dibujo Road. These inlets

intercept 6.5 cfs each, with 5.4 cfs of by-pass to the northern sump in Basin 6-D.2E. Basin 6-D.2C (10.8 cfs) drains Piedra Dibujo Road. Piedra Dibjuo Road has sufficient capacity to convey the flows to Vista Luces Street and no inlets are required. The flow from Piedra Dibjuo Road is conveyed to the northern sump in Basin 6-D.2E. Basin 6-D.2D (19.4 cfs) drains to two Type A single grate inlets (Inlets #1 and 2) at the east end of Retablo Road. These inlets intercept 5.8 cfs each, with 7.8 cfs of by-pass to the northern sump in Basin 6-D.2E.

The lots in Basin 6-D.2F (8.0 cfs) drain toward the rear of the lots and discharge to a HOA Tract, which has a private drainage system that conveys the flow to the storm drain in Vista Luces Street.

Flow to the Basin 6-D.2E northern sump drain to two Type A single grate inlets (Inlets #3 and 4). These inlets intercept 13.4 cfs each and are in a sump condition. Flow to the Basin 6-D.2E southern sump drain to two Type A single grate inlets (Inlets #9 and 10). These inlets intercept 10.8 cfs each and are in a sump condition. There is no emergency spill way for either the northern or southern sumps, therefore the inlets have been sized to capture two times the 100-year storm event as shown in **Appendix B**.

A summary of the developed offsite and onsite flows is presented in the table below.

**Table 2 – Montecito Vistas Onsite and Offsite Proposed Conditions
Basin Data Table**

100 Year – 6 Hour Storm						
Basin ID	Area (AC.)	LAND TREATMENT				Q(100) (CFS)
		A	B	C	D	
OS-D	152.2	95.0%	5.0%	0.0%	0.0%	174.2
15-D	96.4	68.0%	8.0%	8.0%	16.0%	177.2
9-D.1	38.6	37.0%	16.0%	16.0%	31.0%	68.6
6-D.1	29.4	66.0%	9.0%	9.0%	16.0%	39.2
9-D.2	8.0	30.0%	18.0%	18.0%	34.0%	15.6
6-D.2A	10.9	0.0%	29.5%	29.5%	41.0%	32.9
6-D.2B	10.9	0.0%	29.0%	29.0%	42.0%	31.4
6-D.2C	3.8	0.0%	34.0%	34.0%	32.0%	10.8
6-D.2D	6.9	0.0%	34.5%	34.5%	31.0%	19.4
6-D.2E	1.5	0.0%	30.5%	30.5%	39.0%	4.6
6-D.2F	2.7	0.0%	30.5%	30.5%	39.0%	8.0
6-D.3	11.7	30.0%	18.0%	18.0%	34.0%	29.6
6-D.4	9.1	0.0%	29.0%	29.0%	42.0%	27.6
6-D.5	4.8	0.0%	34.0%	34.0%	32.0%	13.7

6-D.6	4.1	100.0%	0.0%	0.0%	0.0%	5.0
6-D.7	4.1	0.0%	31.0%	30.0%	39.0%	12.3
6-D.8	6.9	0.0%	30.0%	29.0%	41.0%	20.7
A-1.1	53.9	90.0%	5.0%	5.0%	0.0%	51.2
A-1.2	14.1	30.0%	18.0%	18.0%	34.0%	20.4
E-1.1	3.9	30.0%	18.0%	18.0%	34.0%	9.9
E-1.2	0.8	0.0%	29.0%	29.0%	42.0%	2.3
E-1.3	52.0	52.0%	16.0%	16.0%	16.0%	102.3
E-1.4	87.0	60.0%	13.0%	13.0%	14.0%	144.7

C. FIRST FLUSH REQUIREMENTS

This project is required to meet the first flush requirements of the new City Drainage Ordinance. The first flush requirement will be met with on lot ponding and is calculated as 0.34 in. (0.44 in. - 0.1 in. initial abstraction) times the roof area that can drain to the on lot pond (taken as one half the pad area). There are two pad sizes, 45 feet x 85 feet and 50 feet x 85 feet, in this project, with a first flush requirement of 54 and 60 cubic feet, respectively.

First flush will be accommodated by a combination of ponding between the back of curb and sidewalk, supplemented by onsite front yard ponding on each lot. 42 cubic-feet per lot can be stored in the landscape strip between the sidewalk and curb within the Right-of-Way. As a result, a maximum of 18 cubic-feet per lot of ponding (60 cubic-feet required minus 42 cubic-feet) is needed within the lot itself. This on-lot storage can be accomplished by a small bermed pond at the low side of each lot in front of the pad (for lots draining toward the street) and consists of either an 8-inch or 12-inch berm. This on-lot front yard pond will be constructed as part of the landscaping by the building contractor.

For lots within Basins 6-D.2f, backyard ponds will be utilized to capture the first flush as these lots drain toward the rear of the lot. All lots which drain thru the lot backyards have backyard ponding due to the placement of the wall "turn block" 4 inches above finished grade. This provides 74 cubic-feet of storage, while the required first flush storage is 54 cubic-feet and 60 cubic-feet for each of the two lot sizes. Therefore, the first flush storage requirements are met by backyard ponding utilizing an elevated turn block.

VI. MIDDLE BRANCH OF THE BOCA NEGRA ARROYO

The Montecito Vistas storm drain discharges to an open channel at the northeast corner of the development. The open channel conveys the flow to the Middle Branch of the Boca

Negra Arroyo. The design flow rate for the channel is 108 cfs. The channel will be approximately 455 feet in length with an elevation drop of 2.96 feet, with a slope of 0.65%.

Within the project area, there is a significant amount of underlying basalt. Therefore, the design of this channel will utilize this existing basalt to maintain the natural aesthetics of the landscape, as well as to reduce the use of additional materials. The existing basalt will be blasted incrementally to achieve the desired channel shape. Two different channel sections are proposed: a 1:1 sloped trapezoidal channel and a rectangular channel. Both channels will have a minimum width of 15 feet to allow for maintenance vehicle access. Each proposed option accounts for a particular efficiency aspect: flow conveyance (trapezoidal) and ease of construction (rectangular). Typical layouts of these two channel options are shown in sections A and B, see **Appendix D**.

The expected velocity and depth of flow within the channel was determined for the 100-yr. 6-hr. storm in the Hydraflow Express Extension for Autodesk AutoCAD Civil 3D. Since the channel shape will be blasted out of the existing basalt, a Manning's roughness coefficient value of 0.045 was assumed. According to the City of Albuquerque Development Process Manual, Volume II, this value represents grouted riprap or exposed rock.

Using the output from the Manning's calculations and the hydraulic design criteria from the COA DPM, the required freeboard and total channel depth were determined. For rectangular channels with flow depths of greater than 1.0 feet and average flow velocities of less than 35 fps, the required freeboard is 2.0 ft. For trapezoidal channels, freeboard equation (1) from the DPM was selected: $Freeboard(ft) = 1.0 + .025Vd^{1/3}$. Accounting for freeboard, the total depth for the rectangular channel is 4 feet and the trapezoidal channel, 3 feet. A summary of input and output values for the freeboard calculations are listed in **Table 3**.

Table 3 – Freeboard Analysis Summary Table

Channel Shape	Bottom Width	Side Slopes	Channel Slope	n-value	Q Total	Water Depth (1)	Velocity (1)	Required Freeboard	Total Required Depth (2)
	(ft.)	(ft./ft.)			(cfs)	(ft.)	(ft./s)	(ft.)	(ft.)
Rectangular	15	--	0.65%	0.045	108	2.0	3.6	2.0	4.0
Trapezoidal	15	1	0.65%	0.045	108	1.8	3.5	1.1	2.9

The length of this channel is such that it provides adequate outlet scour protection for the discharge from the storm drain. The channel will be designed to tie into the Middle Branch of the Boca Negra Arroyo.

In addition to the design of the subdivision outfall, it was necessary to analyze its effects on the Middle Branch of the Boca Negra Arroyo. The arroyo runs along the northern edge of the subdivision, collects runoff from the outfall, then enters a storm drain approximately 1,400 feet downstream at the west end of the Vista Vieja Subdivision. Due to the downstream constraints, it was crucial to determine whether the Vista Vieja storm drain would still be able to convey the peak flow from the Middle Branch of the Boca Negra Arroyo, as well as the additional flow from the Montecito West outfall. The peak flow through the arroyo is 232 cfs and occurs 2 hours after the start of the storm. The peak Montecito Vistas outfall flow is 108 cfs and occurs after 1.5 hours. The peak flow from the outfall will enter the arroyo half an hour earlier than the peak coming down the arroyo. As such, the combined flow in the Boca Negra Arroyo only increases to 238 cfs at a time of 2 hours. Although the outfall flow is significant in comparison to the arroyo peak flow (nearly half), its overall effect will be negligible (less than 3%) because of the time gap between the two peaks.

VII. BOCA NEGRA DETENTION DAM REVIEW

The overall drainage concept for this project is to match existing capacities of two storm drains at the west boundary of the Vista Vieja Subdivision. The northern storm drain (SD 1) accepts flow from the Middle Branch of the Boca Negra Arroyo and has a capacity of 250 cfs. The southern storm drain (SD 2) accepts surface flow from a low point at the west boundary of Montecito Estates Unit 4 and has a capacity of 62 cfs. The Boca Negra Detention Dam Final Analysis Report (FAR) evaluates the fully developed conditions, which are shown in Plate 4 of the FAR. The basins discharging to SD1 and SD2 correspond to FAR basin 83 and 83A, respectively. In the FAR fully developed condition model the 100-year peak discharge from Basins 83 and 83A are 250.4 cfs and 60.3 cfs respectively and the 100-year runoff volume from Basin 83 and 83A are 18.7 acre-feet and 7.53 acre-feet, respectively. Due to constraints SD 2, a portion of Basin 83A was redirected to the Middle Branch of the Boca Negra Arroyo (Basin 83 outfall) as part of the *Montecito West Subdivision Units 1 and 2 Drainage Report*.

The drainage analysis presented in this report results in a 100-year peak discharge and runoff volume at Analysis Point 2 (SD 2) of 236.9 cfs and 20.0 acre-feet, respectively. The 100-year peak discharge and runoff volume at Analysis Point 1 (SD 1), 60.7 cfs and 2.1 acre-feet, respectively, remain unchanged from the *Montecito West Subdivision Units 1 and 2 Drainage Report*. The flows from these two storm drains combine in the Vista Vieja

Subdivision and discharge to the Boca Negra Dam at FAR IP6. The combined peak discharge, 297.6 cfs, and runoff volume, 22.1 acre-feet, are less than the allowed peak discharge, 310.7 cfs, and runoff volume, 26.2 acre-feet, in the FAR fully developed condition. Therefore, the proposed Montecito Vistas development does not have a negative impact on the Boca Negra Dam.

VIII. CONCLUSION

This drainage report updates the drainage concept outlined in the approved *Montecito West Subdivision Units 1 and 2 Drainage Report*, which defined the allowable discharge from lands to the west of the Vista Vieja Subdivision. This plan reanalyzes the Montecito West Units 1 and 2 Drainage Analysis based on the proposed development, maintaining the plan for future development of land to the west of Montecito West. The proposed drainage plan for Montecito Vistas can be safely conveyed by the existing and proposed improvements in this drainage plan. Erosion and dust control, consisting of erosion control berms, silt fencing and sedimentation basins, are proposed to mitigate soil washing or blowing into paved streets, storm drains, and existing developed areas. This drainage plan maintains the overall drainage pattern of the area and allows for the safe management of storm runoff in the fully developed condition as well as interim conditions.

APPENDICES

**APPENDIX A: EXISTING CONDITIONS AHYMO
SUMMARY, OUTPUT, AND INPUT
FILES**

**APPENDIX B: DEVELOPED CONDITIONS AHYMO
SUMMARY, OUTPUT, AND INPUT
FILES**

**APPENDIX C: STREET HYDRAULICS AND
STORM DRAIN INLET ANALYSIS**

**APPENDIX D: OPEN CHANNEL OUTFALL
ALTERNATIVE SECTIONS**

**APPENDIX A -
EXISTING CONDITIONS AHYMO SUMMARY,
OUTPUT, AND INPUT FILES**

```

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) EXISTING
*S 100 YEAR - 6 HOUR STORM
*S
* REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
*
*
*CONVERT TO NMHYMO
START TIME=0.0 HR PUNCH CODE=0
*****
LOCATION NM
*
*****
*
*****
*100 YEAR - 6 HOUR
RAINFALL TYPE=1 RAIN QUARTER=0
RAIN ONE=1.72 IN RAIN SIX=2.21 IN
RAIN DAY=2.58 IN DT=0.033333 HRS

*S
*S *****
*S * COMPUTE OFFSITE "D" BASINS *
*S *****
*S
*S
*S
*S COMPUTE BASIN OS-D *****
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0750 K=0.7
LENGTH=700 FT SLOPE=0.04286 K=2.0
LENGTH=2900 FT SLOPE=0.03793 K=3.0

COMPUTE NM HYD ID=17 HYD=OS_D AREA=0.2378 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=17 CODE=1
*
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****
*
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

ROUTE MCUNGE ID=50 HYD=100.01 INFLOW ID=17 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0
PRINT HYD ID=50 CODE=1
*
*S COMPUTE BASIN 15-D *****
*S
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.050 K=0.7
LENGTH=500 FT SLOPE=0.020 K=2.0
LENGTH=1200 FT SLOPE=0.02167 K=3.0

COMPUTE NM HYD ID=15 HYD=15_D AREA=0.1506 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=15 CODE=1
*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
ADD HYD ID=33 HYD NO=101.0 ID I=15 ID II=50
PRINT HYD ID=33 CODE=1
*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
*

```

```

COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.038  FP SLOPE=0.038
                      N=0.038  DIST=32.0
                      DIST  ELEV      DIST  ELEV
                        0.0      5.0      6.0      0.0
                        26.0     0.0     32.0     5.0

ROUTE MCUNGE          ID=40  HYD=100.01  INFLOW ID=33  DT=0HR  L=4900
                      NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=40  CODE=1
*
*S COMPUTE BASIN 9-D.1 *****
*
COMPUTE LT TP         LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=3  ISLOPE=-1
                      LENGTH=400 FT  SLOPE=0.0084  K=0.7
                      LENGTH=0 FT  SLOPE=0.0  K=2.0
                      LENGTH=1600 FT  SLOPE=0.0250  K=3.0

COMPUTE NM HYD        ID=9  HYD=9_D.1  AREA=0.0603  SQ MI
                      PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                      TP=0.0 HR  MASS RAIN=-1
PRINT HYD             ID=9  CODE=1
*
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
ADD HYD               ID=44  HYD NO=104.0  ID I=40  ID II=9
PRINT HYD             ID=44  CODE=1
*
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.038  FP SLOPE=0.038
                      N=0.038  DIST=32.0
                      DIST  ELEV      DIST  ELEV
                        0.0      5.0      6.0      0.0
                        26.0     0.0     32.0     5.0

ROUTE MCUNGE          ID=30  HYD=104.1  INFLOW ID=44  DT=0HR  L=4900
                      NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=30  CODE=1
*
*S COMPUTE BASIN 6-D.1 *****
*
COMPUTE LT TP         LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=3  ISLOPE=-1
                      LENGTH=400 FT  SLOPE=0.05  K=0.7
                      LENGTH=0 FT  SLOPE=0.0084  K=2.0
                      LENGTH=2800 FT  SLOPE=0.03286  K=3.0

COMPUTE NM HYD        ID=6  HYD=6_D.1  AREA=0.0459  SQ MI
                      PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                      TP=0.0 HR  MASS RAIN=-1
PRINT HYD             ID=6  CODE=1
*S
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
*S

ADD HYD               ID=55  HYD NO=AP_OFF  ID I=30  ID II=6
PRINT HYD             ID=55  CODE=1
*
*S COMPUTE BASIN 9-D.2 *****
*
COMPUTE LT TP         LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=1  ISLOPE=0
                      LENGTH=1800 FT  SLOPE=0.0372  K=3.0
                      Kn=.021  CR=.5

COMPUTE NM HYD        ID=5  HYD=9_D.2  AREA=0.00967  SQ MI

```

```

                PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
                TP=0.0 HR MASS RAIN=-1
PRINT HYD      ID=5      CODE=20
*
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
*
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.0433 FP SLOPE=0.0433
N=0.038 DIST=32.0
DIST ELEV      DIST ELEV
  0.0    5.0    6.0    0.0
 26.0    0.0   32.0    5.0

ROUTE MCUNGE   ID=6 HYD=100.01 INFLOW ID=5 DT=0HR L=1200
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0
PRINT HYD      ID=6      CODE=1
*
*S COMPUTE BASIN 6-D.2*****
*
COMPUTE LT TP   LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=1200 FT SLOPE=0.0433 K=3.0
Kn=.021 CR=.5

COMPUTE NM HYD   ID=7 HYD=6 D.2 AREA=0.057362 SQ MI
                PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
                TP=0.0 HR MASS RAIN=-1
PRINT HYD      ID=7      CODE=20
*
*S ADD ROUTE 9D.2 TO 6D.2 TO GET 6_9D.2 *****
ADD HYD         ID=8 HYD NO=6_9D.2 ID I=6 ID II=7
PRINT HYD      ID=8      CODE=1
*
*S COMPUTE BASIN 6-D.3*****
*
COMPUTE LT TP   LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=600 FT SLOPE=0.0433 K=3.0
Kn=.021 CR=.5

COMPUTE NM HYD   ID=9 HYD=6 D.3 AREA=0.018277 SQ MI
                PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
                TP=0.0 HR MASS RAIN=-1
PRINT HYD      ID=9      CODE=20
*
*S
*S
*S
*S
*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S
*S COMPUTE BASIN A-1.1 *****
*

COMPUTE LT TP   LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0340 K=0.7
LENGTH=1600 FT SLOPE=0.0361 K=2.0
LENGTH=2800 FT SLOPE=0.0346 K=3.0

COMPUTE NM HYD   ID=60 HYD=A_1.1 AREA=0.08421 SQ MI
                PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
                TP=0.0 HR MASS RAIN=-1
PRINT HYD      ID=60     CODE=20
*
*S COMPUTE BASIN A-1.2 *****
*

COMPUTE LT TP   LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0

```

```

LENGTH=3200 FT  SLOPE=0.0325 K=3.0
Kn=.021  CR=.5

COMPUTE NM HYD      ID=65 HYD=A_1.2  AREA=0.01196 SQ MI
                    PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=65      CODE=20
*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD             ID=66  HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD           ID=66  CODE=1
*
*S
*S
*S      *****
*S      * COMPUTE OFFSITE "E" BASINS *
*S      *****
*S
*S
*S COMPUTE BASIN E-1.1 *****
*
COMPUTE NM HYD      ID=21 HYD=1 E.1  AREA=0.006128  PER A=95.0 PER B=5.0
                    PER C=0.0  PER D=0.0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=21  CODE=1
*
*S COMPUTE BASIN E-1.3 *****
*

COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=3800 FT  SLOPE=0.0325 K=3.0
                    Kn=.021  CR=.5

COMPUTE NM HYD      ID=70 HYD=E_1.3  AREA=0.08120 SQ MI
                    PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=70      CODE=20
*
*S COMPUTE BASIN E-1.4 *****
*

COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=5200 FT  SLOPE=0.0325 K=3.0
                    Kn=.021  CR=.5

COMPUTE NM HYD      ID=75 HYD=E_1.4  AREA=0.13593 SQ MI
                    PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=75      CODE=20
*
*S
*S
*S      *****
*S      *COMPUTE ONSITE BASINS*
*S      *****
*S
*S
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD      ID=2  HYD=6_D.4  AREA=0.015778  PER A=95.0 PER B=5.0
                    PER C=0.0  PER D=0.0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=2  CODE=1
*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD      ID=3  HYD=6_D.5  AREA=0.007522  PER A=95.0 PER B=5.0
                    PER C=0.0  PER D=0.0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=3  CODE=1
*
*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD      ID=4  HYD=6_D.6  AREA=0.006441  PER A=100 PER B=0
                    PER C=0  PER D=0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=4  CODE=1
*

```

```

*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD      ID=1 HYD=6_D.7 AREA=0.005236 PER A=95.0 PER B=5.0
                    PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD      ID=20 HYD=6_D.8 AREA=0.010762 PER A=95.0 PER B=0.0
                    PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=20 CODE=1
*
*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD      ID=22 HYD=1_E.2 AREA=0.001177 PER A=95.0 PER B=5.0
                    PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=22 CODE=1
*
*S ADD 6_D.4 TO 6_D.7 *****
ADD HYD             ID=11 HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD           ID=11 CODE=1
*
*S ADD 6_D.5 TO 6_D.6 *****
ADD HYD             ID=12 HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD           ID=12 CODE=1
*
*S ADD 6_D.4_7 TO 6_D.5_6 TO GET PROJECT SITE DISCHARGE TO AP_1*****
ADD HYD             ID=25 HYD NO=6D.5_6 ID I=11 ID II=12
PRINT HYD           ID=25 CODE=1
*

*S
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*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD 6D.8 TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD             ID=24 HYD NO=AP_2 ID I=55 ID II=20
PRINT HYD           ID=24 CODE=1
*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S ADD 6D.3 TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD             ID=14 HYD NO=AP_1 ID I=25 ID II=9
PRINT HYD           ID=14 CODE=1
*
*S ANALYSIS POINT 3, DISCHARGE FROM VILLA REAL RD TO SCENIC RD STORM DRAIN *
*
*S ADD E_1.1 TO E_1.2 TO GET AP_3
*
ADD HYD             ID=23 HYD NO=AP_3 ID I=21 ID II=22
PRINT HYD           ID=23 CODE=1
*S
FINISH

```

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.075000	.7000
SHALLOW FLOW PORTION	700.0	.042860	2.0000
CHANNEL FLOW PORTION	2900.0	.037930	3.0000
TOTAL BASIN	4000.0	.042500	2.2199

DEPTH	AREA	Q	TRAVEL	WIDTH	ck	VEL	C	D	C1	C2	C3	Q-M	C1-M	C2-M	C3-M
(FT)	(SQ FT)	(CFS)	TIME(HR)	(FT)	(FPS)	(FPS)						(CFS)			
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	6.59	4.04	1.451	.012	.991	.188	-.179	20.5	.992	.098	-.090
.60	12.4	65.0	.260	21.4	8.44	5.23	1.860	.017	.988	.305	-.293	48.0	.989	.253	-.242
.80	16.8	105.1	.217	21.9	10.01	6.27	2.206	.023	.986	.381	-.366	84.1	.987	.346	-.332
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.510	.029	.984	.435	-.418	127.9	.985	.409	-.394
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.781	.035	.982	.476	-.458	178.9	.983	.456	-.439
1.40	30.4	267.8	.154	23.4	13.73	8.82	3.027	.040	.980	.508	-.488	236.6	.981	.493	-.474
1.60	35.1	335.1	.142	23.8	14.76	9.55	3.253	.046	.979	.535	-.513	300.7	.979	.522	-.501
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.462	.052	.977	.557	-.534	371.1	.978	.546	-.524
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.657	.057	.976	.576	-.551	447.4	.976	.567	-.543
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.840	.063	.974	.592	-.566	529.7	.975	.584	-.559
2.40	54.9	663.8	.113	25.8	18.20	12.09	4.012	.068	.973	.606	-.579	617.8	.974	.599	-.573
2.60	60.1	760.4	.108	26.2	18.94	12.65	4.175	.074	.972	.619	-.591	711.5	.972	.613	-.585
2.80	65.4	862.5	.103	26.7	19.65	13.19	4.330	.079	.971	.630	-.601	810.9	.971	.625	-.596
3.00	70.8	970.3	.099	27.2	20.32	13.70	4.478	.085	.969	.640	-.610	915.8	.970	.635	-.605
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 5 TIMES. AVERAGE NUMBER ITERATIONS = 1.0847

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	4.61	4.04	1.017	.017	.984	.016	.000	20.5	.990	.010	.000
.60	12.4	65.0	.260	21.4	4.68	5.23	1.031	.031	.970	.030	.000	48.0	.977	.023	.000
.80	16.8	105.1	.217	21.9	4.76	6.27	1.049	.049	.954	.046	.000	84.1	.962	.038	.000
1.00	21.2	152.5	.189	22.4	4.85	7.19	1.068	.068	.936	.064	.000	127.9	.945	.055	.000
1.20	25.7	206.9	.169	22.9	4.94	8.04	1.088	.088	.919	.081	.000	178.9	.928	.072	.000
1.40	30.4	267.8	.154	23.4	5.04	8.82	1.110	.110	.901	.099	.000	236.6	.910	.090	.000
1.60	35.1	335.1	.142	23.8	5.14	9.55	1.132	.132	.883	.117	.000	300.7	.892	.108	.000
1.80	39.9	408.4	.133	24.3	5.24	10.24	1.155	.155	.866	.134	.000	371.1	.874	.126	.000
2.00	44.8	487.7	.125	24.8	5.34	10.89	1.178	.178	.849	.151	.000	447.4	.857	.143	.000
2.20	49.8	572.9	.118	25.3	5.45	11.50	1.201	.201	.833	.167	.000	529.7	.841	.159	.000
2.40	54.9	663.8	.113	25.8	5.55	12.09	1.224	.224	.817	.183	.000	617.8	.825	.175	.000
2.60	60.1	760.4	.108	26.2	5.66	12.65	1.247	.247	.802	.198	.000	711.5	.809	.191	.000
2.80	65.4	862.5	.103	26.7	5.77	13.19	1.271	.271	.787	.213	.000	810.9	.794	.206	.000
3.00	70.8	970.3	.099	27.2	5.87	13.70	1.294	.294	.773	.227	.000	915.8	.780	.220	.000
3.20	76.3	1083.5	.096	27.7	5.97	14.20	1.317	.317	.759	.241	.000	1026.3	.766	.234	.000
3.40	81.9	1202.3	.093	28.2	6.08	14.68	1.340	.340	.747	.253	.000	1142.4	.753	.247	.000
3.60	87.6	1326.5	.090	28.6	6.18	15.15	1.362	.362	.734	.266	.000	1263.8	.740	.260	.000
3.80	93.3	1456.2	.087	29.1	6.28	15.60	1.385	.385	.722	.278	.000	1390.8	.728	.272	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 32 TIMES. AVERAGE NUMBER ITERATIONS = 1.0610

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=50 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41646 INCHES = 5.2818 ACRE-FEET
 PEAK DISCHARGE RATE = 170.91 CFS AT 1.833 HOURS BASIN AREA = .2378 SQ. MI.

*
 *S COMPUTE BASIN 15-D *****
 *S
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.050 K=0.7
 LENGTH=500 FT SLOPE=0.020 K=2.0
 LENGTH=1200 FT SLOPE=0.02167 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	500.0	.020000	2.0000
CHANNEL FLOW PORTION	1200.0	.021670	3.0000
TOTAL BASIN	2100.0	.026669	1.8265

TIME OF CONCENTRATION (HRS)= .1956 TIME TO PEAK (HRS)= .1304 LAG TIME (HRS)= .1467

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
 REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=15 HYD=15_D AREA=0.1506 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1
 TIME TO PEAK (hrs)= .1333
 K = .156112HR TP = .133333HR K/TP RATIO = 1.170843 SHAPE CONSTANT, N = 3.029245
 UNIT PEAK = 321.00 CFS UNIT VOLUME = .9998 B = 284.20 P60 = 1.7200
 AREA = .150600 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA 15_D

RUNOFF VOLUME = .41961 INCHES = 3.3703 ACRE-FEET
 PEAK DISCHARGE RATE = 123.91 CFS AT 1.500 HOURS BASIN AREA = .1506 SQ. MI.

*
 *S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
 ADD HYD ID=33 HYD NO=101.0 ID I=15 ID II=50
 PRINT HYD ID=33 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = .41768 INCHES = 8.6520 ACRE-FEET
 PEAK DISCHARGE RATE = 193.73 CFS AT 1.800 HOURS BASIN AREA = .3884 SQ. MI.

*
 *S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
 *
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.038 FP SLOPE=0.038
 N=0.038 DIST=32.0
 DIST ELEV DIST ELEV
 0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=40 HYD=100.01 INFLOW ID=33 DT=0HR L=4900
 NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 209 TABLE PTS= 20
 DT= .033333 QMED= 96.87 CKMED= 9.2361
 WIDTH MED= 21.82 NREACH= 9 DX= 544.44

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	6.59	4.04	1.451	.012	.991	.188	-.179	20.5	.992	.098	-.090
.60	12.4	65.0	.260	21.4	8.44	5.23	1.860	.017	.988	.305	-.293	48.0	.989	.253	-.242
.80	16.8	105.1	.217	21.9	10.01	6.27	2.206	.023	.986	.381	-.366	84.1	.987	.346	-.332
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.510	.029	.984	.435	-.418	127.9	.985	.409	-.394
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.781	.035	.982	.476	-.458	178.9	.983	.456	-.439
1.40	30.4	267.8	.154	23.4	13.73	8.82	3.027	.040	.980	.508	-.488	236.6	.981	.493	-.474
1.60	35.1	335.1	.142	23.8	14.76	9.55	3.253	.046	.979	.535	-.513	300.7	.979	.522	-.501
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.462	.052	.977	.557	-.534	371.1	.978	.546	-.524
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.657	.057	.976	.576	-.551	447.4	.976	.567	-.543
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.840	.063	.974	.592	-.566	529.7	.975	.584	-.559
2.40	54.9	663.8	.113	25.8	18.20	12.09	4.012	.068	.973	.606	-.579	617.8	.974	.599	-.573
2.60	60.1	760.4	.108	26.2	18.94	12.65	4.175	.074	.972	.619	-.591	711.5	.972	.613	-.585
2.80	65.4	862.5	.103	26.7	19.65	13.19	4.330	.079	.971	.630	-.601	810.9	.971	.625	-.596
3.00	70.8	970.3	.099	27.2	20.32	13.70	4.478	.085	.969	.640	-.610	915.8	.970	.635	-.605
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635
MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 6 TIMES. AVERAGE NUMBER ITERATIONS = 1.1254															
DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	4.61	4.04	1.017	.017	.984	.016	.000	20.5	.990	.010	.000
.60	12.4	65.0	.260	21.4	4.68	5.23	1.031	.031	.970	.030	.000	48.0	.977	.023	.000
.80	16.8	105.1	.217	21.9	4.76	6.27	1.049	.049	.954	.046	.000	84.1	.962	.038	.000
1.00	21.2	152.5	.189	22.4	4.85	7.19	1.068	.068	.936	.064	.000	127.9	.945	.055	.000
1.20	25.7	206.9	.169	22.9	4.94	8.04	1.088	.088	.919	.081	.000	178.9	.928	.072	.000
1.40	30.4	267.8	.154	23.4	5.04	8.82	1.110	.110	.901	.099	.000	236.6	.910	.090	.000
1.60	35.1	335.1	.142	23.8	5.14	9.55	1.132	.132	.883	.117	.000	300.7	.892	.108	.000
1.80	39.9	408.4	.133	24.3	5.24	10.24	1.155	.155	.866	.134	.000	371.1	.874	.126	.000
2.00	44.8	487.7	.125	24.8	5.34	10.89	1.178	.178	.849	.151	.000	447.4	.857	.143	.000
2.20	49.8	572.9	.118	25.3	5.45	11.50	1.201	.201	.833	.167	.000	529.7	.841	.159	.000

2.40	54.9	663.8	.113	25.8	5.55	12.09	1.224	.224	.817	.183	.000	617.8	.825	.175	.000
2.60	60.1	760.4	.108	26.2	5.66	12.65	1.247	.247	.802	.198	.000	711.5	.809	.191	.000
2.80	65.4	862.5	.103	26.7	5.77	13.19	1.271	.271	.787	.213	.000	810.9	.794	.206	.000
3.00	70.8	970.3	.099	27.2	5.87	13.70	1.294	.294	.773	.227	.000	915.8	.780	.220	.000
3.20	76.3	1083.5	.096	27.7	5.97	14.20	1.317	.317	.759	.241	.000	1026.3	.766	.234	.000
3.40	81.9	1202.3	.093	28.2	6.08	14.68	1.340	.340	.747	.253	.000	1142.4	.753	.247	.000
3.60	87.6	1326.5	.090	28.6	6.18	15.15	1.362	.362	.734	.266	.000	1263.8	.740	.260	.000
3.80	93.3	1456.2	.087	29.1	6.28	15.60	1.385	.385	.722	.278	.000	1390.8	.728	.272	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KMAX) = 3 OCCURRED 51 TIMES. AVERAGE NUMBER ITERATIONS = 1.0922
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=40 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41549 INCHES = 8.6067 ACRE-FEET
 PEAK DISCHARGE RATE = 191.16 CFS AT 2.100 HOURS BASIN AREA = .3884 SQ. MI.

*
 *S COMPUTE BASIN 9-D.1 *****
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.0084 K=0.7
 LENGTH=0 FT SLOPE=0.0 K=2.0
 LENGTH=1600 FT SLOPE=0.0250 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.008400	.7000
SHALLOW FLOW PORTION	.0	.010000	2.0000
CHANNEL FLOW PORTION	1600.0	.025000	3.0000
TOTAL BASIN	2000.0	.021680	1.4138

TIME OF CONCENTRATION (HRS)= .2669 TIME TO PEAK (HRS)= .1779 LAG TIME (HRS)= .2002

COMPUTE NM HYD ID=9 HYD=9 D.1 AREA=0.0603 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1779

K = .221270HR TP = .177925HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
 UNIT PEAK = 91.767 CFS UNIT VOLUME = .9997 B = 270.77 P60 = 1.7200
 AREA = .060300 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA 9_D.1

RUNOFF VOLUME = .41961 INCHES = 1.3494 ACRE-FEET
 PEAK DISCHARGE RATE = 37.07 CFS AT 1.567 HOURS BASIN AREA = .0603 SQ. MI.

*
 *S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
 ADD HYD ID=44 HYD NO=104.0 ID I=40 ID II=9
 PRINT HYD ID=44 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = .41604 INCHES = 9.9561 ACRE-FEET
 PEAK DISCHARGE RATE = 195.43 CFS AT 2.100 HOURS BASIN AREA = .4487 SQ. MI.

*
 *S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
 *
 COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.038 FP SLOPE=0.038
 N=0.038 DIST=32.0

DIST	ELEV	DIST	ELEV
0.0	5.0	6.0	0.0
26.0	0.0	32.0	5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=30 HYD=104.1 INFLOW ID=44 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 218 TABLE PTS= 20
DT= .033333 QMED= 97.72 CKMED= 9.2361
WIDTH MED= 21.83 NREACH= 9 DX= 544.44

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	6.59	4.04	1.451	.012	.991	.188	-.179	20.5	.992	.098	-.090
.60	12.4	65.0	.260	21.4	8.44	5.23	1.860	.017	.988	.305	-.293	48.0	.989	.253	-.242
.80	16.8	105.1	.217	21.9	10.01	6.27	2.206	.023	.986	.381	-.366	84.1	.987	.346	-.332
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.510	.029	.984	.435	-.418	127.9	.985	.409	-.394
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.781	.035	.982	.476	-.458	178.9	.983	.456	-.439
1.40	30.4	267.8	.154	23.4	13.73	8.82	3.027	.040	.980	.508	-.488	236.6	.981	.493	-.474
1.60	35.1	335.1	.142	23.8	14.76	9.55	3.253	.046	.979	.535	-.513	300.7	.979	.522	-.501
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.462	.052	.977	.557	-.534	371.1	.978	.546	-.524
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.657	.057	.976	.576	-.551	447.4	.976	.567	-.543
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.840	.063	.974	.592	-.566	529.7	.975	.584	-.559
2.40	54.9	663.8	.113	25.8	18.20	12.09	4.012	.068	.973	.606	-.579	617.8	.974	.599	-.573
2.60	60.1	760.4	.108	26.2	18.94	12.65	4.175	.074	.972	.619	-.591	711.5	.972	.613	-.585
2.80	65.4	862.5	.103	26.7	19.65	13.19	4.330	.079	.971	.630	-.601	810.9	.971	.625	-.596
3.00	70.8	970.3	.099	27.2	20.32	13.70	4.478	.085	.969	.640	-.610	915.8	.970	.635	-.605
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 19 TIMES. AVERAGE NUMBER ITERATIONS = 1.1491

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	4.61	4.04	1.017	.017	.984	.016	.000	20.5	.990	.010	.000
.60	12.4	65.0	.260	21.4	4.68	5.23	1.031	.031	.970	.030	.000	48.0	.977	.023	.000
.80	16.8	105.1	.217	21.9	4.76	6.27	1.049	.049	.954	.046	.000	84.1	.962	.038	.000
1.00	21.2	152.5	.189	22.4	4.85	7.19	1.068	.068	.936	.064	.000	127.9	.945	.055	.000
1.20	25.7	206.9	.169	22.9	4.94	8.04	1.088	.088	.919	.081	.000	178.9	.928	.072	.000
1.40	30.4	267.8	.154	23.4	5.04	8.82	1.110	.110	.901	.099	.000	236.6	.910	.090	.000
1.60	35.1	335.1	.142	23.8	5.14	9.55	1.132	.132	.883	.117	.000	300.7	.892	.108	.000
1.80	39.9	408.4	.133	24.3	5.24	10.24	1.155	.155	.866	.134	.000	371.1	.874	.126	.000
2.00	44.8	487.7	.125	24.8	5.34	10.89	1.178	.178	.849	.151	.000	447.4	.857	.143	.000
2.20	49.8	572.9	.118	25.3	5.45	11.50	1.201	.201	.833	.167	.000	529.7	.841	.159	.000
2.40	54.9	663.8	.113	25.8	5.55	12.09	1.224	.224	.817	.183	.000	617.8	.825	.175	.000
2.60	60.1	760.4	.108	26.2	5.66	12.65	1.247	.247	.802	.198	.000	711.5	.809	.191	.000
2.80	65.4	862.5	.103	26.7	5.77	13.19	1.271	.271	.787	.213	.000	810.9	.794	.206	.000
3.00	70.8	970.3	.099	27.2	5.87	13.70	1.294	.294	.773	.227	.000	915.8	.780	.220	.000
3.20	76.3	1083.5	.096	27.7	5.97	14.20	1.317	.317	.759	.241	.000	1026.3	.766	.234	.000
3.40	81.9	1202.3	.093	28.2	6.08	14.68	1.340	.340	.747	.253	.000	1142.4	.753	.247	.000
3.60	87.6	1326.5	.090	28.6	6.18	15.15	1.362	.362	.734	.266	.000	1263.8	.740	.260	.000
3.80	93.3	1456.2	.087	29.1	6.28	15.60	1.385	.385	.722	.278	.000	1390.8	.728	.272	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 34 TIMES. AVERAGE NUMBER ITERATIONS = 1.1057

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=30 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = .41446 INCHES = 9.9182 ACRE-FEET
PEAK DISCHARGE RATE = 190.86 CFS AT 2.367 HOURS BASIN AREA = .4487 SQ. MI.

*S COMPUTE BASIN 6-D.1 *****

*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.05 K=0.7
LENGTH=0 FT SLOPE=0.0084 K=2.0
LENGTH=2800 FT SLOPE=0.03286 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	2800.0	.032860	3.0000
TOTAL BASIN	3200.0	.035003	2.2201

TIME OF CONCENTRATION (HRS)= .2140 TIME TO PEAK (HRS)= .1427 LAG TIME (HRS)= .1605

COMPUTE NM HYD ID=6 HYD=6 D.1 AREA=0.0459 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1427

K = .177428HR TP = .142672HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 87.113 CFS UNIT VOLUME = .9994 B = 270.77 P60 = 1.7200
AREA = .045900 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA 6_D.1

RUNOFF VOLUME = .41961 INCHES = 1.0272 ACRE-FEET
PEAK DISCHARGE RATE = 34.45 CFS AT 1.533 HOURS BASIN AREA = .0459 SQ. MI.

*S

*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****

*S

ADD HYD ID=55 HYD NO=AP_OFF ID I=30 ID II=6
PRINT HYD ID=55 CODE=1

HYDROGRAPH FROM AREA AP_OFF

RUNOFF VOLUME = .41493 INCHES = 10.9453 ACRE-FEET
PEAK DISCHARGE RATE = 192.56 CFS AT 2.367 HOURS BASIN AREA = .4946 SQ. MI.

*

*S COMPUTE BASIN 9-D.2 *****

*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=1800 FT SLOPE=0.0372 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	1800.0	.037200	3.0000
TOTAL BASIN	1800.0	.037200	3.0000

TIME OF CONCENTRATION (HRS)= .0864 TIME TO PEAK (HRS)= .0576 LAG TIME (HRS)= .0648

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.

REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=5 HYD=9 D.2 AREA=0.00967 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 19.638 CFS UNIT VOLUME = .9988 B = 270.77 P60 = 1.7200
AREA = .009670 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=20

HYDROGRAPH FROM AREA 9_D.2

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.333	.0	2.667	.2	4.000	.0		
.667	.0	2.000	.7	3.333	.0				

RUNOFF VOLUME = .41961 INCHES = .2164 ACRE-FEET
PEAK DISCHARGE RATE = 7.63 CFS AT 1.533 HOURS BASIN AREA = .0097 SQ. MI.

*
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
*

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.0433 FP SLOPE=0.0433
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER	FLOW	FLOW	TOP
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	20.00
.20	4.05	11.12	20.48
.40	8.19	35.31	20.96
.60	12.43	69.41	21.44
.80	16.77	112.16	21.92
1.00	21.20	162.80	22.40
1.20	25.73	220.83	22.88
1.40	30.35	285.88	23.36
1.60	35.07	357.66	23.84
1.80	39.89	435.97	24.32
2.00	44.80	520.65	24.80
2.20	49.81	611.55	25.28
2.40	54.91	708.59	25.76
2.60	60.11	811.67	26.24
2.80	65.41	920.73	26.72
3.00	70.80	1035.72	27.20
3.20	76.29	1156.61	27.68
3.40	81.87	1283.37	28.16
3.60	87.55	1415.97	28.64
3.80	93.33	1554.41	29.12

ROUTE MCUNGE ID=6 HYD=100.01 INFLOW ID=5 DT=0HR L=1200
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 139 TABLE PTS= 20
DT= .033333 QMED= 3.82 CKMED= 2.7482
WIDTH MED= 20.16 NREACH= 8 DX= 150.00

DEPTH	AREA	Q	TRAVEL	WIDTH	ck	VEL	C	D	C1	C2	C3	Q-M	C1-M	C2-M	C3-M
(FT)	(SQ FT)	(CFS)	TIME(HR)	(FT)	(FPS)	(FPS)						(CFS)			
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	4.53	2.75	3.622	.021	.991	.569	-.560	3.5	.994	.397	-.391
.40	8.2	35.3	.077	21.0	7.03	4.31	5.624	.042	.987	.700	-.687	21.9	.989	.650	-.639
.60	12.4	69.4	.060	21.4	9.01	5.58	7.206	.063	.985	.758	-.743	51.2	.986	.733	-.719
.80	16.8	112.2	.050	21.9	10.68	6.69	8.548	.084	.983	.792	-.775	89.8	.984	.777	-.760
1.00	21.2	162.8	.043	22.4	12.15	7.68	9.723	.105	.981	.815	-.796	136.6	.982	.805	-.786
1.20	25.7	220.8	.039	22.9	13.47	8.58	10.775	.126	.979	.832	-.811	191.0	.980	.824	-.804
1.40	30.4	285.9	.035	23.4	14.66	9.42	11.729	.146	.977	.845	-.822	252.6	.978	.839	-.817
1.60	35.1	357.7	.033	23.8	15.76	10.20	12.604	.167	.976	.855	-.831	321.0	.976	.850	-.826
1.80	39.9	436.0	.030	24.3	16.77	10.93	13.414	.188	.974	.863	-.837	396.1	.975	.859	-.834
2.00	44.8	520.6	.029	24.8	17.71	11.62	14.169	.208	.973	.870	-.843	477.6	.974	.867	-.840
2.20	49.8	611.6	.027	25.3	18.60	12.28	14.877	.228	.972	.876	-.847	565.4	.972	.873	-.845
2.40	54.9	708.6	.026	25.8	19.43	12.90	15.544	.248	.970	.881	-.851	659.4	.971	.878	-.849
2.60	60.1	811.7	.025	26.2	20.22	13.50	16.176	.268	.969	.885	-.855	759.5	.970	.883	-.853
2.80	65.4	920.7	.024	26.7	20.97	14.08	16.777	.288	.968	.889	-.857	865.6	.969	.887	-.856
3.00	70.8	1035.7	.023	27.2	21.69	14.63	17.350	.308	.967	.893	-.860	977.6	.968	.891	-.859
3.20	76.3	1156.6	.022	27.7	22.37	15.16	17.899	.328	.966	.896	-.862	1095.6	.966	.894	-.861
3.40	81.9	1283.4	.021	28.2	23.03	15.68	18.425	.347	.965	.899	-.864	1219.4	.965	.897	-.863
3.60	87.6	1416.0	.021	28.6	23.67	16.17	18.932	.367	.964	.901	-.865	1349.1	.964	.900	-.865
3.80	93.3	1554.4	.020	29.1	24.14	16.66	19.313	.388	.963	.903	-.866	1484.6	.963	.903	-.866

MAXIMUM NO. ITERATIONS FOR SOLUTION (KMAX) = 4 OCCURRED 5 TIMES. AVERAGE NUMBER ITERATIONS = 1.0447

DEPTH	AREA	Q	TRAVEL	WIDTH	ck	VEL	C	D	C1	C2	C3	Q-M	C1-M	C2-M	C3-M
(FT)	(SQ FT)	(CFS)	TIME(HR)	(FT)	(FPS)	(FPS)						(CFS)			

.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	1.34	2.75	1.071	.071	.934	.066	.000	3.5	.977	.023	.000
.40	8.2	35.3	.077	21.0	1.50	4.31	1.197	.197	.835	.165	.000	21.9	.884	.116	.000
.60	12.4	69.4	.060	21.4	1.67	5.58	1.339	.339	.747	.253	.000	51.2	.789	.211	.000
.80	16.8	112.2	.050	21.9	1.85	6.69	1.484	.484	.674	.326	.000	89.8	.708	.292	.000
1.00	21.2	162.8	.043	22.4	2.03	7.68	1.627	.627	.615	.385	.000	136.6	.643	.357	.000
1.20	25.7	220.8	.039	22.9	2.21	8.58	1.767	.767	.566	.434	.000	191.0	.589	.411	.000
1.40	30.4	285.9	.035	23.4	2.38	9.42	1.903	.903	.526	.474	.000	252.6	.545	.455	.000
1.60	35.1	357.7	.033	23.8	2.54	10.20	2.035	1.035	.491	.509	.000	321.0	.508	.492	.000
1.80	39.9	436.0	.030	24.3	2.70	10.93	2.163	1.163	.462	.538	.000	396.1	.476	.524	.000
2.00	44.8	520.6	.029	24.8	2.86	11.62	2.288	1.288	.437	.563	.000	477.6	.449	.551	.000
2.20	49.8	611.6	.027	25.3	3.01	12.28	2.409	1.409	.415	.585	.000	565.4	.426	.574	.000
2.40	54.9	708.6	.026	25.8	3.16	12.90	2.527	1.527	.396	.604	.000	659.4	.405	.595	.000
2.60	60.1	811.7	.025	26.2	3.30	13.50	2.643	1.643	.378	.622	.000	759.5	.387	.613	.000
2.80	65.4	920.7	.024	26.7	3.44	14.08	2.755	1.755	.363	.637	.000	865.6	.370	.630	.000
3.00	70.8	1035.7	.023	27.2	3.58	14.63	2.865	1.865	.349	.651	.000	977.6	.356	.644	.000
3.20	76.3	1156.6	.022	27.7	3.72	15.16	2.973	1.973	.336	.664	.000	1095.6	.343	.657	.000
3.40	81.9	1283.4	.021	28.2	3.85	15.68	3.078	2.078	.325	.675	.000	1219.4	.330	.670	.000
3.60	87.6	1416.0	.021	28.6	3.98	16.17	3.181	2.181	.314	.686	.000	1349.1	.319	.681	.000
3.80	93.3	1554.4	.020	29.1	4.10	16.66	3.282	2.282	.305	.695	.000	1484.6	.309	.691	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 2 OCCURRED 158 TIMES. AVERAGE NUMBER ITERATIONS = 1.0353
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41743 INCHES = .2153 ACRE-FEET
 PEAK DISCHARGE RATE = 7.59 CFS AT 1.767 HOURS BASIN AREA = .0097 SQ. MI.

*
 *S COMPUTE BASIN 6-D.2*****
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=1200 FT SLOPE=0.0433 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	ADJUSTED SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	1200.0	.043003	3.0000
TOTAL BASIN	1200.0	.043003	3.0000

TIME OF CONCENTRATION (HRS)= .0536 TIME TO PEAK (HRS)= .0357 LAG TIME (HRS)= .0402

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
 REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=7 HYD=6_D.2 AREA=0.057362 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
 UNIT PEAK = 116.49 CFS UNIT VOLUME = .9994 B = 270.77 P60 = 1.7200
 AREA = .057362 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=7 CODE=20

HYDROGRAPH FROM AREA 6_D.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	1.1	4.000	.1	5.333	.0
.667	.0	2.000	4.2	3.333	.3	4.667	.0		

RUNOFF VOLUME = .41961 INCHES = 1.2837 ACRE-FEET
 PEAK DISCHARGE RATE = 45.25 CFS AT 1.533 HOURS BASIN AREA = .0574 SQ. MI.

*
 *S ADD ROUTE 9D.2 TO 6D.2 TO GET 6_9D.2 *****
 ADD HYD ID=8 HYD NO=6_9D.2 ID I=6 ID II=7
 PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA 6_9D.2

```

RUNOFF VOLUME = .41929 INCHES = 1.4990 ACRE-FEET
PEAK DISCHARGE RATE = 45.25 CFS AT 1.533 HOURS BASIN AREA = .0670 SQ. MI.

*
*S COMPUTE BASIN 6-D.3*****
*
COMPUTE LT TP          LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                        NK=1 ISLOPE=0
                        LENGTH=600 FT SLOPE=0.0433 K=3.0
                        Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                        LENGTH (FT)    ADJUSTED SLOPE (FT/FT) COMPOSITE K
SHEET FLOW PORTION      .0            .000000                .0000
SHALLOW FLOW PORTION   .0            .000000                .0000
CHANNEL FLOW PORTION    600.0         .043003                3.0000
TOTAL BASIN             600.0         .043003                3.0000

TIME OF CONCENTRATION (HRS)= .0268    TIME TO PEAK (HRS)= .0179    LAG TIME (HRS)= .0201

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000    TIME TO PEAK (HRS)= .1333    LAG TIME (HRS)= .1500

COMPUTE NM HYD          ID=9 HYD=6_D.3 AREA=0.018277 SQ MI
                        PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
                        TP=0.0 HR MASS RAIN=-1
TIME TO PEAK (hrs)= .1333

K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 37.117 CFS UNIT VOLUME = .9991 B = 270.77 P60 = 1.7200
AREA = .018277 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD              ID=9 CODE=20

                        HYDROGRAPH FROM AREA 6_D.3

TIME    FLOW    TIME    FLOW    TIME    FLOW    TIME    FLOW    TIME    FLOW
HRS     CFS     HRS     CFS     HRS     CFS     HRS     CFS     HRS     CFS
.000     .0     1.333     .0     2.667     .3     4.000     .0
.667     .0     2.000     1.3     3.333     .1     4.667     .0

RUNOFF VOLUME = .41961 INCHES = .4090 ACRE-FEET
PEAK DISCHARGE RATE = 14.42 CFS AT 1.533 HOURS BASIN AREA = .0183 SQ. MI.

*
*S
*S
*S
*S
*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S COMPUTE BASIN A-1.1 *****
*

COMPUTE LT TP          LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                        NK=3 ISLOPE=-1
                        LENGTH=400 FT SLOPE=0.0340 K=0.7
                        LENGTH=1600 FT SLOPE=0.0361 K=2.0
                        LENGTH=2800 FT SLOPE=0.0346 K=3.0

BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
USE Kn= .0160 AND Lca/L= .50000

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                        LENGTH (FT)    SLOPE (FT/FT)    COMPOSITE K
SHEET FLOW PORTION      400.0         .034000                .7000
SHALLOW FLOW PORTION   1600.0         .036100                2.0000
CHANNEL FLOW PORTION    2800.0         .034600                3.0000
TOTAL BASIN             4800.0         .035050                2.0799

```

LAG EQUATION FACTORS: Kn= .0160 TOTAL BASIN LENGTH (FT)= 4800.0
TOTAL BASIN SLOPE (FT/FT)= .035050 CENTROUD LENGTH (FT)= 2400.0

TIME OF CONCENTRATION (HRS)= .2889 TIME TO PEAK (HRS)= .1926 LAG TIME (HRS)= .2167

COMPUTE NM HYD ID=60 HYD=A 1.1 AREA=0.08421 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1926

K = .236043HR TP = .192581HR K/TP RATIO = 1.225680 SHAPE CONSTANT, N = 2.904595
UNIT PEAK = 119.79 CFS UNIT VOLUME = .9998 B = 273.95 P60 = 1.7200
AREA = .084210 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=60 CODE=20

HYDROGRAPH FROM AREA A_1.1

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	10.5	4.000	.4	6.000	.0		
.667	.0	2.667	2.4	4.667	.1	6.667	.0		
1.333	.0	3.333	.9	5.333	.1				

RUNOFF VOLUME = .41961 INCHES = 1.8845 ACRE-FEET
PEAK DISCHARGE RATE = 48.62 CFS AT 1.567 HOURS BASIN AREA = .0842 SQ. MI.

*
*S COMPUTE BASIN A-1.2 *****
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=3200 FT SLOPE=0.0325 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	3200.0	.032500	3.0000
TOTAL BASIN	3200.0	.032500	3.0000

TIME OF CONCENTRATION (HRS)= .1644 TIME TO PEAK (HRS)= .1096 LAG TIME (HRS)= .1233

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=65 HYD=A 1.2 AREA=0.01196 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 24.289 CFS UNIT VOLUME = .9989 B = 270.77 P60 = 1.7200
AREA = .011960 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=65 CODE=20

HYDROGRAPH FROM AREA A_1.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	.2	4.000	.0		
.667	.0	2.000	.9	3.333	.1	4.667	.0		

RUNOFF VOLUME = .41961 INCHES = .2677 ACRE-FEET
PEAK DISCHARGE RATE = 9.44 CFS AT 1.533 HOURS BASIN AREA = .0120 SQ. MI.

*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD ID=66 HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD ID=66 CODE=1

```

HYDROGRAPH FROM AREA A_1.1_1.2

RUNOFF VOLUME = .41961 INCHES = 2.1522 ACRE-FEET
PEAK DISCHARGE RATE = 57.28 CFS AT 1.567 HOURS BASIN AREA = .0962 SQ. MI.

*
*S
*S *****
*S * COMPUTE OFFSITE "E" BASINS *
*S *****
*S
*S
*S
*S COMPUTE BASIN E-1.1 *****
*
COMPUTE NM HYD ID=21 HYD=1 E.1 AREA=0.006128 PER A=95.0 PER B=5.0
PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

K = .165811HR TP = .133330HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 12.445 CFS UNIT VOLUME = .9984 B = 270.77 P60 = 1.7200
AREA = .006128 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=21 CODE=1

HYDROGRAPH FROM AREA 1_E.1

RUNOFF VOLUME = .41961 INCHES = .1371 ACRE-FEET
PEAK DISCHARGE RATE = 4.84 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

*
*S COMPUTE BASIN E-1.3 *****
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=3800 FT SLOPE=0.0325 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
LENGTH (FT) SLOPE (FT/FT) COMPOSITE K
SHEET FLOW PORTION .0 .000000 .0000
SHALLOW FLOW PORTION .0 .000000 .0000
CHANNEL FLOW PORTION 3800.0 .032500 3.0000
TOTAL BASIN 3800.0 .032500 3.0000

TIME OF CONCENTRATION (HRS)= .1952 TIME TO PEAK (HRS)= .1301 LAG TIME (HRS)= .1464

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=70 HYD=E 1.3 AREA=0.08120 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .163755HR TP = .133333HR K/TP RATIO = 1.228167 SHAPE CONSTANT, N = 2.899273
UNIT PEAK = 166.56 CFS UNIT VOLUME = .9996 B = 273.50 P60 = 1.7200
AREA = .081200 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=70 CODE=20

HYDROGRAPH FROM AREA E_1.3

TIME FLOW TIME FLOW TIME FLOW TIME FLOW TIME FLOW
HRS CFS HRS CFS HRS CFS HRS CFS HRS CFS
.000 .0 1.333 .0 2.667 1.5 4.000 .1 5.333 .0
.667 .0 2.000 5.9 3.333 .4 4.667 .0

RUNOFF VOLUME = .41961 INCHES = 1.8172 ACRE-FEET
PEAK DISCHARGE RATE = 64.60 CFS AT 1.533 HOURS BASIN AREA = .0812 SQ. MI.

*

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HYDROGRAPH FROM AREA 6_D.5

RUNOFF VOLUME = .41961 INCHES = .1683 ACRE-FEET
 PEAK DISCHARGE RATE = 5.94 CFS AT 1.533 HOURS BASIN AREA = .0075 SQ. MI.

*
 *S COMPUTE BASIN 6-D.6 *****
 COMPUTE NM HYD ID=4 HYD=6_D.6 AREA=0.006441 PER A=100 PER B=0
 PER C=0 PER D=0 TP=0.13333 RAINFALL=-1

K = .167503HR TP = .133330HR K/TP RATIO = 1.256304 SHAPE CONSTANT, N = 2.840823
 UNIT PEAK = 12.975 CFS UNIT VOLUME = .9983 B = 268.58 P60 = 1.7200
 AREA = .006441 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 6_D.6

RUNOFF VOLUME = .41046 INCHES = .1410 ACRE-FEET
 PEAK DISCHARGE RATE = 4.95 CFS AT 1.533 HOURS BASIN AREA = .0064 SQ. MI.

*
 *S COMPUTE BASIN 6-D.7 *****
 COMPUTE NM HYD ID=1 HYD=6_D.7 AREA=0.005236 PER A=95.0 PER B=5.0
 PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

K = .165811HR TP = .133330HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
 UNIT PEAK = 10.634 CFS UNIT VOLUME = .9981 B = 270.77 P60 = 1.7200
 AREA = .005236 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 6_D.7

RUNOFF VOLUME = .41961 INCHES = .1172 ACRE-FEET
 PEAK DISCHARGE RATE = 4.14 CFS AT 1.533 HOURS BASIN AREA = .0052 SQ. MI.

*
 *S COMPUTE BASIN 6-D.8 *****
 COMPUTE NM HYD ID=20 HYD=6_D.8 AREA=0.010762 PER A=95.0 PER B=0.0
 PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1
 *****WARNING***** SUM OF TREATMENT TYPES DOES NOT EQUAL 100 PERCENT OR TOTAL AREA

K = .167503HR TP = .133330HR K/TP RATIO = 1.256304 SHAPE CONSTANT, N = 2.840823
 UNIT PEAK = 21.679 CFS UNIT VOLUME = .9987 B = 268.58 P60 = 1.7200
 AREA = .010762 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 6_D.8

RUNOFF VOLUME = .41046 INCHES = .2356 ACRE-FEET
 PEAK DISCHARGE RATE = 8.27 CFS AT 1.533 HOURS BASIN AREA = .0108 SQ. MI.

*
 *S COMPUTE BASIN E-1.2 *****
 COMPUTE NM HYD ID=22 HYD=1_E.2 AREA=0.001177 PER A=95.0 PER B=5.0
 PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

K = .165811HR TP = .133330HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
 UNIT PEAK = 2.3903 CFS UNIT VOLUME = .9933 B = 270.77 P60 = 1.7200
 AREA = .001177 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=22 CODE=1

HYDROGRAPH FROM AREA 1_E.2

RUNOFF VOLUME = .41961 INCHES = .0263 ACRE-FEET
 PEAK DISCHARGE RATE = .93 CFS AT 1.533 HOURS BASIN AREA = .0012 SQ. MI.

```

*
*S ADD 6_D.4 TO 6_D.7 *****
ADD HYD      ID=11  HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD    ID=11  CODE=1

                                HYDROGRAPH FROM AREA 6D.4_7

RUNOFF VOLUME =      .41960 INCHES      =      .4703 ACRE-FEET
PEAK DISCHARGE RATE =      16.58 CFS  AT  1.533 HOURS  BASIN AREA =      .0210 SQ. MI.

*
*S ADD 6_D.5 TO 6_D.6 *****
ADD HYD      ID=12  HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD    ID=12  CODE=1

                                HYDROGRAPH FROM AREA 6D.5_6

RUNOFF VOLUME =      .41539 INCHES      =      .3093 ACRE-FEET
PEAK DISCHARGE RATE =      10.89 CFS  AT  1.533 HOURS  BASIN AREA =      .0140 SQ. MI.

*
*S ADD 6_D.4_7 TO 6_D.5_6          TO GET PROJECT SITE DISCHARGE TO AP_1*****
ADD HYD      ID=25  HYD NO=6D.5_6 ID I=11 ID II=12
PRINT HYD    ID=25  CODE=1

                                HYDROGRAPH FROM AREA 6D.5_6

RUNOFF VOLUME =      .41792 INCHES      =      .7796 ACRE-FEET
PEAK DISCHARGE RATE =      27.48 CFS  AT  1.533 HOURS  BASIN AREA =      .0350 SQ. MI.

*

*S
*S          *****
*S          * COMPUTE ANALYSIS POINTS *
*S          *****
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD 6D.8 TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD      ID=24  HYD NO=AP_2 ID I=55 ID II=20
PRINT HYD    ID=24  CODE=1

                                HYDROGRAPH FROM AREA AP_2

RUNOFF VOLUME =      .41484 INCHES      =      11.1809 ACRE-FEET
PEAK DISCHARGE RATE =      192.93 CFS  AT  2.367 HOURS  BASIN AREA =      .5054 SQ. MI.

*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S ADD 6D.3 TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD      ID=14  HYD NO=AP_1 ID I=25 ID II=9
PRINT HYD    ID=14  CODE=1

                                HYDROGRAPH FROM AREA AP_1

RUNOFF VOLUME =      .41850 INCHES      =      1.1886 ACRE-FEET
PEAK DISCHARGE RATE =      41.90 CFS  AT  1.533 HOURS  BASIN AREA =      .0533 SQ. MI.

*
*S ANALYSIS POINT 3, DISCHARGE FROM VILLA REAL RD TO SCENIC RD STORM DRAIN *
*
*S ADD E_1.1 TO E_1.2 TO GET AP_3
*
ADD HYD      ID=23  HYD NO=AP_3 ID I=21 ID II=22
PRINT HYD    ID=23  CODE=1

```

HYDROGRAPH FROM AREA AP_3

RUNOFF VOLUME = .41960 INCHES = .1635 ACRE-FEET
PEAK DISCHARGE RATE = 5.77 CFS AT 1.533 HOURS BASIN AREA = .0073 SQ. MI.

*S

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 17:01:35

- VERSION: 1997.02c RUN DATE (MON/DAY/YR) =
USER NO.= AHYMO-S-9702c1BohanHu-AH

USER NO.= AHYMO-S-9702c1BohanHu-AH

[illegible]

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 = 2	NOTATION
*S	* COMPUTE OFFSITE "A" BASINS *										
*S	*****										
*S	*****										
*S	COMPUTE BASIN A-1.1	*****									
COMPUTE NM HYD	A_1.1	-	60	.08421	48.62	1.885	.41961	1.567	.902 PER IMP=	.00	
*S	COMPUTE BASIN A-1.2	*****									
COMPUTE NM HYD	A_1.2	-	65	.01196	9.44	.268	.41961	1.533	1.233 PER IMP=	.00	
*S	ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****										
ADD HYD	A_1.1_1.2	60&65	66	.09617	57.28	2.152	.41961	1.567	.931		
*S	*****										
*S	* COMPUTE OFFSITE "E" BASINS *										
*S	*****										
*S	*****										
*S	*****										
*S	COMPUTE BASIN E-1.1	*****									
COMPUTE NM HYD	1_E.1	-	21	.00613	4.84	.137	.41961	1.533	1.234 PER IMP=	.00	
*S	COMPUTE BASIN E-1.3	*****									
COMPUTE NM HYD	E_1.3	-	70	.08120	64.60	1.817	.41961	1.533	1.243 PER IMP=	.00	
*S	COMPUTE BASIN E-1.4	*****									
COMPUTE NM HYD	E_1.4	-	75	.13593	96.02	3.042	.41961	1.533	1.104 PER IMP=	.00	
*S	*****										
*S	*COMPUTE ONSITE BASINS*										
*S	*****										
*S	*****										
*S	*****										
*S	COMPUTE BASIN 6-D.4	*****									
COMPUTE NM HYD	6_D.4	-	2	.01578	12.45	.353	.41961	1.533	1.233 PER IMP=	.00	
*S	COMPUTE BASIN 6-D.5	*****									
COMPUTE NM HYD	6_D.5	-	3	.00752	5.94	.168	.41961	1.533	1.233 PER IMP=	.00	
*S	COMPUTE BASIN 6-D.6	*****									
COMPUTE NM HYD	6_D.6	-	4	.00644	4.95	.141	.41046	1.533	1.202 PER IMP=	.00	
*S	COMPUTE BASIN 6-D.7	*****									
COMPUTE NM HYD	6_D.7	-	1	.00524	4.14	.117	.41961	1.533	1.234 PER IMP=	.00	
*S	COMPUTE BASIN 6-D.8	*****									
COMPUTE NM HYD	6_D.8	-	20	.01076	8.27	.236	.41046	1.533	1.201 PER IMP=	.00	
*S	COMPUTE BASIN E-1.2	*****									
COMPUTE NM HYD	1_E.2	-	22	.00118	.93	.026	.41961	1.533	1.240 PER IMP=	.00	
*S	ADD 6_D.4 TO 6_D.7	*****									
ADD HYD	6D.4_7	2&1	11	.02101	16.58	.470	.41960	1.533	1.233		
*S	ADD 6_D.5 TO 6_D.6	*****									
ADD HYD	6D.5_6	3&4	12	.01396	10.89	.309	.41539	1.533	1.219		
*S	ADD 6_D.4_7 TO 6_D.5_6	*****									
ADD HYD	6D.5_6	11&12	25	.03498	27.48	.780	.41792	1.533	1.227		
*S	*****										
*S	* COMPUTE ANALYSIS POINTS *										
*S	*****										
*S	*****										
*S	*****										

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 = 3 NOTATION
*S										
*S										
*S	ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)									
*S	ADD 6D.8 TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***									
ADD	HYD AP_2 55&20 24			.50536	192.93	11.181	.41484	2.367	.597	
*S	ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****									
*S	ADD 6D.3 TO 6D.4_7 TO GET AP_1 *****									
ADD	HYD AP_1 25& 9 14			.05325	41.90	1.189	.41850	1.533	1.229	
*S	ANALYSIS POINT 3, DISCHARGE FROM VILLA REAL RD TO SCENIC RD STORM DRAIN *									
*S	ADD E_1.1 TO E_1.2 TO GET AP_3									
ADD	HYD AP_3 21&22 23			.00731	5.77	.163	.41960	1.533	1.235	
*S										
FINISH										

**APPENDIX B -
DEVELOPED CONDITIONS AHYMO SUMMARY,
OUTPUT, AND INPUT FILES**

```

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED
*S 100 YEAR - 6 HOUR STORM
*S
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
*
*S MONTECITO WEST DMP UPDATE WITH MONTEICITO VISTA DEVELOPMENT 5/12/16
*
*CONVERT TO NMHYMO
START          TIME=0.0 HR  PUNCH CODE=0
*****
LOCATION NM
*
*****
*
*****
*100 YEAR - 6 HOUR
RAINFALL      TYPE=1  RAIN QUARTER=0
              RAIN ONE=1.72 IN  RAIN SIX=2.21 IN
              RAIN DAY=2.58 IN  DT=0.033333 HRS

*S
*S
*S          *****
*S          *  COMPUTE OFFSITE "D" BASINS  *
*S          *****
*S
*S
*S
*S
*S COMPUTE BASIN OS-D *****
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                  NK=3  ISLOPE=-1
                  LENGTH=400 FT  SLOPE=0.0750 K=0.7
                  LENGTH=700 FT  SLOPE=0.04286 K=2.0
                  LENGTH=2900 FT  SLOPE=0.03793 K=3.0

COMPUTE NM HYD      ID=17  HYD=OS_D  AREA=0.2378 SQ MI
                  PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                  TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=17      CODE=1
*
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                  MIN ELEV=0  MAX ELEV=3.80
                  CH SLOPE=0.038  FP SLOPE=0.038
                  N=0.038  DIST=32.0
                  DIST  ELEV      DIST  ELEV
                  0.0    5.0      6.0    0.0
                  26.0   0.0      32.0   5.0

ROUTE MCUNGE      ID=50  HYD=100.01  INFLOW ID=17  DT=0HR  L=4900
                  NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=50      CODE=1
*
*S COMPUTE BASIN 15-D *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                  NK=3  ISLOPE=-1
                  LENGTH=400 FT  SLOPE=0.050 K=0.7
                  LENGTH=500 FT  SLOPE=0.020 K=2.0
                  LENGTH=1200 FT  SLOPE=0.02167 K=3.0

COMPUTE NM HYD      ID=15  HYD=15_D  AREA=0.1506 SQ MI
                  PER A=68.0  PER B=8.0  PER C=8.0  PER D=16.0
                  TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=15      CODE=1
*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****

```

```

ADD HYD          ID=33  HYD NO=101.0 ID I=15 ID II=50
PRINT HYD        ID=33  CODE=1
*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                     MIN ELEV=0  MAX ELEV=3.80
                     CH SLOPE=0.038  FP SLOPE=0.038
                     N=0.038  DIST=32.0
                     DIST  ELEV      DIST  ELEV
                     0.0    5.0      6.0    0.0
                     26.0   0.0      32.0   5.0

ROUTE MCUNGE      ID=40  HYD=100.01  INFLOW ID=33  DT=0HR  L=4900
                     NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=40  CODE=1
*
*S COMPUTE BASIN 9-D.1 *****
*S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                     NK=3  ISLOPE=-1
                     LENGTH=400 FT  SLOPE=0.0084 K=0.7
                     LENGTH=0 FT  SLOPE=0.0 K=2.0
                     LENGTH=1600 FT  SLOPE=0.0250 K=3.0

COMPUTE NM HYD     ID=9  HYD=9_D.1  AREA=0.0603 SQ MI
                     PER A=40.0  PER B=21.0  PER C=19.0  PER D=20.0
                     TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=9  CODE=1
*
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
ADD HYD            ID=44  HYD NO=104.0 ID I=40 ID II=9
PRINT HYD          ID=44  CODE=1
*
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                     MIN ELEV=0  MAX ELEV=3.80
                     CH SLOPE=0.038  FP SLOPE=0.038
                     N=0.038  DIST=32.0
                     DIST  ELEV      DIST  ELEV
                     0.0    5.0      6.0    0.0
                     26.0   0.0      32.0   5.0

ROUTE MCUNGE      ID=30  HYD=104.1  INFLOW ID=44  DT=0HR  L=4900
                     NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=30  CODE=1
*
*S COMPUTE BASIN 6-D.1 *****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED
*S 0.065625 SQ MI FROM BASIN
*
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                     NK=3  ISLOPE=-1
                     LENGTH=400 FT  SLOPE=0.05 K=0.7
                     LENGTH=0 FT  SLOPE=0.0084 K=2.0
                     LENGTH=2800 FT  SLOPE=0.03286 K=3.0

COMPUTE NM HYD     ID=6  HYD=6_D.1  AREA=0.0459 SQ MI
                     PER A=85.0  PER B=8.0  PER C=3.0  PER D=4.0
                     TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=6  CODE=1
*S
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
*S

```

```

ADD HYD          ID=55  HYD NO=AP_OFF ID I=30 ID II=6
PRINT HYD        ID=55  CODE=1
*
*S COMPUTE BASIN 9-D.2 *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
*
COMPUTE LT TP    LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                  NK=1  ISLOPE=0
                  LENGTH=1800 FT  SLOPE=0.0372 K=3.0
                  Kn=.021  CR=.5

COMPUTE NM HYD   ID=5  HYD=9_D.2  AREA=0.00967 SQ MI
                  PER A=30.0  PER B=18.0  PER C=18.0  PER D=34.0
                  TP=0.0 HR  MASS RAIN=-1
PRINT HYD        ID=5  CODE=20
*
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.0433  FP SLOPE=0.0433
                      N=0.038  DIST=32.0
                      DIST  ELEV      DIST  ELEV
                        0.0      5.0      6.0      0.0
                        26.0     0.0     32.0     5.0

ROUTE MCUNGE     ID=7  HYD=100.01  INFLOW ID=5  DT=0HR  L=1200
                  NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD        ID=7  CODE=1
*
*S COMPUTE BASIN 6-D.2*****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)
*
*S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6
*
*COMPUTE LT TP    LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
*                  NK=1  ISLOPE=0
*                  LENGTH=1200 FT  SLOPE=0.0433 K=3.0
*                  Kn=.021  CR=.5
*
*COMPUTE NM HYD   ID=7  HYD=6_D.2  AREA=0.047369 SQ MI
*                  PER A=42  PER B=15  PER C=15  PER D=28
*                  TP=0.0 HR  MASS RAIN=-1
*PRINT HYD        ID=7  CODE=20
*
*S
*S
*S *****
*S *COMPUTE MONTECITO VISTAS UNITS 1-4 ONSITE BASINS*
*S *****
*S
*S
*S
*S COMPUTE BASIN 6-D.2A *****
*
COMPUTE NM HYD   ID=31  HYD=6_D.2A  AREA=0.01709  PER A=0  PER B=29.5
                  PER C=29.5  PER D=41  TP=0.13333  RAINFALL=-1
PRINT HYD        ID=31  CODE=1
*
*S COMPUTE BASIN 6-D.2B *****
COMPUTE NM HYD   ID=32  HYD=6_D.2B  AREA=0.016231  PER A=0  PER B=29
                  PER C=29  PER D=42  TP=0.13333  RAINFALL=-1
PRINT HYD        ID=32  CODE=1
*
*S COMPUTE BASIN 6-D.2C *****
COMPUTE NM HYD   ID=33  HYD=6_D.2C  AREA=0.005902  PER A=0  PER B=34
                  PER C=34  PER D=32  TP=0.13333  RAINFALL=-1
PRINT HYD        ID=33  CODE=1
*
*S COMPUTE BASIN 6-D.2D *****
COMPUTE NM HYD   ID=34  HYD=6_D.2D  AREA=0.01071  PER A=0  PER B=34.5
                  PER C=34.5  PER D=31  TP=0.13333  RAINFALL=-1

```

```

PRINT HYD          ID=34   CODE=1
*
*S COMPUTE BASIN 6-D.2E *****
COMPUTE NM HYD      ID=35 HYD=6_D.2E AREA=0.002415 PER A=0 PER B=30.5
                    PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=35   CODE=1
*
*S COMPUTE BASIN 6-D.2F *****
COMPUTE NM HYD      ID=36 HYD=6_D.2F AREA=0.004180 PER A=0 PER B=30.5
                    PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=36   CODE=1
*
*S ADD 9-D.2 TO 6-D.2A *****
ADD HYD             ID=39   HYD NO=6_9D.2A ID I=7 ID II=31
PRINT HYD           ID=39   CODE=1
*
*S ADD 6-D.2B TO 6_9D.2A *****
ADD HYD             ID=41   HYD NO=6_9D.2AB ID I=32 ID II=39
PRINT HYD           ID=41   CODE=1
*
*S ADD 6-D.2C TO 6_9D.2AB *****
ADD HYD             ID=42   HYD NO=6_9D.2ABC ID I=33 ID II=41
PRINT HYD           ID=42   CODE=1
*
*S ADD 6_D.2D TO 6_9D.2ABC *****
ADD HYD             ID=43   HYD NO=6_9D.2ABCD ID I=34 ID II=42
PRINT HYD           ID=43   CODE=1
*
*S ADD 6_D.2E TO 6_9D.2ABCD *****
ADD HYD             ID=46   HYD NO=6_D.2ABCDE ID I=35 ID II=43
PRINT HYD           ID=46   CODE=1
*
*S ADD 6_D.2F TO 6_9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6_9D.2*****
ADD HYD             ID=47   HYD NO=6_9D.2ABCDEF ID I=36 ID II=46
PRINT HYD           ID=47   CODE=1
*
*
*S COMPUTE BASIN 6-D.3*****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                  NK=1 ISLOPE=0
                  LENGTH=600 FT SLOPE=0.0433 K=3.0
                  Kn=.021 CR=.5

COMPUTE NM HYD      ID=9   HYD=6_D.3 AREA=0.018277 SQ MI
                    PER A=30.0 PER B=18 PER C=18 PER D=34
                    TP=0.0 HR MASS RAIN=-1
PRINT HYD          ID=9   CODE=20
*
*S***** ROUTE OFFSITE FLOW THRU 850' OF 36" RCP PIPE
COMPUTE RATING CURVE CID=10 VS NO=1 CODE=-1
                    SLP=0.0273
                    DIA=36 INCHES N=0.013
ROUTE MCUNGE       ID=10 HYD= RT.2AB2 INFLOW ID=9 DT=0HR L=850
                    NS=0 SLOPE=.0273 MATCODE=0 REGCODE=0 CCODE=0
PRINT HYD          ID=10   CODE=1
*S
*S
*S
*S
*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S COMPUTE BASIN A-1.1 *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                  NK=3 ISLOPE=-1
                  LENGTH=400 FT SLOPE=0.0340 K=0.7
                  LENGTH=1600 FT SLOPE=0.0361 K=2.0

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```

LENGTH=2800 FT  SLOPE=0.0346 K=3.0

COMPUTE NM HYD      ID=60 HYD=A_1.1  AREA=0.08421 SQ MI
                    PER A=90.0 PER B=5.0 PER C=5.0 PER D=0.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=60      CODE=20
*
*S COMPUTE BASIN A-1.2 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
*
COMPUTE LT TP       LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=3200 FT  SLOPE=0.0325 K=3.0
                    Kn=.021  CR=.5

COMPUTE NM HYD      ID=65 HYD=A_1.2  AREA=0.012613 SQ MI
                    PER A=30.0 PER B=18.0 PER C=18.0 PER D=34.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=65      CODE=20
*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD             ID=66  HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD           ID=66      CODE=1
*
*S
*S
*S      *****
*S      * COMPUTE OFFSITE "E" BASINS *
*S      *****
*S
*S
*S COMPUTE BASIN E-1.1 *****
*
COMPUTE NM HYD      ID=21 HYD=1_E.1  AREA=0.006128 PER A=30.0 PER B=18.0
                    PER C=18.0 PER D=34  TP=0.13333 RAINFALL=-1
PRINT HYD           ID=21      CODE=1
*
*S COMPUTE BASIN E-1.3 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP       LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=3800 FT  SLOPE=0.0325 K=3.0
                    Kn=.021  CR=.5

COMPUTE NM HYD      ID=70 HYD=E_1.3  AREA=0.08120 SQ MI
                    PER A=52.0 PER B=16.0 PER C=16.0 PER D=16.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=70      CODE=20
*
*S COMPUTE BASIN E-1.4 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP       LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=5200 FT  SLOPE=0.0325 K=3.0
                    Kn=.021  CR=.5

COMPUTE NM HYD      ID=75 HYD=E_1.4  AREA=0.13593 SQ MI
                    PER A=60.0 PER B=13.0 PER C=13.0 PER D=14.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=75      CODE=20
*
*S
*S      *****
*S      *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*
*S      *****

```

```

*S
*S NO CHANGE FROM MONTECITO WEST DMP
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD      ID=2 HYD=6_D.4 AREA=0.015778 PER A=0 PER B=29
                    PER C=29 PER D=42 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=2 CODE=1
*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD      ID=3 HYD=6_D.5 AREA=0.007522 PER A=0 PER B=34
                    PER C=34 PER D=32 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=3 CODE=1
*
*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD      ID=4 HYD=6_D.6 AREA=0.006441 PER A=100 PER B=0
                    PER C=0 PER D=0 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=4 CODE=1
*
*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD      ID=1 HYD=6_D.7 AREA=0.005236 PER A=0 PER B=31
                    PER C=30 PER D=39 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=1 CODE=1
*
*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD      ID=20 HYD=6_D.8 AREA=0.010762 PER A=0 PER B=30
                    PER C=29 PER D=41 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=20 CODE=1
*
*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD      ID=22 HYD=1_E.2 AREA=0.001177 PER A=0 PER B=29
                    PER C=29 PER D=42 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=22 CODE=1
*
*S ADD E_1.1 TO E_1.2 *****
ADD HYD             ID=71 HYD NO=E.1_2 ID I=21 ID II=22
PRINT HYD           ID=71 CODE=1
*
*S ADD 6_D.8 TO E_1.1 1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****
ADD HYD             ID=72 HYD NO=AP2_ON ID I=71 ID II=20
PRINT HYD           ID=72 CODE=1
*
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****
ADD HYD             ID=11 HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD           ID=11 CODE=1
*
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****
ADD HYD             ID=12 HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD           ID=12 CODE=1
*
*S
*S
*S
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD AP_OFF TO 6_9D.2 (DIVERT FLOWS) TO GET NEW AP_OFF *****
*
ADD HYD             ID=25 HYD NO=AP_OFF.NEW ID I=55 ID II=47
PRINT HYD           ID=25 CODE=1
*S
*S ADD AP2_ON TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD             ID=24 HYD NO=AP_2 ID I=25 ID II=72
PRINT HYD           ID=24 CODE=1
*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S DIVIDE 6D.3 FOR 30.0% RETAINAGE
DIVIDE HYD          ID=10 PER=-70.0 ID I=12 HYD NO=6D.3_OUT
                                ID II=13 HYD NO=6D.3_RETAIN
*

```

```
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD          ID=14   HYD NO=AP_1 ID I=12 ID II=11
PRINT HYD        ID=14   CODE=1
*S

FINISH
```

```

      AHYMO PROGRAM (AHYMO 97) -                      - Version: 1997.02c
      RUN DATE (MON/DAY/YR) = 05/12/2016
      START TIME (HR:MIN:SEC) = 09:24:51      USER NO.= AHYMO-S-9702c1BohanHu-AH
      INPUT FILE = DEV_Cond.HYM

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED
*S 100 YEAR - 6 HOUR STORM
*S
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
*
*S MONTECITO WEST DMP UPDATE WITH MONTEICITO VISTA DEVELOPMENT 5/12/16
*
*CONVERT TO NMHYMO
START      TIME=0.0 HR  PUNCH CODE=0
*****
LOCATION      NM
      Soil infiltration values (LAND FACTORS) for this location are not available.
      The following default values were used.
      Land Treatment      Initial Abstr.(in)      Unif. Infilt.(in/hour)
      A      0.65      1.67
      B      0.50      1.25
      C      0.35      0.83
      D      0.10      0.04

*
*****
*
*****
*100 YEAR - 6 HOUR
RAINFALL      TYPE=1  RAIN QUARTER=0
               RAIN ONE=1.72 IN  RAIN SIX=2.21 IN
               RAIN DAY=2.58 IN  DT=0.033333 HRS

      COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
      DT = .033333 HOURS      END TIME = 5.999940 HOURS
      .0000 .0038 .0077 .0116 .0157 .0198 .0240
      .0283 .0327 .0372 .0418 .0465 .0514 .0564
      .0615 .0667 .0722 .0777 .0835 .0894 .0956
      .1019 .1085 .1153 .1224 .1298 .1375 .1456
      .1541 .1630 .1724 .1772 .1823 .1877 .1994
      .2255 .2658 .3235 .4024 .5059 .6380 .8025
      1.0032 1.1888 1.2665 1.3321 1.3904 1.4435 1.4924
      1.5378 1.5802 1.6199 1.6573 1.6926 1.7260 1.7575
      1.7874 1.8158 1.8427 1.8682 1.8924 1.8987 1.9047
      1.9104 1.9159 1.9212 1.9264 1.9314 1.9362 1.9409
      1.9454 1.9499 1.9542 1.9584 1.9626 1.9666 1.9706
      1.9744 1.9782 1.9820 1.9856 1.9892 1.9927 1.9962
      1.9996 2.0030 2.0063 2.0095 2.0127 2.0159 2.0190
      2.0221 2.0251 2.0281 2.0311 2.0340 2.0368 2.0397
      2.0425 2.0453 2.0480 2.0507 2.0534 2.0561 2.0587
      2.0613 2.0639 2.0665 2.0690 2.0715 2.0740 2.0764
      2.0789 2.0813 2.0837 2.0860 2.0884 2.0907 2.0930
      2.0953 2.0976 2.0998 2.1021 2.1043 2.1065 2.1087
      2.1108 2.1130 2.1151 2.1172 2.1193 2.1214 2.1235
      2.1256 2.1276 2.1297 2.1317 2.1337 2.1357 2.1377
      2.1396 2.1416 2.1435 2.1455 2.1474 2.1493 2.1512
      2.1531 2.1549 2.1568 2.1587 2.1605 2.1623 2.1642
      2.1660 2.1678 2.1696 2.1714 2.1731 2.1749 2.1766
      2.1784 2.1801 2.1819 2.1836 2.1853 2.1870 2.1887
      2.1904 2.1920 2.1937 2.1954 2.1970 2.1987 2.2003
      2.2020 2.2036 2.2052 2.2068 2.2084 2.2100

*S
*S
*S      * COMPUTE OFFSITE "D" BASINS *
*S
*S
*S
*S
*S COMPUTE BASIN OS-D *****
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                   NK=3  ISLOPE=-1
                   LENGTH=400 FT  SLOPE=0.0750 K=0.7
                   LENGTH=700 FT  SLOPE=0.04286 K=2.0
                   LENGTH=2900 FT  SLOPE=0.03793 K=3.0

      Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

      SCS UPLAND METHOD FACTORS
      SHEET FLOW PORTION      LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
                                400.0      .075000      .7000

```


DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 5 TIMES. AVERAGE NUMBER ITERATIONS = 1.0847
 EQUATIONS SOLVED WITH TWO PASSES: FIRST USING THE PONCE CORRECTION TO C1, SECOND USING THE FREAD CORRECTION TO C1, C2 AND C3
 PRINT HYD ID=50 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41646 INCHES = 5.2818 ACRE-Feet
 PEAK DISCHARGE RATE = 170.91 CFS AT 1.833 HOURS BASIN AREA = .2378 SQ. MI.

*
 *S COMPUTE BASIN 15-D *****
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S NO CHANGE FROM MONTECITO WEST DMP
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.050 K=0.7
 LENGTH=500 FT SLOPE=0.020 K=2.0
 LENGTH=1200 FT SLOPE=0.02167 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	500.0	.020000	2.0000
CHANNEL FLOW PORTION	1200.0	.021670	3.0000
TOTAL BASIN	2100.0	.026669	1.8265

TIME OF CONCENTRATION (HRS)= .1956 TIME TO PEAK (HRS)= .1304 LAG TIME (HRS)= .1467

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.

REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=15 HYD=15_D AREA=0.1506 SQ MI
 PER A=68.0 PER B=8.0 PER C=8.0 PER D=16.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .074766HR TP = .133333HR K/TP RATIO = .560746 SHAPE CONSTANT, N = 6.852773
 UNIT PEAK = 92.933 CFS UNIT VOLUME = .9995 B = 514.24 P60 = 1.7200
 AREA = .024096 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .149923HR TP = .133333HR K/TP RATIO = 1.124422 SHAPE CONSTANT, N = 3.146704
 UNIT PEAK = 278.54 CFS UNIT VOLUME = .9999 B = 293.57 P60 = 1.7200
 AREA = .126504 SQ MI IA = .60714 INCHES INF = 1.55000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA 15_D

RUNOFF VOLUME = .70193 INCHES = 5.6378 ACRE-FEET
PEAK DISCHARGE RATE = 177.15 CFS AT 1.500 HOURS BASIN AREA = .1506 SQ. MI.

*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
ADD HYD ID=33 HYD NO=101.0 ID I=15 ID II=50
PRINT HYD ID=33 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = .52715 INCHES = 10.9196 ACRE-FEET
PEAK DISCHARGE RATE = 213.08 CFS AT 1.800 HOURS BASIN AREA = .3884 SQ. MI.

*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
*

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0
WATER FLOW FLOW TOP
SURFACE AREA RATE WIDTH
ELEV SQ FT CFS FT
.00 .00 .00 20.00
.20 4.05 10.42 20.48
.40 8.19 33.08 20.96
.60 12.43 65.02 21.44
.80 16.77 105.07 21.92
1.00 21.20 152.51 22.40
1.20 25.73 206.87 22.88
1.40 30.35 267.81 23.36
1.60 35.07 335.06 23.84
1.80 39.89 408.42 24.32
2.00 44.80 487.74 24.80
2.20 49.81 572.90 25.28
2.40 54.91 663.81 25.76
2.60 60.11 760.37 26.24
2.80 65.41 862.54 26.72
3.00 70.80 970.27 27.20
3.20 76.29 1083.52 27.68
3.40 81.87 1202.26 28.16
3.60 87.55 1326.48 28.64
3.80 93.33 1456.17 29.12

ROUTE MCUNGE ID=40 HYD=100.01 INFLOW ID=33 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 220 TABLE PTS= 20
DT= .033333 QMED= 106.54 CKMED= 10.7047
WIDTH MED= 21.93 NREACH= 8 DX= 612.50

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	6.59	4.04	1.290	.010	.991	.131	-.122	20.5	.993	.040	-.032
.60	12.4	65.0	.260	21.4	8.44	5.23	1.653	.015	.988	.251	-.239	48.0	.990	.197	-.187
.80	16.8	105.1	.217	21.9	10.01	6.27	1.961	.021	.986	.329	-.315	84.1	.987	.293	-.280
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.231	.026	.984	.386	-.370	127.9	.985	.359	-.344
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.472	.031	.982	.429	-.411	178.9	.983	.408	-.392
1.40	30.4	267.8	.154	23.4	13.73	8.82	2.691	.036	.981	.463	-.444	236.6	.982	.447	-.428
1.60	35.1	335.1	.142	23.8	14.76	9.55	2.892	.041	.979	.491	-.471	300.7	.980	.478	-.458
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.077	.046	.978	.515	-.493	371.1	.978	.503	-.482
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.251	.051	.976	.535	-.511	447.4	.977	.525	-.502
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.413	.056	.975	.552	-.527	529.7	.976	.544	-.519
2.40	54.9	663.8	.113	25.8	18.20	12.09	3.566	.061	.974	.568	-.541	617.8	.974	.560	-.535
2.60	60.1	760.4	.108	26.2	18.94	12.65	3.711	.066	.972	.581	-.554	711.5	.973	.575	-.548
2.80	65.4	862.5	.103	26.7	19.65	13.19	3.849	.071	.971	.593	-.565	810.9	.972	.587	-.559
3.00	70.8	970.3	.099	27.2	20.32	13.70	3.981	.075	.970	.604	-.575	915.8	.971	.599	-.570
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.106	.080	.969	.614	-.583	1026.3	.970	.609	-.579
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.227	.085	.968	.624	-.592	1142.4	.968	.619	-.587
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.343	.090	.967	.632	-.599	1263.8	.967	.628	-.595
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.431	.095	.966	.638	-.604	1390.8	.966	.636	-.602

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 1 TIMES. AVERAGE NUMBER ITERATIONS = 1.1658

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
---------------	-----------------	------------	--------------------	---------------	-------------	--------------	---	---	----	----	----	--------------	------	------	------

.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	5.17	4.04	1.013	.013	.987	.013	.000	20.5	.992	.008	.000
.60	12.4	65.0	.260	21.4	5.23	5.23	1.025	.025	.976	.024	.000	48.0	.982	.018	.000
.80	16.8	105.1	.217	21.9	5.30	6.27	1.039	.039	.963	.037	.000	84.1	.969	.031	.000
1.00	21.2	152.5	.189	22.4	5.38	7.19	1.054	.054	.948	.052	.000	127.9	.956	.044	.000
1.20	25.7	206.9	.169	22.9	5.47	8.04	1.071	.071	.934	.066	.000	178.9	.941	.059	.000
1.40	30.4	267.8	.154	23.4	5.56	8.82	1.089	.089	.919	.081	.000	236.6	.926	.074	.000
1.60	35.1	335.1	.142	23.8	5.65	9.55	1.107	.107	.903	.097	.000	300.7	.911	.089	.000
1.80	39.9	408.4	.133	24.3	5.75	10.24	1.126	.126	.888	.112	.000	371.1	.896	.104	.000
2.00	44.8	487.7	.125	24.8	5.84	10.89	1.145	.145	.874	.126	.000	447.4	.881	.119	.000
2.20	49.8	572.9	.118	25.3	5.94	11.50	1.164	.164	.859	.141	.000	529.7	.866	.134	.000
2.40	54.9	663.8	.113	25.8	6.04	12.09	1.183	.183	.845	.155	.000	617.8	.852	.148	.000
2.60	60.1	760.4	.108	26.2	6.14	12.65	1.203	.203	.831	.169	.000	711.5	.838	.162	.000
2.80	65.4	862.5	.103	26.7	6.24	13.19	1.222	.222	.818	.182	.000	810.9	.825	.175	.000
3.00	70.8	970.3	.099	27.2	6.34	13.70	1.242	.242	.805	.195	.000	915.8	.812	.188	.000
3.20	76.3	1083.5	.096	27.7	6.44	14.20	1.261	.261	.793	.207	.000	1026.3	.799	.201	.000
3.40	81.9	1202.3	.093	28.2	6.54	14.68	1.281	.281	.781	.219	.000	1142.4	.787	.213	.000
3.60	87.6	1326.5	.090	28.6	6.64	15.15	1.300	.300	.769	.231	.000	1263.8	.775	.225	.000
3.80	93.3	1456.2	.087	29.1	6.73	15.60	1.319	.319	.758	.242	.000	1390.8	.764	.236	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KEMAX) = 3 OCCURRED 31 TIMES. AVERAGE NUMBER ITERATIONS = 1.1259
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=40 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .52527 INCHES = 10.8806 ACRE-FEET
 PEAK DISCHARGE RATE = 210.93 CFS AT 2.067 HOURS BASIN AREA = .3884 SQ. MI.

*
 *S COMPUTE BASIN 9-D.1 *****
 *S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.0084 K=0.7
 LENGTH=0 FT SLOPE=0.0 K=2.0
 LENGTH=1600 FT SLOPE=0.0250 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.008400	.7000
SHALLOW FLOW PORTION	.0	.010000	2.0000
CHANNEL FLOW PORTION	1600.0	.025000	3.0000
TOTAL BASIN	2000.0	.021680	1.4138

TIME OF CONCENTRATION (HRS)= .2669 TIME TO PEAK (HRS)= .1779 LAG TIME (HRS)= .2002

COMPUTE NM HYD ID=9 HYD=9_D.1 AREA=0.0603 SQ MI
 PER A=40.0 PER B=21.0 PER C=19.0 PER D=20.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1779

K = .096969HR TP = .177925HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 35.672 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 1.7200
 AREA = .012060 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .191609HR TP = .177925HR K/TP RATIO = 1.076912 SHAPE CONSTANT, N = 3.280142
 UNIT PEAK = 82.400 CFS UNIT VOLUME = .9999 B = 303.92 P60 = 1.7200
 AREA = .048240 SQ MI IA = .53938 INCHES INF = 1.36025 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA 9_D.1

RUNOFF VOLUME = .83686 INCHES = 2.6913 ACRE-FEET
 PEAK DISCHARGE RATE = 68.56 CFS AT 1.567 HOURS BASIN AREA = .0603 SQ. MI.

*
 *S ADD 15-D/QS-D TO SUB-BASIN 9-D.1 *****
 ADD HYD ID=44 HYD NO=104.0 ID I=40 ID II=9
 PRINT HYD ID=44 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = .56714 INCHES = 13.5719 ACRE-FEET
 PEAK DISCHARGE RATE = 223.13 CFS AT 2.067 HOURS BASIN AREA = .4487 SQ. MI.

*
 *S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
 *

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.038 FP SLOPE=0.038
 N=0.038 DIST=32.0
 DIST ELEV DIST ELEV
 0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=30 HYD=104.1 INFLOW ID=44 DT=0HR L=4900
 NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 228 TABLE PTS= 20
 DT= .033333 QMED= 111.56 CKMED= 10.7047
 WIDTH MED= 21.99 NREACH= 8 DX= 612.50

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	6.59	4.04	1.290	.010	.991	.131	-.122	20.5	.993	.040	-.032
.60	12.4	65.0	.260	21.4	8.44	5.23	1.653	.015	.988	.251	-.239	48.0	.990	.197	-.187
.80	16.8	105.1	.217	21.9	10.01	6.27	1.961	.021	.986	.329	-.315	84.1	.987	.293	-.280
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.231	.026	.984	.386	-.370	127.9	.985	.359	-.344
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.472	.031	.982	.429	-.411	178.9	.983	.408	-.392
1.40	30.4	267.8	.154	23.4	13.73	8.82	2.691	.036	.981	.463	-.444	236.6	.982	.447	-.428
1.60	35.1	335.1	.142	23.8	14.76	9.55	2.892	.041	.979	.491	-.471	300.7	.980	.478	-.458
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.077	.046	.978	.515	-.493	371.1	.978	.503	-.482
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.251	.051	.976	.535	-.511	447.4	.977	.525	-.502
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.413	.056	.975	.552	-.527	529.7	.976	.544	-.519
2.40	54.9	663.8	.113	25.8	18.20	12.09	3.566	.061	.974	.568	-.541	617.8	.974	.560	-.535
2.60	60.1	760.4	.108	26.2	18.94	12.65	3.711	.066	.972	.581	-.554	711.5	.973	.575	-.548
2.80	65.4	862.5	.103	26.7	19.65	13.19	3.849	.071	.971	.593	-.565	810.9	.972	.587	-.559
3.00	70.8	970.3	.099	27.2	20.32	13.70	3.981	.075	.970	.604	-.575	915.8	.971	.599	-.570
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.106	.080	.969	.614	-.583	1026.3	.970	.609	-.579
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.227	.085	.968	.624	-.592	1142.4	.968	.619	-.587
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.343	.090	.967	.632	-.599	1263.8	.967	.628	-.595
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.431	.095	.966	.638	-.604	1390.8	.966	.636	-.602

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 7 TIMES. AVERAGE NUMBER ITERATIONS = 1.1844

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	5.17	4.04	1.013	.013	.987	.013	.000	20.5	.992	.008	.000
.60	12.4	65.0	.260	21.4	5.23	5.23	1.025	.025	.976	.024	.000	48.0	.982	.018	.000
.80	16.8	105.1	.217	21.9	5.30	6.27	1.039	.039	.963	.037	.000	84.1	.969	.031	.000
1.00	21.2	152.5	.189	22.4	5.38	7.19	1.054	.054	.948	.052	.000	127.9	.956	.044	.000
1.20	25.7	206.9	.169	22.9	5.47	8.04	1.071	.071	.934	.066	.000	178.9	.941	.059	.000
1.40	30.4	267.8	.154	23.4	5.56	8.82	1.089	.089	.919	.081	.000	236.6	.926	.074	.000
1.60	35.1	335.1	.142	23.8	5.65	9.55	1.107	.107	.903	.097	.000	300.7	.911	.089	.000
1.80	39.9	408.4	.133	24.3	5.75	10.24	1.126	.126	.888	.112	.000	371.1	.896	.104	.000
2.00	44.8	487.7	.125	24.8	5.84	10.89	1.145	.145	.874	.126	.000	447.4	.881	.119	.000

2.20	49.8	572.9	.118	25.3	5.94	11.50	1.164	.164	.859	.141	.000	529.7	.866	.134	.000
2.40	54.9	663.8	.113	25.8	6.04	12.09	1.183	.183	.845	.155	.000	617.8	.852	.148	.000
2.60	60.1	760.4	.108	26.2	6.14	12.65	1.203	.203	.831	.169	.000	711.5	.838	.162	.000
2.80	65.4	862.5	.103	26.7	6.24	13.19	1.222	.222	.818	.182	.000	810.9	.825	.175	.000
3.00	70.8	970.3	.099	27.2	6.34	13.70	1.242	.242	.805	.195	.000	915.8	.812	.188	.000
3.20	76.3	1083.5	.096	27.7	6.44	14.20	1.261	.261	.793	.207	.000	1026.3	.799	.201	.000
3.40	81.9	1202.3	.093	28.2	6.54	14.68	1.281	.281	.781	.219	.000	1142.4	.787	.213	.000
3.60	87.6	1326.5	.090	28.6	6.64	15.15	1.300	.300	.769	.231	.000	1263.8	.775	.225	.000
3.80	93.3	1456.2	.087	29.1	6.73	15.60	1.319	.319	.758	.242	.000	1390.8	.764	.236	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 16 TIMES. AVERAGE NUMBER ITERATIONS = 1.1354
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=30 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = .56577 INCHES = 13.5391 ACRE-FEET
 PEAK DISCHARGE RATE = 218.30 CFS AT 2.300 HOURS BASIN AREA = .4487 SQ. MI.

*
 *S COMPUTE BASIN 6-D.1 *****
 *S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED
 *S 0.065625 SQ MI FROM BASIN
 *
 *S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.05 K=0.7
 LENGTH=0 FT SLOPE=0.0084 K=2.0
 LENGTH=2800 FT SLOPE=0.03286 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	2800.0	.032860	3.0000
TOTAL BASIN	3200.0	.035003	2.2201

TIME OF CONCENTRATION (HRS)= .2140 TIME TO PEAK (HRS)= .1427 LAG TIME (HRS)= .1605

COMPUTE NM HYD ID=6 HYD=6_D.1 AREA=0.0459 SQ MI
 PER A=85.0 PER B=8.0 PER C=3.0 PER D=4.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1427

K = .077756HR TP = .142672HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 6.7725 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.7200
 AREA = .001836 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .174104HR TP = .142672HR K/TP RATIO = 1.220315 SHAPE CONSTANT, N = 2.916181
 UNIT PEAK = 84.907 CFS UNIT VOLUME = .9996 B = 274.92 P60 = 1.7200
 AREA = .044064 SQ MI IA = .62812 INCHES INF = 1.60875 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA 6_D.1

RUNOFF VOLUME = .49739 INCHES = 1.2176 ACRE-FEET
 PEAK DISCHARGE RATE = 39.17 CFS AT 1.533 HOURS BASIN AREA = .0459 SQ. MI.

*S
 *S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
 *S
 ADD HYD ID=55 HYD NO=AP_OFF ID I=30 ID II=6
 PRINT HYD ID=55 CODE=1

HYDROGRAPH FROM AREA AP_OFF

RUNOFF VOLUME = .55942 INCHES = 14.7567 ACRE-FEET
 PEAK DISCHARGE RATE = 220.51 CFS AT 2.300 HOURS BASIN AREA = .4946 SQ. MI.

*
 *S COMPUTE BASIN 9-D.2 *****
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=1800 FT SLOPE=0.0372 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	1800.0	.037200	3.0000
TOTAL BASIN	1800.0	.037200	3.0000

TIME OF CONCENTRATION (HRS)= .0864 TIME TO PEAK (HRS)= .0576 LAG TIME (HRS)= .0648

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
 REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=5 HYD=9 D.2 AREA=0.00967 SQ MI
 PER A=30.0 PER B=18.0 PER C=18.0 PER D=34.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 12.977 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.7200
 AREA = .003288 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141012HR TP = .133333HR K/TP RATIO = 1.057590 SHAPE CONSTANT, N = 3.338717
 UNIT PEAK = 14.760 CFS UNIT VOLUME = .9991 B = 308.36 P60 = 1.7200
 AREA = .006382 SQ MI IA = .52727 INCHES INF = 1.32636 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=20

HYDROGRAPH FROM AREA 9_D.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	2.7	4.000	.1	6.000	.1		
.667	.0	2.667	.4	4.667	.1	6.667	.0		
1.333	2.9	3.333	.1	5.333	.1				

RUNOFF VOLUME = 1.04568 INCHES = .5393 ACRE-FEET
 PEAK DISCHARGE RATE = 15.64 CFS AT 1.500 HOURS BASIN AREA = .0097 SQ. MI.

*
 *S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
 *

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.0433 FP SLOPE=0.0433
 N=0.038 DIST=32.0
 DIST ELEV DIST ELEV
 0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	11.12	20.48
.40	8.19	35.31	20.96
.60	12.43	69.41	21.44
.80	16.77	112.16	21.92
1.00	21.20	162.80	22.40
1.20	25.73	220.83	22.88
1.40	30.35	285.88	23.36
1.60	35.07	357.66	23.84
1.80	39.89	435.97	24.32
2.00	44.80	520.65	24.80

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
2.20	49.81	611.55	25.28												
2.40	54.91	708.59	25.76												
2.60	60.11	811.67	26.24												
2.80	65.41	920.73	26.72												
3.00	70.80	1035.72	27.20												
3.20	76.29	1156.61	27.68												
3.40	81.87	1283.37	28.16												
3.60	87.55	1415.97	28.64												
3.80	93.33	1554.41	29.12												

ROUTE MCUNGE ID=7 HYD=100.01 INFLOW ID=5 DT=0HR L=1200
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 206 TABLE PTS= 20
DT= .033333 QMED= 7.82 CKMED= 2.7482
WIDTH MED= 20.34 NREACH= 8 DX= 150.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	4.53	2.75	3.622	.021	.991	.569	-.560	3.5	.994	.397	-.391
.40	8.2	35.3	.077	21.0	7.03	4.31	5.624	.042	.987	.700	-.687	21.9	.989	.650	-.639
.60	12.4	69.4	.060	21.4	9.01	5.58	7.206	.063	.985	.758	-.743	51.2	.986	.733	-.719
.80	16.8	112.2	.050	21.9	10.68	6.69	8.548	.084	.983	.792	-.775	89.8	.984	.777	-.760
1.00	21.2	162.8	.043	22.4	12.15	7.68	9.723	.105	.981	.815	-.796	136.6	.982	.805	-.786
1.20	25.7	220.8	.039	22.9	13.47	8.58	10.775	.126	.979	.832	-.811	191.0	.980	.824	-.804
1.40	30.4	285.9	.035	23.4	14.66	9.42	11.729	.146	.977	.845	-.822	252.6	.978	.839	-.817
1.60	35.1	357.7	.033	23.8	15.76	10.20	12.604	.167	.976	.855	-.831	321.0	.976	.850	-.826
1.80	39.9	436.0	.030	24.3	16.77	10.93	13.414	.188	.974	.863	-.837	396.1	.975	.859	-.834
2.00	44.8	520.6	.029	24.8	17.71	11.62	14.169	.208	.973	.870	-.843	477.6	.974	.867	-.840
2.20	49.8	611.6	.027	25.3	18.60	12.28	14.877	.228	.972	.876	-.847	565.4	.972	.873	-.845
2.40	54.9	708.6	.026	25.8	19.43	12.90	15.544	.248	.970	.881	-.851	659.4	.971	.878	-.849
2.60	60.1	811.7	.025	26.2	20.22	13.50	16.176	.268	.969	.885	-.855	759.5	.970	.883	-.853
2.80	65.4	920.7	.024	26.7	20.97	14.08	16.777	.288	.968	.889	-.857	865.6	.969	.887	-.856
3.00	70.8	1035.7	.023	27.2	21.69	14.63	17.350	.308	.967	.893	-.860	977.6	.968	.891	-.859
3.20	76.3	1156.6	.022	27.7	22.37	15.16	17.899	.328	.966	.896	-.862	1095.6	.966	.894	-.861
3.40	81.9	1283.4	.021	28.2	23.03	15.68	18.425	.347	.965	.899	-.864	1219.4	.965	.897	-.863
3.60	87.6	1416.0	.021	28.6	23.67	16.17	18.932	.367	.964	.901	-.865	1349.1	.964	.900	-.865
3.80	93.3	1554.4	.020	29.1	24.14	16.66	19.313	.388	.963	.903	-.866	1484.6	.963	.903	-.866

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 4 TIMES. AVERAGE NUMBER ITERATIONS = 1.0689

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	1.34	2.75	1.071	.071	.934	.066	.000	3.5	.977	.023	.000
.40	8.2	35.3	.077	21.0	1.50	4.31	1.197	.197	.835	.165	.000	21.9	.884	.116	.000
.60	12.4	69.4	.060	21.4	1.67	5.58	1.339	.339	.747	.253	.000	51.2	.789	.211	.000
.80	16.8	112.2	.050	21.9	1.85	6.69	1.484	.484	.674	.326	.000	89.8	.708	.292	.000
1.00	21.2	162.8	.043	22.4	2.03	7.68	1.627	.627	.615	.385	.000	136.6	.643	.357	.000
1.20	25.7	220.8	.039	22.9	2.21	8.58	1.767	.767	.566	.434	.000	191.0	.589	.411	.000
1.40	30.4	285.9	.035	23.4	2.38	9.42	1.903	.903	.526	.474	.000	252.6	.545	.455	.000
1.60	35.1	357.7	.033	23.8	2.54	10.20	2.035	1.035	.491	.509	.000	321.0	.508	.492	.000
1.80	39.9	436.0	.030	24.3	2.70	10.93	2.163	1.163	.462	.538	.000	396.1	.476	.524	.000
2.00	44.8	520.6	.029	24.8	2.86	11.62	2.288	1.288	.437	.563	.000	477.6	.449	.551	.000
2.20	49.8	611.6	.027	25.3	3.01	12.28	2.409	1.409	.415	.585	.000	565.4	.426	.574	.000
2.40	54.9	708.6	.026	25.8	3.16	12.90	2.527	1.527	.396	.604	.000	659.4	.405	.595	.000
2.60	60.1	811.7	.025	26.2	3.30	13.50	2.643	1.643	.378	.622	.000	759.5	.387	.613	.000
2.80	65.4	920.7	.024	26.7	3.44	14.08	2.755	1.755	.363	.637	.000	865.6	.370	.630	.000
3.00	70.8	1035.7	.023	27.2	3.58	14.63	2.865	1.865	.349	.651	.000	977.6	.356	.644	.000
3.20	76.3	1156.6	.022	27.7	3.72	15.16	2.973	1.973	.336	.664	.000	1095.6	.343	.657	.000
3.40	81.9	1283.4	.021	28.2	3.85	15.68	3.078	2.078	.325	.675	.000	1219.4	.330	.670	.000
3.60	87.6	1416.0	.021	28.6	3.98	16.17	3.181	2.181	.314	.686	.000	1349.1	.319	.681	.000
3.80	93.3	1554.4	.020	29.1	4.10	16.66	3.282	2.282	.305	.695	.000	1484.6	.309	.691	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 2 OCCURRED 254 TIMES. AVERAGE NUMBER ITERATIONS = 1.0548

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = 1.04013 INCHES = .5364 ACRE-FEET
PEAK DISCHARGE RATE = 15.09 CFS AT 1.767 HOURS BASIN AREA = .0097 SQ. MI.

*
*S COMPUTE BASIN 6-D.2*****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)
*
*S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6
*
*COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
* NK=1 ISLOPE=0
* LENGTH=1200 FT SLOPE=0.0433 K=3.0
* Kn=.021 CR=.5
*
*
*COMPUTE NM HYD ID=7 HYD=6 D.2 AREA=0.047369 SQ MI
* PER A=42 PER B=15 PER C=15 PER D=28
* TP=0.0 HR MASS RAIN=-1
*PRINT HYD ID=7 CODE=20


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PER C=34.5 PER D=31 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.105 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.7200
AREA = .003320 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 19.595 CFS UNIT VOLUME = .9998 B = 353.53 P60 = 1.7200
AREA = .007390 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=34 CODE=1

HYDROGRAPH FROM AREA 6_D.2D

RUNOFF VOLUME = 1.12813 INCHES = .6444 ACRE-FEET
PEAK DISCHARGE RATE = 19.43 CFS AT 1.500 HOURS BASIN AREA = .0107 SQ. MI.

*
*S COMPUTE BASIN 6-D.2E *****
COMPUTE NM HYD ID=35 HYD=6_D.2E AREA=0.002415 PER A=0 PER B=30.5
PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.7176 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 1.7200
AREA = .000942 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 3.9061 CFS UNIT VOLUME = .9972 B = 353.53 P60 = 1.7200
AREA = .001473 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=35 CODE=1

HYDROGRAPH FROM AREA 6_D.2E

RUNOFF VOLUME = 1.22438 INCHES = .1577 ACRE-FEET
PEAK DISCHARGE RATE = 4.61 CFS AT 1.500 HOURS BASIN AREA = .0024 SQ. MI.

*
*S COMPUTE BASIN 6-D.2F *****
COMPUTE NM HYD ID=36 HYD=6_D.2F AREA=0.004180 PER A=0 PER B=30.5
PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.4347 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.7200
AREA = .001630 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 6.7609 CFS UNIT VOLUME = .9984 B = 353.53 P60 = 1.7200
AREA = .002550 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=36 CODE=1

HYDROGRAPH FROM AREA 6_D.2F

RUNOFF VOLUME = 1.22438 INCHES = .2730 ACRE-FEET
PEAK DISCHARGE RATE = 7.96 CFS AT 1.500 HOURS BASIN AREA = .0042 SQ. MI.

*
*S ADD 9-D.2 TO 6-D.2A *****
ADD HYD ID=39 HYD NO=6_9D.2A ID I=7 ID II=31
PRINT HYD ID=39 CODE=1

HYDROGRAPH FROM AREA 6_9D.2A

RUNOFF VOLUME = 1.17314 INCHES = 1.6743 ACRE-FEET
PEAK DISCHARGE RATE = 33.64 CFS AT 1.500 HOURS BASIN AREA = .0268 SQ. MI.

*

```

*S ADD 6-D.2B TO 6_9D.2A *****
 ADD HYD ID=41 HYD NO=6_9D.2AB ID I=32 ID II=39
 PRINT HYD ID=41 CODE=1

HYDROGRAPH FROM AREA 6_9D.2AB

RUNOFF VOLUME = 1.20611 INCHES = 2.7654 ACRE-FEET
 PEAK DISCHARGE RATE = 65.06 CFS AT 1.500 HOURS BASIN AREA = .0430 SQ. MI.

*
 *S ADD 6-D.2C TO 6_9D.2AB *****
 ADD HYD ID=42 HYD NO=6_9D.2ABC ID I=33 ID II=41
 PRINT HYD ID=42 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABC

RUNOFF VOLUME = 1.19814 INCHES = 3.1243 ACRE-FEET
 PEAK DISCHARGE RATE = 75.84 CFS AT 1.500 HOURS BASIN AREA = .0489 SQ. MI.

*
 *S ADD 6_D.2D TO 6_9D.2ABC *****
 ADD HYD ID=43 HYD NO=6_9D.2ABCD ID I=34 ID II=42
 PRINT HYD ID=43 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABCD

RUNOFF VOLUME = 1.18556 INCHES = 3.7687 ACRE-FEET
 PEAK DISCHARGE RATE = 95.27 CFS AT 1.500 HOURS BASIN AREA = .0596 SQ. MI.

*
 *S ADD 6_D.2E TO 6_9D.2ABCD *****
 ADD HYD ID=46 HYD NO=6_D.2ABCDE ID I=35 ID II=43
 PRINT HYD ID=46 CODE=1

HYDROGRAPH FROM AREA 6_D.2ABCDE

RUNOFF VOLUME = 1.18706 INCHES = 3.9263 ACRE-FEET
 PEAK DISCHARGE RATE = 99.88 CFS AT 1.500 HOURS BASIN AREA = .0620 SQ. MI.

*
 *S ADD 6_D.2F TO 6_9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6_9D.2*****
 ADD HYD ID=47 HYD NO=6_9D.2ABCDEF ID I=36 ID II=46
 PRINT HYD ID=47 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABCDEF

RUNOFF VOLUME = 1.18942 INCHES = 4.1993 ACRE-FEET
 PEAK DISCHARGE RATE = 107.84 CFS AT 1.500 HOURS BASIN AREA = .0662 SQ. MI.

*
 *
 *S COMPUTE BASIN 6-D.3*****
 *S UPDATED TO SHOW 30% OPEN SPACE
 *
 *S NO CHANGE FROM MONTECITO WEST DMP
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=600 FT SLOPE=0.0433 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	ADJUSTED SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	600.0	.043003	3.0000
TOTAL BASIN	600.0	.043003	3.0000

TIME OF CONCENTRATION (HRS)= .0268 TIME TO PEAK (HRS)= .0179 LAG TIME (HRS)= .0201

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=9 HYD=6_D.3 AREA=0.018277 SQ MI
PER A=30.0 PER B=18 PER C=18 PER D=34
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 24.528 CFS UNIT VOLUME = .9989 B = 526.28 P60 = 1.7200
AREA = .006214 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141012HR TP = .133333HR K/TP RATIO = 1.057590 SHAPE CONSTANT, N = 3.338717
UNIT PEAK = 27.898 CFS UNIT VOLUME = .9995 B = 308.36 P60 = 1.7200
AREA = .012063 SQ MI IA = .52727 INCHES INF = 1.32636 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=20

HYDROGRAPH FROM AREA 6_D.3

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	5.1	4.000	.2	6.000	.2		
.667	.0	2.667	.7	4.667	.2	6.667	.0		
1.333	5.6	3.333	.3	5.333	.2				

RUNOFF VOLUME = 1.04568 INCHES = 1.0193 ACRE-FEET
PEAK DISCHARGE RATE = 29.55 CFS AT 1.500 HOURS BASIN AREA = .0183 SQ. MI.

*
*S***** ROUTE OFFSITE FLOW THRU 850' OF 36" RCP PIPE
COMPUTE RATING CURVE CID=10 VS NO=1 CODE=-1
SLP=0.0273
DIA=36 INCHES N=0.013
*****WARNING***** CID=1 USED

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.16	.14	.58	1.33
.31	.39	2.51	1.83
.47	.71	5.83	2.18
.63	1.07	10.49	2.44
.78	1.46	16.38	2.63
.94	1.89	23.37	2.78
1.09	2.33	31.32	2.89
1.25	2.79	40.04	2.96
1.41	3.26	49.36	2.99
1.56	3.72	59.07	3.00
1.72	4.19	68.96	3.00
1.88	4.65	78.80	3.00
2.03	5.10	88.32	3.00
2.19	5.53	97.23	3.00
2.35	5.93	105.21	3.00
2.50	6.30	111.85	3.00
2.66	6.62	116.60	3.00
2.81	6.89	118.55	3.00
3.00	7.07	118.55	3.00

ROUTE MCUNGE ID=10 HYD= RT.2AB2 INFLOW ID=9 DT=0HR L=850
NS=0 SLOPE=.0273 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 210 TABLE PTS= 19
DT= .033333 QMED= 14.77 CKMED= 14.8344
WIDTH MED= 2.58 NREACH= 1 DX= 850.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.078	.0	7.08	1.94	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.16	.1	.6	.057	1.3	7.06	4.11	.997	.003	.997	.000	.003	.1	1.000	.000	.000
.31	.4	2.5	.037	1.8	9.34	6.42	1.319	.006	.995	.140	-.134	1.4	.995	.047	-.042
.47	.7	5.8	.029	2.2	11.83	8.26	1.670	.010	.993	.254	-.246	4.0	.993	.201	-.194
.63	1.1	10.5	.024	2.4	13.92	9.83	1.966	.013	.991	.329	-.320	8.0	.992	.294	-.286
.78	1.5	16.4	.021	2.6	15.71	11.18	2.218	.017	.989	.382	-.371	13.3	.990	.357	-.348
.94	1.9	23.4	.019	2.8	17.23	12.38	2.432	.021	.988	.421	-.409	19.8	.989	.403	-.392
1.09	2.3	31.3	.018	2.9	18.50	13.43	2.612	.025	.986	.450	-.436	27.3	.987	.437	-.424
1.25	2.8	40.0	.016	3.0	19.55	14.35	2.760	.030	.984	.472	-.456	35.6	.985	.463	-.448
1.41	3.3	49.4	.016	3.0	20.37	15.16	2.875	.035	.982	.489	-.471	44.6	.983	.482	-.465
1.56	3.7	59.1	.015	3.0	20.94	15.86	2.956	.041	.980	.500	-.479	54.2	.981	.496	-.477
1.72	4.2	69.0	.014	3.0	21.07	16.46	2.975	.047	.977	.503	-.479	64.0	.978	.503	-.481

```

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED      4 TIMES.  AVERAGE NUMBER ITERATIONS = 1.0777
Equations solved using the Ponce correction to C2
PRINT HYD              ID=10              CODE=1

```

HYDROGRAPH FROM AREA RT.2AB2

RUNOFF VOLUME = 1.04577 INCHES = 1.0194 ACRE-FEET
PEAK DISCHARGE RATE = 29.41 CFS AT 1.533 HOURS BASIN AREA = .0183 SQ. MI.

```

*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S COMPUTE BASIN A-1.1 *****
*S AS ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=3  ISLOPE=-1
                        LENGTH=400 FT  SLOPE=0.0340 K=0.7
                        LENGTH=1600 FT  SLOPE=0.0361 K=2.0
                        LENGTH=2800 FT  SLOPE=0.0346 K=3.0

```

BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
USE $K_n = .0160$ AND $L_{ca}/L = .50000$

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.034000	.7000
SHALLOW FLOW PORTION	1600.0	.036100	2.0000
CHANNEL FLOW PORTION	2800.0	.034600	3.0000
TOTAL BASIN	4800.0	.035050	2.0799

LAG EQUATION FACTORS:	Kn=	.0160	TOTAL BASIN LENGTH (FT)=	4800.0
TOTAL BASIN SLOPE (FT/FT)=		.035050	CENTROUD LENGTH (FT)=	2400.0

TIME OF CONCENTRATION (HRS)= .2889 TIME TO PEAK (HRS)= .1926 LAG TIME (HRS)= .2167

```

COMPUTE NM HYD          ID=60  HYD=A_1.1  AREA=0.08421 SQ MI
                        PER A=90.0  PER B=5.0  PER C=5.0  PER D=0.0
                        TP=0.0 HR  MASS RAIN=-1

```

TIME TO PEAK (hrs)= .1926

K = .231672HR TP = .192581HR K/TP RATIO = 1.202988 SHAPE CONSTANT, N = 2.954469
UNIT PEAK = 121.60 CFS UNIT VOLUME = .9998 B = 278.09 P60 = 1.7200
AREA = .084210 SQ MI IA = .62750 INCHES INF = 1.60700 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=60 CODE=20

HYDROGRAPH FROM AREA A 1.1

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	2.000	10.7	4.000	.4	6.000	.0		
.667	.0	2.667	2.5	4.667	.1	6.667	.0		
1.333	.1	3.333	1.0	5.333	.1				

RUNOFF VOLUME = .43725 INCHES = 1.9637 ACRE-FEET
PEAK DISCHARGE RATE = 51.19 CFS AT 1.567 HOURS BASIN AREA = .0842 SQ. MI.

*S UPDATED TO SHOW 30% OPEN SPACE
*
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6

```

*
COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=1  ISLOPE=0
                        LENGTH=3200 FT  SLOPE=0.0325 K=3.0
                        Kn=.021  CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                        LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
SHEET FLOW PORTION      .0              .000000             .0000
SHALLOW FLOW PORTION   .0              .000000             .0000
CHANNEL FLOW PORTION    3200.0          .032500             3.0000
TOTAL BASIN              3200.0          .032500             3.0000

TIME OF CONCENTRATION (HRS)= .1644      TIME TO PEAK (HRS)= .1096      LAG TIME (HRS)= .1233

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000      TIME TO PEAK (HRS)= .1333      LAG TIME (HRS)= .1500

COMPUTE NM HYD          ID=65  HYD=A_1.2  AREA=0.012613 SQ MI
                        PER A=30.0  PER B=18.0  PER C=18.0  PER D=34.0
                        TP=0.0 HR  MASS RAIN=-1
TIME TO PEAK (hrs)= .1333

K = .072666HR  TP = .133333HR  K/TP RATIO = .545000  SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 16.927 CFS  UNIT VOLUME = .9987  B = 526.28  P60 = 1.7200
AREA = .004288 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141012HR  TP = .133333HR  K/TP RATIO = 1.057590  SHAPE CONSTANT, N = 3.338717
UNIT PEAK = 19.253 CFS  UNIT VOLUME = .9993  B = 308.36  P60 = 1.7200
AREA = .008325 SQ MI  IA = .52727 INCHES  INF = 1.32636 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD              ID=65      CODE=20

HYDROGRAPH FROM AREA A_1.2

TIME    FLOW      TIME    FLOW      TIME    FLOW      TIME    FLOW      TIME    FLOW
HRS     CFS       HRS     CFS       HRS     CFS       HRS     CFS       HRS     CFS
.000     .0        2.000    3.5        4.000    .1        6.000    .1        6.667    .1
.667     .0        2.667    .5        4.667    .1        6.667    .0
1.333    3.8        3.333    .2        5.333    .1

RUNOFF VOLUME = 1.04568 INCHES = .7034 ACRE-FEET
PEAK DISCHARGE RATE = 20.39 CFS AT 1.500 HOURS  BASIN AREA = .0126 SQ. MI.

*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD          ID=66  HYD NO=A_1.1_1.2  ID I=60  ID II=65
PRINT HYD        ID=66  CODE=1

HYDROGRAPH FROM AREA A_1.1_1.2

RUNOFF VOLUME = .51650 INCHES = 2.6671 ACRE-FEET
PEAK DISCHARGE RATE = 68.67 CFS AT 1.567 HOURS  BASIN AREA = .0968 SQ. MI.

*
*S
*S *****
*S * COMPUTE OFFSITE "E" BASINS *
*S *****
*S
*S
*S
*S COMPUTE BASIN E-1.1 *****
*
COMPUTE NM HYD          ID=21  HYD=1_E.1  AREA=0.006128  PER A=30.0  PER B=18.0
                        PER C=18.0  PER D=34  TP=0.13333  RAINFALL=-1

K = .072665HR  TP = .133330HR  K/TP RATIO = .545000  SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.2240 CFS  UNIT VOLUME = .9980  B = 526.28  P60 = 1.7200
AREA = .002084 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141009HR  TP = .133330HR  K/TP RATIO = 1.057590  SHAPE CONSTANT, N = 3.338717
UNIT PEAK = 9.3540 CFS  UNIT VOLUME = .9986  B = 308.36  P60 = 1.7200

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```

AREA = .004044 SQ MI   IA = .52727 INCHES   INF = 1.32636 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=21   CODE=1

                                HYDROGRAPH FROM AREA 1_E.1

RUNOFF VOLUME = 1.04568 INCHES   = .3418 ACRE-FEET
PEAK DISCHARGE RATE = 9.92 CFS   AT 1.500 HOURS   BASIN AREA = .0061 SQ. MI.

*
*S COMPUTE BASIN E-1.3 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                   NK=1 ISLOPE=0
                   LENGTH=3800 FT SLOPE=0.0325 K=3.0
                   Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                                LENGTH (FT)   SLOPE (FT/FT)   COMPOSITE K
SHEET FLOW PORTION              .0           .000000           .0000
SHALLOW FLOW PORTION           .0           .000000           .0000
CHANNEL FLOW PORTION           3800.0        .032500           3.0000
TOTAL BASIN                     3800.0        .032500           3.0000

TIME OF CONCENTRATION (HRS)= .1952   TIME TO PEAK (HRS)= .1301   LAG TIME (HRS)= .1464

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000   TIME TO PEAK (HRS)= .1333   LAG TIME (HRS)= .1500

COMPUTE NM HYD      ID=70 HYD=E 1.3 AREA=0.08120 SQ MI
                   PER A=52.0 PER B=16.0 PER C=16.0 PER D=16.0
                   TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .073112HR   TP = .133333HR   K/TP RATIO = .548342   SHAPE CONSTANT, N = 7.051009
UNIT PEAK = 51.026 CFS   UNIT VOLUME = .9991   B = 523.67   P60 = 1.7200
AREA = .012992 SQ MI   IA = .10000 INCHES   INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .147593HR   TP = .133333HR   K/TP RATIO = 1.106950   SHAPE CONSTANT, N = 3.194118
UNIT PEAK = 152.08 CFS   UNIT VOLUME = 1.000   B = 297.28   P60 = 1.7200
AREA = .068208 SQ MI   IA = .56429 INCHES   INF = 1.43000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=70   CODE=20

                                HYDROGRAPH FROM AREA E_1.3

TIME    FLOW    TIME    FLOW    TIME    FLOW    TIME    FLOW    TIME    FLOW
HRS      CFS      HRS      CFS      HRS      CFS      HRS      CFS      HRS      CFS
.000      .0      2.000    14.3    4.000      .4      6.000      .4
.667      .0      2.667     2.2    4.667      .4      6.667      .0
1.333    12.4      3.333      .7    5.333      .4

RUNOFF VOLUME = .75028 INCHES   = 3.2492 ACRE-FEET
PEAK DISCHARGE RATE = 102.27 CFS   AT 1.500 HOURS   BASIN AREA = .0812 SQ. MI.

*
*S COMPUTE BASIN E-1.4 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                   NK=1 ISLOPE=0
                   LENGTH=5200 FT SLOPE=0.0325 K=3.0
                   Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

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```

SCS UPLAND METHOD FACTORS
      LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
SHEET FLOW PORTION      .0      .000000      .0000
SHALLOW FLOW PORTION      .0      .000000      .0000
CHANNEL FLOW PORTION      5200.0      .032500      3.0000
TOTAL BASIN      5200.0      .032500      3.0000

LAG EQUATION FACTORS:      Kn= .0210      TOTAL BASIN LENGTH (FT)= 5200.0
TOTAL BASIN SLOPE (FT/FT)= .032500      CENTROUD LENGTH (FT)= 2600.0

TIME OF CONCENTRATION (HRS)= .2385      TIME TO PEAK (HRS)= .1590      LAG TIME (HRS)= .1789

COMPUTE NM HYD      ID=75 HYD=E_1.4 AREA=0.13593 SQ MI
      PER A=60.0 PER B=13.0 PER C=13.0 PER D=14.0
      TP=0.0 HR MASS RAIN=-1
TIME TO PEAK (hrs)= .1590

K = .088752HR      TP = .159019HR      K/TP RATIO = .558124      SHAPE CONSTANT, N = 6.893744
UNIT PEAK = 61.775 CFS      UNIT VOLUME = .9994      B = 516.20      P60 = 1.7200
AREA = .019030 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .174967HR      TP = .159019HR      K/TP RATIO = 1.100293      SHAPE CONSTANT, N = 3.212680
UNIT PEAK = 219.60 CFS      UNIT VOLUME = 1.000      B = 298.73      P60 = 1.7200
AREA = .116900 SQ MI      IA = .58198 INCHES      INF = 1.47953 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD      ID=75      CODE=20

HYDROGRAPH FROM AREA E_1.4

      TIME      FLOW      TIME      FLOW      TIME      FLOW      TIME      FLOW      TIME      FLOW
      HRS      CFS      HRS      CFS      HRS      CFS      HRS      CFS      HRS      CFS
      .000      .0      2.000      23.9      4.000      .8      6.000      .6
      .667      .0      2.667      4.5      4.667      .6      6.667      .0
      1.333      13.2      3.333      1.5      5.333      .5      7.333      .0

RUNOFF VOLUME = .70019 INCHES = 5.0761 ACRE-FEET
PEAK DISCHARGE RATE = 144.66 CFS AT 1.533 HOURS BASIN AREA = .1359 SQ. MI.

*
*S
*S *****
*S *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*
*S *****
*S
*S NO CHANGE FROM MONTECITO WEST DMP
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD      ID=2 HYD=6_D.4 AREA=0.015778 PER A=0 PER B=29
      PER C=29 PER D=42 TP=0.13333 RAINFALL=-1

K = .072665HR      TP = .133330HR      K/TP RATIO = .545000      SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.157 CFS      UNIT VOLUME = .9989      B = 526.28      P60 = 1.7200
AREA = .006627 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR      TP = .133330HR      K/TP RATIO = .891996      SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 24.265 CFS      UNIT VOLUME = .9999      B = 353.53      P60 = 1.7200
AREA = .009151 SQ MI      IA = .42500 INCHES      INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD      ID=2      CODE=1

HYDROGRAPH FROM AREA 6_D.4

RUNOFF VOLUME = 1.26047 INCHES = 1.0607 ACRE-FEET
PEAK DISCHARGE RATE = 30.55 CFS AT 1.500 HOURS BASIN AREA = .0158 SQ. MI.

*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD      ID=3 HYD=6_D.5 AREA=0.007522 PER A=0 PER B=34
      PER C=34 PER D=32 TP=0.13333 RAINFALL=-1

K = .072665HR      TP = .133330HR      K/TP RATIO = .545000      SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.5010 CFS      UNIT VOLUME = .9982      B = 526.28      P60 = 1.7200
AREA = .002407 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
 UNIT PEAK = 13.563 CFS UNIT VOLUME = .9995 B = 353.53 P60 = 1.7200
 AREA = .005115 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 6_D.5

RUNOFF VOLUME = 1.14016 INCHES = .4574 ACRE-FEET
 PEAK DISCHARGE RATE = 13.73 CFS AT 1.500 HOURS BASIN AREA = .0075 SQ. MI.

*
 *S COMPUTE BASIN 6-D.6 *****
 COMPUTE NM HYD ID=4 HYD=6 D.6 AREA=0.006441 PER A=100 PER B=0
 PER C=0 PER D=0 TP=0.13333 RAINFALL=-1

K = .167503HR TP = .133330HR K/TP RATIO = 1.256304 SHAPE CONSTANT, N = 2.840823
 UNIT PEAK = 12.975 CFS UNIT VOLUME = .9983 B = 268.58 P60 = 1.7200
 AREA = .006441 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 6_D.6

RUNOFF VOLUME = .41046 INCHES = .1410 ACRE-FEET
 PEAK DISCHARGE RATE = 4.95 CFS AT 1.533 HOURS BASIN AREA = .0064 SQ. MI.

*
 *S COMPUTE BASIN 6-D.7 *****
 COMPUTE NM HYD ID=1 HYD=6 D.7 AREA=0.005236 PER A=0 PER B=31
 PER C=30 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 8.0603 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.7200
 AREA = .002042 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119171HR TP = .133330HR K/TP RATIO = .893807 SHAPE CONSTANT, N = 3.966901
 UNIT PEAK = 8.4552 CFS UNIT VOLUME = .9989 B = 352.96 P60 = 1.7200
 AREA = .003194 SQ MI IA = .42623 INCHES INF = 1.04344 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 6_D.7

RUNOFF VOLUME = 1.22285 INCHES = .3415 ACRE-FEET
 PEAK DISCHARGE RATE = 9.96 CFS AT 1.500 HOURS BASIN AREA = .0052 SQ. MI.

*
 *S COMPUTE BASIN 6-D.8 *****
 COMPUTE NM HYD ID=20 HYD=6_D.8 AREA=0.010762 PER A=0 PER B=30
 PER C=29 PER D=41 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 17.417 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.7200
 AREA = .004412 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119179HR TP = .133330HR K/TP RATIO = .893868 SHAPE CONSTANT, N = 3.966604
 UNIT PEAK = 16.808 CFS UNIT VOLUME = .9996 B = 352.94 P60 = 1.7200
 AREA = .006350 SQ MI IA = .42627 INCHES INF = 1.04356 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 6_D.8

RUNOFF VOLUME = 1.24691 INCHES = .7157 ACRE-FEET
 PEAK DISCHARGE RATE = 20.69 CFS AT 1.500 HOURS BASIN AREA = .0108 SQ. MI.

*

```

*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD      ID=22 HYD=1_E.2 AREA=0.001177 PER A=0 PER B=29
                    PER C=29 PER D=42 TP=0.13333 RAINFALL=-1

K = .072665HR      TP = .133330HR      K/TP RATIO = .545000      SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.9512 CFS      UNIT VOLUME = .9932      B = 526.28      P60 = 1.7200
AREA = .000494 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR      TP = .133330HR      K/TP RATIO = .891996      SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 1.8101 CFS      UNIT VOLUME = .9929      B = 353.53      P60 = 1.7200
AREA = .000683 SQ MI      IA = .42500 INCHES      INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=22      CODE=1

                    HYDROGRAPH FROM AREA 1_E.2

RUNOFF VOLUME = 1.26047 INCHES      = .0791 ACRE-FEET
PEAK DISCHARGE RATE = 2.29 CFS AT 1.500 HOURS      BASIN AREA = .0012 SQ. MI.

*
*S ADD E_1.1 TO E_1.2 *****
ADD HYD      ID=71      HYD NO=E.1_2 ID I=21 ID II=22
PRINT HYD      ID=71      CODE=1

                    HYDROGRAPH FROM AREA E.1_2

RUNOFF VOLUME = 1.08022 INCHES      = .4208 ACRE-FEET
PEAK DISCHARGE RATE = 12.21 CFS AT 1.500 HOURS      BASIN AREA = .0073 SQ. MI.

*

```

```

*S ADD 6_D.8 TO E_1.1_1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****
ADD HYD          ID=72    HYD NO=AP2_ON ID I=71 ID II=20
PRINT HYD        ID=72    CODE=1

                                HYDROGRAPH FROM AREA AP2_ON

RUNOFF VOLUME =      1.17950 INCHES      =      1.1365 ACRE-FEET
PEAK DISCHARGE RATE =      32.90 CFS    AT    1.500 HOURS    BASIN AREA =    .0181 SQ. MI.

*
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****
ADD HYD          ID=11    HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD        ID=11    CODE=1

                                HYDROGRAPH FROM AREA 6D.4_7

RUNOFF VOLUME =      1.25107 INCHES      =      1.4021 ACRE-FEET
PEAK DISCHARGE RATE =      40.50 CFS    AT    1.500 HOURS    BASIN AREA =    .0210 SQ. MI.

*
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****
ADD HYD          ID=12    HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD        ID=12    CODE=1

                                HYDROGRAPH FROM AREA 6D.5_6

RUNOFF VOLUME =      .80354 INCHES      =      .5984 ACRE-FEET
PEAK DISCHARGE RATE =      18.68 CFS    AT    1.500 HOURS    BASIN AREA =    .0140 SQ. MI.

*
*S
*S          *****
*S          * COMPUTE ANALYSIS POINTS *
*S          *****
*S
*S
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD AP_OFF TO 6_9D.2 (DIVERT FLOWS) TO GET NEW AP_OFF *****
*
ADD HYD          ID=25    HYD NO=AP_OFF.NEW ID I=55 ID II=47
PRINT HYD        ID=25    CODE=1

                                HYDROGRAPH FROM AREA AP_OFF.NEW

RUNOFF VOLUME =      .63379 INCHES      =      18.9559 ACRE-FEET
PEAK DISCHARGE RATE =      232.17 CFS    AT    2.000 HOURS    BASIN AREA =    .5608 SQ. MI.

*S
*S ADD AP2_ON TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD          ID=24    HYD NO=AP_2 ID I=25 ID II=72
PRINT HYD        ID=24    CODE=1

                                HYDROGRAPH FROM AREA AP_2

RUNOFF VOLUME =      .65082 INCHES      =      20.0925 ACRE-FEET
PEAK DISCHARGE RATE =      237.91 CFS    AT    2.000 HOURS    BASIN AREA =    .5789 SQ. MI.

*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S DIVIDE 6D.3 FOR 30.0% RETAINAGE
DIVIDE HYD        ID=10    PER=-70.0          ID I=12 HYD NO=6D.3_OUT
                                           ID II=13 HYD NO=6D.3_RETAIN
*
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD          ID=14    HYD NO=AP_1 ID I=12 ID II=11
PRINT HYD        ID=14    CODE=1

```

HYDROGRAPH FROM AREA AP_1

RUNOFF VOLUME = 1.17337 INCHES = 2.1157 ACRE-FEET
PEAK DISCHARGE RATE = 60.74 CFS AT 1.500 HOURS BASIN AREA = .0338 SQ. MI.

*S

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 09:24:52

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
 05/12/2016
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- VERSION: 1997.02c
 RUN DATE (MON/DAY/YR) =

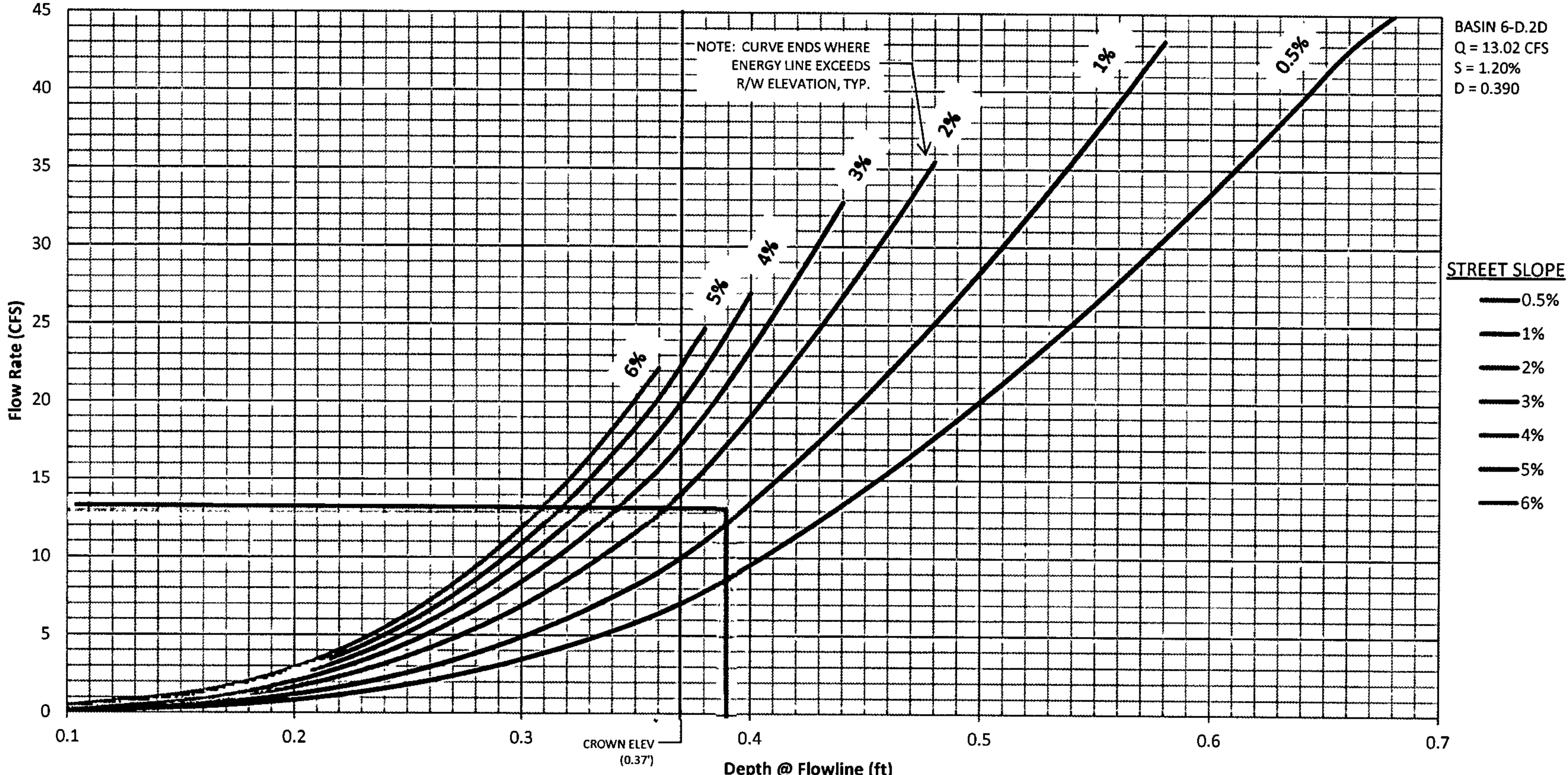
USER NO.= AHYMO-S-9702c1BohanHu-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED											
*S 100 YEAR - 6 HOUR STORM											
*S											
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS											
*S MONTECITO WEST DMP UPDATE WITH MONTEICTO VISTA DEVELOPMENT 5/12/16											
START											
LOCATION											
RAINFALL TYPE= 1											
*S											
*S											
*S											
*S											
*S											
*S											
*S COMPUTE BASIN OS-D *****											
*S NO CHANGE FROM MONTECITO WEST DMP											
COMPUTE NM HYD OS_D - 17 .23780 174.20 5.322 .41961 1.533 1.145 PER IMP= .00											
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****											
ROUTE MCUNGE 100.01 17 50 .23780 170.91 5.282 .41646 1.833 1.123 CCODE = .1											
*S COMPUTE BASIN 15-D *****											
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF											
*S NO CHANGE FROM MONTECITO WEST DMP											
COMPUTE NM HYD 15 D - 15 .15060 177.15 5.638 .70193 1.500 1.838 PER IMP= 16.00											
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****											
ADD HYD 101.00 15&50 33 .38840 213.08 10.920 .52715 1.800 .857											
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****											
ROUTE MCUNGE 100.01 33 40 .38840 210.93 10.881 .52527 2.067 .849 CCODE = .1											
*S COMPUTE BASIN 9-D.1 *****											
*S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN											
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF											
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6											
COMPUTE NM HYD 9 D.1 - 9 .06030 68.56 2.691 .83686 1.567 1.777 PER IMP= 20.00											
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****											
ADD HYD 104.00 40& 9 44 .44870 223.13 13.572 .56714 2.067 .777											
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****											
ROUTE MCUNGE 104.10 44 30 .44870 218.30 13.539 .56577 2.300 .760 CCODE = .1											
*S COMPUTE BASIN 6-D.1 *****											
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED											
*S 0.065625 SQ MI FROM BASIN											
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6											
COMPUTE NM HYD 6_D.1 - 6 .04590 39.17 1.218 .49739 1.533 1.333 PER IMP= 4.00											
*S											
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****											
*S											
ADD HYD AP_OFF 30& 6 55 .49460 220.51 14.757 .55942 2.300 .697											
*S COMPUTE BASIN 9-D.2 *****											
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF											
*S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6											

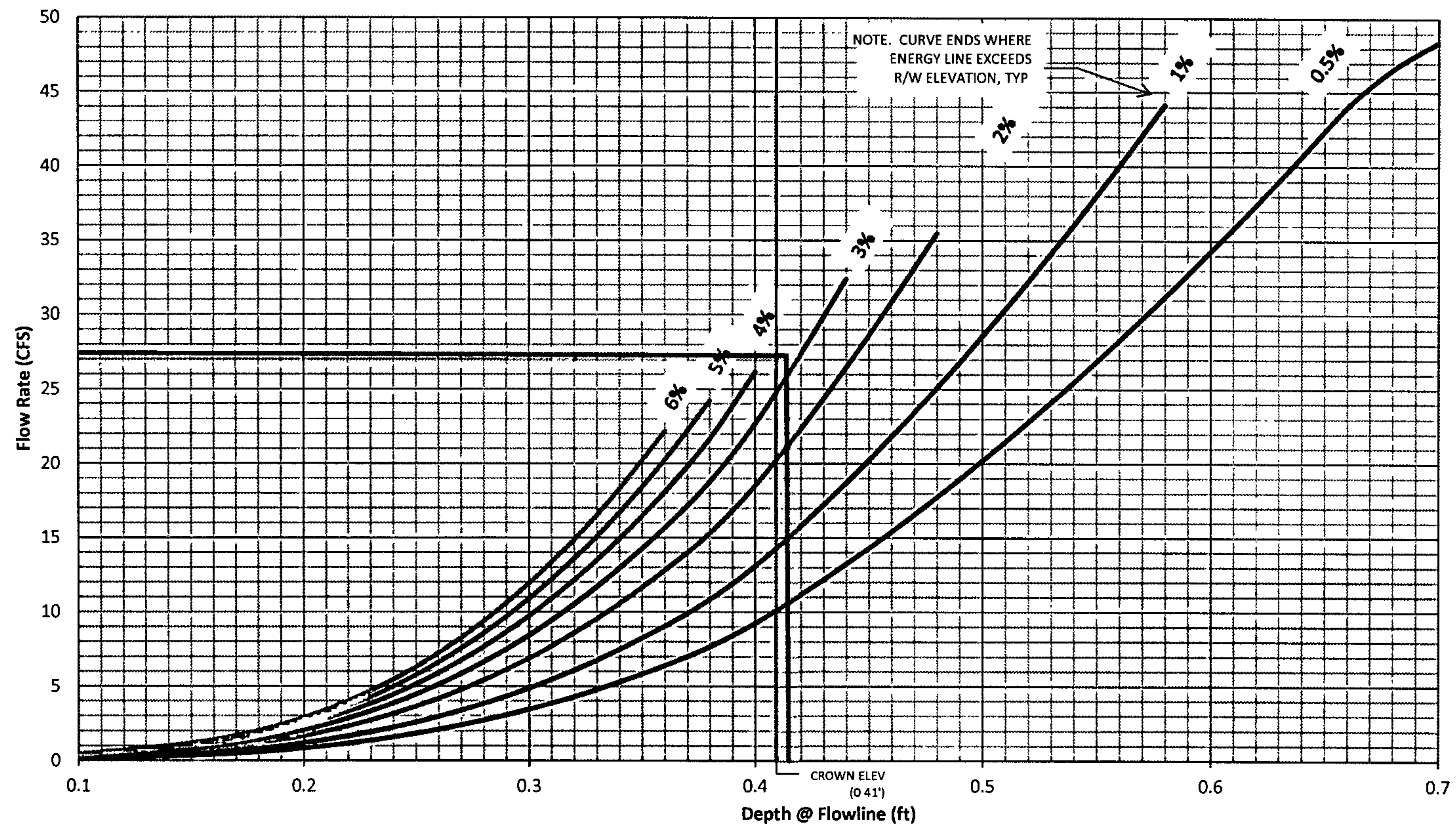
COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 3	NOTATION
COMPUTE NM HYD	A_1.1	-	60	.08421	51.19	1.964	.43725	1.567	.950	PER IMP=	.00
*S COMPUTE BASIN A-1.2 *****											
*S UPDATED TO SHOW 30% OPEN SPACE											
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6											
COMPUTE NM HYD	A_1.2	-	65	.01261	20.39	.703	1.04568	1.500	2.527	PER IMP=	34.00
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****											
ADD HYD	A_1.1_1.2	60&65	66	.09682	68.67	2.667	.51650	1.567	1.108		
*S *****											
*S * COMPUTE OFFSITE "E" BASINS *											
*S *****											
*S *****											
*S COMPUTE BASIN E-1.1 *****											
COMPUTE NM HYD	1_E.1	-	21	.00613	9.92	.342	1.04568	1.500	2.528	PER IMP=	34.00
*S COMPUTE BASIN E-1.3 *****											
*S UPDATED TO SHOW 30% OPEN SPACE											
*S NO CHANGE FROM MONTECITO WEST DMP											
COMPUTE NM HYD	E_1.3	-	70	.08120	102.27	3.249	.75028	1.500	1.968	PER IMP=	16.00
*S COMPUTE BASIN E-1.4 *****											
*S UPDATED TO SHOW 30% OPEN SPACE											
*S NO CHANGE FROM MONTECITO WEST DMP											
COMPUTE NM HYD	E_1.4	-	75	.13593	144.66	5.076	.70019	1.533	1.663	PER IMP=	14.00
*S *****											
*S *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*											
*S *****											
*S *****											
*S NO CHANGE FROM MONTECITO WEST DMP											
*S *****											
*S COMPUTE BASIN 6-D.4 *****											
COMPUTE NM HYD	6_D.4	-	2	.01578	30.55	1.061	1.26047	1.500	3.025	PER IMP=	42.00
*S COMPUTE BASIN 6-D.5 *****											
COMPUTE NM HYD	6_D.5	-	3	.00752	13.73	.457	1.14016	1.500	2.853	PER IMP=	32.00
*S COMPUTE BASIN 6-D.6 *****											
COMPUTE NM HYD	6_D.6	-	4	.00644	4.95	.141	.41046	1.533	1.202	PER IMP=	.00
*S COMPUTE BASIN 6-D.7 *****											
COMPUTE NM HYD	6_D.7	-	1	.00524	9.96	.341	1.22285	1.500	2.971	PER IMP=	39.00
*S COMPUTE BASIN 6-D.8 *****											
COMPUTE NM HYD	6_D.8	-	20	.01076	20.69	.716	1.24691	1.500	3.004	PER IMP=	41.00
*S COMPUTE BASIN E-1.2 *****											
COMPUTE NM HYD	1_E.2	-	22	.00118	2.29	.079	1.26047	1.500	3.044	PER IMP=	42.00
*S ADD E_1.1 TO E_1.2 *****											
ADD HYD	E_1.2	21&22	71	.00731	12.21	.421	1.08022	1.500	2.611		
*S ADD 6_D.8 TO E_1.1_1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****											
ADD HYD	AP2_ON	71&20	72	.01807	32.90	1.137	1.17950	1.500	2.845		
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****											
ADD HYD	6D.4_7	2&1	11	.02101	40.50	1.402	1.25107	1.500	3.012		
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****											
ADD HYD	6D.5_6	3&4	12	.01396	18.68	.598	.80354	1.500	2.091		
*S *****											
*S *****											

**APPENDIX C -
STREET HYDRAULICS AND STORM DRAIN INLET
ANALYSIS**

28' F-F Piedra Aspero Street Hydraulics (Full Street Section)



30' F-F Vista Bosquejo Road Hydraulics (Full Street Section)

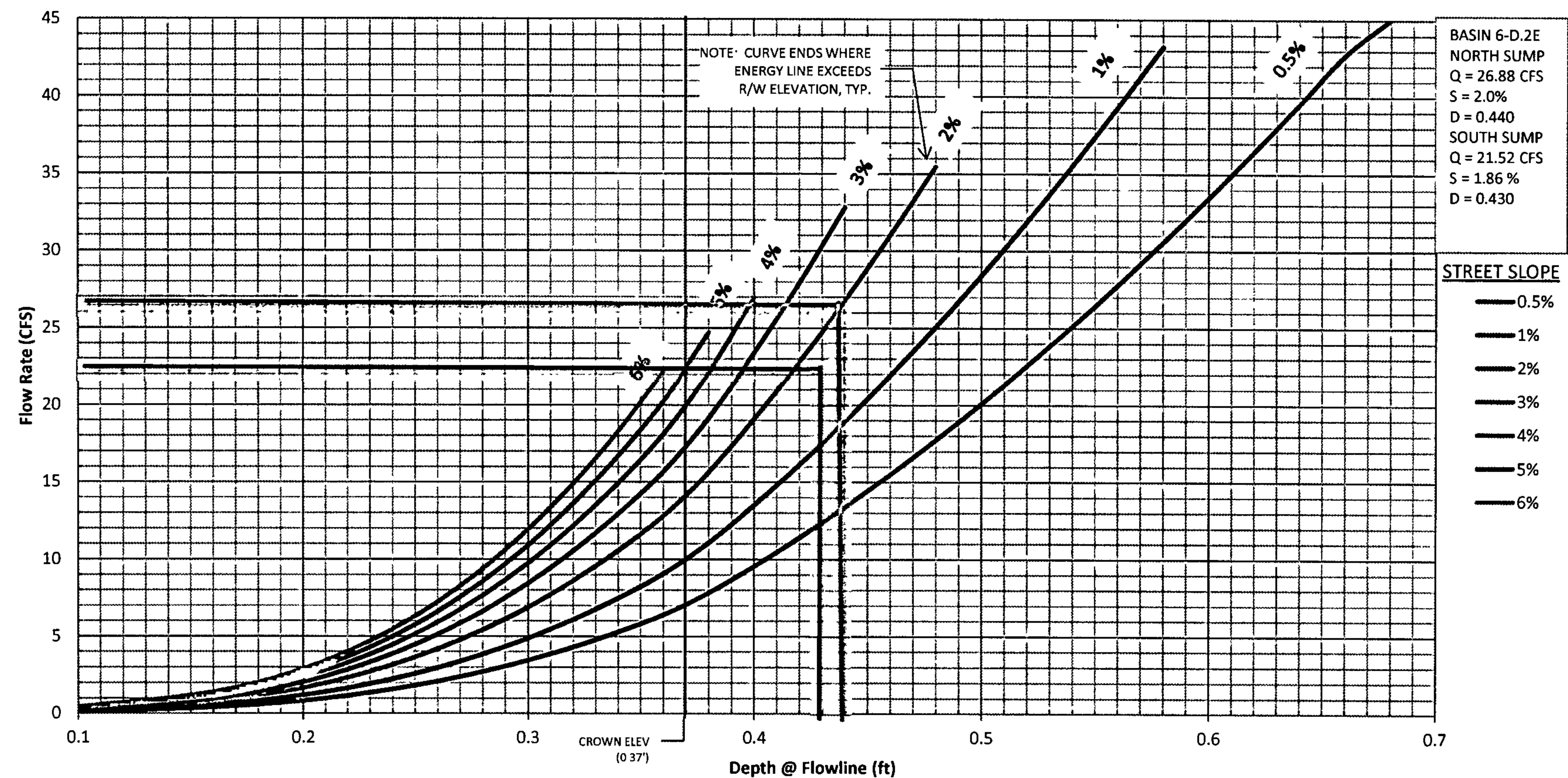


BASIN 6-D.2A
Q = 27.42 CFS
S = 3.46%
D = 0.415

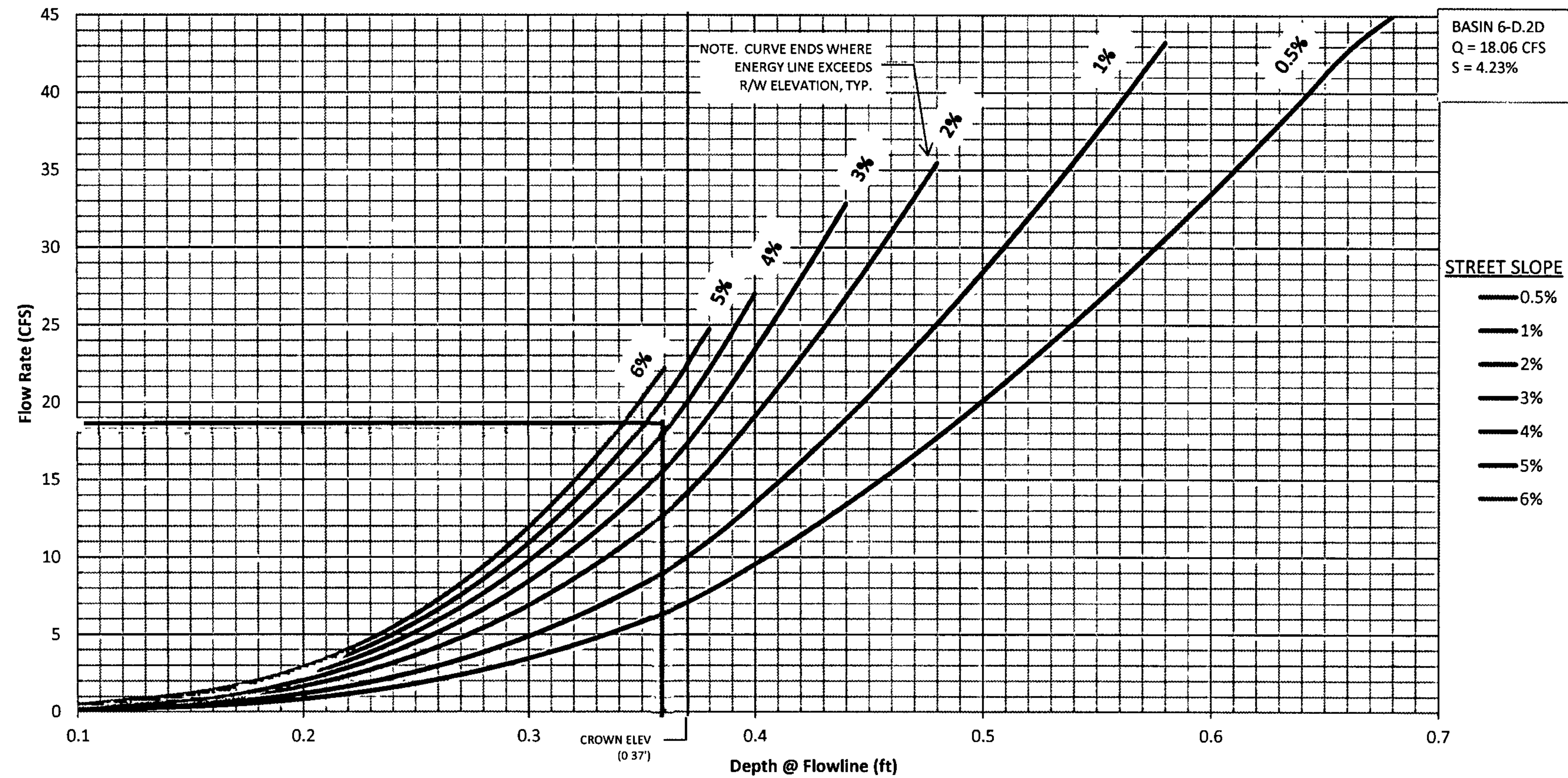
STREET SLOPE

- Series1
- Series2
- Series3
- 3%
- 4%
- 5%
- 6%

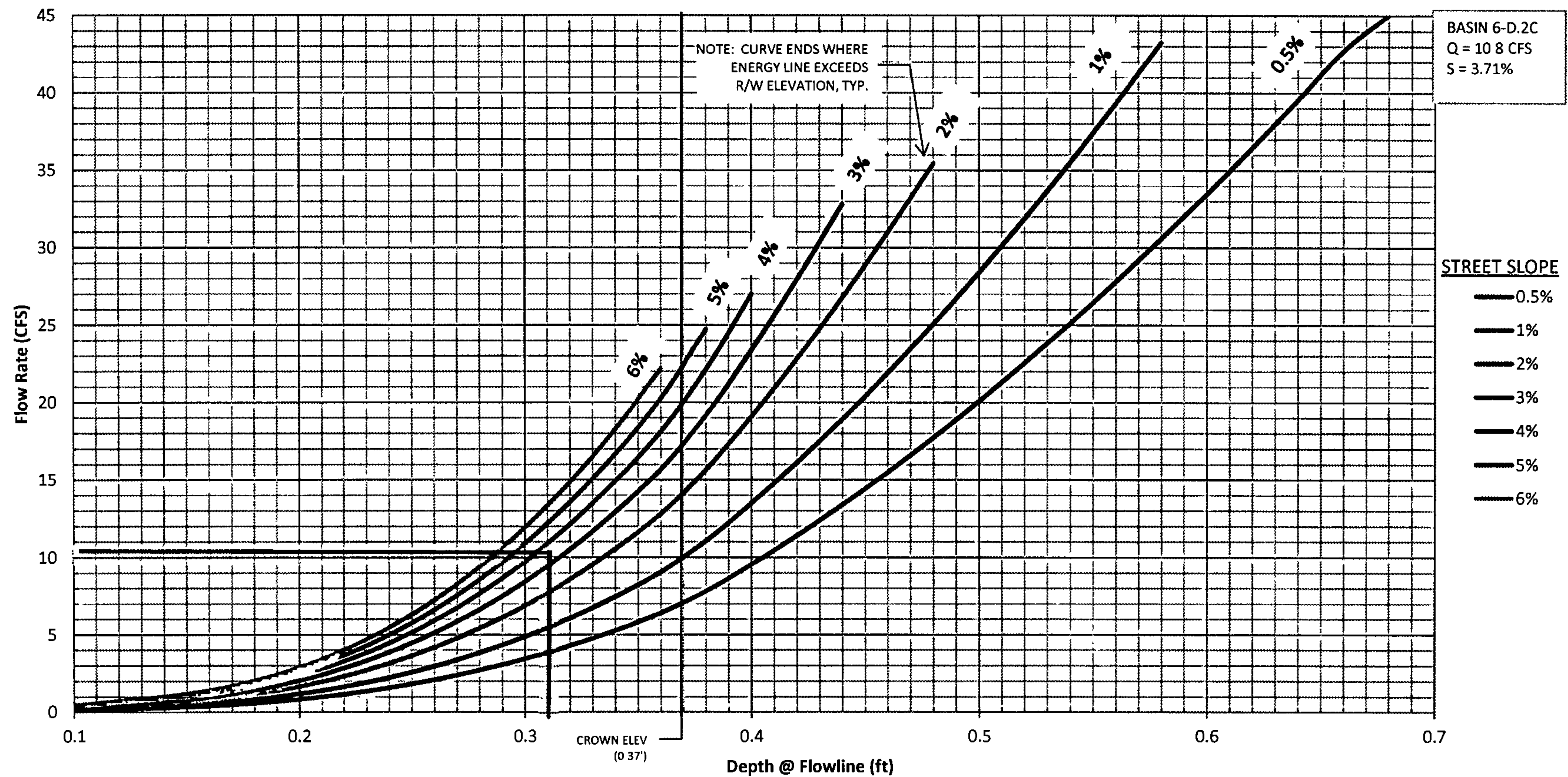
28' F-F Vista Luces Street Hydraulics (Full Street Section)



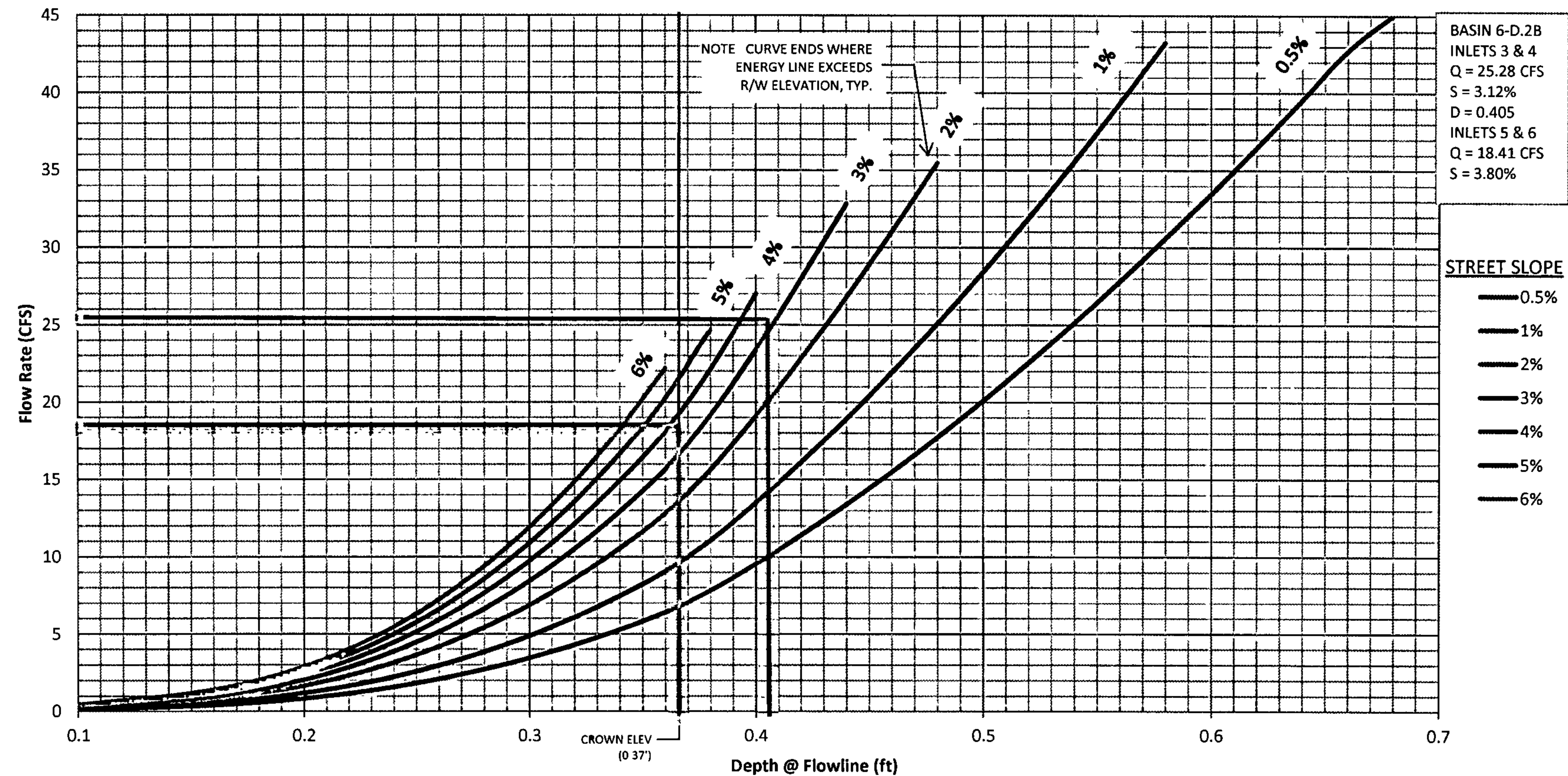
28' F-F Retablo Road Hydraulics (Full Street Section)



28' F-F Piedra Dibujo Road Hydraulics (Full Street Section)



28' F-F Vista Dibujo Road Hydraulics (Full Street Section)



C7_Street Capacities Stream Input_MW.txt
X,Y INPUT FILES FOR STREAM CALCULATOR - STREET CAPACITIES

NORMAL CROWN 28' F-F

0	0.86
9.33	0.67
9.5	0.0
11.5	0.13
23.5	0.37
35.5	0.13
37.5	0.0
37.67	0.67
47.0	0.86

NORMAL CROWN 30' F-F

0	0.88
10.33	0.67
10.5	0.0
12.5	0.13
25.5	0.39
38.5	0.13
40.5	0.0
40.67	0.67
51.0	0.88

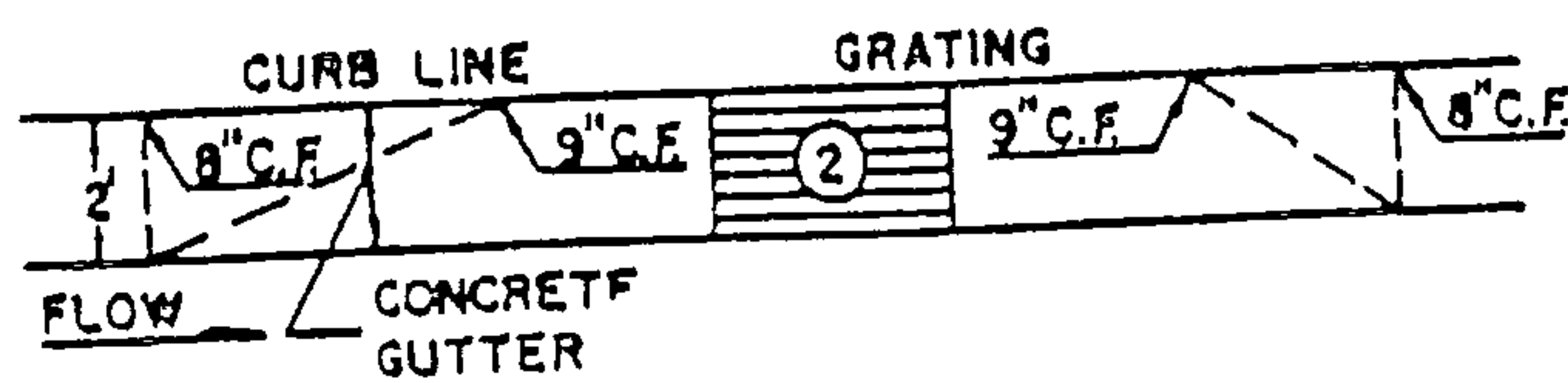
28' Street Depth VS Flowrate, n=0.017
(NORMAL CROWN)

Depth	S=0.5%		S=1.0%		S=2.0%		S=3.0%		S=4.0%		S=5.0%		S=6.0%	
	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E
0.02	0.002	0.021	0.002	0.022	0.003	0.025	0.004	0.027	0.005	0.03	0.005	0.032	0.006	0.034
0.04	0.011	0.043	0.016	0.046	0.022	0.052	0.027	0.058	0.031	0.064	0.035	0.07	0.038	0.076
0.06	0.032	0.065	0.046	0.07	0.065	0.081	0.08	0.091	0.092	0.101	0.103	0.112	0.113	0.122
0.08	0.07	0.088	0.099	0.095	0.14	0.11	0.171	0.126	0.198	0.141	0.221	0.156	0.242	0.171
0.1	0.127	0.11	0.179	0.12	0.254	0.141	0.311	0.161	0.359	0.182	0.401	0.202	0.439	0.223
0.12	0.206	0.133	0.292	0.146	0.413	0.172	0.505	0.198	0.583	0.224	0.652	0.25	0.715	0.277
0.14	0.289	0.153	0.408	0.167	0.578	0.194	0.707	0.221	0.817	0.248	0.913	0.275	1	0.302
0.16	0.403	0.174	0.57	0.187	0.807	0.214	0.988	0.242	1.141	0.269	1.275	0.296	1.397	0.323
0.18	0.582	0.195	0.823	0.21	1.164	0.24	1.426	0.27	1.646	0.3	1.84	0.33	2.016	0.36
0.2	0.832	0.217	1.176	0.234	1.663	0.268	2.037	0.302	2.352	0.336	2.63	0.37	2.881	0.404
0.22	1.161	0.239	1.642	0.259	2.322	0.298	2.843	0.337	3.283	0.376	3.671	0.415	4.021	0.454
0.24	1.578	0.262	2.232	0.284	3.156	0.329	3.866	0.373	4.464	0.418	4.99	0.462	5.467	0.507
0.26	2.092	0.285	2.959	0.31	4.184	0.361	5.125	0.411	5.918	0.462	6.616	0.512	7.248	0.563
0.28	2.711	0.308	3.835	0.337	5.423	0.394	6.642	0.451	7.669	0.508	8.574	0.564	9.393	0.621
0.3	3.444	0.332	4.87	0.364	6.888	0.427	8.436	0.491	9.741	0.555	10.891	0.618	11.93	0.682
0.32	4.298	0.355	6.078	0.391	8.595	0.461	10.527	0.532	12.155	0.603	13.59	0.673	14.887	0.744
0.34	5.28	0.379	7.467	0.418	10.56	0.496	12.933	0.574	14.934	0.652	16.696	0.73	18.29	0.808
0.36	6.398	0.403	9.049	0.446	12.797	0.531	15.673	0.617	18.097	0.702	20.233	0.788	22.164	0.873
0.38	7.822	0.429	11.062	0.478	15.644	0.575	19.159	0.673	22.123	0.77	24.735	0.868	27.096	0.965
0.4	9.547	0.457	13.502	0.514	19.094	0.629	23.386	0.743	27.003	0.857	30.191	0.972	33.072	1.086
0.42	11.406	0.486	16.13	0.552	22.812	0.683	27.939	0.815	32.261	0.947	36.069	1.078	39.511	1.21
0.44	13.393	0.515	18.94	0.59	26.786	0.739	32.806	0.889	37.881	1.038	42.352	1.188	46.395	1.337
0.46	15.504	0.544	21.926	0.628	31.008	0.796	37.977	0.964	43.852	1.132	49.028	1.299	53.707	1.467
0.48	17.735	0.573	25.081	0.667	35.47	0.853	43.442	1.04	50.162	1.227	56.083	1.414	61.436	1.6
0.5	20.082	0.603	28.401	0.706	40.165	0.912	49.192	1.118	56.802	1.324	63.506	1.53	69.568	1.736
0.52	22.543	0.633	31.881	0.746	45.087	0.971	55.22	1.197	63.762	1.423	71.288	1.649	78.093	1.874
0.54	25.115	0.663	35.518	0.786	50.229	1.032	61.518	1.277	71.035	1.523	79.42	1.769	87	2.015
0.56	27.794	0.693	39.307	0.826	55.588	1.093	68.081	1.359	78.613	1.625	87.892	1.891	96.281	2.158
0.58	30.578	0.724	43.244	0.867	61.157	1.154	74.902	1.441	86.489	1.728	96.698	2.016	105.927	2.303
0.6	33.466	0.754	47.328	0.908	66.932	1.217	81.975	1.525	94.656	1.833	105.829	2.141	115.93	2.45
0.62	36.455	0.785	51.555	0.95	72.91	1.279	89.296	1.609	103.11	1.939	115.28	2.269	126.283	2.598
0.64	39.542	0.816	55.921	0.991	79.085	1.343	96.859	1.694	111.843	2.046	125.044	2.397	136.979	2.749
0.66	42.727	0.847	60.425	1.034	85.454	1.407	104.66	1.781	120.851	2.154	135.115	2.528	148.012	2.901
0.68	45.06	0.87	63.724	1.059	90.12	1.439	110.373	1.818	127.448	2.198	142.491	2.577	156.092	2.957
0.7	46.652	0.886	65.976	1.071	93.304	1.442	114.274	1.813	131.952	2.184	147.527	2.555	161.608	2.926
0.72	48.482	0.903	68.564	1.085	96.964	1.45	118.756	1.815	137.127	2.18	153.313	2.545	167.946	2.91
0.74	50.542	0.92	71.477	1.101	101.083	1.462	123.801	1.823	142.953	2.184	159.827	2.545	175.081	2.905
0.76	52.827	0.939	74.709	1.118	105.654	1.477	129.4	1.835	149.418	2.194	167.054	2.552	182.999	2.911
0.78	55.336	0.959	78.257	1.137	110.672	1.495	135.544	1.852	156.513	2.21	174.987	2.567	191.689	2.924
0.8	58.066	0.979	82.118	1.158	116.133	1.515	142.233	1.873	164.237	2.23	183.622	2.588	201.148	2.945
0.82	61.019	0.999	86.294	1.179	122.039	1.537	149.466	1.896	172.589	2.255	192.96	2.613	211.377	2.972
0.84	64.195	1.02	90.786	1.201	128.391	1.562	157.246	1.922	181.572	2.283	203.004	2.644	222.379	3.005

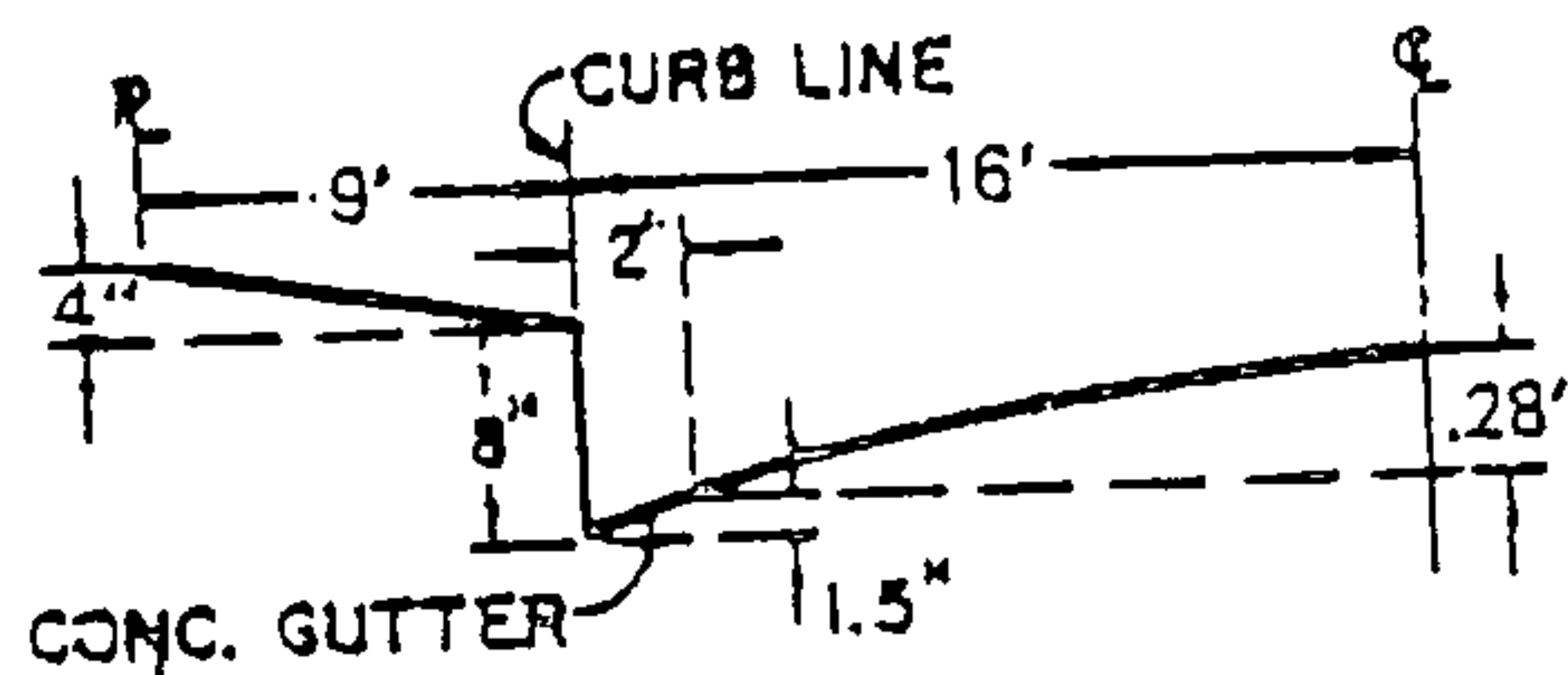
30' Street Depth VS Flowrate, $n=0.017$ (NORMAL CROWN)

Depth	S=0.5%		S=1.0%		S=2.0%		S=3.0%		S=4.0%		S=5.0%		S=6.0%	
	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E
0.02	0.002	0.021	0.002	0.022	0.003	0.025	0.004	0.027	0.005	0.03	0.005	0.032	0.006	0.034
0.04	0.011	0.043	0.016	0.046	0.022	0.052	0.027	0.058	0.031	0.064	0.035	0.07	0.038	0.076
0.06	0.032	0.065	0.046	0.07	0.065	0.081	0.08	0.091	0.092	0.101	0.103	0.112	0.113	0.122
0.08	0.07	0.088	0.099	0.095	0.14	0.11	0.171	0.126	0.198	0.141	0.221	0.156	0.242	0.171
0.1	0.127	0.11	0.179	0.12	0.254	0.141	0.311	0.161	0.359	0.182	0.401	0.202	0.439	0.223
0.12	0.206	0.133	0.292	0.146	0.413	0.172	0.505	0.198	0.583	0.224	0.652	0.25	0.715	0.277
0.14	0.289	0.153	0.408	0.167	0.578	0.194	0.707	0.221	0.817	0.248	0.913	0.275	1	0.302
0.16	0.403	0.174	0.57	0.187	0.807	0.214	0.988	0.242	1.141	0.269	1.275	0.296	1.397	0.323
0.18	0.582	0.195	0.823	0.21	1.164	0.24	1.426	0.27	1.646	0.3	1.84	0.33	2.016	0.36
0.2	0.832	0.217	1.176	0.234	1.663	0.268	2.037	0.302	2.352	0.336	2.63	0.37	2.881	0.404
0.22	1.161	0.239	1.642	0.259	2.322	0.298	2.843	0.337	3.283	0.376	3.671	0.415	4.021	0.454
0.24	1.578	0.262	2.232	0.284	3.156	0.329	3.866	0.373	4.464	0.418	4.99	0.462	5.467	0.507
0.26	2.092	0.285	2.959	0.31	4.184	0.361	5.125	0.411	5.918	0.462	6.616	0.512	7.248	0.563
0.28	2.711	0.308	3.835	0.337	5.423	0.394	6.642	0.451	7.669	0.508	8.574	0.564	9.393	0.621
0.3	3.444	0.332	4.87	0.364	6.888	0.427	8.436	0.491	9.741	0.555	10.891	0.618	11.93	0.682
0.32	4.298	0.355	6.078	0.391	8.595	0.461	10.527	0.532	12.155	0.603	13.59	0.673	14.887	0.744
0.34	5.28	0.379	7.467	0.418	10.56	0.496	12.933	0.574	14.934	0.652	16.696	0.73	18.29	0.808
0.36	6.398	0.403	9.049	0.446	12.797	0.531	15.673	0.617	18.097	0.702	20.233	0.788	22.164	0.873
0.38	7.66	0.427	10.833	0.473	15.32	0.567	18.764	0.66	21.666	0.753	24.224	0.847		
0.4	9.252	0.453	13.085	0.506	18.504	0.611	22.663	0.717	26.169	0.823				
0.42	11.171	0.481	15.799	0.543	22.343	0.665	27.364	0.788						
0.44	13.231	0.51	18.711	0.58	26.462	0.721	32.409	0.861						
0.46	15.426	0.539	21.816	0.619	30.852	0.777								
0.48	17.752	0.569	25.105	0.657	35.504	0.834								
0.5	20.205	0.598	28.574	0.696	40.41	0.893								
0.52	22.782	0.628	32.218	0.736										
0.54	25.478	0.658	36.032	0.776										
0.56	28.292	0.688	40.011	0.816										
0.58	31.221	0.718	44.153	0.857										
0.6	34.262	0.749												
0.62	37.412	0.78												
0.64	40.67	0.81												
0.66	44.033	0.841												
0.68	46.581	0.865												
0.7	48.412	0.882												

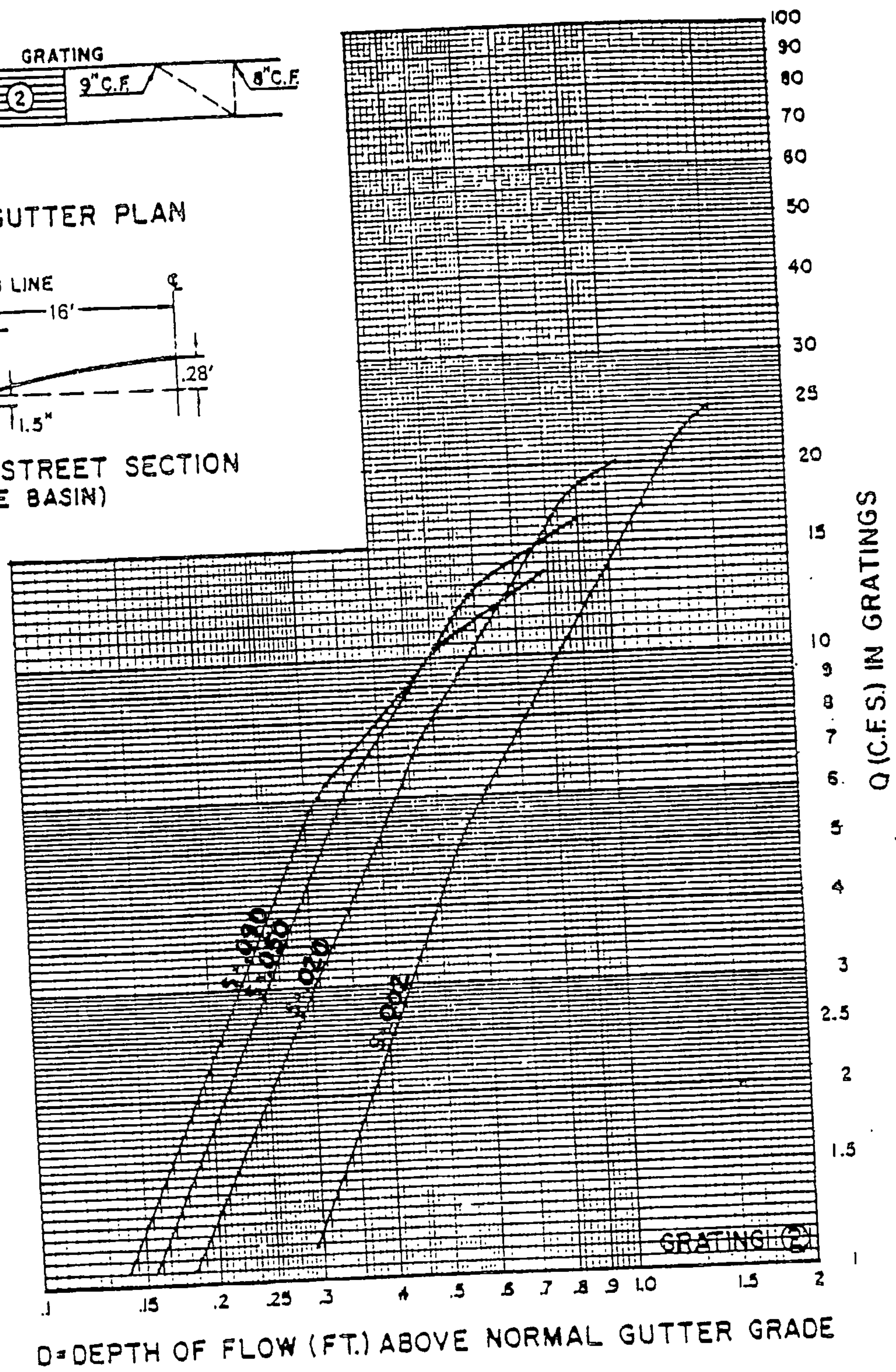
GRATING CAPACITIES FOR TYPE 'A', 'C' and 'D'



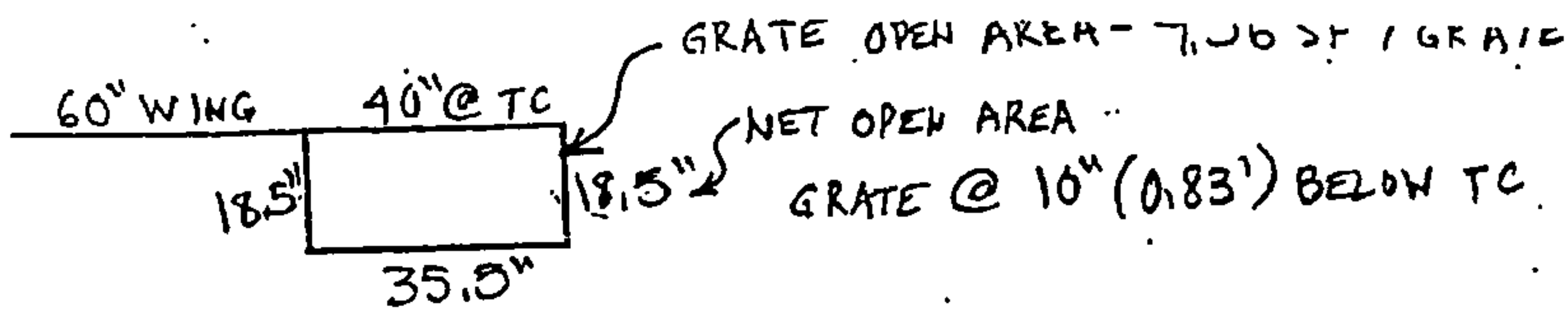
GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)

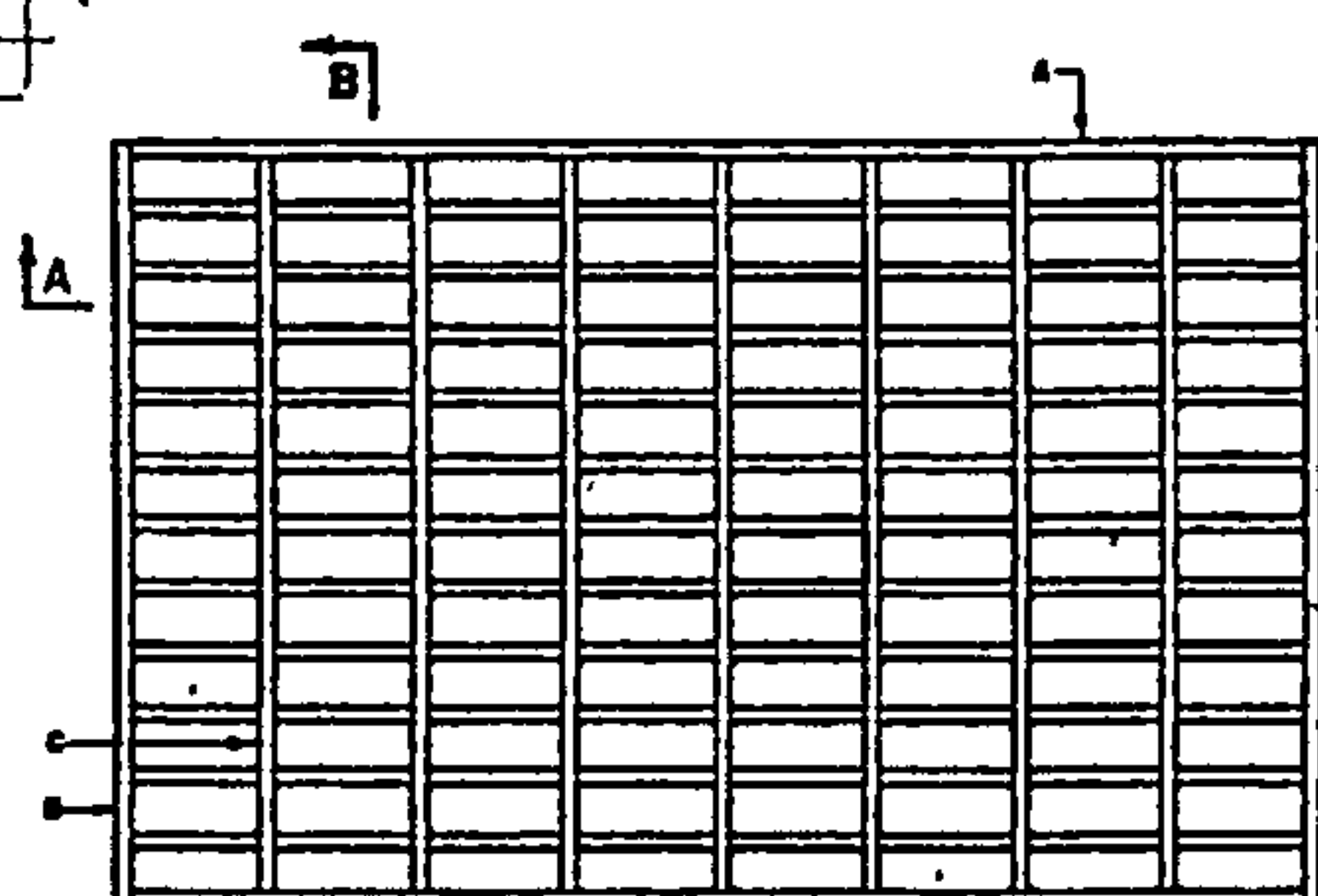


GRATE CAPACITY (Q) IN CFS

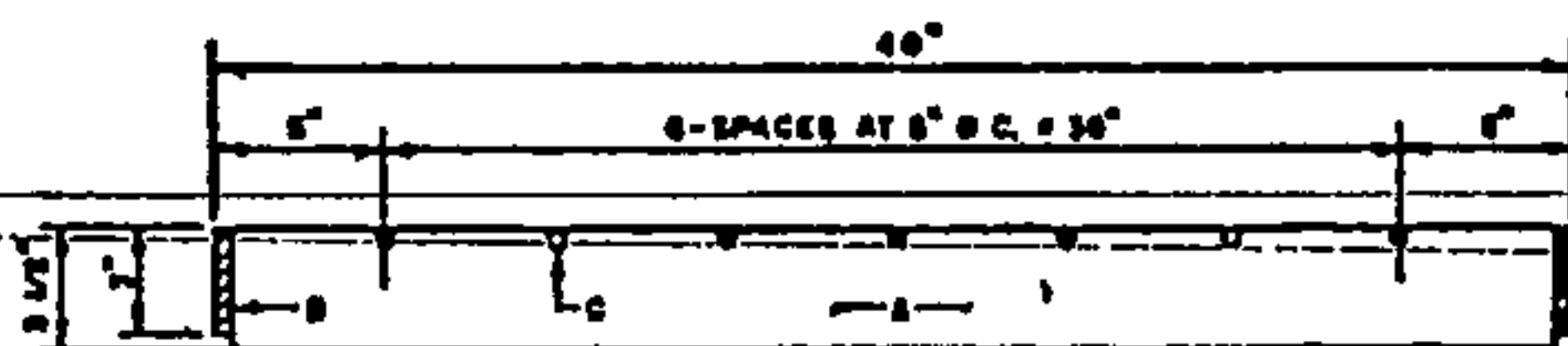


EQUATION	SGL A	DBL A	TRPL A	QDPL A
1) ORIFICE	$22.0 h^{0.5} + 16.5 h^{1.5}$	$43.9 h^{0.5} + 16.5 h^{1.5}$	$65.9 h^{0.5} + 16.5 h^{1.5}$	$87.8 h^{0.5} + 16.5 h^{1.5}$
2) 3-SIDED WEIR ($h \leq 0.83'$)	$36.4 h^{1.5}$	$46.2 h^{1.5}$	$56.0 h^{1.5}$	$65.7 h^{1.5}$
3) 4-SIDED WEIR ($h > 0.83'$)	ADD TO 2): $11(h-0.83)^{1.5}$	ADD TO 2): $22(h-0.83)^{1.5}$	ADD TO 2): $33(h-0.83)^{1.5}$	ADD TO 2): $44(h-0.83)^{1.5}$

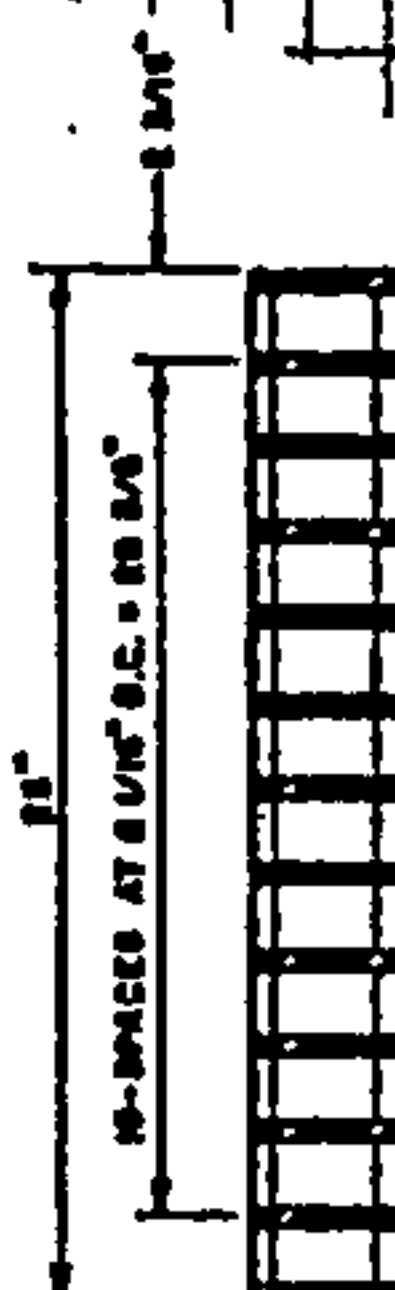
1) $Q = 0.6 A \sqrt{2gh} + 3.3(5') h^{1.5}$
 2) & 3) $Q = 3.3 P h^{1.5}$



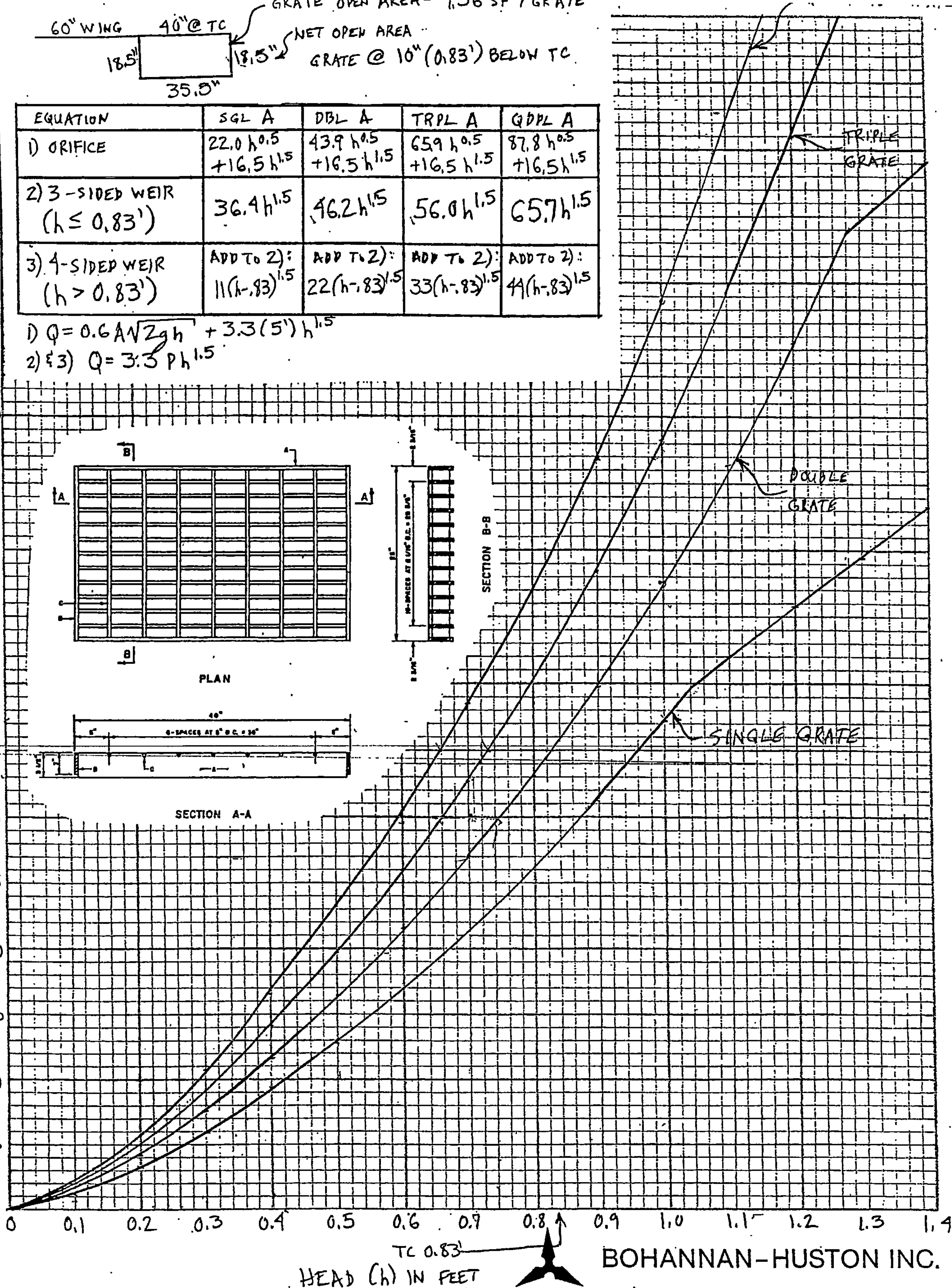
PLAN



SECTION A-A



SECTION B-B



BOHANNAN-HUSTON INC.

PROJECT NAME _____ SHEET _____ OF _____
 PROJECT NO. _____ BY JPK DATE 4/9/92
 SUBJECT RATING CURVE FOR TYPES A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z

20160398_SD_HGL.txt

Design Log

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InRoads Storm & Sanitary Design Log

Drainage File: P:\20160398\CDP\Control\Data\20160398_SD.sdb

Design File: P:\20160398\CDP\DESIGN\WORKAREA\ACAD-20160398_UTIL.DWG

Display Log: P:\20160398\CDP\DESIGN\WORKAREA\design.log

Date: Wednesday, May 18, 2016 12:14:31 PM

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HGL/EGL Computations:

Table A:

Struct_ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	V ² /2g (ft)	Sf (ft/ft)	Dn_Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot_Loss (ft)	EGLup (ft)	HGLup (ft)	Rim Elev. (ft)
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	5427.96	-
SDP1	60	108.00	72.51	6.73	3.81	2.96	0.70	0.0020	5428.96	5428.66	5427.96	0.15	5428.81	5428.11	-
SDMH1	-	-	-	-	-	-	-	-	-	5428.81	5428.11	0.44	5429.25	5428.55	5434.15
SDP2	60	108.00	174.49	5.50	-	-	0.47	0.0017	5429.20	5429.25	5428.55	0.30	5429.55	5429.08	-
SDMH2	-	-	-	-	-	-	-	-	-	5429.55	5429.08	0.27	5429.82	5429.35	5440.01
SDP3	54	96.40	263.48	6.06	-	-	0.57	0.0024	5429.16	5429.82	5429.35	0.63	5430.46	5429.88	-
SDMH3	-	-	-	-	-	-	-	-	-	5430.46	5429.88	0.05	5430.50	5429.93	5434.76
SDP4	48	88.40	157.44	7.03	-	-	0.77	0.0038	5429.29	5430.50	5429.93	0.60	5431.10	5430.33	-
SDMH4	-	-	-	-	-	-	-	-	-	5431.10	5430.33	0.09	5431.19	5430.42	5432.20
SDP5	36	61.60	76.79	8.71	-	-	1.18	0.0085	5428.70	5431.19	5430.42	0.66	5431.84	5430.66	-
SDMH5	-	-	-	-	-	-	-	-	-	5431.84	5430.66	0.24	5432.08	5430.90	5433.31
SDP6	36	35.60	229.28	5.04	-	-	0.39	0.0028	5428.95	5432.08	5430.90	0.65	5432.73	5432.34	-
SDMH6	-	-	-	-	-	-	-	-	-	5432.73	5432.34	0.10	5432.83	5432.44	5433.34
SDP7	24	14.00	156.62	4.46	-	-	0.31	0.0038	5428.51	5432.83	5432.44	0.60	5433.43	5433.13	-
SDMH7	-	-	-	-	-	-	-	-	-	5433.43	5433.13	0.33	5433.76	5433.46	5435.00
SDP8	24	14.00	82.16	4.46	-	-	0.31	0.0038	5431.80	5433.76	5433.46	0.31	5434.08	5433.77	-
SDMH8	-	-	-	-	-	-	-	-	-	5434.08	5433.77	0.09	5434.17	5433.86	5437.13
SDP11	24	14.00	179.75	12.22	-	-	2.32	0.0038	5434.10	5434.17	5433.86	-	5441.53	5439.22	-
SDMH9	-	-	-	-	-	-	-	-	-	5441.53	5439.22	-	5441.53	5439.22	5443.43
SDP26	18	7.00	26.33	11.15	0.58	1.02	1.93	-	5440.03	5441.15	5439.22	-	5442.05	5440.12	-
IN5	-	-	-	-	-	-	-	-	-	5442.05	5440.12	-	5442.05	5440.12	5443.37
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5429.55	5429.08	-
SDMH2	-	-	-	-	-	-	-	-	-	5429.55	5429.08	0.09	5429.64	5429.17	5440.01
SDP16	24	11.60	93.40	18.42	-	-	5.27	0.0026	5428.66	5429.64	5429.17	-	5443.78	5438.51	-
SDMH10	-	-	-	-	-	-	-	-	-	5443.78	5438.51	-	5443.78	5438.51	5443.18
SDP17	18	5.80	36.68	12.73	0.46	0.92	2.52	-	5439.60	5441.08	5438.56	-	5443.68	5441.16	-
IN7	-	-	-	-	-	-	-	-	-	5443.68	5441.16	-	5443.68	5441.16	5444.53
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5430.46	5429.88	-
SDMH3	-	-	-	-	-	-	-	-	-	5430.46	5429.88	0.03	5430.48	5429.91	5434.76
SDP10	24	8.00	151.81	2.55	-	-	0.10	0.0013	5427.28	5430.48	5429.91	0.19	5430.67	5430.57	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5431.10	5430.33	-
SDMH4	-	-	-	-	-	-	-	-	-	5431.10	5430.33	0.07	5431.17	5430.40	5432.20
SDP13	24	13.40	4.55	4.27	-	-	0.28	0.0035	5429.60	5431.17	5430.40	0.02	5431.19	5430.90	-
IN1	-	-	-	-	-	-	-	-	-	5431.19	5430.90	-	5431.19	5430.90	5432.04

20160398_SD_HGL.txt

New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5431.10	5430.33	-
SDMH4	-	-	-	-	-	-	-	-	-	5431.10	5430.33	0.07	5431.17	5430.40	5432.20
SDP12	24	13.40	20.02	4.27	-	-	0.28	0.0035	5429.60	5431.17	5430.40	0.07	5431.24	5430.96	-
IN2	-	-	-	-	-	-	-	-	-	5431.24	5430.96	-	5431.24	5430.96	5432.04
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5431.84	5430.66	-
SDMH5	-	-	-	-	-	-	-	-	-	5431.84	5430.66	0.41	5432.25	5431.07	5433.31
SDP19	24	26.00	36.00	8.28	-	-	1.06	0.0132	5427.95	5432.25	5431.07	0.48	5432.73	5431.66	-
SDMH11	-	-	-	-	-	-	-	-	-	5432.73	5431.66	0.44	5433.16	5432.10	5434.01
SDP20	24	13.00	77.11	4.14	-	-	0.27	0.0033	5429.90	5433.16	5432.10	0.25	5433.42	5433.15	-
SDMH12	-	-	-	-	-	-	-	-	-	5433.42	5433.15	0.05	5433.47	5433.20	5436.88
SDP21	24	13.00	156.97	12.42	-	-	2.40	0.0033	5432.90	5433.47	5433.20	-	5440.13	5437.73	-
SDMH13	-	-	-	-	-	-	-	-	-	5440.13	5437.73	-	5440.13	5437.73	5443.05
SDP22	18	6.50	31.49	12.96	0.49	0.98	2.61	-	5439.17	5440.77	5438.16	-	5442.90	5440.29	-
IN11	-	-	-	-	-	-	-	-	-	5442.90	5440.29	-	5442.90	5440.29	5443.68
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5432.34	-
SDMH6	-	-	-	-	-	-	-	-	-	5432.73	5432.34	0.11	5432.84	5432.45	5433.34
SDP14	24	10.80	20.44	3.44	-	-	0.18	0.0023	5429.66	5432.84	5432.45	0.05	5432.89	5432.71	-
IN4	-	-	-	-	-	-	-	-	-	5432.89	5432.71	-	5432.89	5432.71	5433.18
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5432.34	-
SDMH6	-	-	-	-	-	-	-	-	-	5432.73	5432.34	0.11	5432.84	5432.45	5433.34
SDP15	24	10.80	6.54	3.44	-	-	0.18	0.0023	5429.66	5432.84	5432.45	0.01	5432.86	5432.67	-
IN3	-	-	-	-	-	-	-	-	-	5432.86	5432.67	-	5432.86	5432.67	5433.18
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5441.53	5439.22	-
SDMH9	-	-	-	-	-	-	-	-	-	5441.53	5439.22	-	5441.53	5439.22	5443.43
SDP27	18	7.00	5.56	22.43	0.35	1.02	7.82	-	5440.03	5447.03	5439.22	-	5447.75	5439.93	-
IN6	-	-	-	-	-	-	-	-	-	5447.75	5439.93	-	5447.75	5439.93	5443.41
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5443.78	5438.51	-
SDMH10	-	-	-	-	-	-	-	-	-	5443.78	5438.51	-	5443.78	5438.51	5443.18
SDP18	18	5.80	5.27	23.39	0.30	0.92	8.50	-	5439.60	5447.01	5438.51	-	5448.10	5439.60	-
IN8	-	-	-	-	-	-	-	-	-	5448.10	5439.60	-	5448.10	5439.60	5443.17
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5431.66	-
SDMH11	-	-	-	-	-	-	-	-	-	5432.73	5431.66	0.24	5432.97	5431.90	5434.01
SDP24	18	6.50	20.11	3.68	-	-	0.21	0.0038	5429.40	5432.97	5431.90	0.08	5433.04	5432.83	-
IN9	-	-	-	-	-	-	-	-	-	5433.04	5432.83	-	5433.04	5432.83	5433.59
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5431.66	-
SDMH11	-	-	-	-	-	-	-	-	-	5432.73	5431.66	0.24	5432.97	5431.90	5434.01
SDP25	18	6.50	5.84	3.68	-	-	0.21	0.0038	5429.40	5432.97	5431.90	0.02	5432.99	5432.78	-
IN10	-	-	-	-	-	-	-	-	-	5432.99	5432.78	-	5432.99	5432.78	5433.93
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5440.13	5437.73	-
SDMH13	-	-	-	-	-	-	-	-	-	5440.13	5437.73	-	5440.13	5437.73	5443.05
SDP23	18	6.50	5.52	32.26	0.26	0.98	16.18	-	5438.60	5453.91	5437.73	-	5455.43	5439.26	-
IN12	-	-	-	-	-	-	-	-	-	5455.43	5439.26	-	5455.43	5439.26	5442.93

Table B:

LOSSES	Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	- LOSS_COEFFICIENTS	Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	SDP1	0.15	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-

20160398_SD_HGL.txt

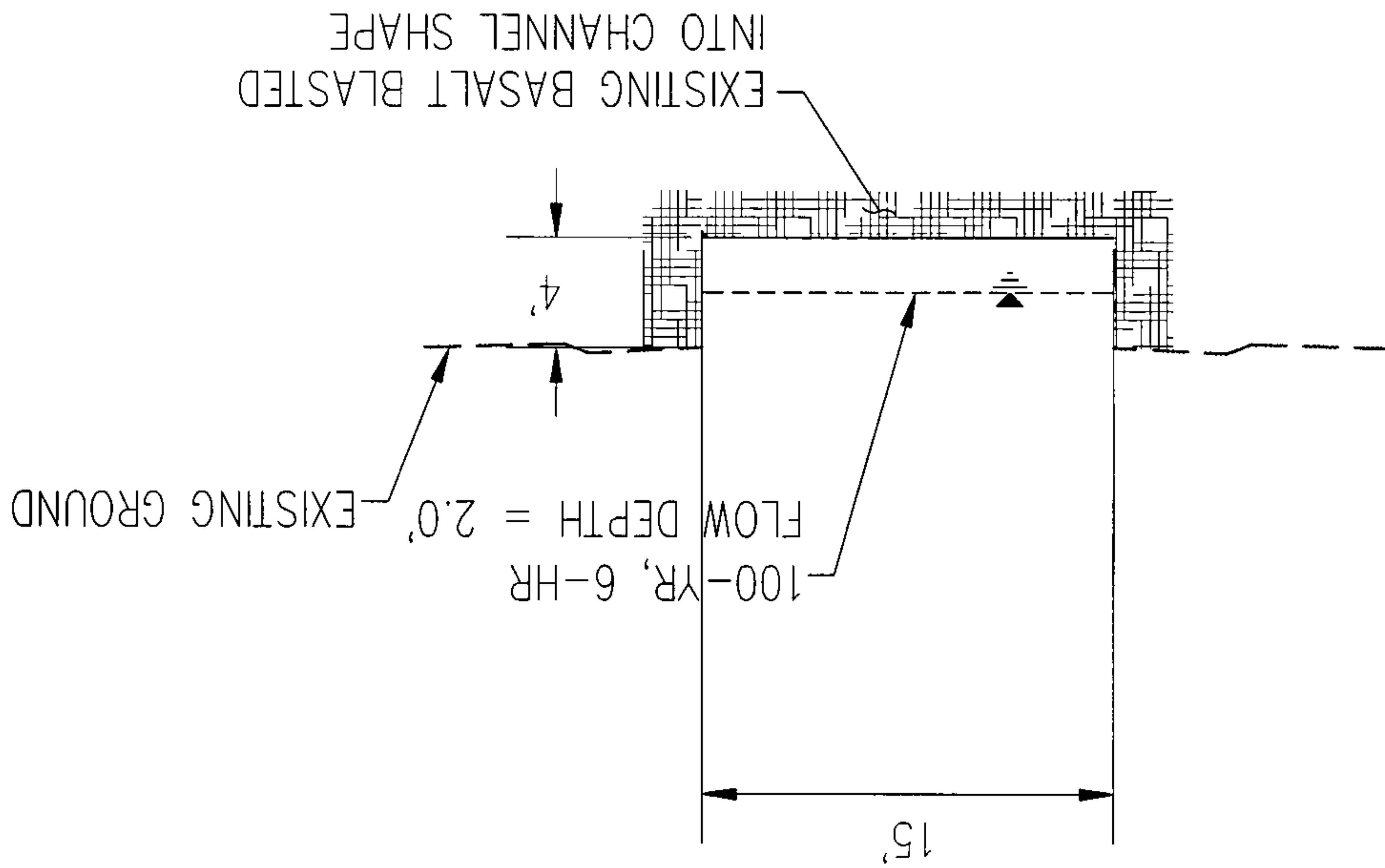
SDMH1	-	-	0.44	-	-	-	0.44	4.01	1.432	1.000	0.438	1.000	1.000	1.000	0.627
SDP2	0.30	-	-	-	-	-	0.30	-	-	-	-	-	-	-	-
SDMH2	-	-	0.27	-	-	-	0.27	4.52	1.502	1.000	0.471	0.812	1.000	1.000	0.575
SDP3	0.63	-	-	-	-	-	0.63	-	-	-	-	-	-	-	-
SDMH3	-	-	0.05	-	-	-	0.05	4.70	0.133	1.000	0.513	1.155	1.000	1.000	0.079
SDP4	0.60	-	-	-	-	-	0.60	-	-	-	-	-	-	-	-
SDMH4	-	-	0.09	-	-	-	0.09	4.73	0.150	1.000	0.553	1.408	1.000	1.000	0.117
SDP5	0.66	-	-	-	-	-	0.66	-	-	-	-	-	-	-	-
SDMH5	-	-	0.24	-	-	-	0.24	4.81	0.200	1.000	0.664	1.523	1.000	1.000	0.202
SDP6	0.65	-	-	-	-	-	0.65	-	-	-	-	-	-	-	-
SDMH6	-	-	0.10	-	-	-	0.10	5.93	0.200	1.000	0.752	1.687	1.000	1.000	0.254
SDP7	0.60	-	-	-	-	-	0.60	-	-	-	-	-	-	-	-
SDMH7	-	-	0.33	-	-	-	0.33	3.43	1.553	1.000	0.690	1.000	1.000	1.000	1.073
SDP8	0.31	-	-	-	-	-	0.31	-	-	-	-	-	-	-	-
SDMH8	-	-	0.09	-	-	-	0.09	1.77	0.615	1.000	0.465	1.000	1.000	1.000	0.286
SDP11	0.69	0.01	-	-	-	-	0.70	-	-	-	-	-	-	-	-
SDMH9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IN5	-	-	-	-	-	-	-	0.58	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH2	-	-	0.09	-	-	-	0.09	4.52	0.227	1.000	0.471	1.827	1.000	1.000	0.195
SDP16	0.25	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-
SDMH10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IN7	-	-	-	-	-	-	-	0.46	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH3	-	-	0.03	-	-	-	0.03	4.70	1.462	1.000	0.513	0.063	1.000	1.000	0.047
SDP10	0.19	-	-	-	-	-	0.19	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH4	-	-	0.07	-	-	-	0.07	4.73	1.487	1.000	0.553	0.116	1.000	1.000	0.096
SDP13	0.02	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-
IN1	-	-	-	-	-	-	-	2.86	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH4	-	-	0.07	-	-	-	0.07	4.73	1.488	1.000	0.553	0.116	1.000	1.000	0.095
SDP12	0.07	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-
IN2	-	-	-	-	-	-	-	2.92	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH5	-	-	0.41	-	-	-	0.41	4.81	1.553	1.000	0.664	0.337	1.000	1.000	0.348
SDP19	0.48	-	-	-	-	-	0.48	-	-	-	-	-	-	-	-
SDMH11	-	-	0.44	-	-	-	0.44	3.86	0.388	1.000	0.742	1.430	1.000	1.000	0.411
SDP20	0.25	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-
SDMH12	-	-	0.05	-	-	-	0.05	2.35	0.311	1.000	0.551	1.000	1.000	1.000	0.171
SDP21	0.52	-	-	-	-	-	0.52	-	-	-	-	-	-	-	-
SDMH13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IN11	-	-	-	-	-	-	-	0.49	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH6	-	-	0.11	-	-	-	0.11	5.93	1.553	1.000	0.752	0.237	1.000	1.000	0.278
SDP14	0.05	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-
IN4	-	-	-	-	-	-	-	3.53	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH6	-	-	0.11	-	-	-	0.11	5.93	1.553	1.000	0.752	0.237	1.000	1.000	0.278
SDP15	0.01	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-
IN3	-	-	-	-	-	-	-	3.49	-	-	-	-	-	-	-

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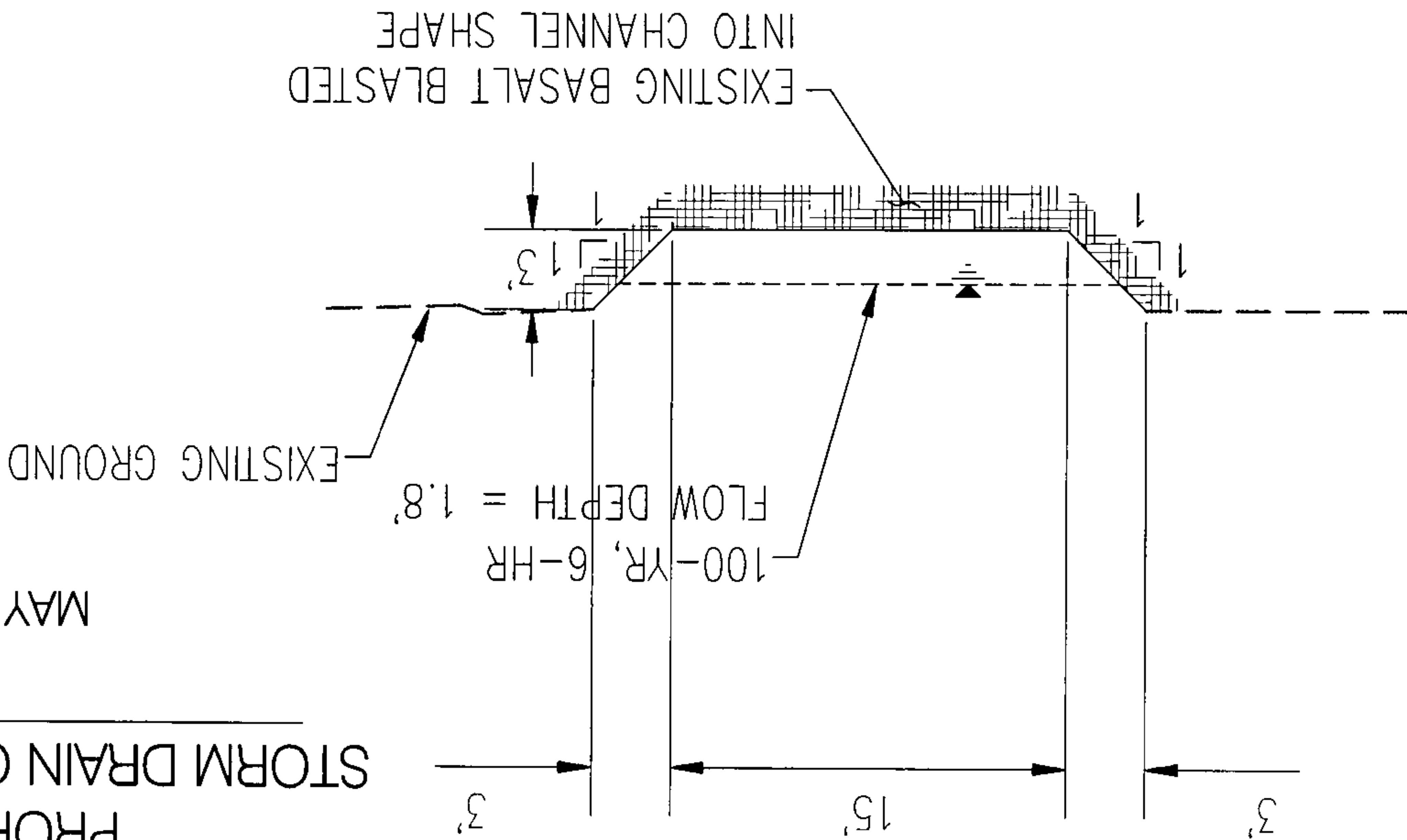
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP27	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-	-	-
IN6	-	-	-	-	-	-	-	0.35	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP18	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-	-	-
IN8	-	-	-	-	-	-	-	0.30	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH11	-	-	0.24	-	-	-	0.24	3.86	1.553	1.000	0.742	0.194	1.000	1.000	0.224	-	-
SDP24	0.08	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-
IN9	-	-	-	-	-	-	-	3.23	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH11	-	-	0.24	-	-	-	0.24	3.86	1.553	1.000	0.742	0.194	1.000	1.000	0.224	-	-
SDP25	0.02	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-
IN10	-	-	-	-	-	-	-	2.78	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP23	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-	-	-
IN12	-	-	-	-	-	-	-	0.26	-	-	-	-	-	-	-	-	-

**APPENDIX D -
OPEN CHANNEL OUTFALL ALTERNATIVE
SECTIONS**

B RECTANGULAR CHANNEL TYPICAL SECTION
SCALE: N.T.S.



A TRAPEZOIDAL CHANNEL TYPICAL SECTION
SCALE: N.T.S.

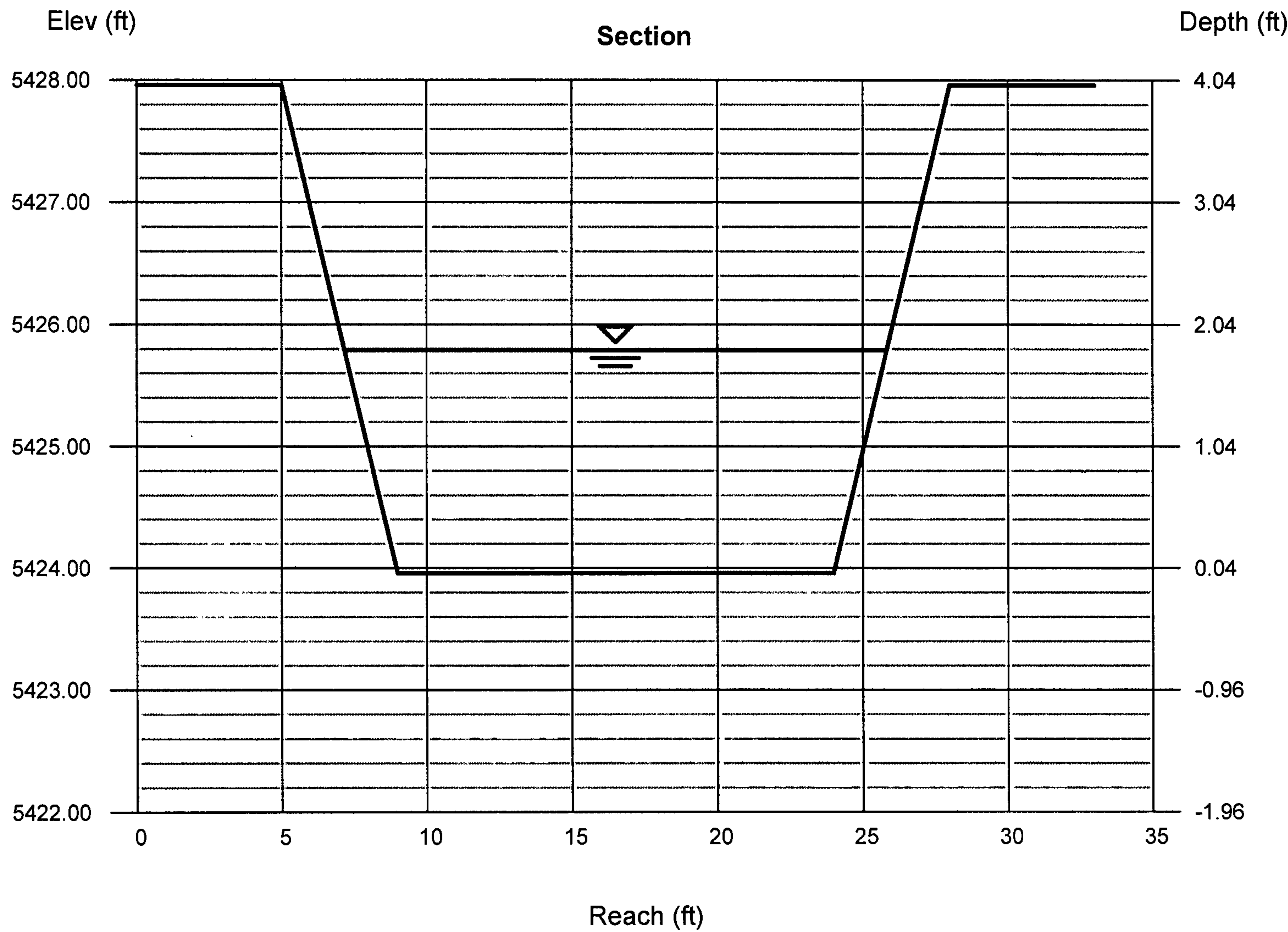


MONTECITO WEST UNITS 3-6
PROPOSED
STORM DRAIN OUTFALL DESIGN
MAY 2016

Channel Report

Trapezoidal Channel, 1:1 Slopes

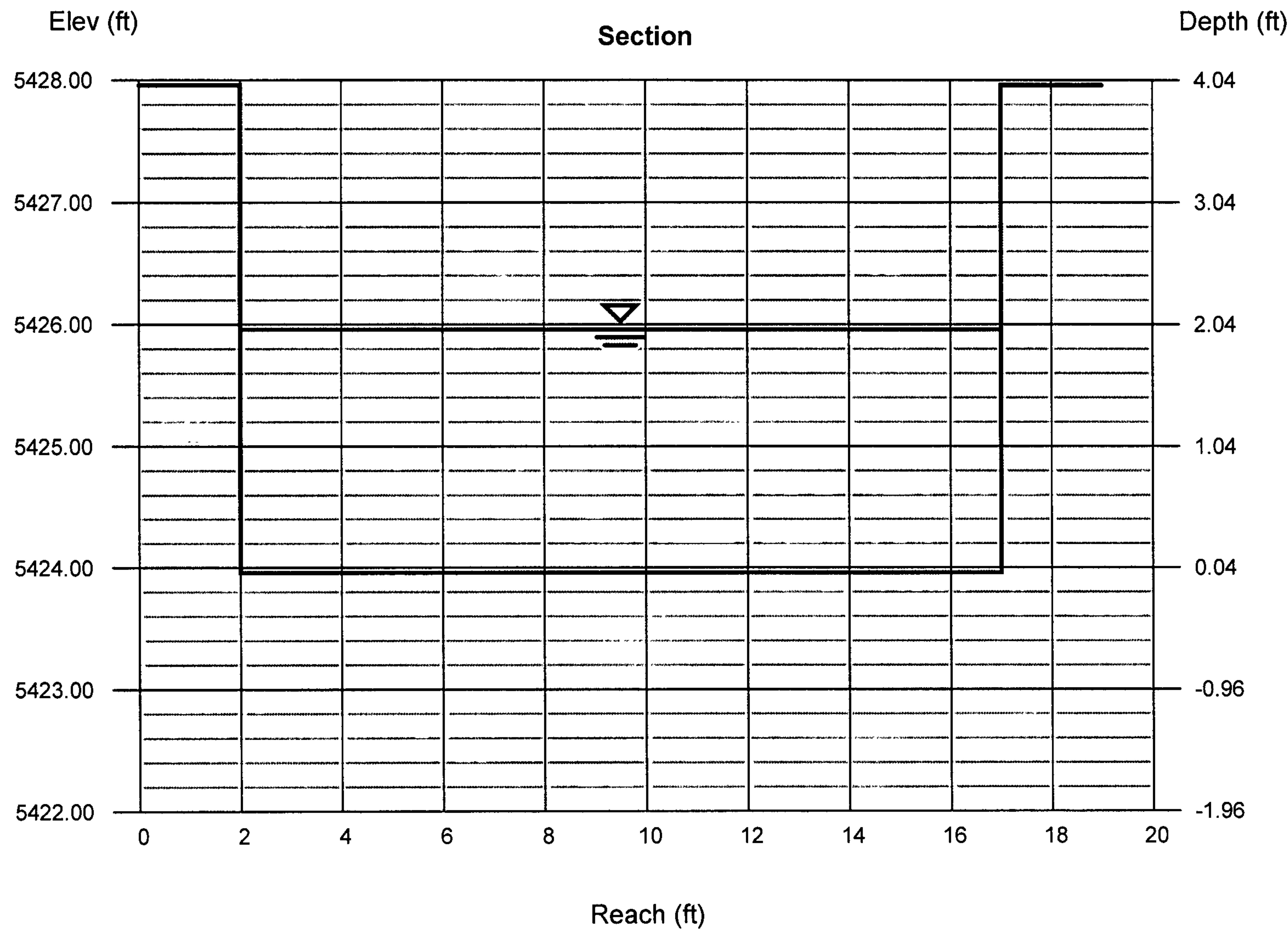
Trapezoidal		Highlighted	
Bottom Width (ft)	= 15.00	Depth (ft)	= 1.83
Side Slopes (z:1)	= 1.00, 1.00	Q (cfs)	= 108.00
Total Depth (ft)	= 4.00	Area (sqft)	= 30.80
Invert Elev (ft)	= 5423.96	Velocity (ft/s)	= 3.51
Slope (%)	= 0.65	Wetted Perim (ft)	= 20.18
N-Value	= 0.045	Crit Depth, Yc (ft)	= 1.15
Calculations		Top Width (ft)	= 18.66
Compute by:	Known Q	EGL (ft)	= 2.02
Known Q (cfs)	= 108.00		



Channel Report

Rectangular Channel

Rectangular		Highlighted	
Bottom Width (ft)	= 15.00	Depth (ft)	= 2.00
Total Depth (ft)	= 4.00	Q (cfs)	= 108.00
		Area (sqft)	= 30.00
Invert Elev (ft)	= 5423.96	Velocity (ft/s)	= 3.60
Slope (%)	= 0.65	Wetted Perim (ft)	= 19.00
N-Value	= 0.045	Crit Depth, Yc (ft)	= 1.18
		Top Width (ft)	= 15.00
		EGL (ft)	= 2.20
Calculations			
Compute by:	Known Q		
Known Q (cfs)	= 108.00		



Montecito Outfall Channel Freeboard Calculations

Reference: "City of Albuquerque, DPM" Ch. 22 Section 3.C.4

Required Freeboard for Rectangular Channels: 2 ft

Freeboard for flow rates less than 100 cfs and average flow velocity of less than 35 fps:

$$\text{Freeboard}(ft) = 1.0 + .025Vd^{1/3}$$

Channel Shape	Bottom Width	Side Slopes	Channel Slope	n-value	Q Total	Water Depth (1)	Velocity (1)	Required Freeboard	Total Required Depth (2)
	(ft)	(ft/ft)			(cfs)	(ft)	(ft/s)	(ft)	(ft)
Rectangular	15	0	0.65%	0.045	108	2.0	3.6	2.0	4.0
Trapezoidal	15	1	0.65%	0.045	108	1.8	3.5	1.1	2.9

Notes:

1. Input values above were calculated in hydraflow, see link below to see the output files.

[\\a-abq-fs2\projects\20160398\WR\Calculations\Programs\Hydraflow](#)

2. Total Required Depth = Water Depth + Required Freeboard

EXHIBITS

EXHIBIT 1: PRELIMINARY PLAT

EXHIBIT 2: OVERALL BASIN MAP

EXHIBIT 3: ON-SITE BASIN MAP

EXHIBIT 4: GRADING PLAN

**EXHIBIT 5: STORM DRAIN CAPACITY
CALCULATIONS**

**EXHIBIT 1 -
PRELIMINARY PLAT**

**EXHIBIT 2 -
OVERALL BASIN MAP**

**EXHIBIT 3 -
ON-SITE BASIN MAP**

**EXHIBIT 4 -
GRADING PLAN**

**EXHIBIT 5 -
STORM DRAIN CAPACITY CALCULATIONS**

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Abiel X. Carrillo

From: Abiel X. Carrillo
Sent: Wednesday, July 06, 2016 4:50 PM
To: 'Scott Steffen'
Cc: Kevin Patton (Kevin.Patton@PulteGroup.com); Cherne, Curtis
Subject: Montecito West Units 1-4 - D09D005 - Stamp Date 5-20-2016

Scott,

O. Make sure in the DRC set that the inlets ~~are selected to~~ comply with DPM (A's upstream of C's, etc)

This email is being sent in lieu of an attached comment letter in order to expedite intermediate reviews. A reply to these comments via email will not be considered a resubmittal. Thanks for your patience, the review for the resubmittal/response will be significantly shorter.

Based upon information provided in your submittal received 5-20-2016, and the updated storm drain map received 6-21-2016, the above-mentioned Grading and Drainage Plan and Drainage Report cannot be approved for Preliminary Plat, Site Plan for Subdivision, or Grading Permit until the following items are addressed:

1. Clarify the numbering of the Development phases. The title of this report is Montecito Vistas Units 1-4, the Report for the previous Montecito Vistas development is Montecito Vistas Units 1 & 2, and the Plates within this report are titled Montecito Vistas Units 3-6. It appears that this report should be titled Montecito Vistas Units 3-6. The Plat calls them Units 1-4.
2. Show the phase limits on the Grading Plan; the sheet titles only approximate the quadrant limits. Add the phase/unit limits to the Storm Drain Network Map.
3. The Grading Plan should include a conceptual phasing plan to show interim facilities that will be needed. A detailed phasing plan can be produced prior to Grading Permit.
4. The AHYMO analysis routes Basin 9-D.1 completely through AP 9-D.1, but there appears to be a minor flowpath directing offsite flows from Basin 9-D.1 to the proposed de-siltation pond at the west end of Retablo Road. Is this a negligible contribution? If it is not, flows could be routed away from the stub.
5. Clarify in the report what the 4W Water Zone is.
6. It appears that the inlets that are in sump condition on Vista Lucas will accept about half of their grate capacity which would account for the clogging factor required for sump inlets. If that is not correct please address.
7. Rear lot ponding for first flush management is strongly discouraged. The report proposes to turn a wall back 4-inches from the ground near the low point of the yard for the easternmost lots. It would be expected that several home owners would eventually fill in the 4 inches with landscaping or purposely to straight grade from the edge of the house pad to the invert of the block.
 - a. Considering the comment above, the spillway of the first flush pond should not drain to the adjacent development, the overflow would need to be routed to future right of way, or to an available storm drain (possibly surface flow between the two retaining walls to the inlet north of lot 19).

8. Clarify how the northeastern outfall channel ties to the Boca Negra Arroyo middle branch, it is described as a 455 long channel, but the alignment is not shown.
 - a. Does it get constructed with Unit 1/Unit 3?
 - b. The current FEMA FIRM shows that the Arroyo is a floodway, show the approximate limits of the floodway in relation to the construction of the channel. If grading for the channel will affect the floodway, a CLOMR could be triggered.
9. The Report needs to include an assessment of the Vista Vieja Roadway section's hydraulic capacity downstream. It appears that the first available inlets are at the Vista del Sol intersection.
 - a. It appears that the Vista Vieja roadway is intended to drain to the Boca Negra Dam, if that is the case, runoff from Vista Vieja from this project could be diverted through the subdivision.
10. Page 8 of the report describes the capacity that is available in the Boca Negra Arroyo, and the benefit of having a time gap between the peak discharge of this subdivision and the farther reaches of the watershed. However, the flows eventually combine in the Boca Negra Dam. The report should address if the increase in discharge proposed, although small (+3%) is consistent with the documentation for the Dam (does the benefit of the time gap extend to the Dam). Specifically, the 2014 Final Summary Report of the Boca Negra Dam, by Wilson & Co. should be included in the background materials that are researched for this report (I have a copy if you'd like to check it out).
11. The Open Space tracts are proposed to be graded to drain to the adjacent roadways. What will be proposed to control sediment, and to manage the concentrated flows across the pedestrian paths?
 - a. Are there opportunities to provide de-siltation areas, or to depress these tracts?
 - b. Are there significant impervious trails/areas within these tracts that need to be incorporated into the drainage model?
12. The design and layout of SDP5/IN13 should be planned to fully capture runoff from the open tract, as well as to control the inflow of sediment.
13. An approved ESC Plan will be required prior to approval for Grading Permit.
14. Minor Comments
 - a. Show matchlines on the grading plan
 - b. If available, please include the basin ID map for the developed condition AHYMO model, specifically, to assist in matching the channel numbering to the overall basin map. Alternatively, label the channel numbers on one of the exhibits.

- c. Page 7 of the report and the storm drain map mentions a 108 cfs design flow rate for the outfall channel, but the Q in the table is 111.

Any question or if it helps to meet to clarify some of the comments that are actually questions just let me know.

Abiel Carrillo, PE, CFM

Principal Engineer - Hydrology

Planning Department

Development Review Services Division

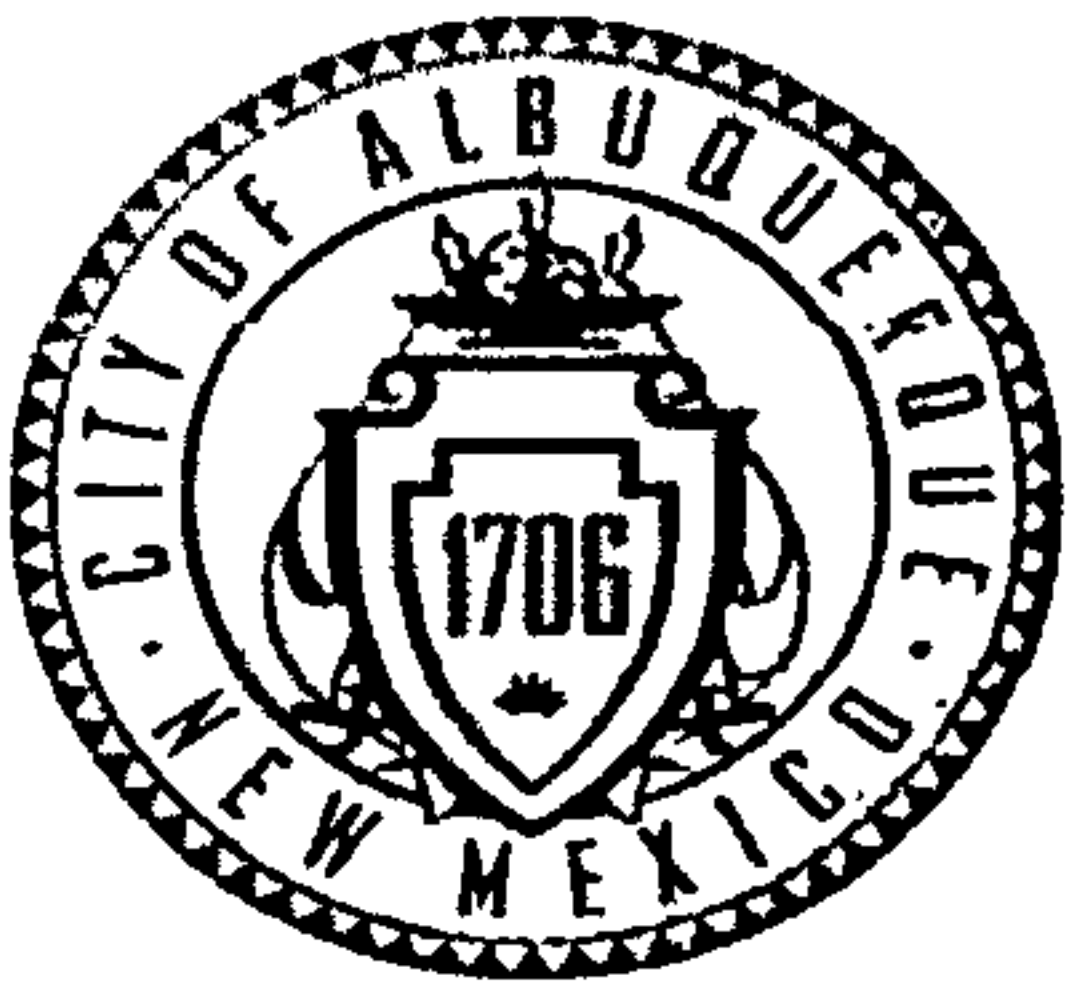
City of Albuquerque

505-924-3986

acarrillo@cabq.gov

600 2nd Street NW

Albuquerque, NM 87102



City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 09/2015)

Project Title: MONTECITO VISTAS UNITS 1-4 Building Permit #: _____ City Drainage #: D09D005

DRB#: 1009506 EPC#: _____ Work Order#: _____

Legal Description: Tracts 7- 8, 9A-C, 10B-C, 24-25, 26A-B & 27 Volcano Cliffs Subdivision Unit 6 and Tract 14 Volcano Cliffs Subdivision Unit 9

City Address: _____

Engineering Firm: BOHANNAN HUSTON INC Contact: SCOTT STEFFEN

Address: 7500 JEFFERSON ST NE COURTYARD I ALBUQUERQUE NM 87109

Phone#: 823-1000 Fax# _____ E-mail: SSTEFFEN@BHINC.COM

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Architect: _____ Contact: _____

Address: _____

Phone#: _____ Fax# _____ E-mail: _____

Other Contact: _____ Contact: _____

Address: _____

Phone#: _____ Fax# _____ E-mail: _____

Check all that Apply:

DEPARTMENT:

- ☒ HYDROLOGY/ DRAINAGE
☐ TRAFFIC/ TRANSPORTATION
☐ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

- ☐ ENGINEER/ ARCHITECT CERTIFICATION
☐ CONCEPTUAL G & D PLAN
☒ GRADING PLAN
☐ DRAINAGE MASTER PLAN
☒ DRAINAGE REPORT
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT (TCL)
☐ TRAFFIC IMPACT STUDY (TIS)
☐ EROSION & SEDIMENT CONTROL PLAN (ESC)

☐ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: ☐ Yes ☒ No

DATE SUBMITTED: 5/20/16 By: SCOTT STEFFEN

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- ☐ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY
☒ PRELIMINARY PLAT APPROVAL 136
☒ SITE PLAN FOR SUB'D APPROVAL
☐ SITE PLAN FOR BLDG. PERMIT APPROVAL
☐ FINAL PLAT APPROVAL
☐ SIA/ RELEASE OF FINANCIAL GUARANTEE
☐ FOUNDATION PERMIT APPROVAL
☒ GRADING PERMIT APPROVAL
☐ SO-19 APPROVAL
☐ PAVING PERMIT APPROVAL
☐ GRADING/ PAD CERTIFICATION
☐ WORK ORDER APPROVAL
☐ CLOMR/LOMR
☐ PRE-DESIGN MEETING
☐ OTHER (SPECIFY) _____

\$1,410.00

COA STAFF. ELECTRONIC SUBMITTAL RECEIVED af

Reviewer,
Electronic Submittal has been downloaded to D09D005 folder
in Hydrotrans due to 14-day expire days in com - Monica

DRAINAGE REPORT FOR MONTECITO VISTAS SUBDIVISION UNITS 1 THROUGH 4

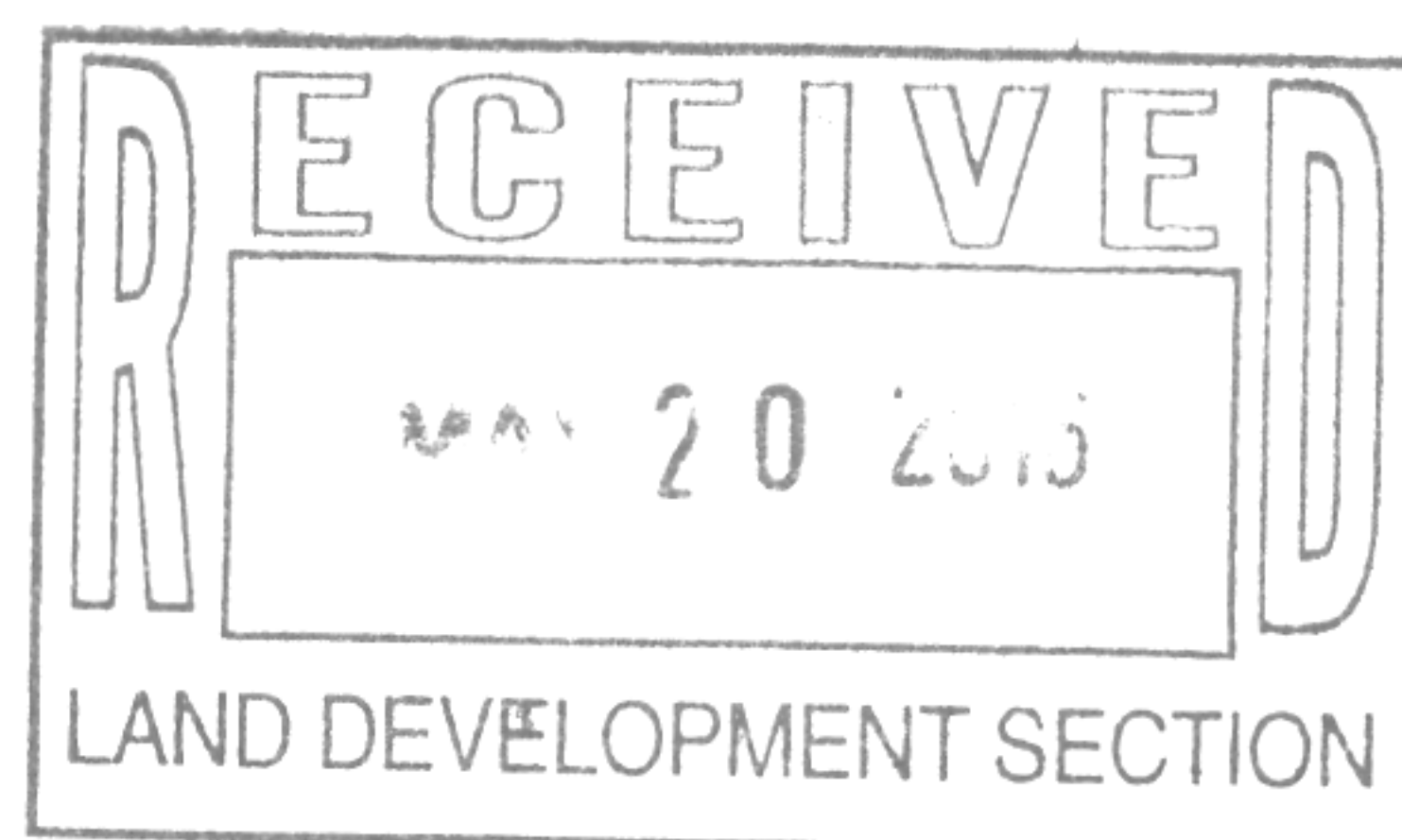
MAY 2016

Prepared for:

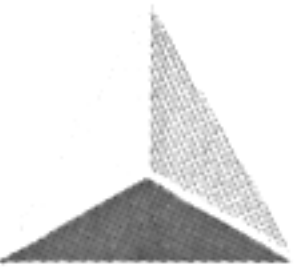
Pulte Homes of New Mexico

7601 Jefferson Street NE – Suite 320

Albuquerque, NM 87109



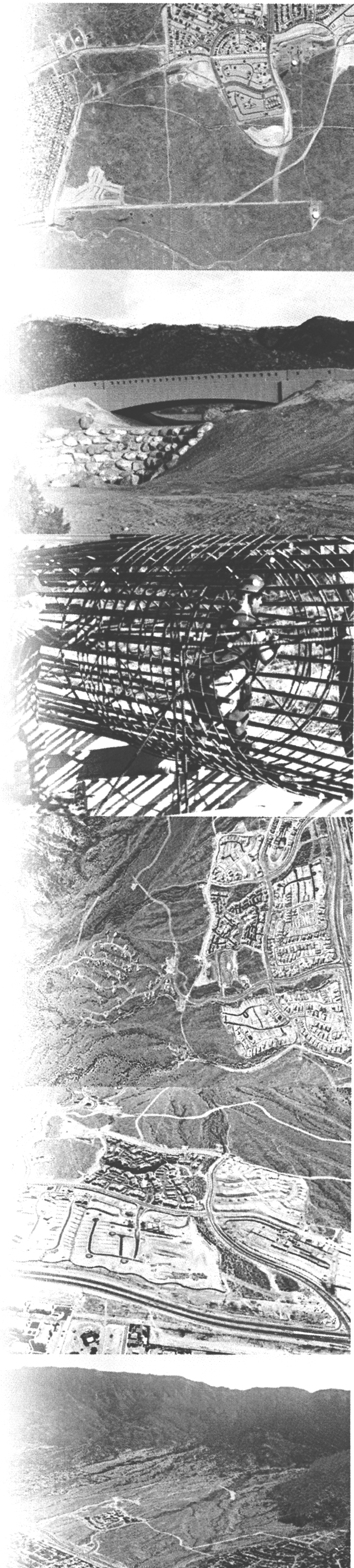
Prepared by:

Bohannon  **Huston**

Engineering

Spatial Data

Advanced Technologies



$$\Sigma D = 15 \text{ acres}$$

**DRAINAGE REPORT
FOR
MONTECITO VISTAS
SUBDIVISION
UNITS 1 THROUGH 4**

MAY 20, 2016

Prepared for:
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I. PURPOSE

This report establishes a drainage management plan for the Montecito Vistas Subdivision. The proposed development consists of 136 single family detached residential lots on approximately 36.7 acres which will be developed in four units (Units 1 through 4). This project is located within the Volcano Cliffs Sector Plan area, in northwest Albuquerque, west of the Montecito West Unit 1 Subdivision. Montecito Vistas is in the Boca Negra Arroyo Watershed and drains to the Boca Negra Dam through storm drains in the Vista Vieja Subdivision. This report follows the developed drainage patterns established by the Montecito West Units 1 and 2 Drainage Report, which allows fully developed discharge from the proposed development to the Middle Branch of the Boca Negra Arroyo. This report is submitted in support of grading approval and preliminary plat approval by the DRB.

II. CONCEPTS AND METHODOLOGIES

Drainage conditions were analyzed utilizing the 100-year, 6-hour storm event ($P_{60}=1.72$ in, $P_{360}=2.21$ in, $P_{1440}=2.58$ in), in accordance with the City of Albuquerque DPM. The Arid-lands Hydrologic Model (AHYMO) was utilized to determine peak flow rates for design of the storm drainage improvements within the project. The results are included in Appendices A and B. Street capacity and storm drain inlet calculations supporting this study are located in **Appendix C**.

The overall drainage concept for this project is to match existing capacities of two storm drains at the west boundary of the Vista Vieja Subdivision. The northern storm drain (SD 1) accepts flow from the Middle Branch of the Boca Negra Arroyo and has a capacity of 250 cfs. The southern storm drain (SD 2) accepts surface flow from a low point at the west boundary of Montecito Unit 3 and has a capacity of 62 cfs.

The following documents were referenced in the preparation of this report:

- *Vista Vieja Drainage Report* prepared by Wilson & Company, Inc., dated October 2004.
- *Montecito West Subdivision Units 1 and 2 Drainage Report* prepared by Bohannon Huston, Inc., dated January 2014
- *Amendment to the Montecito West Subdivision Units 1 and 2 Drainage Report* prepared by Bohannon Huston, Inc., dated March 2014

The two storm drains were sized to accept flow from Drainage Basin D in the Vista Vieja Drainage Report (VVDR). A third storm drain (SD 3) in Scenic Road on the north side

L 0090004

of Vista Vieja was sized to accept flow from Drainage Basin E in the VVDR. The VVDR assumes all residential lands west of Vista Vieja would develop at six dwelling units (DU) per acre. The Volcano Cliffs Sector Development Plan zoned the property in this area to Volcano Cliffs Rural Residential. Development densities are limited to a maximum of 1 DU/gross acre, or the land can be developed as a Private Commons Development which limits the density to 3 DU/gross acres. In addition, the City of Albuquerque has acquired land surrounding the Middle Branch of the Boca Negra Arroyo for permanent open space. As a result, the Vista Vieja hydrologic analysis was revised as part of the *Montecito West Units 1 and 2 Drainage Report* to reflect the current densities allowed and the City owned open space. ✓

The hydrologic analysis presented in this report modifies the AHYMO analysis in the *Amendment to the Montecito West Subdivision Units 1 and 2 Drainage Report* to reflect the changes in land treatments as a result of the proposed development. There have been no changes to the land use west of Montecito West Units 1 and 2 that require incorporation into this analysis.

III. SITE LOCATION AND CHARACTERISTICS

Montecito Vistas Units 1 through 4 will be developed in four units. Units 1 and 2 will consist of the easterly portion of the project and will be constructed at the same time. Units 3 and 4 will consist of the westerly portion of the project and will be constructed at the same time. The entire project will be graded at one time. Access to both units will be from Vista Vieja Avenue NW.

The land comprising Montecito Vistas is currently undeveloped with grades ranging from two percent to twelve percent. The site generally slopes from west to east.

IV. EXISTING HYDRAULIC AND HYDROLOGIC CONDITIONS

Runoff from land to the west of the site (Basin 9-D.2) drains through the Montecito Vistas site. The majority of the runoff from VVDR Basin D is carried by the Middle Branch of the Boca Negra Arroyo north of the site and does not impact the site. Land to the south of Montecito Vistas drains via sheet flow and does not impact the site. The land to the east (Basin 6-D.3) is lower in elevation and does not impact the site.

A summary of the existing offsite and onsite flows is presented in the table below.

**Table 1 – Montecito West Onsite and Offsite Existing Conditions
Basin Data Table**

100 Year – 6 Hour Storm						
Basin ID	Area (AC.)	LAND TREATMENT				Q(100) (CFS)
		A	B	C	D	
OS-D	152.2	95.0%	5.0%	0.0%	0.0%	174.2
15-D	96.4	95.0%	5.0%	0.0%	0.0%	123.9
9-D.1	38.6	95.0%	5.0%	0.0%	0.0%	37.1
6-D.1	28.9	95.0%	5.0%	0.0%	0.0%	34.4
9-D.2	6.2	95.0%	5.0%	0.0%	0.0%	7.6
6-D.2	36.7	95.0%	5.0%	0.0%	0.0%	45.3
6-D.3	11.7	95.0%	5.0%	0.0%	0.0%	14.4
6-D.4	10.1	0.0%	29.0%	29.0%	42.0%	30.6
6-D.5	4.8	0.0%	34.0%	34.0%	32.0%	13.7
6-D.6	4.1	100.0%	0.0%	0.0%	0.0%	5.0
6-D.7	3.4	0.0%	31.0%	30.0%	39.0%	10.0
6-D.8	6.9	0.0%	30.0%	29.0%	41.0%	20.7
A-1.1	53.6	95.0%	5.0%	0.0%	0.0%	48.6
A-1.2	7.7	95.0%	5.0%	0.0%	0.0%	9.4
E-1.1	3.9	95.0%	5.0%	0.0%	0.0%	4.8
E-1.2	0.8	95.0%	5.0%	0.0%	0.0%	1.0
E-1.3	52.0	95.0%	5.0%	0.0%	0.0%	64.6
E-1.4	87.0	95.0%	5.0%	0.0%	0.0%	96.0

V. DEVELOPED HYDRAULIC AND HYDROLOGIC CONDITIONS

The “D” drainage basins from the VVDR were subdivided into basins based on which storm drain system they drain toward. Montecito Vistas falls mainly within Basin 6-D.2 from the *Montecito West Units 1 and 2 Drainage Report*. It also includes a small portion of Basins 9-D.2 and A-1.2. Basins 9-D.2 and 6-D.2 are required to convey discharge to the Middle Branch of the Boca Negra Arroyo in the developed condition per the *Montecito West Units 1 and 2 Drainage Report*.

A. OFFSITE FLOWS

Flows from the “D” Basins (OS-D, 15D, 9-D.1, 6-D.1, and 9-D.2) as shown on the Developed Conditions Basin Map drain to the Middle Branch of the Boca Negra Arroyo and SD 1 (250 cfs capacity). Flow from Montecito Vistas will discharge to the Middle Branch of the Boca Negra Arroyo within Basin 6-D.1. Flow from Basin 9-D.2 will be conveyed through

the project site and discharge to the Middle Branch of the Boca Negra Arroyo. Runoff from Basins 6-D.3 and 6-D.4 through 6-D.7 drain toward SD 2 (62 cfs capacity). The proposed development does not impact the flows to SD 2 and therefore, the analysis from the *Montecito West Units 1 and 2 Drainage Report* for SD 2 remains unchanged in this report.

Offsite flows from the “E” Basins as shown on the Developed Conditions Basin Map do not impact the site. The analysis from the *Montecito West Units 1 and 2 Drainage Report* for the “E” Basins remains unchanged in this report. Allowable discharge from Basins E-1.3 and E-1.4 in the developed condition may be limited due to capacity constraints in the Scenic Road storm drain (capacity=94 cfs). An analysis will be required to determine allowable discharge in these three basins at the time of development. This analysis is beyond the scope of the Montecito Vistas drainage plan.

Offsite flows from the “A” Basins (A-1.1 and A-1.2) as shown on the Developed Conditions Basin Map discharge to the Vista Vieja Avenue Right-of-Way south of Montecito Vistas. Vista Vieja Avenue does not have capacity to accept fully developed flows from the “A” Basins (see street capacity analysis in **Appendix C**). Options for handling runoff from the “A” Basins include 1) on-site retention, 2) transfer to the Middle Branch of the Boca Negra Arroyo (SD 1), which would require an analysis to show how the flows would get to SD1 and that the transfer would not exceed downstream capacity of SD1, and 3) construct improvements to the existing channel east of Montecito Vistas along the south side of Vista Vieja Avenue, including installing a culvert to convey flows to the existing channel.

B. ONSITE FLOWS

Developed flows from Montecito Vistas will be conveyed via the internal street network, collected by the internal storm drain network, which discharges to the Middle Branch of the Boca Negra Arroyo and SD1. Total flow from Basins 6-D.2A through 6-D.2F is 107.8 cfs. The 250 cfs capacity of SD 1 is adequate to accept fully developed flows from Montecito Vistas Units 1-4. These flows are described in **Appendix A**. For reference, see **Exhibit 2** for basin locations and **Exhibit 3** for the storm drain and inlet locations.

Basin 6-D.2A (32.9 cfs) drains to two Type A single grate inlets (Inlets # 11 and 12) at the east end of Vista Bosquejo Road. These inlets intercept 7.0 cfs each, with 18.9 cfs of by-pass to the southern sump in Basin 6-D.2E. Basin 6-D.2B (31.4 cfs) drains to four Type A single grate inlets (Inlets #5 through 8) at the east end of Vista Dibujo Road. These inlets intercept 6.5 cfs each, with 5.4 cfs of by-pass to the northern sump in Basin 6-D.2E. Basin 6-D.2C (10.8 cfs) drains Piedra Dibujo Road. Piedra Dibjuo Road has sufficient capacity to

convey the flows to Vista Luces Street and no inlets are required. The flow from Piedra Dibujo Road is conveyed to the northern sump in Basin 6-D.2E. Basin 6-D.2D (19.4 cfs) drains to two Type A single grate inlets (Inlets #1 and 2) at the east end of Retablo Road. These inlets intercept 5.8 cfs each, with 7.8 cfs of by-pass to the northern sump in Basin 6-D.2E.

The lots in Basin 6-D.2F (8.0 cfs) drain toward the rear of the lots and discharge to a HOA Tract, which has a private drainage system that conveys the flow to the storm drain in Vista Luces Street.

Flow to the Basin 6-D.2E northern sump drain to two Type A single grate inlets (Inlets #3 and 4). These inlets intercept 13.4 cfs each and are in a sump condition. Flow to the Basin 6-D.2E southern sump drain to two Type A single grate inlets (Inlets #9 and 10). These inlets intercept 10.8 cfs each and are in a sump condition. There is no emergency spill way for either the northern or southern sumps, therefore the inlets have been sized to capture two times the 100-year storm event as shown in **Appendix B**.

A summary of the developed offsite and onsite flows is presented in the table below.

**Table 2 – Montecito Vistas Onsite and Offsite Proposed Conditions
Basin Data Table**

100 Year – 6 Hour Storm						
Basin ID	Area (AC.)	LAND TREATMENT				Q(100) (CFS)
		A	B	C	D	
OS-D	152.2	95.0%	5.0%	0.0%	0.0%	174.2
15-D	96.4	68.0%	8.0%	8.0%	16.0%	177.2
9-D.1	38.6	37.0%	16.0%	16.0%	31.0%	68.6
6-D.1	29.4	66.0%	9.0%	9.0%	16.0%	39.2
9-D.2	8.0	30.0%	18.0%	18.0%	34.0%	15.6
6-D.2A	10.9	0.0%	29.5%	29.5%	41.0%	32.9
6-D.2B	10.9	0.0%	29.0%	29.0%	42.0%	31.4
6-D.2C	3.8	0.0%	34.0%	34.0%	32.0%	10.8
6-D.2D	6.9	0.0%	34.5%	34.5%	31.0%	19.4
6-D.2E	1.5	0.0%	30.5%	30.5%	39.0%	4.6
6-D.2F	2.7	0.0%	30.5%	30.5%	39.0%	8.0
6-D.3	11.7	30.0%	18.0%	18.0%	34.0%	29.6
6-D.4	9.1	0.0%	29.0%	29.0%	42.0%	27.6
6-D.5	4.8	0.0%	34.0%	34.0%	32.0%	13.7
6-D.6	4.1	100.0%	0.0%	0.0%	0.0%	5.0
6-D.7	4.1	0.0%	31.0%	30.0%	39.0%	12.3

6.-D.8	6.9	0.0%	30.0%	29.0%	41.0%	20.7
A-1.1	53.9	90.0%	5.0%	5.0%	0.0%	51.2
A-1.2	14.1	30.0%	18.0%	18.0%	34.0%	20.4
E-1.1	3.9	30.0%	18.0%	18.0%	34.0%	9.9
E-1.2	0.8	0.0%	29.0%	29.0%	42.0%	2.3
E-1.3	52.0	52.0%	16.0%	16.0%	16.0%	102.3
E-1.4	87.0	60.0%	13.0%	13.0%	14.0%	144.7

C. FIRST FLUSH REQUIREMENTS

This project is required to meet the first flush requirements of the new City Drainage Ordinance. The first flush requirement will be met with on lot ponding and is calculated as 0.34 in. (0.44 in. - 0.1 in. initial abstraction) times the roof area that can drain to the on lot pond (taken as one half the pad area). There are two pad sizes, 45 feet x 85 feet and 50 feet x 85 feet, in this project, with a first flush requirement of 54 and 60 cubic feet, respectively.

First flush will be accommodated by a combination of ponding between the back of curb and sidewalk, supplemented by onsite front yard ponding on each lot. 42 cubic-feet per lot can be stored in the landscape strip between the sidewalk and curb within the Right-of-Way. As a result, a maximum of 18 cubic-feet per lot of ponding (60 cubic-feet required minus 42 cubic-feet) is needed within the lot itself. This on-lot storage can be accomplished by a small bermed pond at the low side of each lot in front of the pad (for lots draining toward the street) and consists of either an 8-inch or 12-inch berm. This on-lot front yard pond will be constructed as part of the landscaping by the building contractor.

For lots within Basins 6-D.2f, backyard ponds will be utilized to capture the first flush as these lots drain toward the rear of the lot. All lots which drain thru the lot backyards have backyard ponding due to the placement of the wall "turn block" 4 inches above finished grade. This provides 74 cubic-feet of storage, while the required first flush storage is 54 cubic-feet and 60 cubic-feet for each of the two lot sizes. Therefore, the first flush storage requirements are met by backyard ponding utilizing an elevated turn block.

easements?

VI. MIDDLE BRANCH OF THE BOCA NEGRA ARROYO

The Montecito Vistas storm drain discharges to an open channel at the northeast corner of the development. The open channel conveys the flow to the Middle Branch of the Boca

Negra Arroyo. The design flow rate for the channel is 106 cfs. The channel will be approximately 455 feet in length with an elevation drop of 2.96 feet, with a slope of 0.65%.

Within the project area, there is a significant amount of underlying basalt. Therefore, the design of this channel will utilize this existing basalt to maintain the natural aesthetics of the landscape, as well as to reduce the use of additional materials. The existing basalt will be blasted incrementally to achieve the desired channel shape. Two different channel sections are proposed: a 1:1 sloped trapezoidal channel and a rectangular channel. Both channels will have a minimum width of 15 feet to allow for maintenance vehicle access. Each proposed option accounts for a particular efficiency aspect: flow conveyance (trapezoidal) and ease of construction (rectangular). Typical layouts of these two channel options are shown in sections A and B, see **Appendix D**.

The expected velocity and depth of flow within the channel was determined for the 100-yr. 6-hr. storm in the Hydraflow Express Extension for Autodesk AutoCAD Civil 3D. Since the channel shape will be blasted out of the existing basalt, a Manning's roughness coefficient value of 0.045 was assumed. According to the City of Albuquerque Development Process Manual, Volume II, this value represents grouted riprap or exposed rock.

Using the output from the Manning's calculations and the hydraulic design criteria from the COA DPM, the required freeboard and total channel depth were determined. For rectangular channels with flow depths of greater than 1.0 feet and average flow velocities of less than 35 fps, the required freeboard is 2.0 ft. For trapezoidal channels, freeboard equation (1) from the DPM was selected: $Freeboard(ft) = 1.0 + .025Vd^{1/3}$. Accounting for freeboard, the total depth for the rectangular channel is 4 feet and the trapezoidal channel, 3 feet. A summary of input and output values for the freeboard calculations are listed in **Table 3**.

Table 3 – Freeboard Analysis Summary Table

Channel Shape	Bottom Width	Side Slopes	Channel Slope	n-value	Q Total	Water Depth (1)	Velocity (1)	Required Freeboard	Total Required Depth (2)
	(ft.)	(ft./ft.)			(cfs)	(ft.)	(ft./s)	(ft.)	(ft.)
Rectangular	15	--	0.65%	0.045	111	2.04	3.63	2.00	4.04
Trapezoidal	15	1	0.65%	0.045	111	1.86	3.54	1.05	3.00

The length of this channel is such that it provides adequate outlet scour protection for the discharge from the storm drain. The channel will be designed to tie into the Middle Branch of the Boca Negra Arroyo.

In addition to the design of the subdivision outfall, it was necessary to analyze its effects on the Middle Branch of the Boca Negra Arroyo. The arroyo runs along the northern edge of the subdivision, collects runoff from the outfall, then enters a storm drain approximately 1,400 feet downstream at the west end of the Vista Vieja Subdivision. Due to the downstream constraints, it was crucial to determine whether the Vista Vieja storm drain would still be able to convey the peak flow from the Middle Branch of the Boca Negra Arroyo, as well as the additional flow from the Montecito West outfall. The peak flow through the arroyo is 232 cfs and occurs 2 hours after the start of the storm. The peak Montecito Vistas outfall flow is 108 cfs and occurs after 1.5 hours. The peak flow from the outfall will enter the arroyo half an hour earlier than the peak coming down the arroyo. As such, the combined flow in the Boca Negra Arroyo only increases to 238 cfs at a time of 2 hours. Although the outfall flow is significant in comparison to the arroyo peak flow (nearly half), its overall effect will be negligible (less than 3%) because of the time gap between the two peaks.

VII. CONCLUSION

This drainage report updates the drainage concept outlined in the approved *Montecito West Subdivision Units 1 and 2 Drainage Report*, which defined the allowable discharge from lands to the west of the Vista Vieja Subdivision. This plan reanalyzes the Montecito West Units 1 and 2 Drainage Analysis based on the proposed development, maintaining the plan for future development of land to the west of Montecito West. The proposed drainage plan for Montecito Vistas can be safely conveyed by the existing and proposed improvements in this drainage plan. Erosion and dust control, consisting of erosion control berms, silt fencing and sedimentation basins, are proposed to mitigate soil washing or blowing into paved streets, storm drains, and existing developed areas. This drainage plan maintains the overall drainage pattern of the area and allows for the safe management of storm runoff in the fully developed condition as well as interim conditions.

APPENDICES

**APPENDIX A: EXISTING CONDITIONS AHYMO
SUMMARY, OUTPUT, AND INPUT
FILES**

**APPENDIX B: DEVELOPED CONDITIONS AHYMO
SUMMARY, OUTPUT, AND INPUT
FILES**

**APPENDIX C: STREET HYDRAULICS AND
STORM DRAIN INLET ANALYSIS**

**APPENDIX D: OPEN CHANNEL OUTFALL
ALTERNATIVE SECTIONS**

**APPENDIX A -
EXISTING CONDITIONS AHYMO SUMMARY,
OUTPUT, AND INPUT FILES**

```

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) EXISTING
*S 100 YEAR - 6 HOUR STORM
*S
* REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
*
*
* CONVERT TO NMHYMO
START TIME=0.0 HR PUNCH CODE=0
*****
LOCATION NM
*
*****
*
*****
*100 YEAR - 6 HOUR
RAINFALL TYPE=1 RAIN QUARTER=0
RAIN ONE=1.72 IN RAIN SIX=2.21 IN
RAIN DAY=2.58 IN DT=0.033333 HRS

*S
*S *****
*S * COMPUTE OFFSITE "D" BASINS *
*S *****
*S
*S
*S
*S COMPUTE BASIN OS-D *****
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0750 K=0.7
LENGTH=700 FT SLOPE=0.04286 K=2.0
LENGTH=2900 FT SLOPE=0.03793 K=3.0

COMPUTE NM HYD ID=17 HYD=OS_D AREA=0.2378 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=17 CODE=1
*
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****
*
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

ROUTE MCUNGE ID=50 HYD=100.01 INFLOW ID=17 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0
PRINT HYD ID=50 CODE=1
*
*S COMPUTE BASIN 15-D *****
*S
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.050 K=0.7
LENGTH=500 FT SLOPE=0.020 K=2.0
LENGTH=1200 FT SLOPE=0.02167 K=3.0

COMPUTE PM HYD ID=15 HYD=15_D AREA=0.1506 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=15 CODE=1
*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
ADD HYD ID=33 HYD NO=101.0 ID I=15 ID II=50
PRINT HYD ID=33 CODE=1
*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
*

```

Existing
Condition

✓

```

COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.038  FP SLOPE=0.038
                      N=0.038  DIST=32.0
                      DIST  ELEV          DIST  ELEV
                        0.0      5.0      6.0      0.0
                        26.0     0.0     32.0     5.0

ROUTE MCUNGE          ID=40  HYD=100.01  INFLOW ID=33  DT=0HR  L=4900
                      NS=0   SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=40          CODE=1
*
*S COMPUTE BASIN 9-D.1 *****
*
COMPUTE LT TP         LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=3  ISLOPE=-1
                      LENGTH=400 FT  SLOPE=0.0084 K=0.7
                      LENGTH=0 FT  SLOPE=0.0 K=2.0
                      LENGTH=1600 FT  SLOPE=0.0250 K=3.0

COMPUTE NM HYD        ID=9  HYD=9_D.1  AREA=0.0603 SQ MI
                      PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                      TP=0.0 HR  MASS RAIN=-1
PRINT HYD             ID=9          CODE=1
*
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
ADD HYD               ID=44  HYD NO=104.0 ID I=40 ID II=9
PRINT HYD             ID=44  CODE=1
*
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.038  FP SLOPE=0.038
                      N=0.038  DIST=32.0
                      DIST  ELEV          DIST  ELEV
                        0.0      5.0      6.0      0.0
                        26.0     0.0     32.0     5.0

ROUTE MCUNGE          ID=30  HYD=104.1  INFLOW ID=44  DT=0HR  L=4900
                      NS=0   SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=30          CODE=1
*
*S COMPUTE BASIN 6-D.1 *****
*
COMPUTE LT TP         LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=3  ISLOPE=-1
                      LENGTH=400 FT  SLOPE=0.05 K=0.7
                      LENGTH=0 FT  SLOPE=0.0084 K=2.0
                      LENGTH=2800 FT  SLOPE=0.03286 K=3.0

COMPUTE NM HYD        ID=6  HYD=6_D.1  AREA=0.0459 SQ MI
                      PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                      TP=0.0 HR  MASS RAIN=-1
PRINT HYD             ID=6          CODE=1
*S
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
*S
ADD HYD               ID=55  HYD NO=AP_OFF ID I=30 ID II=6
PRINT HYD             ID=55  CODE=1
*
*S COMPUTE BASIN 9-D.2 *****
*
COMPUTE LT TP         LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=1  ISLOPE=0
                      LENGTH=1800 FT  SLOPE=0.0372 K=3.0
                      Kn=.021  CR=.5

COMPUTE NM HYD        ID=5  HYD=9_D.2  AREA=0.00967 SQ MI

```

```

                PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
                TP=0.0 HR MASS RAIN=-1
                ID=5 CODE=20
PRINT HYD
*
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
*
COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.0433 FP SLOPE=0.0433
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
  0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

ROUTE MCUNGE ID=6 HYD=100.01 INFLOW ID=5 DT=0HR L=1200
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0
PRINT HYD ID=6 CODE=1
*
*S COMPUTE BASIN 6-D.2*****
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=1200 FT SLOPE=0.0433 K=3.0
Kn=.021 CR=.5

COMPUTE NM HYD ID=7 HYD=6_D.2 AREA=0.057362 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=7 CODE=20
*
*S ADD ROUTE 9D.2 TO 6D.2 TO GET 6 9D.2 *****
ADD HYD ID=8 HYD NO=6_9D.2 ID I=6 ID II=7
PRINT HYD ID=8 CODE=1
*
*S COMPUTE BASIN 6-D.3*****
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=600 FT SLOPE=0.0433 K=3.0
Kn=.021 CR=.5

COMPUTE NM HYD ID=9 HYD=6_D.3 AREA=0.018277 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=9 CODE=20
*
*S
*S
*S
*S
*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S COMPUTE BASIN A-1.1 *****
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0340 K=0.7
LENGTH=1600 FT SLOPE=0.0361 K=2.0
LENGTH=2800 FT SLOPE=0.0346 K=3.0

COMPUTE NM HYD ID=60 HYD=A_1.1 AREA=0.08421 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
PRINT HYD ID=60 CODE=20
*
*S COMPUTE BASIN A-1.2 *****
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0

```

```

LENGTH=3200 FT  SLOPE=0.0325 K=3.0
Kn=.021  CR=.5

COMPUTE NM HYD      ID=65 HYD=A_1.2  AREA=0.01196 SQ MI
                    PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=65      CODE=20
*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD             ID=66  HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD           ID=66      CODE=1
*
*S
*S
*S      *****
*S      * COMPUTE OFFSITE "E" BASINS *
*S      *****
*S
*S
*S COMPUTE BASIN E-1.1 *****
*
COMPUTE NM HYD      ID=21 HYD=1 E.1  AREA=0.006128  PER A=95.0 PER B=5.0
                    PER C=0.0 PER D=0.0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=21      CODE=1
*
*S COMPUTE BASIN E-1.3 *****
*

COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=3800 FT  SLOPE=0.0325 K=3.0
                    Kn=.021  CR=.5

COMPUTE NM HYD      ID=70 HYD=E_1.3  AREA=0.08120 SQ MI
                    PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=70      CODE=20
*
*S COMPUTE BASIN E-1.4 *****
*

COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=5200 FT  SLOPE=0.0325 K=3.0
                    Kn=.021  CR=.5

COMPUTE NM HYD      ID=75 HYD=E_1.4  AREA=0.13593 SQ MI
                    PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                    TP=0.0 HR  MASS RAIN=-1
PRINT HYD           ID=75      CODE=20
*
*S
*S      *****
*S      * COMPUTE ONSITE BASINS *
*S      *****
*S
*S
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD      ID=2 HYD=6 D.4  AREA=0.015778  PER A=95.0 PER B=5.0
                    PER C=0.0 PER D=0.0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=2      CODE=1
*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD      ID=3 HYD=6 D.5  AREA=0.007522  PER A=95.0 PER B=5.0
                    PER C=0.0 PER D=0.0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=3      CODE=1
*
*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD      ID=4 HYD=6 D.6  AREA=0.006441  PER A=100 PER B=0
                    PER C=0 PER D=0  TP=0.13333  RAINFALL=-1
PRINT HYD           ID=4      CODE=1
*

```

```

*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD      ID=1 HYD=6_D.7 AREA=0.005236 PER A=95.0 PER B=5.0
                    PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=1 CODE=1
*
*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD      ID=20 HYD=6_D.8 AREA=0.010762 PER A=95.0 PER B=0.0
                    PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=20 CODE=1
*
*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD      ID=22 HYD=1_E.2 AREA=0.001177 PER A=95.0 PER B=5.0
                    PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=22 CODE=1
*
*S ADD 6_D.4 TO 6_D.7 *****
ADD HYD             ID=11 HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD           ID=11 CODE=1
*
*S ADD 6_D.5 TO 6_D.6 *****
ADD HYD             ID=12 HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD           ID=12 CODE=1
*
*S ADD 6_D.4_7 TO 6_D.5_6 TO GET PROJECT SITE DISCHARGE TO AP_1*****
ADD HYD             ID=25 HYD NO=6D.5_6 ID I=11 ID II=12
PRINT HYD           ID=25 CODE=1
*

*S
*S *****
*S * COMPUTE ANALYSIS POINTS *
*S *****
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD 6D.8 TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD             ID=24 HYD NO=AP_2 ID I=55 ID II=20
PRINT HYD           ID=24 CODE=1
*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S ADD 6D.3 TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD             ID=14 HYD NO=AP_1 ID I=25 ID II=9
PRINT HYD           ID=14 CODE=1
*
*S ANALYSIS POINT 3, DISCHARGE FROM VILLA REAL RD TO SCENIC RD STORM DRAIN *
*
*S ADD E_1.1 TO E_1.2 TO GET AP_3
*
ADD HYD             ID=23 HYD NO=AP_3 ID I=21 ID II=22
PRINT HYD           ID=23 CODE=1
*S
FINISH

```


HYDROGRAPH FROM AREA OS_D

RUNOFF VOLUME = .41961 INCHES = 5.3217 ACRE-FEET
PEAK DISCHARGE RATE = 174.20 CFS AT 1.533 HOURS BASIN AREA = .2378 SQ. MI.

```
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****
*
*
COMPUTE RATING CURVE   CID=1    VS NO=1    NO SEGS=1
                        MIN ELEV=0    MAX ELEV=3.80
                        CH SLOPE=0.038    FP SLOPE=0.038
                        N=0.038        DIST=32.0
                        DIST    ELEV          DIST    ELEV
                          0.0       5.0      6.0       0.0
                          26.0      0.0     32.0       5.0
```

RATING CURVE VALLEY SECTION 1.0			
WATER	FLOW	FLOW	TOP
SURFACE	AREA	RATE	WIDTH
ELEV	SQ FT	CFS	FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

```

ROUTE MCUNGE          ID=50  HYD=100.01  INFLOW ID=17  DT=0HR   L=4900
                      NS=0    SLOPE=.038  MATCODE=0    REGCODE=0   CCODE=0

```

INFLOW END= 196	TABLE PTS= 20		
DT= .033333	QMED= 87.10	CKMED= 9.2361	
WIDTH MED= 21.70	NREACH= 9	DX= 544.44	

DEPTH	AREA	Q	TRAVEL	WIDTH	ck	VEL	C	D	C1	C2	C3	Q-M	C1-M	C2-M	C3-M
(FT)	(SQ FT)	(CFS)	TIME(HR)	(FT)	(FPS)	(FPS)						(CFS)			
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	6.59	4.04	1.451	.012	.991	.188	-.179	20.5	.992	.098	-.090
.60	12.4	65.0	.260	21.4	8.44	5.23	1.860	.017	.988	.305	-.293	48.0	.989	.253	-.242
.80	16.8	105.1	.217	21.9	10.01	6.27	2.206	.023	.986	.381	-.366	84.1	.987	.346	-.332
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.510	.029	.984	.435	-.418	127.9	.985	.409	-.394
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.781	.035	.982	.476	-.458	178.9	.983	.456	-.439
1.40	30.4	267.8	.154	23.4	13.73	8.82	3.027	.040	.980	.508	-.488	236.6	.981	.493	-.474
1.60	35.1	335.1	.142	23.8	14.76	9.55	3.253	.046	.979	.535	-.513	300.7	.979	.522	-.501
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.462	.052	.977	.557	-.534	371.1	.978	.546	-.524
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.657	.057	.976	.576	-.551	447.4	.976	.567	-.543
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.840	.063	.974	.592	-.566	529.7	.975	.584	-.559
2.40	54.9	663.8	.113	25.8	18.20	12.09	4.012	.068	.973	.606	-.579	617.8	.974	.599	-.573
2.60	60.1	760.4	.108	26.2	18.94	12.65	4.175	.074	.972	.619	-.591	711.5	.972	.613	-.585
2.80	65.4	862.5	.103	26.7	19.65	13.19	4.330	.079	.971	.630	-.601	810.9	.971	.625	-.596
3.00	70.8	970.3	.099	27.2	20.32	13.70	4.478	.085	.969	.640	-.610	915.8	.970	.635	-.605
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 5 TIMES. AVERAGE NUMBER ITERATIONS = 1.0847

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	4.61	4.04	1.017	.017	.984	.016	.000	20.5	.990	.010	.000
.60	12.4	65.0	.260	21.4	4.68	5.23	1.031	.031	.970	.030	.000	48.0	.977	.023	.000
.80	16.8	105.1	.217	21.9	4.76	6.27	1.049	.049	.954	.046	.000	84.1	.962	.038	.000
1.00	21.2	152.5	.189	22.4	4.85	7.19	1.068	.068	.936	.064	.000	127.9	.945	.055	.000
1.20	25.7	206.9	.169	22.9	4.94	8.04	1.088	.088	.919	.081	.000	178.9	.928	.072	.000
1.40	30.4	267.8	.154	23.4	5.04	8.82	1.110	.110	.901	.099	.000	236.6	.910	.090	.000
1.60	35.1	335.1	.142	23.8	5.14	9.55	1.132	.132	.883	.117	.000	300.7	.892	.108	.000
1.80	39.9	408.4	.133	24.3	5.24	10.24	1.155	.155	.866	.134	.000	371.1	.874	.126	.000
2.00	44.8	487.7	.125	24.8	5.34	10.89	1.178	.178	.849	.151	.000	447.4	.857	.143	.000
2.20	49.8	572.9	.118	25.3	5.45	11.50	1.201	.201	.833	.167	.000	529.7	.841	.159	.000
2.40	54.9	663.8	.113	25.8	5.55	12.09	1.224	.224	.817	.183	.000	617.8	.825	.175	.000
2.60	60.1	760.4	.108	26.2	5.66	12.65	1.247	.247	.802	.198	.000	711.5	.809	.191	.000
2.80	65.4	862.5	.103	26.7	5.77	13.19	1.271	.271	.787	.213	.000	810.9	.794	.206	.000
3.00	70.8	970.3	.099	27.2	5.87	13.70	1.294	.294	.773	.227	.000	915.8	.780	.220	.000
3.20	76.3	1083.5	.096	27.7	5.97	14.20	1.317	.317	.759	.241	.000	1026.3	.766	.234	.000
3.40	81.9	1202.3	.093	28.2	6.08	14.68	1.340	.340	.747	.253	.000	1142.4	.753	.247	.000
3.60	87.6	1326.5	.090	28.6	6.18	15.15	1.362	.362	.734	.266	.000	1263.8	.740	.260	.000
3.80	93.3	1456.2	.087	29.1	6.28	15.60	1.385	.385	.722	.278	.000	1390.8	.728	.272	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 32 TIMES. AVERAGE NUMBER ITERATIONS = 1.0610

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=50 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41646 INCHES = 5.2818 ACRE-FEET
 PEAK DISCHARGE RATE = 170.91 CFS AT 1.833 HOURS BASIN AREA = .2378 SQ. MI.

*
 *S COMPUTE BASIN 15-D *****
 *S
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.050 K=0.7
 LENGTH=500 FT SLOPE=0.020 K=2.0
 LENGTH=1200 FT SLOPE=0.02167 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	500.0	.020000	2.0000
CHANNEL FLOW PORTION	1200.0	.021670	3.0000
TOTAL BASIN	2100.0	.026669	1.8265

TIME OF CONCENTRATION (HRS)= .1956 TIME TO PEAK (HRS)= .1304 LAG TIME (HRS)= .1467

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
 REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=15 HYD=15_D AREA=0.1506 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1
 TIME TO PEAK (hrs)= .1333

K = .156112HR TP = .133333HR K/TP RATIO = 1.170843 SHAPE CONSTANT, N = 3.029245
 UNIT PEAK = 321.00 CFS UNIT VOLUME = .9998 B = 284.20 P60 = 1.7200
 AREA = .150600 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA 15_D

RUNOFF VOLUME = .41961 INCHES = 3.3703 ACRE-FEET
 PEAK DISCHARGE RATE = 123.91 CFS AT 1.500 HOURS BASIN AREA = .1506 SQ. MI.

*
 *S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
 ADD HYD ID=33 HYD NO=101.0 ID I=15 ID II=50
 PRINT HYD ID=33 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = .41768 INCHES = 8.6520 ACRE-FEET
 PEAK DISCHARGE RATE = 193.73 CFS AT 1.800 HOURS BASIN AREA = .3884 SQ. MI.

*
 *S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.038 FP SLOPE=0.038
 N=0.038 DIST=32.0
 DIST ELEV DIST ELEV
 0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=40 HYD=100.01 INFLOW ID=33 DT=0HR L=4900
 NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 209 TABLE PTS= 20
 DT= .033333 QMED= 96.87 CKMED= 9.2361
 WIDTH MED= 21.82 NREACH= 9 DX= 544.44

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	6.59	4.04	1.451	.012	.991	.188	-.179	20.5	.992	.098	-.090
.60	12.4	65.0	.260	21.4	8.44	5.23	1.860	.017	.988	.305	-.293	48.0	.989	.253	-.242
.80	16.8	105.1	.217	21.9	10.01	6.27	2.206	.023	.986	.381	-.366	84.1	.987	.346	-.332
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.510	.029	.984	.435	-.418	127.9	.985	.409	-.394
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.781	.035	.982	.476	-.458	178.9	.983	.456	-.439
1.40	30.4	267.8	.154	23.4	13.73	8.82	3.027	.040	.980	.508	-.488	236.6	.981	.493	-.474
1.60	35.1	335.1	.142	23.8	14.76	9.55	3.253	.046	.979	.535	-.513	300.7	.979	.522	-.501
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.462	.052	.977	.557	-.534	371.1	.978	.546	-.524
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.657	.057	.976	.576	-.551	447.4	.976	.567	-.543
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.840	.063	.974	.592	-.566	529.7	.975	.584	-.559
2.40	54.9	663.8	.113	25.8	18.20	12.09	4.012	.068	.973	.606	-.579	617.8	.974	.599	-.573
2.60	60.1	760.4	.108	26.2	18.94	12.65	4.175	.074	.972	.619	-.591	711.5	.972	.613	-.585
2.80	65.4	862.5	.103	26.7	19.65	13.19	4.330	.079	.971	.630	-.601	810.9	.971	.625	-.596
3.00	70.8	970.3	.099	27.2	20.32	13.70	4.478	.085	.969	.640	-.610	915.8	.970	.635	-.605
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 6 TIMES. AVERAGE NUMBER ITERATIONS = 1.1254

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	4.61	4.04	1.017	.017	.984	.016	.000	20.5	.990	.010	.000
.60	12.4	65.0	.260	21.4	4.68	5.23	1.031	.031	.970	.030	.000	48.0	.977	.023	.000
.80	16.8	105.1	.217	21.9	4.76	6.27	1.049	.049	.954	.046	.000	84.1	.962	.038	.000
1.00	21.2	152.5	.189	22.4	4.85	7.19	1.068	.068	.936	.064	.000	127.9	.945	.055	.000
1.20	25.7	206.9	.169	22.9	4.94	8.04	1.088	.088	.919	.081	.000	178.9	.928	.072	.000
1.40	30.4	267.8	.154	23.4	5.04	8.82	1.110	.110	.901	.099	.000	236.6	.910	.090	.000
1.60	35.1	335.1	.142	23.8	5.14	9.55	1.132	.132	.883	.117	.000	300.7	.892	.108	.000
1.80	39.9	408.4	.133	24.3	5.24	10.24	1.155	.155	.866	.134	.000	371.1	.874	.126	.000
2.00	44.8	487.7	.125	24.8	5.34	10.89	1.178	.178	.849	.151	.000	447.4	.857	.143	.000
2.20	49.8	572.9	.118	25.3	5.45	11.50	1.201	.201	.833	.167	.000	529.7	.841	.159	.000

2.40	54.9	663.8	.113	25.8	5.55	12.09	1.224	.224	.817	.183	.000	617.8	.825	.175	.000
2.60	60.1	760.4	.108	26.2	5.66	12.65	1.247	.247	.802	.198	.000	711.5	.809	.191	.000
2.80	65.4	862.5	.103	26.7	5.77	13.19	1.271	.271	.787	.213	.000	810.9	.794	.206	.000
3.00	70.8	970.3	.099	27.2	5.87	13.70	1.294	.294	.773	.227	.000	915.8	.780	.220	.000
3.20	76.3	1083.5	.096	27.7	5.97	14.20	1.317	.317	.759	.241	.000	1026.3	.766	.234	.000
3.40	81.9	1202.3	.093	28.2	6.08	14.68	1.340	.340	.747	.253	.000	1142.4	.753	.247	.000
3.60	87.6	1326.5	.090	28.6	6.18	15.15	1.362	.362	.734	.266	.000	1263.8	.740	.260	.000
3.80	93.3	1456.2	.087	29.1	6.28	15.60	1.385	.385	.722	.278	.000	1390.8	.728	.272	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 51 TIMES. AVERAGE NUMBER ITERATIONS = 1.0922
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=40 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41549 INCHES = 8.6067 ACRE-FEET
 PEAK DISCHARGE RATE = 191.16 CFS AT 2.100 HOURS BASIN AREA = .3884 SQ. MI.

*
 *S COMPUTE BASIN 9-D.1 *****
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.0084 K=0.7
 LENGTH=0 FT SLOPE=0.0 K=2.0
 LENGTH=1600 FT SLOPE=0.0250 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.008400	.7000
SHALLOW FLOW PORTION	.0	.010000	2.0000
CHANNEL FLOW PORTION	1600.0	.025000	3.0000
TOTAL BASIN	2000.0	.021680	1.4138

TIME OF CONCENTRATION (HRS)= .2669 TIME TO PEAK (HRS)= .1779 LAG TIME (HRS)= .2002

COMPUTE NM HYD ID=9 HYD=9_D.1 AREA=0.0603 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1779

K = .221270HR TP = .177925HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
 UNIT PEAK = 91.767 CFS UNIT VOLUME = .9997 B = 270.77 P60 = 1.7200
 AREA = .060300 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA 9_D.1

RUNOFF VOLUME = .41961 INCHES = 1.3494 ACRE-FEET
 PEAK DISCHARGE RATE = 37.07 CFS AT 1.567 HOURS BASIN AREA = .0603 SQ. MI.

*
 *S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
 ADD HYD ID=44 HYD NO=104.0 ID I=40 ID II=9
 PRINT HYD ID=44 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = .41604 INCHES = 9.9561 ACRE-FEET
 PEAK DISCHARGE RATE = 195.43 CFS AT 2.100 HOURS BASIN AREA = .4487 SQ. MI.

*
 *S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
 *

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.038 FP SLOPE=0.038
 N=0.038 DIST=32.0

DIST	ELEV	DIST	ELEV
0.0	5.0	6.0	0.0
26.0	0.0	32.0	5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=30 HYD=104.1 INFLOW ID=44 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 218 TABLE PTS= 20
DT= .033333 QMED= 97.72 CKMED= 9.2361
WIDTH MED= 21.83 NREACH= 9 DX= 544.44

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	6.59	4.04	1.451	.012	.991	.188	-.179	20.5	.992	.098	-.090
.60	12.4	65.0	.260	21.4	8.44	5.23	1.860	.017	.988	.305	-.293	48.0	.989	.253	-.242
.80	16.8	105.1	.217	21.9	10.01	6.27	2.206	.023	.986	.381	-.366	84.1	.987	.346	-.332
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.510	.029	.984	.435	-.418	127.9	.985	.409	-.394
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.781	.035	.982	.476	-.458	178.9	.983	.456	-.439
1.40	30.4	267.8	.154	23.4	13.73	8.82	3.027	.040	.980	.508	-.488	236.6	.981	.493	-.474
1.60	35.1	335.1	.142	23.8	14.76	9.55	3.253	.046	.979	.535	-.513	300.7	.979	.522	-.501
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.462	.052	.977	.557	-.534	371.1	.978	.546	-.524
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.657	.057	.976	.576	-.551	447.4	.976	.567	-.543
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.840	.063	.974	.592	-.566	529.7	.975	.584	-.559
2.40	54.9	663.8	.113	25.8	18.20	12.09	4.012	.068	.973	.606	-.579	617.8	.974	.599	-.573
2.60	60.1	760.4	.108	26.2	18.94	12.65	4.175	.074	.972	.619	-.591	711.5	.972	.613	-.585
2.80	65.4	862.5	.103	26.7	19.65	13.19	4.330	.079	.971	.630	-.601	810.9	.971	.625	-.596
3.00	70.8	970.3	.099	27.2	20.32	13.70	4.478	.085	.969	.640	-.610	915.8	.970	.635	-.605
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 19 TIMES. AVERAGE NUMBER ITERATIONS = 1.1491

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	4.54	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	4.51	2.57	.995	.005	.995	.000	.005	3.3	.998	.000	.002
.40	8.2	33.1	.337	21.0	4.61	4.04	1.017	.017	.984	.016	.000	20.5	.990	.010	.000
.60	12.4	65.0	.260	21.4	4.68	5.23	1.031	.031	.970	.030	.000	48.0	.977	.023	.000
.80	16.8	105.1	.217	21.9	4.76	6.27	1.049	.049	.954	.046	.000	84.1	.962	.038	.000
1.00	21.2	152.5	.189	22.4	4.85	7.19	1.068	.068	.936	.064	.000	127.9	.945	.055	.000
1.20	25.7	206.9	.169	22.9	4.94	8.04	1.088	.088	.919	.081	.000	178.9	.928	.072	.000
1.40	30.4	267.8	.154	23.4	5.04	8.82	1.110	.110	.901	.099	.000	236.6	.910	.090	.000
1.60	35.1	335.1	.142	23.8	5.14	9.55	1.132	.132	.883	.117	.000	300.7	.892	.108	.000
1.80	39.9	408.4	.133	24.3	5.24	10.24	1.155	.155	.866	.134	.000	371.1	.874	.126	.000
2.00	44.8	487.7	.125	24.8	5.34	10.89	1.178	.178	.849	.151	.000	447.4	.857	.143	.000
2.20	49.8	572.9	.118	25.3	5.45	11.50	1.201	.201	.833	.167	.000	529.7	.841	.159	.000
2.40	54.9	663.8	.113	25.8	5.55	12.09	1.224	.224	.817	.183	.000	617.8	.825	.175	.000
2.60	60.1	760.4	.108	26.2	5.66	12.65	1.247	.247	.802	.198	.000	711.5	.809	.191	.000
2.80	65.4	862.5	.103	26.7	5.77	13.19	1.271	.271	.787	.213	.000	810.9	.794	.206	.000
3.00	70.8	970.3	.099	27.2	5.87	13.70	1.294	.294	.773	.227	.000	915.8	.780	.220	.000
3.20	76.3	1083.5	.096	27.7	5.97	14.20	1.317	.317	.759	.241	.000	1026.3	.766	.234	.000
3.40	81.9	1202.3	.093	28.2	6.08	14.68	1.340	.340	.747	.253	.000	1142.4	.753	.247	.000
3.60	87.6	1326.5	.090	28.6	6.18	15.15	1.362	.362	.734	.266	.000	1263.8	.740	.260	.000
3.80	93.3	1456.2	.087	29.1	6.28	15.60	1.385	.385	.722	.278	.000	1390.8	.728	.272	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 34 TIMES. AVERAGE NUMBER ITERATIONS = 1.1057

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=30 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = .41446 INCHES = 9.9182 ACRE-FEET
PEAK DISCHARGE RATE = 190.86 CFS AT 2.367 HOURS BASIN AREA = .4487 SQ. MI.

*S COMPUTE BASIN 6-D.1 *****

*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.05 K=0.7
LENGTH=0 FT SLOPE=0.0084 K=2.0
LENGTH=2800 FT SLOPE=0.03286 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	2800.0	.032860	3.0000
TOTAL BASIN	3200.0	.035003	2.2201

TIME OF CONCENTRATION (HRS)= .2140 TIME TO PEAK (HRS)= .1427 LAG TIME (HRS)= .1605

COMPUTE NM HYD ID=6 HYD=6_D.1 AREA=0.0459 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1427

K = .177428HR TP = .142672HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 87.113 CFS UNIT VOLUME = .9994 B = 270.77 P60 = 1.7200
AREA = .045900 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA 6_D.1

RUNOFF VOLUME = .41961 INCHES = 1.0272 ACRE-FEET
PEAK DISCHARGE RATE = 34.45 CFS AT 1.533 HOURS BASIN AREA = .0459 SQ. MI.

*S

*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****

*S

ADD HYD ID=55 HYD NO=AP_OFF ID I=30 ID II=6
PRINT HYD ID=55 CODE=1

HYDROGRAPH FROM AREA AP_OFF

RUNOFF VOLUME = .41493 INCHES = 10.9453 ACRE-FEET
PEAK DISCHARGE RATE = 192.56 CFS AT 2.367 HOURS BASIN AREA = .4946 SQ. MI.

*

*S COMPUTE BASIN 9-D.2 *****

*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=1800 FT SLOPE=0.0372 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	1800.0	.037200	3.0000
TOTAL BASIN	1800.0	.037200	3.0000

TIME OF CONCENTRATION (HRS)= .0864 TIME TO PEAK (HRS)= .0576 LAG TIME (HRS)= .0648

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=5 HYD=9_D.2 AREA=0.00967 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 19.638 CFS UNIT VOLUME = .9988 B = 270.77 P60 = 1.7200
AREA = .009670 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=20

HYDROGRAPH FROM AREA 9_D.2

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	1.333	.0	2.667	.2	4.000	.0		
.667	.0	2.000	.7	3.333	.0				

RUNOFF VOLUME = .41961 INCHES = .2164 ACRE-FEET
PEAK DISCHARGE RATE = 7.63 CFS AT 1.533 HOURS BASIN AREA = .0097 SQ. MI.

*
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
*

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.0433 FP SLOPE=0.0433
N=0.038 DIST=32.0
DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	11.12	20.48
.40	8.19	35.31	20.96
.60	12.43	69.41	21.44
.80	16.77	112.16	21.92
1.00	21.20	162.80	22.40
1.20	25.73	220.83	22.88
1.40	30.35	285.88	23.36
1.60	35.07	357.66	23.84
1.80	39.89	435.97	24.32
2.00	44.80	520.65	24.80
2.20	49.81	611.55	25.28
2.40	54.91	708.59	25.76
2.60	60.11	811.67	26.24
2.80	65.41	920.73	26.72
3.00	70.80	1035.72	27.20
3.20	76.29	1156.61	27.68
3.40	81.87	1283.37	28.16
3.60	87.55	1415.97	28.64
3.80	93.33	1554.41	29.12

ROUTE MCUNGE ID=6 HYD=100.01 INFLOW ID=5 DT=0HR L=1200
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 139
DT= .033333
WIDTH MED= 20.16
TABLE PTS= 20
QMED= 3.82 CKMED= 2.7482
NREACH= 8 DX= 150.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	4.53	2.75	3.622	.021	.991	.569	-.560	3.5	.994	.397	-.391
.40	8.2	35.3	.077	21.0	7.03	4.31	5.624	.042	.987	.700	-.687	21.9	.989	.650	-.639
.60	12.4	69.4	.060	21.4	9.01	5.58	7.206	.063	.985	.758	-.743	51.2	.986	.733	-.719
.80	16.8	112.2	.050	21.9	10.68	6.69	8.548	.084	.983	.792	-.775	89.8	.984	.777	-.760
1.00	21.2	162.8	.043	22.4	12.15	7.68	9.723	.105	.981	.815	-.796	136.6	.982	.805	-.786
1.20	25.7	220.8	.039	22.9	13.47	8.58	10.775	.126	.979	.832	-.811	191.0	.980	.824	-.804
1.40	30.4	285.9	.035	23.4	14.66	9.42	11.729	.146	.977	.845	-.822	252.6	.978	.839	-.817
1.60	35.1	357.7	.033	23.8	15.76	10.20	12.604	.167	.976	.855	-.831	321.0	.976	.850	-.826
1.80	39.9	436.0	.030	24.3	16.77	10.93	13.414	.188	.974	.863	-.837	396.1	.975	.859	-.834
2.00	44.8	520.6	.029	24.8	17.71	11.62	14.169	.208	.973	.870	-.843	477.6	.974	.867	-.840
2.20	49.8	611.6	.027	25.3	18.60	12.28	14.877	.228	.972	.876	-.847	565.4	.972	.873	-.845
2.40	54.9	708.6	.026	25.8	19.43	12.90	15.544	.248	.970	.881	-.851	659.4	.971	.878	-.849
2.60	60.1	811.7	.025	26.2	20.22	13.50	16.176	.268	.969	.885	-.855	759.5	.970	.883	-.853
2.80	65.4	920.7	.024	26.7	20.97	14.08	16.777	.288	.968	.889	-.857	865.6	.969	.887	-.856
3.00	70.8	1035.7	.023	27.2	21.69	14.63	17.350	.308	.967	.893	-.860	977.6	.968	.891	-.859
3.20	76.3	1156.6	.022	27.7	22.37	15.16	17.899	.328	.966	.896	-.862	1095.6	.966	.894	-.861
3.40	81.9	1283.4	.021	28.2	23.03	15.68	18.425	.347	.965	.899	-.864	1219.4	.965	.897	-.863
3.60	87.6	1416.0	.021	28.6	23.67	16.17	18.932	.367	.964	.901	-.865	1349.1	.964	.900	-.865
3.80	93.3	1554.4	.020	29.1	24.14	16.66	19.313	.388	.963	.903	-.866	1484.6	.963	.903	-.866

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 5 TIMES. AVERAGE NUMBER ITERATIONS = 1.0447
DEPTH AREA Q TRAVEL WIDTH ck VEL C D C1 C2 C3 Q-M C1-M C2-M C3-M
(FT) (SQ FT) (CFS) TIME (HR) (FT) (FPS) (FPS)

.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	1.34	2.75	1.071	.071	.934	.066	.000	3.5	.977	.023	.000
.40	8.2	35.3	.077	21.0	1.50	4.31	1.197	.197	.835	.165	.000	21.9	.884	.116	.000
.60	12.4	69.4	.060	21.4	1.67	5.58	1.339	.339	.747	.253	.000	51.2	.789	.211	.000
.80	16.8	112.2	.050	21.9	1.85	6.69	1.484	.484	.674	.326	.000	89.8	.708	.292	.000
1.00	21.2	162.8	.043	22.4	2.03	7.68	1.627	.627	.615	.385	.000	136.6	.643	.357	.000
1.20	25.7	220.8	.039	22.9	2.21	8.58	1.767	.767	.566	.434	.000	191.0	.589	.411	.000
1.40	30.4	285.9	.035	23.4	2.38	9.42	1.903	.903	.526	.474	.000	252.6	.545	.455	.000
1.60	35.1	357.7	.033	23.8	2.54	10.20	2.035	1.035	.491	.509	.000	321.0	.508	.492	.000
1.80	39.9	436.0	.030	24.3	2.70	10.93	2.163	1.163	.462	.538	.000	396.1	.476	.524	.000
2.00	44.8	520.6	.029	24.8	2.86	11.62	2.288	1.288	.437	.563	.000	477.6	.449	.551	.000
2.20	49.8	611.6	.027	25.3	3.01	12.28	2.409	1.409	.415	.585	.000	565.4	.426	.574	.000
2.40	54.9	708.6	.026	25.8	3.16	12.90	2.527	1.527	.396	.604	.000	659.4	.405	.595	.000
2.60	60.1	811.7	.025	26.2	3.30	13.50	2.643	1.643	.378	.622	.000	759.5	.387	.613	.000
2.80	65.4	920.7	.024	26.7	3.44	14.08	2.755	1.755	.363	.637	.000	865.6	.370	.630	.000
3.00	70.8	1035.7	.023	27.2	3.58	14.63	2.865	1.865	.349	.651	.000	977.6	.356	.644	.000
3.20	76.3	1156.6	.022	27.7	3.72	15.16	2.973	1.973	.336	.664	.000	1095.6	.343	.657	.000
3.40	81.9	1283.4	.021	28.2	3.85	15.68	3.078	2.078	.325	.675	.000	1219.4	.330	.670	.000
3.60	87.6	1416.0	.021	28.6	3.98	16.17	3.181	2.181	.314	.686	.000	1349.1	.319	.681	.000
3.80	93.3	1554.4	.020	29.1	4.10	16.66	3.282	2.282	.305	.695	.000	1484.6	.309	.691	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 2 OCCURRED 158 TIMES. AVERAGE NUMBER ITERATIONS = 1.0353
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=6 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41743 INCHES = .2153 ACRE-FEET
 PEAK DISCHARGE RATE = 7.59 CFS AT 1.767 HOURS BASIN AREA = .0097 SQ. MI.

*
 *S COMPUTE BASIN 6-D.2*****
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=1200 FT SLOPE=0.0433 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	ADJUSTED SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	1200.0	.043003	3.0000
TOTAL BASIN	1200.0	.043003	3.0000

TIME OF CONCENTRATION (HRS)= .0536 TIME TO PEAK (HRS)= .0357 LAG TIME (HRS)= .0402

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
 REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=7 HYD=6 D.2 AREA=0.057362 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
 UNIT PEAK = 116.49 CFS UNIT VOLUME = .9994 B = 270.77 P60 = 1.7200
 AREA = .057362 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=7 CODE=20

HYDROGRAPH FROM AREA 6_D.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	1.1	4.000	.1	5.333	.0
.667	.0	2.000	4.2	3.333	.3	4.667	.0		

RUNOFF VOLUME = .41961 INCHES = 1.2837 ACRE-FEET
 PEAK DISCHARGE RATE = 45.25 CFS AT 1.533 HOURS BASIN AREA = .0574 SQ. MI.

*
 *S ADD ROUTE 9D.2 TO 6D.2 TO GET 6_9D.2 *****
 ADD H/D ID=8 HYD NO=6_9D.2 ID I=6 ID II=7
 PRINT HYD ID=8 CODE=1

HYDROGRAPH FROM AREA 6_9D.2

RUNOFF VOLUME = .41929 INCHES = 1.4990 ACRE-FEET
PEAK DISCHARGE RATE = 45.25 CFS AT 1.533 HOURS BASIN AREA = .0670 SQ. MI.

*
*S COMPUTE BASIN 6-D.3*****
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=600 FT SLOPE=0.0433 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	ADJUSTED SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	600.0	.043003	3.0000
TOTAL BASIN	600.0	.043003	3.0000

TIME OF CONCENTRATION (HRS)= .0268 TIME TO PEAK (HRS)= .0179 LAG TIME (HRS)= .0201

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=9 HYD=6 D.3 AREA=0.018277 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1
TIME TO PEAK (hrs)= .1333
K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 37.117 CFS UNIT VOLUME = .9991 B = 270.77 P60 = 1.7200
AREA = .018277 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=20

HYDROGRAPH FROM AREA 6_D.3

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	.3	4.000	.0		
.667	.0	2.000	1.3	3.333	.1	4.667	.0		

RUNOFF VOLUME = .41961 INCHES = .4090 ACRE-FEET
PEAK DISCHARGE RATE = 14.42 CFS AT 1.533 HOURS BASIN AREA = .0183 SQ. MI.

*
*S
*S
*S
*S
*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S
*S CCMPUTE BASIN A-1.1 *****
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0340 Y=0.7
LENGTH=1600 FT SLOPE=0.0361 K=2.0
LENGTH=2800 FT SLOPE=0.0346 K=3.0

BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
USE Kn= .0160 AND Lca/L= .50000

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.034000	.7000
SHALLOW FLOW PORTION	1600.0	.036100	2.0000
CHANNEL FLOW PORTION	2800.0	.034600	3.0000
TOTAL BASIN	4800.0	.035050	2.0799

LAG EQUATION FACTORS: Kn= .0160 TOTAL BASIN LENGTH (FT)= 4800.0
TOTAL BASIN SLOPE (FT/FT)= .035050 CENTROUD LENGTH (FT)= 2400.0

TIME OF CONCENTRATION (HRS)= .2889 TIME TO PEAK (HRS)= .1926 LAG TIME (HRS)= .2167

COMPUTE NM HYD ID=60 HYD=A_1.1 AREA=0.08421 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1926

K = .236043HR TP = .192581HR K/TP RATIO = 1.225680 SHAPE CONSTANT, N = 2.904595
UNIT PEAK = 119.79 CFS UNIT VOLUME = .9998 B = 273.95 P60 = 1.7200
AREA = .084210 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=60 CODE=20

HYDROGRAPH FROM AREA A_1.1

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	10.5	4.000	.4	6.000	.0		
.667	.0	2.667	2.4	4.667	.1	6.667	.0		
1.333	.0	3.333	.9	5.333	.1				

RUNOFF VOLUME = .41961 INCHES = 1.8845 ACRE-FEET
PEAK DISCHARGE RATE = 48.62 CFS AT 1.567 HOURS BASIN AREA = .0842 SQ. MI.

*
*S COMPUTE BASIN A-1.2 *****
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=1 ISLOPE=0
LENGTH=3200 FT SLOPE=0.0325 K=3.0
Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	3200.0	.032500	3.0000
TOTAL BASIN	3200.0	.032500	3.0000

TIME OF CONCENTRATION (HRS)= .1644 TIME TO PEAK (HRS)= .1096 LAG TIME (HRS)= .1233

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=65 HYD=A_1.2 AREA=0.01196 SQ MI
PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .165815HR TP = .133333HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 24.289 CFS UNIT VOLUME = .9989 B = 270.77 P60 = 1.7200
AREA = .011960 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=65 CODE=20

HYDROGRAPH FROM AREA A_1.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	.2	4.000	.0		
.667	.0	2.000	.9	3.333	.1	4.667	.0		

RUNOFF VOLUME = .41961 INCHES = .2677 ACRE-FEET
PEAK DISCHARGE RATE = 9.44 CFS AT 1.533 HOURS BASIN AREA = .0120 SQ. MI.

*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD ID=66 HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD ID=66 CODE=1

RUNOFF VOLUME = .41961 INCHES = 2.1522 ACRE-FEET
PEAK DISCHARGE RATE = 57.28 CFS AT 1.567 HOURS BASIN AREA = .0962 SQ. MI.

HYDROGRAPH FROM AREA 1_E.1

RUNOFF VOLUME = .41961 INCHES = .1371 ACRE-FeET
PEAK DISCHARGE RATE = 4.84 CFS AT 1.533 HOURS BASIN AREA = .0061 SQ. MI.

```

COMPUTE LT TP          LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                        NK=1  ISLOPE=0
                        LENGTH=3800 FT  SLOPE=0.0325 K=3.0
                        Kn=.021  CR=.5

```

SCS UPLAND METHOD FACTORS			
	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	3800.0	.032500	3.0000
TOTAL BASIN	3800.0	.032500	3.0000

TIME OF CONCENTRATION (HRS)= .1952 TIME TO PEAK (HRS)= .1301 LAG TIME (HRS)= .1464

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

```

COMPUTE NM HYD          ID=70 HYD=E_1.3 AREA=0.08120 SQ MI
                        PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
                        TP=0.0 HR MASS RAIN=-1
TIME TO PEAK (hrs)=    .1333

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K = .163755HR      TP = .133333HR      K/TP RATIO = 1.228167      SHAPE CONSTANT, N = 2.899273
UNIT PEAK = 166.56      CFS      UNIT VOLUME = .9996      B = 273.50      P60 = 1.7200
AREA = .081200 SQ MI      IA = .64250 INCHES      INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```

PRINT HYD ID=70 CODE=20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	1.5	4.000	.1	5.333	.0
.667	.0	2.000	5.9	3.333	.4	4.667	.0		

RUNOFF VOLUME = .41961 INCHES = 1.8172 ACRE-FEET
PEAK DISCHARGE RATE = 64.60 CFS AT 1.533 HOURS BASIN AREA = .0812 SQ. MI.

12

*S COMPUTE BASIN E-1.4 *****
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=5200 FT SLOPE=0.0325 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	5200.0	.032500	3.0000
TOTAL BASIN	5200.0	.032500	3.0000

LAG EQUATION FACTORS: Kn= .0210 TOTAL BASIN LENGTH (FT)= 5200.0
TOTAL BASIN SLOPE (FT/FT)= .032500 CENTROUD LENGTH (FT)= 2600.0

TIME OF CONCENTRATION (HRS)= .2385 TIME TO PEAK (HRS)= .1590 LAG TIME (HRS)= .1789

COMPUTE NM HYD ID=75 HYD=E 1.4 AREA=0.13593 SQ MI
 PER A=95.0 PER B=5.0 PER C=0.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1590

K = .188113HR TP = .159019HR K/TP RATIO = 1.182960 SHAPE CONSTANT, N = 3.000461
UNIT PEAK = 240.93 CFS UNIT VOLUME = .9999 B = 281.86 P60 = 1.7200
AREA = .135930 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=75 CODE=20

HYDROGRAPH FROM AREA E_1.4

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	1.333	.0	2.667	3.1	4.000	.3	5.333	.0
.667	.0	2.000	11.3	3.333	1.0	4.667	.1	6.000	.0

RUNOFF VOLUME = .41961 INCHES = 3.0420 ACRE-FEET
PEAK DISCHARGE RATE = 96.02 CFS AT 1.533 HOURS BASIN AREA = .1359 SQ. MI.

*
*S
*S *****
*S *COMPUTE ONSITE BASINS*
*S *****
*S
*S
*S
*S

*S COMPUTE BASIN 6-D.4 *****
*

COMPUTE NM HYD ID=2 HYD=6_D.4 AREA=0.015778 PER A=95.0 PER B=5.0
 PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

K = .165811HR TP = .133330HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 32.043 CFS UNIT VOLUME = .9991 B = 270.77 P60 = 1.7200
AREA = .015778 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=2 CODE=1

HYDROGRAPH FROM AREA 6_D.4

RUNOFF VOLUME = .41961 INCHES = .3531 ACRE-FEET
PEAK DISCHARGE RATE = 12.45 CFS AT 1.533 HOURS BASIN AREA = .0158 SQ. MI.

*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD ID=3 HYD=6_D.5 AREA=0.007522 PER A=95.0 PER B=5.0
 PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

K = .165811HR TP = .133330HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 15.276 CFS UNIT VOLUME = .9986 B = 270.77 P60 = 1.7200
AREA = .007522 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 6_D.5

RUNOFF VOLUME = .41961 INCHES = .1683 ACRE-FEET
PEAK DISCHARGE RATE = 5.94 CFS AT 1.533 HOURS BASIN AREA = .0075 SQ. MI.

*

*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD ID=4 HYD=6_D.6 AREA=0.006441 PER A=100 PER B=0
PER C=0 PER D=0 TP=0.13333 RAINFALL=-1

K = .167503HR TP = .133330HR K/TP RATIO = 1.256304 SHAPE CONSTANT, N = 2.840823
UNIT PEAK = 12.975 CFS UNIT VOLUME = .9983 B = 268.58 P60 = 1.7200
AREA = .006441 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 6_D.6

RUNOFF VOLUME = .41046 INCHES = .1410 ACRE-FEET
PEAK DISCHARGE RATE = 4.95 CFS AT 1.533 HOURS BASIN AREA = .0064 SQ. MI.

*

*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD ID=1 HYD=6_D.7 AREA=0.005236 PER A=95.0 PER B=5.0
PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

K = .165811HR TP = .133330HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 10.634 CFS UNIT VOLUME = .9981 B = 270.77 P60 = 1.7200
AREA = .005236 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 6_D.7

RUNOFF VOLUME = .41961 INCHES = .1172 ACRE-FEET
PEAK DISCHARGE RATE = 4.14 CFS AT 1.533 HOURS BASIN AREA = .0052 SQ. MI.

*

*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD ID=20 HYD=6_D.8 AREA=0.010762 PER A=95.0 PER B=0.0
PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

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

K = .167503HR TP = .133330HR K/TP RATIO = 1.256304 SHAPE CONSTANT, N = 2.840823
UNIT PEAK = 21.679 CFS UNIT VOLUME = .9987 B = 268.58 P60 = 1.7200
AREA = .010762 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 6_D.8

RUNOFF VOLUME = .41046 INCHES = .2356 ACRE-FEET
PEAK DISCHARGE RATE = 8.27 CFS AT 1.533 HOURS BASIN AREA = .0108 SQ. MI.

*

*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD ID=22 HYD=1_E.2 AREA=0.001177 PER A=95.0 PER B=5.0
PER C=0.0 PER D=0.0 TP=0.13333 RAINFALL=-1

K = .165811HR TP = .133330HR K/TP RATIO = 1.243613 SHAPE CONSTANT, N = 2.866780
UNIT PEAK = 2.3903 CFS UNIT VOLUME = .9933 B = 270.77 P60 = 1.7200
AREA = .001177 SQ MI IA = .64250 INCHES INF = 1.64900 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=22 CODE=1

HYDROGRAPH FROM AREA 1_E.2

RUNOFF VOLUME = .41961 INCHES = .0263 ACRE-FEET
PEAK DISCHARGE RATE = .93 CFS AT 1.533 HOURS BASIN AREA = .0012 SQ. MI.

```

*
*S ADD 6_D.4 TO 6_D.7 *****
ADD HYD      ID=11    HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD    ID=11    CODE=1

                                HYDROGRAPH FROM AREA 6D.4_7

RUNOFF VOLUME =      .41960 INCHES      =      .4703 ACRE-FEET
PEAK DISCHARGE RATE =      16.58 CFS AT  1.533 HOURS BASIN AREA = .0210 SQ. MI.

*
*S ADD 6_D.5 TO 6_D.6 *****
ADD HYD      ID=12    HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD    ID=12    CODE=1

                                HYDROGRAPH FROM AREA 6D.5_6

RUNOFF VOLUME =      .41539 INCHES      =      .3093 ACRE-FEET
PEAK DISCHARGE RATE =      10.89 CFS AT  1.533 HOURS BASIN AREA = .0140 SQ. MI.

*
*S ADD 6_D.4_7 TO 6_D.5_6          TO GET PROJECT SITE DISCHARGE TO AP_1*****
ADD HYD      ID=25    HYD NO=6D.5_6 ID I=11 ID II=12
PRINT HYD    ID=25    CODE=1

                                HYDROGRAPH FROM AREA 6D.5_6

RUNOFF VOLUME =      .41792 INCHES      =      .7796 ACRE-FEET
PEAK DISCHARGE RATE =      27.48 CFS AT  1.533 HOURS BASIN AREA = .0350 SQ. MI.

*

*S
*S          *****
*S          * COMPUTE ANALYSIS POINTS *
*S          *****
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD 6D.8 TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD      ID=24    HYD NO=AP_2 ID I=55 ID II=20
PRINT HYD    ID=24    CODE=1

                                HYDROGRAPH FROM AREA AP_2

RUNOFF VOLUME =      .41484 INCHES      =      11.1809 ACRE-FEET
PEAK DISCHARGE RATE =      192.93 CFS AT  2.367 HOURS BASIN AREA = .5054 SQ. MI.

*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S ADD 6D.3 TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD      ID=14    HYD NO=AP_1 ID I=25 ID II=9
PRINT HYD    ID=14    CODE=1

                                HYDROGRAPH FROM AREA AP_1

RUNOFF VOLUME =      .41850 INCHES      =      1.1886 ACRE-FEET
PEAK DISCHARGE RATE =      41.90 CFS AT  1.533 HOURS BASIN AREA = .0533 SQ. MI.

*
*S ANALYSIS POINT 3, DISCHARGE FROM VILLA REAL RD TO SCENIC RD STORM DRAIN *
*
*S ADD E_1.1 TO E_1.2 TO GET AP_3
*
ADD HYD      ID=23    HYD NO=AP_3 ID I=21 ID II=22
PRINT HYD    ID=23    CODE=1

```

HYDROGRAPH FROM AREA AP_3

RUNOFF VOLUME = .41960 INCHES = .1635 ACRE-FEET
PEAK DISCHARGE RATE = 5.77 CFS AT 1.533 HOURS BASIN AREA = .0073 SQ. MI.

*S

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 17:01:35

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
04/12/2016
INPUT FILE = DEV_Cond.HYM

- VERSION: 1997.02c

RUN DATE (MON/DAY/YR) =

USER NO.= AHYMO-S-9702c1BohanHu-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) EXISTING										
*S 100 YEAR - 6 HOUR STORM										
*S										
START										TIME= .00
LOCATION			DEFAULT							
RAINFALL	TYPE= 1									RAIN6= 2.210
*S										

* COMPUTE OFFSITE "D" BASINS *										

*S										
*S										
*S										
*S										
*S										
*S										
*S COMPUTE BASIN OS-D *****										
COMPUTE NM HYD	OS_D	-	17	.23780	174.20	5.322	.41961	1.533	1.145	PER IMP= .00
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****										
ROUTE MCUNGE	100.01	17	50	.23780	170.91	5.282	.41646	1.833	1.123	CCODE = .1
*S COMPUTE BASIN 15-D *****										
*S										
COMPUTE NM HYD	15_D	-	15	.15060	123.91	3.370	.41961	1.500	1.286	PER IMP= .00
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****										
ADD HYD	101.00	15&50	33	.38840	193.73	8.652	.41768	1.800	.779	
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****										
ROUTE MCUNGE	100.01	33	40	.38840	191.16	8.607	.41549	2.100	.769	CCODE = .1
*S COMPUTE BASIN 9-D.1 *****										
COMPUTE NM HYD	9_D.1	-	9	.06030	37.07	1.349	.41961	1.567	.961	PER IMP= .00
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****										
ADD HYD	104.00	40&9	44	.44870	195.43	9.956	.41604	2.100	.681	
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****										
ROUTE MCUNGE	104.10	44	30	.44870	190.86	9.918	.41446	2.367	.665	CCODE = .1
*S COMPUTE BASIN 6-D.1 *****										
COMPUTE NM HYD	6_D.1	-	6	.04590	34.45	1.027	.41961	1.533	1.173	PER IMP= .00
*S										
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****										
*S										
ADD HYD	AP OFF 30&6	55		.49460	192.56	10.945	.41493	2.367	.608	
*S COMPUTE BASIN 9-D.2 *****										
COMPUTE NM HYD	9_D.2	-	5	.00967	7.63	.216	.41961	1.533	1.233	PER IMP= .00
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****										
ROUTE MCUNGE	100.01	5	6	.00967	7.59	.215	.41743	1.767	1.227	CCODE = .1
*S COMPUTE BASIN 6-D.2*****										
COMPUTE NM HYD	6_D.2	-	7	.05736	45.25	1.284	.41961	1.533	1.232	PER IMP= .00
*S ADD ROUTE 9D.2 TO 6D.2 TO GET 6_9D.2 *****										
ADD HYD	6_9D.2	6&7	8	.06703	45.25	1.499	.41929	1.533	1.055	
*S COMPUTE BASIN 6-D.3*****										
COMPUTE NM HYD	6_D.3	-	9	.01828	14.42	.409	.41961	1.533	1.233	PER IMP= .00
*S										
*S										
*S										
*S										

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 = 2	NOTATION
*S	* COMPUTE OFFSITE "A" BASINS *										
*S	*****										
*S											
*S	COMPUTE BASIN A-1.1	*****									
COMPUTE NM HYD	A_1.1	-	60	.08421	48.62	1.885	.41961	1.567	.902	PER IMP=	.00
*S	COMPUTE BASIN A-1.2	*****									
COMPUTE NM HYD	A_1.2	-	65	.01196	9.44	.268	.41961	1.533	1.233	PER IMP=	.00
*S	ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****										
ADD HYD	A_1.1_1.2	60&65	66	.09617	57.28	2.152	.41961	1.567	.931		
*S	*****										
*S	* COMPUTE OFFSITE "E" BASINS *										
*S	*****										
*S											
*S	COMPUTE BASIN E-1.1	*****									
COMPUTE NM HYD	1 E.1	-	21	.00613	4.84	.137	.41961	1.533	1.234	PER IMP=	.00
*S	COMPUTE BASIN E-1.3	*****									
COMPUTE NM HYD	E_1.3	-	70	.08120	64.60	1.817	.41961	1.533	1.243	PER IMP=	.00
*S	COMPUTE BASIN E-1.4	*****									
COMPUTE NM HYD	E_1.4	-	75	.13593	96.02	3.042	.41961	1.533	1.104	PER IMP=	.00
*S	*****										
*S	*COMPUTE ONSITE BASINS*										
*S	*****										
*S											
*S	COMPUTE BASIN 6-D.4	*****									
COMPUTE NM HYD	6_D.4	-	2	.01578	12.45	.353	.41961	1.533	1.233	PER IMP=	.00
*S	COMPUTE BASIN 6-D.5	*****									
COMPUTE NM HYD	6_D.5	-	3	.00752	5.94	.168	.41961	1.533	1.233	PER IMP=	.00
*S	COMPUTE BASIN 6-D.6	*****									
COMPUTE NM HYD	6_D.6	-	4	.00644	4.95	.141	.41046	1.533	1.202	PER IMP=	.00
*S	COMPUTE BASIN 6-D.7	*****									
COMPUTE NM HYD	6_D.7	-	1	.00524	4.14	.117	.41961	1.533	1.234	PER IMP=	.00
*S	COMPUTE BASIN 6-D.8	*****									
COMPUTE NM HYD	6_D.8	-	20	.01076	8.27	.236	.41046	1.533	1.201	PER IMP=	.00
*S	COMPUTE BASIN E-1.2	*****									
COMPUTE NM HYD	1 E.2	-	22	.00118	.93	.026	.41961	1.533	1.240	PER IMP=	.00
*S	*****										
ADD HYD	6D.4_7	2& 1	11	.02101	16.58	.470	.41960	1.533	1.233		
*S	*****										
ADD HYD	6D.5_6	3& 4	12	.01396	10.89	.309	.41539	1.533	1.219		
*S	*****										
ADD HYD	6D.5_6	11&12	25	.03498	27.48	.780	.41792	1.533	1.227		
*S	*****										
*S	* COMPUTE ANALYSIS POINTS *										
*S	*****										
*S											
*S											

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 = 3 NOTATION
*S										
*S										
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)										
*S ADD 6D.8 TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***										
ADD HYD	AP_2	55&20	24	.50536	192.93	11.181	.41484	2.367	.597	
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****										
*S ADD 6D.3 TO 6D.4_7 TO GET AP_1 *****										
ADD HYD	AP_1	25&9	14	.05325	41.90	1.189	.41850	1.533	1.229	
*S ANALYSIS POINT 3, DISCHARGE FROM VILLA REAL RD TO SCENIC RD STORM DRAIN *										
*S ADD E_1.1 TO E_1.2 TO GET AP_3										
ADD HYD	AP_3	21&22	23	.00731	5.77	.163	.41960	1.533	1.235	
*S										
FINISH										

**APPENDIX B -
DEVELOPED CONDITIONS AHYMO SUMMARY,
OUTPUT, AND INPUT FILES**

```

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED
*S 100 YEAR - 6 HOUR STORM
*S
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
*
*S MONTECITO WEST DMP UPDATE WITH MONTEICITO VISTA DEVELOPMENT 5/12/16
*
*CONVERT TO NMHYMO
START          TIME=0.0 HR  PUNCH CODE=0
*****
LOCATION NM
*
*****
*
*****
*100 YEAR - 6 HOUR
RAINFALL      TYPE=1  RAIN QUARTER=0
              RAIN ONE=1.72 IN  RAIN SIX=2.21 IN
              RAIN DAY=2.58 IN  DT=0.033333 HRS

*S
*S          *****
*S          *  COMPUTE OFFSITE "D" BASINS  *
*S          *****
*S
*S
*S
*S
*S COMPUTE BASIN OS-D *****
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                  NK=3  ISLOPE=-1
                  LENGTH=400 FT  SLOPE=0.0750 K=0.7
                  LENGTH=700 FT  SLOPE=0.04286 K=2.0
                  LENGTH=2900 FT  SLOPE=0.03793 K=3.0

COMPUTE NM HYD      ID=17  HYD=OS_D  AREA=0.2378 SQ MI
                  PER A=95.0  PER B=5.0  PER C=0.0  PER D=0.0
                  TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=17      CODE=1
*
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                  MIN ELEV=0  MAX ELEV=3.80
                  CH SLOPE=0.038  FP SLOPE=0.038
                  N=0.038  DIST=32.0
                  DIST  ELEV          DIST  ELEV
                  0.0    5.0          6.0    0.0
                  26.0   0.0          32.0   5.0

ROUTE MCUNGE        ID=50  HYD=100.01  INFLOW ID=17  DT=0HR  L=4900
                  NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=50      CODE=1
*
*S COMPUTE BASIN 15-D *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                  NK=3  ISLOPE=-1
                  LENGTH=400 FT  SLOPE=0.050 K=0.7
                  LENGTH=500 FT  SLOPE=0.020 K=2.0
                  LENGTH=1200 FT  SLOPE=0.02167 K=3.0

COMPUTE NM HYD      ID=15  HYD=15_D  AREA=0.1506 SQ MI
                  PER A=68.0  PER B=8.0  PER C=8.0  PER D=16.0
                  TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=15      CODE=1
*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****

```

```

ADD HYD          ID=33  HYD NO=101.0 ID I=15 ID II=50
PRINT HYD        ID=33  CODE=1
*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.038  FP SLOPE=0.038
                      N=0.038  DIST=32.0
                      DIST  ELEV          DIST  ELEV
                        0.0    5.0        6.0    0.0
                        26.0   0.0       32.0    5.0

ROUTE MCUNGE      ID=40  HYD=100.01  INFLOW ID=33  DT=0HR  L=4900
                      NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=40  CODE=1
*
*S COMPUTE BASIN 9-D.1 *****
*S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=3  ISLOPE=-1
                      LENGTH=400 FT  SLOPE=0.0084 K=0.7
                      LENGTH=0 FT  SLOPE=0.0 K=2.0
                      LENGTH=1600 FT  SLOPE=0.0250 K=3.0

COMPUTE NM HYD      ID=9  HYD=9 D.1  AREA=0.0603 SQ MI
                      PER A=40.0  PER B=21.0  PER C=19.0  PER D=20.0
                      TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=9  CODE=1
*
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
ADD HYD            ID=44  HYD NO=104.0 ID I=40 ID II=9
PRINT HYD          ID=44  CODE=1
*
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.038  FP SLOPE=0.038
                      N=0.038  DIST=32.0
                      DIST  ELEV          DIST  ELEV
                        0.0    5.0        6.0    0.0
                        26.0   0.0       32.0    5.0

ROUTE MCUNGE      ID=30  HYD=104.1  INFLOW ID=44  DT=0HR  L=4900
                      NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=30  CODE=1
*
*S COMPUTE BASIN 6-D.1 *****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED
*S 0.065625 SQ MI FROM BASIN
*
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                      NK=3  ISLOPE=-1
                      LENGTH=400 FT  SLOPE=0.05 K=0.7
                      LENGTH=0 FT  SLOPE=0.0084 K=2.0
                      LENGTH=2800 FT  SLOPE=0.03286 K=3.0

COMPUTE NM HYD      ID=6  HYD=6 D.1  AREA=0.0459 SQ MI
                      PER A=85.0  PER B=8.0  PER C=3.0  PER D=4.0
                      TP=0.0 HR  MASS RAIN=-1
PRINT HYD          ID=6  CODE=1
*
*S
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
*S

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this project

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ADD HYD          ID=55  HYD NO=AP_OFF ID I=30 ID II=6
PRINT HYD        ID=55  CODE=1
*
*S COMPUTE BASIN 9-D.2 *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
*
COMPUTE LT TP    LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                  NK=1  ISLOPE=0
                  LENGTH=1800 FT  SLOPE=0.0372 K=3.0
                  Kn=.021  CR=.5

COMPUTE NM HYD   ID=5  HYD=9 D.2  AREA=0.00967 SQ MI
                  PER A=30.0  PER B=18.0  PER C=18.0  PER D=34.0
                  TP=0.0 HR  MASS RAIN=-1
PRINT HYD        ID=5  CODE=20
*
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
*
COMPUTE RATING CURVE  CID=1  VS NO=1  NO SEGS=1
                      MIN ELEV=0  MAX ELEV=3.80
                      CH SLOPE=0.0433  FP SLOPE=0.0433
                      N=0.038  DIST=32.0
                      DIST  ELEV
                        0.0    5.0    6.0    0.0
                        26.0   0.0   32.0   5.0

ROUTE MCUNGE     ID=7  HYD=100.01  INFLOW ID=5  DT=0HR  L=1200
                  NS=0  SLOPE=.038  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD        ID=7  CODE=1
*
*S COMPUTE BASIN 6-D.2 *****
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)
*
*S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6
*
*COMPUTE LT TP    LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
*                  NK=1  ISLOPE=0
*                  LENGTH=1200 FT  SLOPE=0.0433 K=3.0
*                  Kn=.021  CR=.5
*
*COMPUTE NM HYD   ID=7  HYD=6 D.2  AREA=0.047369 SQ MI
*                  PER A=42  PER B=15  PER C=15  PER D=28
*                  TP=0.0 HR  MASS RAIN=-1
*PRINT HYD        ID=7  CODE=20
*
*S
*S
*S *****
*S *COMPUTE MONTECITO VISTAS UNITS 1-4 ONSITE BASINS*
*S *****
*S
*S
*S
*S COMPUTE BASIN 6-D.2A *****
*
COMPUTE NM HYD   ID=31  HYD=6 D.2A  AREA=0.01709  PER A=0  PER B=29.5
                  PER C=29.5  PER D=41  TP=0.13333  RAINFALL=-1
PRINT HYD        ID=31  CODE=1
*
*S COMPUTE BASIN 6-D.2B *****
COMPUTE NM HYD   ID=32  HYD=6 D.2B  AREA=0.016231  PER A=0  PER B=29
                  PER C=29  PER D=42  TP=0.13333  RAINFALL=-1
PRINT HYD        ID=32  CODE=1
*
*S COMPUTE BASIN 6-D.2C *****
COMPUTE NM HYD   ID=33  HYD=6 D.2C  AREA=0.005902  PER A=0  PER B=34
                  PER C=34  PER D=32  TP=0.13333  RAINFALL=-1
PRINT HYD        ID=33  CODE=1
*
*S COMPUTE BASIN 6-D.2D *****
COMPUTE NM HYD   ID=34  HYD=6 D.2D  AREA=0.01071  PER A=0  PER B=34.5
                  PER C=34.5  PER D=31  TP=0.13333  RAINFALL=-1

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OK

```

PRINT HYD          ID=34  CODE=1
*
*S COMPUTE BASIN 6-D.2E *****
COMPUTE NM HYD      ID=35 HYD=6_D.2E AREA=0.002415 PER A=0 PER B=30.5
                    PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=35  CODE=1
*
*S COMPUTE BASIN 6-D.2F *****
COMPUTE NM HYD      ID=36 HYD=6_D.2F AREA=0.004180 PER A=0 PER B=30.5
                    PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=36  CODE=1
*
*S ADD 9-D.2 TO 6-D.2A *****
ADD HYD             ID=39  HYD NO=6_9D.2A ID I=7 ID II=31
PRINT HYD           ID=39  CODE=1
*
*S ADD 6-D.2B TO 6_9D.2A *****
ADD HYD             ID=41  HYD NO=6_9D.2AB ID I=32 ID II=39
PRINT HYD           ID=41  CODE=1
*
*S ADD 6-D.2C TO 6_9D.2AB *****
ADD HYD             ID=42  HYD NO=6_9D.2ABC ID I=33 ID II=41
PRINT HYD           ID=42  CODE=1
*
*S ADD 6_D.2D TO 6_9D.2ABC *****
ADD HYD             ID=43  HYD NO=6_9D.2ABCD ID I=34 ID II=42
PRINT HYD           ID=43  CODE=1
*
*S ADD 6_D.2E TO 6_9D.2ABCD *****
ADD HYD             ID=46  HYD NO=6_D.2ABCDE ID I=35 ID II=43
PRINT HYD           ID=46  CODE=1
*
*S ADD 6_D.2F TO 6_9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6_9D.2*****
ADD HYD             ID=47  HYD NO=6_9D.2ABCDEF ID I=36 ID II=46
PRINT HYD           ID=47  CODE=1
*
*S COMPUTE BASIN 6-D.3*****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP       LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                    NK=1  ISLOPE=0
                    LENGTH=600 FT SLOPE=0.0433 K=3.0
                    Kn=.021 CR=.5

COMPUTE NM HYD      ID=9  HYD=6_D.3 AREA=0.018277 SQ MI
                    PER A=30.0 PER B=18 PER C=18 PER D=34
                    TP=0.0 HR MASS RAIN=-1
PRINT HYD          ID=9   CODE=20
*
*S***** ROUTE OFFSITE FLOW THRU 850' OF 36" RCP PIPE
COMPUTE RATING CURVE CID=10 VS NO=1 CODE=-1
                    SLP=0.0273
                    DIA=36 INCHES N=0.013
ROUTE MCUNGE        ID=10 HYD= RT.2AB2 INFLOW ID=9 DT=0HR L=850
                    NS=0  SLOPE=.0273 MATCODE=0 REGCODE=0 CCODE=0
PRINT HYD           ID=10  CODE=1
*S
*S
*S
*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S COMPUTE BASIN A-1.1 *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP       LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                    NK=3  ISLOPE=-1
                    LENGTH=400 FT SLOPE=0.0340 K=0.7
                    LENGTH=1600 FT SLOPE=0.0361 K=2.0

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OK

LENGTH=2800 FT SLOPE=0.0346 K=3.0

```
COMPUTE NM HYD      ID=60 HYD=A_1.1 AREA=0.08421 SQ MI
                    PER A=90.0 PER B=5.0 PER C=5.0 PER D=0.0
                    TP=0.0 HR MASS RAIN=-1
PRINT HYD           ID=60 CODE=20
*
*S COMPUTE BASIN A-1.2 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
*
COMPUTE LT TP       LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                    NK=1 ISLOPE=0
                    LENGTH=3200 FT SLOPE=0.0325 K=3.0
                    Kn=.021 CR=.5

COMPUTE NM HYD      ID=65 HYD=A_1.2 AREA=0.012613 SQ MI
                    PER A=30.0 PER B=18.0 PER C=18.0 PER D=34.0
                    TP=0.0 HR MASS RAIN=-1
PRINT HYD           ID=65 CODE=20
*
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****
ADD HYD             ID=66 HYD NO=A_1.1_1.2 ID I=60 ID II=65
PRINT HYD           ID=66 CODE=1
*
*S
*S *****
*S * COMPUTE OFFSITE "E" BASINS *
*S *****
*S
*S
*S COMPUTE BASIN E-1.1 *****
*
COMPUTE NM HYD       ID=21 HYD=1_E.1 AREA=0.006128 PER A=30.0 PER B=18.0
                    PER C=18.0 PER D=34 TP=0.13333 RAINFALL=-1
PRINT HYD           ID=21 CODE=1
*
*S COMPUTE BASIN E-1.3 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP       LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                    NK=1 ISLOPE=0
                    LENGTH=3800 FT SLOPE=0.0325 K=3.0
                    Kn=.021 CR=.5

COMPUTE NM HYD       ID=70 HYD=E_1.3 AREA=0.08120 SQ MI
                    PER A=52.0 PER B=16.0 PER C=16.0 PER D=16.0
                    TP=0.0 HR MASS RAIN=-1
PRINT HYD           ID=70 CODE=20
*
*S COMPUTE BASIN E-1.4 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP       LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
                    NK=1 ISLOPE=0
                    LENGTH=5200 FT SLOPE=0.0325 K=3.0
                    Kn=.021 CR=.5

COMPUTE NM HYD       ID=75 HYD=E_1.4 AREA=0.13593 SQ MI
                    PER A=60.0 PER B=13.0 PER C=13.0 PER D=14.0
                    TP=0.0 HR MASS RAIN=-1
PRINT HYD           ID=75 CODE=20
*
*S
*S *****
*S *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*
*S *****
```

```

*S
*S NO CHANGE FROM MONTECITO WEST DMP
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD      ID=2 HYD=6_D.4 AREA=0.015778 PER A=0 PER B=29
                    PER C=29 PER D=42 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=2 CODE=1
*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD      ID=3 HYD=6_D.5 AREA=0.007522 PER A=0 PER B=34
                    PER C=34 PER D=32 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=3 CODE=1
*
*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD      ID=4 HYD=6_D.6 AREA=0.006441 PER A=100 PER B=0
                    PER C=0 PER D=0 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=4 CODE=1
*
*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD      ID=1 HYD=6_D.7 AREA=0.005236 PER A=0 PER B=31
                    PER C=30 PER D=39 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=1 CODE=1
*
*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD      ID=20 HYD=6_D.8 AREA=0.010762 PER A=0 PER B=30
                    PER C=29 PER D=41 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=20 CODE=1
*
*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD      ID=22 HYD=1_E.2 AREA=0.001177 PER A=0 PER B=29
                    PER C=29 PER D=42 TP=0.13333 RAINFALL=-1
PRINT HYD          ID=22 CODE=1
*
*S ADD E_1.1 TO E_1.2 *****
ADD HYD             ID=71 HYD NO=E_1_2 ID I=21 ID II=22
PRINT HYD           ID=71 CODE=1
*
*S ADD 6_D.8 TO E_1.1_1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****
ADD HYD             ID=72 HYD NO=AP2_ON ID I=71 ID II=20
PRINT HYD           ID=72 CODE=1
*
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****
ADD HYD             ID=11 HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD           ID=11 CODE=1
*
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****
ADD HYD             ID=12 HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD           ID=12 CODE=1
*
*S
*S
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD AP_OFF TO 6_9D.2 (DIVERT FLOWS) TO GET NEW AP_OFF *****
*
ADD HYD             ID=25 HYD NO=AP_OFF.NEW ID I=55 ID II=47
PRINT HYD           ID=25 CODE=1
*S
*S ADD AP2_ON TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD             ID=24 HYD NO=AP_2 ID I=25 ID II=72
PRINT HYD           ID=24 CODE=1
*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S DIVIDE 6D.3 FOR 30.0% RETAINAGE
DIVIDE HYD          ID=10 PER=-70.0 ID I=12 HYD NO=6D.3_OUT
                    ID II=13 HYD NO=6D.3_RETAIN
*

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```
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD          ID=14   HYD NO=AP_1 ID I=12 ID II=11
PRINT HYD        ID=14   CODE=1
*S
FINISH
```

AHYMO PROGRAM (AHYMO 97) - - Version: 1997.02c
 RUN DATE (MON/DAY/YR) = 05/12/2016
 START TIME (HR:MIN:SEC) = 09:24:51 USER NO.= AHYMO-S-9702c1BohanHu-AH
 INPUT FILE = DEV_Cond.HYM

*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED
 *S 100 YEAR - 6 HOUR STORM
 *S
 *S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS
 *
 *S MONTECITO WEST DMP UPDATE WITH MONTEICTO VISTA DEVELOPMENT 5/12/16
 *

*CONVERT TO NMHYMO

START TIME=0.0 HR PUNCH CODE=0

LOCATION NM

Soil infiltration values (LAND FACTORS) for this location are not available.
 The following default values were used.

Land Treatment	Initial Abstr.(in)	Unif. Infilt.(in/hour)
A	0.65	1.67
B	0.50	1.25
C	0.35	0.83
D	0.10	0.04

*

 *

*100 YEAR - 6 HOUR

RAINFALL TYPE=1 RAIN QUARTER=0
 RAIN ONE=1.72 IN RAIN SIX=2.21 IN
 RAIN DAY=2.58 IN DT=0.033333 HRS

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

DT =	.033333 HOURS	END TIME =	5.999940 HOURS
.0000	.0038	.0077	.0116
.0283	.0327	.0372	.0418
.0615	.0667	.0722	.0777
.1019	.1085	.1153	.1224
.1541	.1630	.1724	.1772
.2255	.2658	.3235	.4024
1.0032	1.1888	1.2665	1.3321
1.5378	1.5802	1.6199	1.6573
1.7874	1.8158	1.8427	1.8682
1.9104	1.9159	1.9212	1.9264
1.9454	1.9499	1.9542	1.9584
1.9744	1.9782	1.9820	1.9856
1.9996	2.0030	2.0063	2.0095
2.0221	2.0251	2.0281	2.0311
2.0425	2.0453	2.0480	2.0507
2.0613	2.0639	2.0665	2.0690
2.0789	2.0813	2.0837	2.0860
2.0953	2.0976	2.0998	2.1021
2.1108	2.1130	2.1151	2.1172
2.1256	2.1276	2.1297	2.1317
2.1396	2.1416	2.1435	2.1455
2.1531	2.1549	2.1568	2.1587
2.1660	2.1678	2.1696	2.1714
2.1784	2.1801	2.1819	2.1836
2.1904	2.1920	2.1937	2.1954
2.2020	2.2036	2.2052	2.2068

*S
 *S *****
 *S * COMPUTE OFFSITE "D" BASINS *
 *S *****
 *S
 *S
 *S
 *S
 *S
 *S COMPUTE BASIN OS-D *****
 *
 *S NO CHANGE FROM MONTECITO WEST DMP
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.0750 K=0.7
 LENGTH=700 FT SLOPE=0.04286 K=2.0
 LENGTH=2900 FT SLOPE=0.03793 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.075000	.7000

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.620	.090	.968	.650	-.618	1026.3	.969	.645	-.614
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.756	.096	.967	.658	-.626	1142.4	.968	.654	-.622
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.886	.101	.966	.666	-.632	1263.8	.967	.662	-.629
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.985	.107	.965	.672	-.637	1390.8	.966	.670	-.635

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 5 TIMES. AVERAGE NUMBER ITERATIONS = 1.0847

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=50 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .41646 INCHES = 5.2818 ACRE-FEET
PEAK DISCHARGE RATE = 170.91 CFS AT 1.833 HOURS BASIN AREA = .2378 SQ. MI.

*
*S COMPUTE BASIN 15-D *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.050 K=0.7
LENGTH=500 FT SLOPE=0.020 K=2.0
LENGTH=1200 FT SLOPE=0.02167 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	500.0	.020000	2.0000
CHANNEL FLOW PORTION	1200.0	.021670	3.0000
TOTAL BASIN	2100.0	.026669	1.8265

TIME OF CONCENTRATION (HRS)= .1956 TIME TO PEAK (HRS)= .1304 LAG TIME (HRS)= .1467

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=15 HYD=15 D AREA=0.1506 SQ MI
PER A=68.0 PER B=8.0 PER C=8.0 PER D=16.0
TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .074766HR TP = .133333HR K/TP RATIO = .560746 SHAPE CONSTANT, N = 6.852773
UNIT PEAK = 92.933 CFS UNIT VOLUME = .9995 B = 514.24 P60 = 1.7200
AREA = .024096 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .149923HR TP = .133333HR K/TP RATIO = 1.124422 SHAPE CONSTANT, N = 3.146704
UNIT PEAK = 278.54 CFS UNIT VOLUME = .9999 B = 293.57 P60 = 1.7200
AREA = .126504 SQ MI IA = .60714 INCHES INF = 1.55000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=15 CODE=1

HYDROGRAPH FROM AREA 15_D

RUNOFF VOLUME = .70193 INCHES = 5.6378 ACRE-Feet
PEAK DISCHARGE RATE = 177.15 CFS AT 1.500 HOURS BASIN AREA = .1506 SQ. MI.

*
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****
ADD HYD ID=33 HYD NO=101.0 ID I=15 ID II=50
PRINT HYD ID=33 CODE=1

PARTIAL HYDROGRAPH 101.00

RUNOFF VOLUME = .52715 INCHES = 10.9196 ACRE-Feet
PEAK DISCHARGE RATE = 213.08 CFS AT 1.800 HOURS BASIN AREA = .3884 SQ. MI.

*
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=40 HYD=100.01 INFLOW ID=33 DT=0HR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 220 TABLE PTS= 20
DT= .033333 QMED= 106.54 CKMED= 10.7047
WIDTH MED= 21.93 NREACH= 8 DX= 612.50

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	6.59	4.04	1.290	.010	.991	.131	-.122	20.5	.993	.040	-.032
.60	12.4	65.0	.260	21.4	8.44	5.23	1.653	.015	.988	.251	-.239	48.0	.990	.197	-.187
.80	16.8	105.1	.217	21.9	10.01	6.27	1.961	.021	.986	.329	-.315	84.1	.987	.293	-.280
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.231	.026	.984	.386	-.370	127.9	.985	.359	-.344
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.472	.031	.982	.429	-.411	178.9	.983	.408	-.392
1.40	30.4	267.8	.154	23.4	13.73	8.82	2.691	.036	.981	.463	-.444	236.6	.982	.447	-.428
1.60	35.1	335.1	.142	23.8	14.76	9.55	2.892	.041	.979	.491	-.471	300.7	.980	.478	-.458
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.077	.046	.978	.515	-.493	371.1	.978	.503	-.482
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.251	.051	.976	.535	-.511	447.4	.977	.525	-.502
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.413	.056	.975	.552	-.527	529.7	.976	.544	-.519
2.40	54.9	663.8	.113	25.8	18.20	12.09	3.566	.061	.974	.568	-.541	617.8	.974	.560	-.535
2.60	60.1	760.4	.108	26.2	18.94	12.65	3.711	.066	.972	.581	-.554	711.5	.973	.575	-.548
2.80	65.4	862.5	.103	26.7	19.65	13.19	3.849	.071	.971	.593	-.565	810.9	.972	.587	-.559
3.00	70.8	970.3	.099	27.2	20.32	13.70	3.981	.075	.970	.604	-.575	915.8	.971	.599	-.570
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.106	.080	.969	.614	-.583	1026.3	.970	.609	-.579
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.227	.085	.968	.624	-.592	1142.4	.968	.619	-.587
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.343	.090	.967	.632	-.599	1263.8	.967	.628	-.595
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.431	.095	.966	.638	-.604	1390.8	.966	.636	-.602

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 5 OCCURRED 1 TIMES. AVERAGE NUMBER ITERATIONS = 1.1658

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME(HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
---------------	-----------------	------------	--------------------	---------------	-------------	--------------	---	---	----	----	----	--------------	------	------	------

.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	5.17	4.04	1.013	.013	.987	.013	.000	20.5	.992	.008	.000
.60	12.4	65.0	.260	21.4	5.23	5.23	1.025	.025	.976	.024	.000	48.0	.982	.018	.000
.80	16.8	105.1	.217	21.9	5.30	6.27	1.039	.039	.963	.037	.000	84.1	.969	.031	.000
1.00	21.2	152.5	.189	22.4	5.38	7.19	1.054	.054	.948	.052	.000	127.9	.956	.044	.000
1.20	25.7	206.9	.169	22.9	5.47	8.04	1.071	.071	.934	.066	.000	178.9	.941	.059	.000
1.40	30.4	267.8	.154	23.4	5.56	8.82	1.089	.089	.919	.081	.000	236.6	.926	.074	.000
1.60	35.1	335.1	.142	23.8	5.65	9.55	1.107	.107	.903	.097	.000	300.7	.911	.089	.000
1.80	39.9	408.4	.133	24.3	5.75	10.24	1.126	.126	.888	.112	.000	371.1	.896	.104	.000
2.00	44.8	487.7	.125	24.8	5.84	10.89	1.145	.145	.874	.126	.000	447.4	.881	.119	.000
2.20	49.8	572.9	.118	25.3	5.94	11.50	1.164	.164	.859	.141	.000	529.7	.866	.134	.000
2.40	54.9	663.8	.113	25.8	6.04	12.09	1.183	.183	.845	.155	.000	617.8	.852	.148	.000
2.60	60.1	760.4	.108	26.2	6.14	12.65	1.203	.203	.831	.169	.000	711.5	.838	.162	.000
2.80	65.4	862.5	.103	26.7	6.24	13.19	1.222	.222	.818	.182	.000	810.9	.825	.175	.000
3.00	70.8	970.3	.099	27.2	6.34	13.70	1.242	.242	.805	.195	.000	915.8	.812	.188	.000
3.20	76.3	1083.5	.096	27.7	6.44	14.20	1.261	.261	.793	.207	.000	1026.3	.799	.201	.000
3.40	81.9	1202.3	.093	28.2	6.54	14.68	1.281	.281	.781	.219	.000	1142.4	.787	.213	.000
3.60	87.6	1326.5	.090	28.6	6.64	15.15	1.300	.300	.769	.231	.000	1263.8	.775	.225	.000
3.80	93.3	1456.2	.087	29.1	6.73	15.60	1.319	.319	.758	.242	.000	1390.8	.764	.236	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 31 TIMES. AVERAGE NUMBER ITERATIONS = 1.1259
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=40 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = .52527 INCHES = 10.8806 ACRE-FEET
 PEAK DISCHARGE RATE = 210.93 CFS AT 2.067 HOURS BASIN AREA = .3884 SQ. MI.

*
 *S COMPUTE BASIN 9-D.1 *****
 *S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.0084 K=0.7
 LENGTH=0 FT SLOPE=0.0 K=2.0
 LENGTH=1600 FT SLOPE=0.0250 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.008400	.7000
SHALLOW FLOW PORTION	.0	.010000	2.0000
CHANNEL FLOW PORTION	1600.0	.025000	3.0000
TOTAL BASIN	2000.0	.021680	1.4138

TIME OF CONCENTRATION (HRS)= .2669 TIME TO PEAK (HRS)= .1779 LAG TIME (HRS)= .2002

COMPUTE NM HYD ID=9 HYD=9 D.1 AREA=0.0603 SQ MI
 PER A=40.0 PER B=21.0 PER C=19.0 PER D=20.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1779

K = .096969HR TP = .177925HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 35.672 CFS UNIT VOLUME = .9997 B = 526.28 P60 = 1.7200
 AREA = .012060 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .191609HR TP = .177925HR K/TP RATIO = 1.076912 SHAPE CONSTANT, N = 3.280142
 UNIT PEAK = 82.400 CFS UNIT VOLUME = .9999 B = 303.92 P60 = 1.7200
 AREA = .048240 SQ MI IA = .53938 INCHES INF = 1.36025 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=9 CODE=1

HYDROGRAPH FROM AREA 9_D.1

RUNOFF VOLUME = .83686 INCHES = 2.6913 ACRE-FEET
 PEAK DISCHARGE RATE = 68.56 CFS AT 1.567 HOURS BASIN AREA = .0603 SQ. MI.

*
 *S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****
 ADD HYD ID=44 HYD NO=104.0 ID I=40 ID II=9
 PRINT HYD ID=44 CODE=1

PARTIAL HYDROGRAPH 104.00

RUNOFF VOLUME = .56714 INCHES = 13.5719 ACRE-FEET
PEAK DISCHARGE RATE = 223.13 CFS AT 2.067 HOURS BASIN AREA = .4487 SQ. MI.

*
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****
*

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
MIN ELEV=0 MAX ELEV=3.80
CH SLOPE=0.038 FP SLOPE=0.038
N=0.038 DIST=32.0
DIST ELEV DIST ELEV
0.0 5.0 6.0 0.0
26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	10.42	20.48
.40	8.19	33.08	20.96
.60	12.43	65.02	21.44
.80	16.77	105.07	21.92
1.00	21.20	152.51	22.40
1.20	25.73	206.87	22.88
1.40	30.35	267.81	23.36
1.60	35.07	335.06	23.84
1.80	39.89	408.42	24.32
2.00	44.80	487.74	24.80
2.20	49.81	572.90	25.28
2.40	54.91	663.81	25.76
2.60	60.11	760.37	26.24
2.80	65.41	862.54	26.72
3.00	70.80	970.27	27.20
3.20	76.29	1083.52	27.68
3.40	81.87	1202.26	28.16
3.60	87.55	1326.48	28.64
3.80	93.33	1456.17	29.12

ROUTE MCUNGE ID=30 HYD=104.1 INFLOW ID=44 DT=OHR L=4900
NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 228 TABLE PTS= 20
DT= .033333 QMED= 111.56 CKMED= 10.7047
WIDTH MED= 21.99 NREACH= 8 DX= 612.50

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	6.59	4.04	1.290	.010	.991	.131	-.122	20.5	.993	.040	-.032
.60	12.4	65.0	.260	21.4	8.44	5.23	1.653	.015	.988	.251	-.239	48.0	.990	.197	-.187
.80	16.8	105.1	.217	21.9	10.01	6.27	1.961	.021	.986	.329	-.315	84.1	.987	.293	-.280
1.00	21.2	152.5	.189	22.4	11.39	7.19	2.231	.026	.984	.386	-.370	127.9	.985	.359	-.344
1.20	25.7	206.9	.169	22.9	12.62	8.04	2.472	.031	.982	.429	-.411	178.9	.983	.408	-.392
1.40	30.4	267.8	.154	23.4	13.73	8.82	2.691	.036	.981	.463	-.444	236.6	.982	.447	-.428
1.60	35.1	335.1	.142	23.8	14.76	9.55	2.892	.041	.979	.491	-.471	300.7	.980	.478	-.458
1.80	39.9	408.4	.133	24.3	15.71	10.24	3.077	.046	.978	.515	-.493	371.1	.978	.503	-.482
2.00	44.8	487.7	.125	24.8	16.59	10.89	3.251	.051	.976	.535	-.511	447.4	.977	.525	-.502
2.20	49.8	572.9	.118	25.3	17.42	11.50	3.413	.056	.975	.552	-.527	529.7	.976	.544	-.519
2.40	54.9	663.8	.113	25.8	18.20	12.09	3.566	.061	.974	.568	-.541	617.8	.974	.560	-.535
2.60	60.1	760.4	.108	26.2	18.94	12.65	3.711	.066	.972	.581	-.554	711.5	.973	.575	-.548
2.80	65.4	862.5	.103	26.7	19.65	13.19	3.849	.071	.971	.593	-.565	810.9	.972	.587	-.559
3.00	70.8	970.3	.099	27.2	20.32	13.70	3.981	.075	.970	.604	-.575	915.8	.971	.599	-.570
3.20	76.3	1083.5	.096	27.7	20.96	14.20	4.106	.080	.969	.614	-.583	1026.3	.970	.609	-.579
3.40	81.9	1202.3	.093	28.2	21.58	14.68	4.227	.085	.968	.624	-.592	1142.4	.968	.619	-.587
3.60	87.6	1326.5	.090	28.6	22.17	15.15	4.343	.090	.967	.632	-.599	1263.8	.967	.628	-.595
3.80	93.3	1456.2	.087	29.1	22.62	15.60	4.431	.095	.966	.638	-.604	1390.8	.966	.636	-.602

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 7 TIMES. AVERAGE NUMBER ITERATIONS = 1.1844

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.720	20.0	5.10	1.21	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	10.4	.529	20.5	5.08	2.57	.996	.004	.996	.000	.004	3.3	.999	.000	.001
.40	8.2	33.1	.337	21.0	5.17	4.04	1.013	.013	.987	.013	.000	20.5	.992	.008	.000
.60	12.4	65.0	.260	21.4	5.23	5.23	1.025	.025	.976	.024	.000	48.0	.982	.018	.000
.80	16.8	105.1	.217	21.9	5.30	6.27	1.039	.039	.963	.037	.000	84.1	.969	.031	.000
1.00	21.2	152.5	.189	22.4	5.38	7.19	1.054	.054	.948	.052	.000	127.9	.956	.044	.000
1.20	25.7	206.9	.169	22.9	5.47	8.04	1.071	.071	.934	.066	.000	178.9	.941	.059	.000
1.40	30.4	267.8	.154	23.4	5.56	8.82	1.089	.089	.919	.081	.000	236.6	.926	.074	.000
1.60	35.1	335.1	.142	23.8	5.65	9.55	1.107	.107	.903	.097	.000	300.7	.911	.089	.000
1.80	39.9	408.4	.133	24.3	5.75	10.24	1.126	.126	.888	.112	.000	371.1	.896	.104	.000
2.00	44.8	487.7	.125	24.8	5.84	10.89	1.145	.145	.874	.126	.000	447.4	.881	.119	.000

2.20	49.8	572.9	.118	25.3	5.94	11.50	1.164	.164	.859	.141	.000	529.7	.866	.134	.000
2.40	54.9	663.8	.113	25.8	6.04	12.09	1.183	.183	.845	.155	.000	617.8	.852	.148	.000
2.60	60.1	760.4	.108	26.2	6.14	12.65	1.203	.203	.831	.169	.000	711.5	.838	.162	.000
2.80	65.4	862.5	.103	26.7	6.24	13.19	1.222	.222	.818	.182	.000	810.9	.825	.175	.000
3.00	70.8	970.3	.099	27.2	6.34	13.70	1.242	.242	.805	.195	.000	915.8	.812	.188	.000
3.20	76.3	1083.5	.096	27.7	6.44	14.20	1.261	.261	.793	.207	.000	1026.3	.799	.201	.000
3.40	81.9	1202.3	.093	28.2	6.54	14.68	1.281	.281	.781	.219	.000	1142.4	.787	.213	.000
3.60	87.6	1326.5	.090	28.6	6.64	15.15	1.300	.300	.769	.231	.000	1263.8	.775	.225	.000
3.80	93.3	1456.2	.087	29.1	6.73	15.60	1.319	.319	.758	.242	.000	1390.8	.764	.236	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 16 TIMES. AVERAGE NUMBER ITERATIONS = 1.1354
 Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3
 PRINT HYD ID=30 CODE=1

PARTIAL HYDROGRAPH 104.10

RUNOFF VOLUME = .56577 INCHES = 13.5391 ACRE-FEET
 PEAK DISCHARGE RATE = 218.30 CFS AT 2.300 HOURS BASIN AREA = .4487 SQ. MI.

*
 *S COMPUTE BASIN 6-D.1 *****
 *S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED
 *S 0.065625 SQ MI FROM BASIN
 *
 *S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6
 *
 COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=3 ISLOPE=-1
 LENGTH=400 FT SLOPE=0.05 K=0.7
 LENGTH=0 FT SLOPE=0.0084 K=2.0
 LENGTH=2800 FT SLOPE=0.03286 K=3.0

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.050000	.7000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	2800.0	.032860	3.0000
TOTAL BASIN	3200.0	.035003	2.2201

TIME OF CONCENTRATION (HRS)= .2140 TIME TO PEAK (HRS)= .1427 LAG TIME (HRS)= .1605

COMPUTE NM HYD ID=6 HYD=6 D.1 AREA=0.0459 SQ MI
 PER A=85.0 PER B=8.0 PER C=3.0 PER D=4.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1427

K = .077756HR TP = .142672HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 6.7725 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.7200
 AREA = .001836 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .174104HR TP = .142672HR K/TP RATIO = 1.220315 SHAPE CONSTANT, N = 2.916181
 UNIT PEAK = 84.907 CFS UNIT VOLUME = .9996 B = 274.92 P60 = 1.7200
 AREA = .044064 SQ MI IA = .62812 INCHES INF = 1.60875 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=6 CODE=1

HYDROGRAPH FROM AREA 6_D.1

RUNOFF VOLUME = .49739 INCHES = 1.2176 ACRE-FEET
 PEAK DISCHARGE RATE = 39.17 CFS AT 1.533 HOURS BASIN AREA = .0459 SQ. MI.

*S
 *S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****
 *S

ADD HYD ID=55 HYD NO=AP_OFF ID I=30 ID II=6
 PRINT HYD ID=55 CODE=1

HYDROGRAPH FROM AREA AP_OFF

RUNOFF VOLUME = .55942 INCHES = 14.7567 ACRE-FEET
 PEAK DISCHARGE RATE = 220.51 CFS AT 2.300 HOURS BASIN AREA = .4946 SQ. MI.

*
 *S COMPUTE BASIN 9-D.2 *****
 *S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
 *
 *S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=1800 FT SLOPE=0.0372 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	1800.0	.037200	3.0000
TOTAL BASIN	1800.0	.037200	3.0000

TIME OF CONCENTRATION (HRS)= .0864 TIME TO PEAK (HRS)= .0576 LAG TIME (HRS)= .0648

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.

REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000 TIME TO PEAK (HRS)= .1333 LAG TIME (HRS)= .1500

COMPUTE NM HYD ID=5 HYD=9 D.2 AREA=0.00967 SQ MI
 PER A=30.0 PER B=18.0 PER C=18.0 PER D=34.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .072666HR TP = .133333HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
 UNIT PEAK = 12.977 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.7200
 AREA = .003288 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .141012HR TP = .133333HR K/TP RATIO = 1.057590 SHAPE CONSTANT, N = 3.338717
 UNIT PEAK = 14.760 CFS UNIT VOLUME = .9991 B = 308.36 P60 = 1.7200
 AREA = .006382 SQ MI IA = .52727 INCHES INF = 1.32636 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=5 CODE=20

HYDROGRAPH FROM AREA 9_D.2

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	2.000	2.7	4.000	.1	6.000	.1		
.667	.0	2.667	.4	4.667	.1	6.667	.0		
1.333	2.9	3.333	.1	5.333	.1				

RUNOFF VOLUME = 1.04568 INCHES = .5393 ACRE-FEET
 PEAK DISCHARGE RATE = 15.64 CFS AT 1.500 HOURS BASIN AREA = .0097 SQ. MI.

*
 *S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****
 *

COMPUTE RATING CURVE CID=1 VS NO=1 NO SEGS=1
 MIN ELEV=0 MAX ELEV=3.80
 CH SLOPE=0.0433 FP SLOPE=0.0433
 N=0.038 DIST=32.0
 DIST ELEV DIST ELEV
 0.0 5.0 6.0 0.0
 26.0 0.0 32.0 5.0

RATING CURVE VALLEY SECTION 1.0			
WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	TOP WIDTH FT
.00	.00	.00	20.00
.20	4.05	11.12	20.48
.40	8.19	35.31	20.96
.60	12.43	69.41	21.44
.80	16.77	112.16	21.92
1.00	21.20	162.80	22.40
1.20	25.73	220.83	22.88
1.40	30.35	285.88	23.36
1.60	35.07	357.66	23.84
1.80	39.89	435.97	24.32
2.00	44.80	520.65	24.80

2.20 49.81 611.55 25.28
 2.40 54.91 708.59 25.76
 2.60 60.11 811.67 26.24
 2.80 65.41 920.73 26.72
 3.00 70.80 1035.72 27.20
 3.20 76.29 1156.61 27.68
 3.40 81.87 1283.37 28.16
 3.60 87.55 1415.97 28.64
 3.80 93.33 1554.41 29.12

ROUTE MCUNGE ID=7 HYD=100.01 INFLOW ID=5 DT=0HR L=1200
 NS=0 SLOPE=.038 MATCODE=0 REGCODE=0 CCODE=0

INFLOW END= 206 TABLE PTS= 20
 DT= .033333 QMED= 7.82 CKMED= 2.7482
 WIDTH MED= 20.34 NREACH= 8 DX= 150.00

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	4.53	2.75	3.622	.021	.991	.569	-.560	3.5	.994	.397	-.391
.40	8.2	35.3	.077	21.0	7.03	4.31	5.624	.042	.987	.700	-.687	21.9	.989	.650	-.639
.60	12.4	69.4	.060	21.4	9.01	5.58	7.206	.063	.985	.758	-.743	51.2	.986	.733	-.719
.80	16.8	112.2	.050	21.9	10.68	6.69	8.548	.084	.983	.792	-.775	89.8	.984	.777	-.760
1.00	21.2	162.8	.043	22.4	12.15	7.68	9.723	.105	.981	.815	-.796	136.6	.982	.805	-.786
1.20	25.7	220.8	.039	22.9	13.47	8.58	10.775	.126	.979	.832	-.811	191.0	.980	.824	-.804
1.40	30.4	285.9	.035	23.4	14.66	9.42	11.729	.146	.977	.845	-.822	252.6	.978	.839	-.817
1.60	35.1	357.7	.033	23.8	15.76	10.20	12.604	.167	.976	.855	-.831	321.0	.976	.850	-.826
1.80	39.9	436.0	.030	24.3	16.77	10.93	13.414	.188	.974	.863	-.837	396.1	.975	.859	-.834
2.00	44.8	520.6	.029	24.8	17.71	11.62	14.169	.208	.973	.870	-.843	477.6	.974	.867	-.840
2.20	49.8	611.6	.027	25.3	18.60	12.28	14.877	.228	.972	.876	-.847	565.4	.972	.873	-.845
2.40	54.9	708.6	.026	25.8	19.43	12.90	15.544	.248	.970	.881	-.851	659.4	.971	.878	-.849
2.60	60.1	811.7	.025	26.2	20.22	13.50	16.176	.268	.969	.885	-.855	759.5	.970	.883	-.853
2.80	65.4	920.7	.024	26.7	20.97	14.08	16.777	.288	.968	.889	-.857	865.6	.969	.887	-.856
3.00	70.8	1035.7	.023	27.2	21.69	14.63	17.350	.308	.967	.893	-.860	977.6	.968	.891	-.859
3.20	76.3	1156.6	.022	27.7	22.37	15.16	17.899	.328	.966	.896	-.862	1095.6	.966	.894	-.861
3.40	81.9	1283.4	.021	28.2	23.03	15.68	18.425	.347	.965	.899	-.864	1219.4	.965	.897	-.863
3.60	87.6	1416.0	.021	28.6	23.67	16.17	18.932	.367	.964	.901	-.865	1349.1	.964	.900	-.865
3.80	93.3	1554.4	.020	29.1	24.14	16.66	19.313	.388	.963	.903	-.866	1484.6	.963	.903	-.866

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 4 OCCURRED 4 TIMES. AVERAGE NUMBER ITERATIONS = 1.0689

DEPTH (FT)	AREA (SQ FT)	Q (CFS)	TRAVEL TIME (HR)	WIDTH (FT)	ck (FPS)	VEL (FPS)	C	D	C1	C2	C3	Q-M (CFS)	C1-M	C2-M	C3-M
.00	.0	.0	.165	20.0	1.25	1.29	1.000	.000	1.000	.000	.000	.0	1.000	.000	.000
.20	4.0	11.1	.121	20.5	1.34	2.75	1.071	.071	.934	.066	.000	3.5	.977	.023	.000
.40	8.2	35.3	.077	21.0	1.50	4.31	1.197	.197	.835	.165	.000	21.9	.884	.116	.000
.60	12.4	69.4	.060	21.4	1.67	5.58	1.339	.339	.747	.253	.000	51.2	.789	.211	.000
.80	16.8	112.2	.050	21.9	1.85	6.69	1.484	.484	.674	.326	.000	89.8	.708	.292	.000
1.00	21.2	162.8	.043	22.4	2.03	7.68	1.627	.627	.615	.385	.000	136.6	.643	.357	.000
1.20	25.7	220.8	.039	22.9	2.21	8.58	1.767	.767	.566	.434	.000	191.0	.589	.411	.000
1.40	30.4	285.9	.035	23.4	2.38	9.42	1.903	.903	.526	.474	.000	252.6	.545	.455	.000
1.60	35.1	357.7	.033	23.8	2.54	10.20	2.035	1.035	.491	.509	.000	321.0	.508	.492	.000
1.80	39.9	436.0	.030	24.3	2.70	10.93	2.163	1.163	.462	.538	.000	396.1	.476	.524	.000
2.00	44.8	520.6	.029	24.8	2.86	11.62	2.288	1.288	.437	.563	.000	477.6	.449	.551	.000
2.20	49.8	611.6	.027	25.3	3.01	12.28	2.409	1.409	.415	.585	.000	565.4	.426	.574	.000
2.40	54.9	708.6	.026	25.8	3.16	12.90	2.527	1.527	.396	.604	.000	659.4	.405	.595	.000
2.60	60.1	811.7	.025	26.2	3.30	13.50	2.643	1.643	.378	.622	.000	759.5	.387	.613	.000
2.80	65.4	920.7	.024	26.7	3.44	14.08	2.755	1.755	.363	.637	.000	865.6	.370	.630	.000
3.00	70.8	1035.7	.023	27.2	3.58	14.63	2.865	1.865	.349	.651	.000	977.6	.356	.644	.000
3.20	76.3	1156.6	.022	27.7	3.72	15.16	2.973	1.973	.336	.664	.000	1095.6	.343	.657	.000
3.40	81.9	1283.4	.021	28.2	3.85	15.68	3.078	2.078	.325	.675	.000	1219.4	.330	.670	.000
3.60	87.6	1416.0	.021	28.6	3.98	16.17	3.181	2.181	.314	.686	.000	1349.1	.319	.681	.000
3.80	93.3	1554.4	.020	29.1	4.10	16.66	3.282	2.282	.305	.695	.000	1484.6	.309	.691	.000

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 2 OCCURRED 254 TIMES. AVERAGE NUMBER ITERATIONS = 1.0548

Equations solved with two passes: first using the Ponce correction to C1, second using the Fread correction to C1, C2 and C3

PRINT HYD ID=7 CODE=1

PARTIAL HYDROGRAPH 100.01

RUNOFF VOLUME = 1.04013 INCHES = .5364 ACRE-FEET
 PEAK DISCHARGE RATE = 15.09 CFS AT 1.767 HOURS BASIN AREA = .0097 SQ. MI.

*
 *S COMPUTE BASIN 6-D.2*****
 *S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)
 *
 *S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6
 *
 *COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 * NK=1 ISLOPE=0
 * LENGTH=1200 FT SLOPE=0.0433 K=3.0
 * Kn=.021 CR=.5
 *
 *
 *COMPUTE NM HYD ID=7 HYD=6 D.2 AREA=0.047369 SQ MI
 * PER A=42 PER B=15 PER C=15 PER D=28
 * TP=0.0 HR MASS RAIN=-1
 *PRINT HYD ID=7 CODE=20

```
*S
*S
*S *****
*S *COMPUTE MONTECITO VISTAS UNITS 1-4 ONSITE BASINS*
*S *****
*S
*S
*S
*S
*S COMPUTE BASIN 6-D.2A *****
*
COMPUTE NM HYD      ID=31 HYD=6 D.2A AREA=0.01709 PER A=0 PER B=29.5
                    PER C=29.5 PER D=41 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 27.657 CFS UNIT VOLUME = .9990    B = 526.28    P60 = 1.7200
AREA = .007007 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR    TP = .133330HR    K/TP RATIO = .891996    SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 26.736 CFS UNIT VOLUME = 1.000    B = 353.53    P60 = 1.7200
AREA = .010083 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=31 CODE=1

                      HYDROGRAPH FROM AREA 6_D.2A

RUNOFF VOLUME = 1.24844 INCHES = 1.1379 ACRE-FEET
PEAK DISCHARGE RATE = 32.89 CFS AT 1.500 HOURS BASIN AREA = .0171 SQ. MI.

*
*S COMPUTE BASIN 6-D.2B *****
COMPUTE NM HYD      ID=32 HYD=6 D.2B AREA=0.016231 PER A=0 PER B=29
                    PER C=29 PER D=42 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.908 CFS UNIT VOLUME = .9989    B = 526.28    P60 = 1.7200
AREA = .006817 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR    TP = .133330HR    K/TP RATIO = .891996    SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 24.962 CFS UNIT VOLUME = .9999    B = 353.53    P60 = 1.7200
AREA = .009414 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=32 CODE=1

                      HYDROGRAPH FROM AREA 6_D.2B

RUNOFF VOLUME = 1.26047 INCHES = 1.0911 ACRE-FEET
PEAK DISCHARGE RATE = 31.42 CFS AT 1.500 HOURS BASIN AREA = .0162 SQ. MI.

*
*S COMPUTE BASIN 6-D.2C *****
COMPUTE NM HYD      ID=33 HYD=6 D.2C AREA=0.005902 PER A=0 PER B=34
                    PER C=34 PER D=32 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 7.4548 CFS UNIT VOLUME = .9978    B = 526.28    P60 = 1.7200
AREA = .001889 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR    TP = .133330HR    K/TP RATIO = .891996    SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 10.642 CFS UNIT VOLUME = .9992    B = 353.53    P60 = 1.7200
AREA = .004013 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=33 CODE=1

                      HYDROGRAPH FROM AREA 6_D.2C

RUNOFF VOLUME = 1.14016 INCHES = .3589 ACRE-FEET
PEAK DISCHARGE RATE = 10.78 CFS AT 1.500 HOURS BASIN AREA = .0059 SQ. MI.

*
*S COMPUTE BASIN 6-D.2D *****
COMPUTE NM HYD      ID=34 HYD=6 D.2D AREA=0.01071 PER A=0 PER B=34.5
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```

PER C=34.5 PER D=31 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 13.105 CFS UNIT VOLUME = .9985 B = 526.28 P60 = 1.7200
AREA = .003320 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 19.595 CFS UNIT VOLUME = .9998 B = 353.53 P60 = 1.7200
AREA = .007390 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=34 CODE=1

HYDROGRAPH FROM AREA 6_D.2D

RUNOFF VOLUME = 1.12813 INCHES = .6444 ACRE-FEET
PEAK DISCHARGE RATE = 19.43 CFS AT 1.500 HOURS BASIN AREA = .0107 SQ. MI.

*
*S COMPUTE BASIN 6-D.2E *****
COMPUTE NM HYD ID=35 HYD=6_D.2E AREA=0.002415 PER A=0 PER B=30.5
PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.7176 CFS UNIT VOLUME = .9965 B = 526.28 P60 = 1.7200
AREA = .000942 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 3.9061 CFS UNIT VOLUME = .9972 B = 353.53 P60 = 1.7200
AREA = .001473 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=35 CODE=1

HYDROGRAPH FROM AREA 6_D.2E

RUNOFF VOLUME = 1.22438 INCHES = .1577 ACRE-FEET
PEAK DISCHARGE RATE = 4.61 CFS AT 1.500 HOURS BASIN AREA = .0024 SQ. MI.

*
*S COMPUTE BASIN 6-D.2F *****
COMPUTE NM HYD ID=36 HYD=6_D.2F AREA=0.004180 PER A=0 PER B=30.5
PER C=30.5 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 6.4347 CFS UNIT VOLUME = .9976 B = 526.28 P60 = 1.7200
AREA = .001630 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 6.7609 CFS UNIT VOLUME = .9984 B = 353.53 P60 = 1.7200
AREA = .002550 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=36 CODE=1

HYDROGRAPH FROM AREA 6_D.2F

RUNOFF VOLUME = 1.22438 INCHES = .2730 ACRE-FEET
PEAK DISCHARGE RATE = 7.96 CFS AT 1.500 HOURS BASIN AREA = .0042 SQ. MI.

*
*S ADD 9-D.2 TO 6-D.2A *****
ADD HYD ID=39 HYD NO=6_9D.2A ID I=7 ID II=31
PRINT HYD ID=39 CODE=1

HYDROGRAPH FROM AREA 6_9D.2A

RUNOFF VOLUME = 1.17314 INCHES = 1.6743 ACRE-FEET
PEAK DISCHARGE RATE = 33.64 CFS AT 1.500 HOURS BASIN AREA = .0268 SQ. MI.

*

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*S ADD 6-D.2B TO 6_9D.2A *****
 ADD HYD ID=41 HYD NO=6_9D.2AB ID I=32 ID II=39
 PRINT HYD ID=41 CODE=1

HYDROGRAPH FROM AREA 6_9D.2AB

RUNOFF VOLUME = 1.20611 INCHES = 2.7654 ACRE-FEET
 PEAK DISCHARGE RATE = 65.06 CFS AT 1.500 HOURS BASIN AREA = .0430 SQ. MI.

*
 *S ADD 6-D.2C TO 6_9D.2AB *****
 ADD HYD ID=42 HYD NO=6_9D.2ABC ID I=33 ID II=41
 PRINT HYD ID=42 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABC

RUNOFF VOLUME = 1.19814 INCHES = 3.1243 ACRE-FEET
 PEAK DISCHARGE RATE = 75.84 CFS AT 1.500 HOURS BASIN AREA = .0489 SQ. MI.

*
 *S ADD 6_D.2D TO 6_9D.2ABC *****
 ADD HYD ID=43 HYD NO=6_9D.2ABCD ID I=34 ID II=42
 PRINT HYD ID=43 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABCD

RUNOFF VOLUME = 1.18556 INCHES = 3.7687 ACRE-FEET
 PEAK DISCHARGE RATE = 95.27 CFS AT 1.500 HOURS BASIN AREA = .0596 SQ. MI.

*
 *S ADD 6_D.2E TO 6_9D.2ABCD *****
 ADD HYD ID=46 HYD NO=6_D.2ABCDE ID I=35 ID II=43
 PRINT HYD ID=46 CODE=1

HYDROGRAPH FROM AREA 6_D.2ABCDE

RUNOFF VOLUME = 1.18706 INCHES = 3.9263 ACRE-FEET
 PEAK DISCHARGE RATE = 99.88 CFS AT 1.500 HOURS BASIN AREA = .0620 SQ. MI.

*
 *S ADD 6_D.2F TO 6_9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6_9D.2*****
 ADD HYD ID=47 HYD NO=6_9D.2ABCDEF ID I=36 ID II=46
 PRINT HYD ID=47 CODE=1

HYDROGRAPH FROM AREA 6_9D.2ABCDEF

RUNOFF VOLUME = 1.18942 INCHES = 4.1993 ACRE-FEET
 PEAK DISCHARGE RATE = 107.84 CFS AT 1.500 HOURS BASIN AREA = .0662 SQ. MI.

*
 *
 *S COMPUTE BASIN 6-D.3*****
 *S UPDATED TO SHOW 30% OPEN SPACE
 *
 *S NO CHANGE FROM MONTECITO WEST DMP
 *

COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
 NK=1 ISLOPE=0
 LENGTH=600 FT SLOPE=0.0433 K=3.0
 Kn=.021 CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS

	LENGTH (FT)	ADJUSTED SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	.0	.000000	.0000
SHALLOW FLOW PORTION	.0	.000000	.0000
CHANNEL FLOW PORTION	600.0	.043003	3.0000
TOTAL BASIN	600.0	.043003	3.0000

TIME OF CONCENTRATION (HRS)= .0268 TIME TO PEAK (HRS)= .0179 LAG TIME (HRS)= .0201

1.88	4.7	78.8	.014	3.0	20.68	16.94	2.919	.055	.972	.497	-.469	73.8	.975	.501	-.476
2.03	5.1	88.3	.014	3.0	19.70	17.33	2.781	.064	.967	.480	-.446	83.5	.970	.490	-.460
2.19	5.5	97.2	.013	3.0	18.06	17.60	2.549	.077	.957	.448	-.406	92.8	.963	.467	-.430
2.35	5.9	105.2	.013	3.0	15.62	17.75	2.205	.097	.941	.394	-.336	101.2	.951	.426	-.377
2.50	6.3	111.8	.013	3.0	12.16	17.76	1.717	.132	.907	.298	-.205	108.5	.929	.356	-.286
2.66	6.6	116.6	.013	3.0	7.12	17.61	1.006	.235	.790	.107	.102	114.2	.875	.228	-.103
2.81	6.9	118.5	.014	3.0	4.24	17.21	.598	.402	.598	.000	.402	117.6	.693	.053	.254

MAXIMUM NO. ITERATIONS FOR SOLUTION (KKMAX) = 3 OCCURRED 4 TIMES. AVERAGE NUMBER ITERATIONS = 1.0777
 Equations solved using the Ponce correction to C2
 PRINT HYD ID=10 CODE=1

HYDROGRAPH FROM AREA RT.2AB2

RUNOFF VOLUME = 1.04577 INCHES = 1.0194 ACRE-FEET
 PEAK DISCHARGE RATE = 29.41 CFS AT 1.533 HOURS BASIN AREA = .0183 SQ. MI.

```
*S
*S
*S
*S *****
*S * COMPUTE OFFSITE "A" BASINS *
*S *****
*S
*S COMPUTE BASIN A-1.1 *****
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP LCODE=1 UPLAND/LAG TIME TRANSITION METHOD
NK=3 ISLOPE=-1
LENGTH=400 FT SLOPE=0.0340 K=0.7
LENGTH=1600 FT SLOPE=0.0361 K=2.0
LENGTH=2800 FT SLOPE=0.0346 K=3.0
```

BASIN LONGER THAN 4000.0 FT AND ALL BASIN LAG FACTORS NOT SPECIFIED
 USE Kn= .0160 AND Lca/L= .50000

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS	LENGTH (FT)	SLOPE (FT/FT)	COMPOSITE K
SHEET FLOW PORTION	400.0	.034000	.7000
SHALLOW FLOW PORTION	1600.0	.036100	2.0000
CHANNEL FLOW PORTION	2800.0	.034600	3.0000
TOTAL BASIN	4800.0	.035050	2.0799

LAG EQUATION FACTORS:	Kn=	TOTAL BASIN LENGTH (FT)=	4800.0
TOTAL BASIN SLOPE (FT/FT)=	.035050	CENTROUD LENGTH (FT)=	2400.0

TIME OF CONCENTRATION (HRS)= .2889 TIME TO PEAK (HRS)= .1926 LAG TIME (HRS)= .2167

COMPUTE NM HYD ID=60 HYD=A 1.1 AREA=0.08421 SQ MI
 PER A=90.0 PER B=5.0 PER C=5.0 PER D=0.0
 TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1926

K = .231672HR TP = .192581HR K/TP RATIO = 1.202988 SHAPE CONSTANT, N = 2.954469
 UNIT PEAK = 121.60 CFS UNIT VOLUME = .9998 B = 278.09 P60 = 1.7200
 AREA = .084210 SQ MI IA = .62750 INCHES INF = 1.60700 INCHES PER HOUR
 RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=60 CODE=20

HYDROGRAPH FROM AREA A_1.1

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW
HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	2.000	10.7	4.000	.4	6.000	.0		
.667	.0	2.667	2.5	4.667	.1	6.667	.0		
1.333	.1	3.333	1.0	5.333	.1				

RUNOFF VOLUME = .43725 INCHES = 1.9637 ACRE-FEET
 PEAK DISCHARGE RATE = 51.19 CFS AT 1.567 HOURS BASIN AREA = .0842 SQ. MI.

```
*
*S COMPUTE BASIN A-1.2 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6
```



```

AREA = .004044 SQ MI   IA = .52727 INCHES   INF = 1.32636 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=21   CODE=1

                        HYDROGRAPH FROM AREA 1_E.1

RUNOFF VOLUME = 1.04568 INCHES = .3418 ACRE-FEET
PEAK DISCHARGE RATE = 9.92 CFS AT 1.500 HOURS   BASIN AREA = .0061 SQ. MI.

*
*S COMPUTE BASIN E-1.3 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                   NK=1  ISLOPE=0
                   LENGTH=3800 FT  SLOPE=0.0325 K=3.0
                   Kn=.021  CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
SHEET FLOW PORTION      .0      .000000      .0000
SHALLOW FLOW PORTION      .0      .000000      .0000
CHANNEL FLOW PORTION      3800.0      .032500      3.0000
TOTAL BASIN      3800.0      .032500      3.0000

TIME OF CONCENTRATION (HRS)= .1952   TIME TO PEAK (HRS)= .1301   LAG TIME (HRS)= .1464

TIME TO PEAK COMPUTED TO BE LESS THAN 0.133333 HOUR MINIMUM VALUE.
REVISED VALUES: TIME OF CONCENTRATION (HRS)= .2000   TIME TO PEAK (HRS)= .1333   LAG TIME (HRS)= .1500

COMPUTE NM HYD      ID=70  HYD=E 1.3  AREA=0.08120 SQ MI
                   PER A=52.0  PER B=16.0  PER C=16.0  PER D=16.0
                   TP=0.0 HR  MASS RAIN=-1

TIME TO PEAK (hrs)= .1333

K = .073112HR  TP = .133333HR  K/TP RATIO = .548342  SHAPE CONSTANT, N = 7.051009
UNIT PEAK = 51.026 CFS  UNIT VOLUME = .9991  B = 523.67  P60 = 1.7200
AREA = .012992 SQ MI  IA = .10000 INCHES  INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .147593HR  TP = .133333HR  K/TP RATIO = 1.106950  SHAPE CONSTANT, N = 3.194118
UNIT PEAK = 152.08 CFS  UNIT VOLUME = 1.000  B = 297.28  P60 = 1.7200
AREA = .068208 SQ MI  IA = .56429 INCHES  INF = 1.43000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD          ID=70   CODE=20

                        HYDROGRAPH FROM AREA E_1.3

TIME      FLOW      TIME      FLOW      TIME      FLOW      TIME      FLOW      TIME      FLOW
HRS       CFS       HRS       CFS       HRS       CFS       HRS       CFS       HRS       CFS
.000      .0        2.000     14.3     4.000      .4        6.000      .4
.667      .0        2.667     2.2      4.667      .4        6.667      .0
1.333     12.4      3.333      .7      5.333      .4

RUNOFF VOLUME = .75028 INCHES = 3.2492 ACRE-FEET
PEAK DISCHARGE RATE = 102.27 CFS AT 1.500 HOURS   BASIN AREA = .0812 SQ. MI.

*
*S COMPUTE BASIN E-1.4 *****
*S UPDATED TO SHOW 30% OPEN SPACE
*
*S NO CHANGE FROM MONTECITO WEST DMP
*
COMPUTE LT TP      LCODE=1  UPLAND/LAG TIME TRANSITION METHOD
                   NK=1  ISLOPE=0
                   LENGTH=5200 FT  SLOPE=0.0325 K=3.0
                   Kn=.021  CR=.5

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

```

```

SCS UPLAND METHOD FACTORS
      LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
SHEET FLOW PORTION      .0      .000000      .0000
SHALLOW FLOW PORTION      .0      .000000      .0000
CHANNEL FLOW PORTION      5200.0      .032500      3.0000
TOTAL BASIN      5200.0      .032500      3.0000

LAG EQUATION FACTORS:      Kn= .0210      TOTAL BASIN LENGTH (FT)= 5200.0
TOTAL BASIN SLOPE (FT/FT)= .032500      CENTROUD LENGTH (FT)= 2600.0

TIME OF CONCENTRATION (HRS)= .2385      TIME TO PEAK (HRS)= .1590      LAG TIME (HRS)= .1789

COMPUTE NM HYD      ID=75 HYD=E 1.4 AREA=0.13593 SQ MI
      PER A=60.0 PER B=13.0 PER C=13.0 PER D=14.0
      TP=0.0 HR MASS RAIN=-1

TIME TO PEAK (hrs)= .1590

K = .088752HR      TP = .159019HR      K/TP RATIO = .558124      SHAPE CONSTANT, N = 6.893744
UNIT PEAK = 61.775 CFS      UNIT VOLUME = .9994      B = 516.20      P60 = 1.7200
AREA = .019030 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .174967HR      TP = .159019HR      K/TP RATIO = 1.100293      SHAPE CONSTANT, N = 3.212680
UNIT PEAK = 219.60 CFS      UNIT VOLUME = 1.000      B = 298.73      P60 = 1.7200
AREA = .116900 SQ MI      IA = .58198 INCHES      INF = 1.47953 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD      ID=75      CODE=20

HYDROGRAPH FROM AREA E_1.4

      TIME      FLOW      TIME      FLOW      TIME      FLOW      TIME      FLOW
      HRS      CFS      HRS      CFS      HRS      CFS      HRS      CFS
      .000      .0      2.000      23.9      4.000      .8      6.000      .6
      .667      .0      2.667      4.5      4.667      .6      6.667      .0
      1.333      13.2      3.333      1.5      5.333      .5      7.333      .0

RUNOFF VOLUME = .70019 INCHES = 5.0761 ACRE-FEET
PEAK DISCHARGE RATE = 144.66 CFS AT 1.533 HOURS BASIN AREA = .1359 SQ. MI.

*
*S
*S *****
*S *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*
*S *****
*S
*S NO CHANGE FROM MONTECITO WEST DMP
*S
*S COMPUTE BASIN 6-D.4 *****
*
COMPUTE NM HYD      ID=2 HYD=6 D.4 AREA=0.015778 PER A=0 PER B=29
      PER C=29 PER D=42 TP=0.13333 RAINFALL=-1

K = .072665HR      TP = .133330HR      K/TP RATIO = .545000      SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 26.157 CFS      UNIT VOLUME = .9989      B = 526.28      P60 = 1.7200
AREA = .006627 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR      TP = .133330HR      K/TP RATIO = .891996      SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 24.265 CFS      UNIT VOLUME = .9999      B = 353.53      P60 = 1.7200
AREA = .009151 SQ MI      IA = .42500 INCHES      INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD      ID=2      CODE=1

HYDROGRAPH FROM AREA 6_D.4

RUNOFF VOLUME = 1.26047 INCHES = 1.0607 ACRE-FEET
PEAK DISCHARGE RATE = 30.55 CFS AT 1.500 HOURS BASIN AREA = .0158 SQ. MI.

*
*S COMPUTE BASIN 6-D.5 *****
COMPUTE NM HYD      ID=3 HYD=6 D.5 AREA=0.007522 PER A=0 PER B=34
      PER C=34 PER D=32 TP=0.13333 RAINFALL=-1

K = .072665HR      TP = .133330HR      K/TP RATIO = .545000      SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 9.5010 CFS      UNIT VOLUME = .9982      B = 526.28      P60 = 1.7200
AREA = .002407 SQ MI      IA = .10000 INCHES      INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

```

K = .118930HR TP = .133330HR K/TP RATIO = .891996 SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 13.563 CFS UNIT VOLUME = .9995 B = 353.53 P60 = 1.7200
AREA = .005115 SQ MI IA = .42500 INCHES INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=3 CODE=1

HYDROGRAPH FROM AREA 6_D.5

RUNOFF VOLUME = 1.14016 INCHES = .4574 ACRE-FEET
PEAK DISCHARGE RATE = 13.73 CFS AT 1.500 HOURS BASIN AREA = .0075 SQ. MI.

*
*S COMPUTE BASIN 6-D.6 *****
COMPUTE NM HYD ID=4 HYD=6_D.6 AREA=0.006441 PER A=100 PER B=0
PER C=0 PER D=0 TP=0.13333 RAINFALL=-1

K = .167503HR TP = .133330HR K/TP RATIO = 1.256304 SHAPE CONSTANT, N = 2.840823
UNIT PEAK = 12.975 CFS UNIT VOLUME = .9983 B = 268.58 P60 = 1.7200
AREA = .006441 SQ MI IA = .65000 INCHES INF = 1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=4 CODE=1

HYDROGRAPH FROM AREA 6_D.6

RUNOFF VOLUME = .41046 INCHES = .1410 ACRE-FEET
PEAK DISCHARGE RATE = 4.95 CFS AT 1.533 HOURS BASIN AREA = .0064 SQ. MI.

*
*S COMPUTE BASIN 6-D.7 *****
COMPUTE NM HYD ID=1 HYD=6_D.7 AREA=0.005236 PER A=0 PER B=31
PER C=30 PER D=39 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 8.0603 CFS UNIT VOLUME = .9980 B = 526.28 P60 = 1.7200
AREA = .002042 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119171HR TP = .133330HR K/TP RATIO = .893807 SHAPE CONSTANT, N = 3.966901
UNIT PEAK = 8.4552 CFS UNIT VOLUME = .9989 B = 352.96 P60 = 1.7200
AREA = .003194 SQ MI IA = .42623 INCHES INF = 1.04344 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=1 CODE=1

HYDROGRAPH FROM AREA 6_D.7

RUNOFF VOLUME = 1.22285 INCHES = .3415 ACRE-FEET
PEAK DISCHARGE RATE = 9.96 CFS AT 1.500 HOURS BASIN AREA = .0052 SQ. MI.

*
*S COMPUTE BASIN 6-D.8 *****
COMPUTE NM HYD ID=20 HYD=6_D.8 AREA=0.010762 PER A=0 PER B=30
PER C=29 PER D=41 TP=0.13333 RAINFALL=-1

K = .072665HR TP = .133330HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 17.417 CFS UNIT VOLUME = .9988 B = 526.28 P60 = 1.7200
AREA = .004412 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .119179HR TP = .133330HR K/TP RATIO = .893868 SHAPE CONSTANT, N = 3.966604
UNIT PEAK = 16.808 CFS UNIT VOLUME = .9996 B = 352.94 P60 = 1.7200
AREA = .006350 SQ MI IA = .42627 INCHES INF = 1.04356 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD ID=20 CODE=1

HYDROGRAPH FROM AREA 6_D.8

RUNOFF VOLUME = 1.24691 INCHES = .7157 ACRE-FEET
PEAK DISCHARGE RATE = 20.69 CFS AT 1.500 HOURS BASIN AREA = .0108 SQ. MI.

*

```

*S COMPUTE BASIN E-1.2 *****
COMPUTE NM HYD      ID=22 HYD=1_E.2 AREA=0.001177 PER A=0 PER B=29
                      PER C=29 PER D=42 TP=0.13333 RAINFALL=-1

K = .072665HR    TP = .133330HR    K/TP RATIO = .545000    SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.9512 CFS    UNIT VOLUME = .9932    B = 526.28    P60 = 1.7200
AREA = .000494 SQ MI    IA = .10000 INCHES    INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

K = .118930HR    TP = .133330HR    K/TP RATIO = .891996    SHAPE CONSTANT, N = 3.975497
UNIT PEAK = 1.8101 CFS    UNIT VOLUME = .9929    B = 353.53    P60 = 1.7200
AREA = .000683 SQ MI    IA = .42500 INCHES    INF = 1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033333

PRINT HYD      ID=22    CODE=1

                      HYDROGRAPH FROM AREA 1_E.2

RUNOFF VOLUME = 1.26047 INCHES    = .0791 ACRE-FEET
PEAK DISCHARGE RATE = 2.29 CFS AT 1.500 HOURS    BASIN AREA = .0012 SQ. MI.

*
*S ADD E_1.1 TO E_1.2 *****
ADD HYD      ID=71    HYD NO=E.1_2 ID I=21 ID II=22
PRINT HYD      ID=71    CODE=1

                      HYDROGRAPH FROM AREA E.1_2

RUNOFF VOLUME = 1.08022 INCHES    = .4208 ACRE-FEET
PEAK DISCHARGE RATE = 12.21 CFS AT 1.500 HOURS    BASIN AREA = .0073 SQ. MI.

*

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```

*S ADD 6_D.8 TO E_1.1.1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****
ADD HYD          ID=72    HYD NO=AP2_ON ID I=71 ID II=20
PRINT HYD        ID=72    CODE=1

                                HYDROGRAPH FROM AREA AP2_ON

RUNOFF VOLUME =      1.17950 INCHES      =      1.1365 ACRE-FEET
PEAK DISCHARGE RATE =      32.90 CFS    AT    1.500 HOURS    BASIN AREA =      .0181 SQ. MI.

*
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****
ADD HYD          ID=11    HYD NO=6D.4_7 ID I=2 ID II=1
PRINT HYD        ID=11    CODE=1

                                HYDROGRAPH FROM AREA 6D.4_7

RUNOFF VOLUME =      1.25107 INCHES      =      1.4021 ACRE-FEET
PEAK DISCHARGE RATE =      40.50 CFS    AT    1.500 HOURS    BASIN AREA =      .0210 SQ. MI.

*
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****
ADD HYD          ID=12    HYD NO=6D.5_6 ID I=3 ID II=4
PRINT HYD        ID=12    CODE=1

                                HYDROGRAPH FROM AREA 6D.5_6

RUNOFF VOLUME =      .80354 INCHES      =      .5984 ACRE-FEET
PEAK DISCHARGE RATE =      18.68 CFS    AT    1.500 HOURS    BASIN AREA =      .0140 SQ. MI.

*
*S
*S          *****
*S          * COMPUTE ANALYSIS POINTS *
*S          *****
*S
*S
*S
*S
*S
*S
*S ANALYSIS POINT 2, MIDDLE BRANCH BOCA NEGRA (NORTHERN STORM DRAIN)
*
*S ADD AP_OFF TO 6_9D.2 (DIVERT FLOWS) TO GET NEW AP_OFF *****
*
ADD HYD          ID=25    HYD NO=AP_OFF.NEW ID I=55 ID II=47
PRINT HYD        ID=25    CODE=1

                                HYDROGRAPH FROM AREA AP_OFF.NEW

RUNOFF VOLUME =      .63379 INCHES      =      18.9559 ACRE-FEET
PEAK DISCHARGE RATE =      232.17 CFS    AT    2.000 HOURS    BASIN AREA =      .5608 SQ. MI.

*S
*S ADD AP2_ON TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
*
ADD HYD          ID=24    HYD NO=AP_2 ID I=25 ID II=72
PRINT HYD        ID=24    CODE=1

                                HYDROGRAPH FROM AREA AP_2

RUNOFF VOLUME =      .65082 INCHES      =      20.0925 ACRE-FEET
PEAK DISCHARGE RATE =      237.91 CFS    AT    2.000 HOURS    BASIN AREA =      .5789 SQ. MI.

*
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *****
*
*S DIVIDE 6D.3 FOR 30.0% RETAINAGE
DIVIDE HYD        ID=10    PER=-70.0          ID I=12 HYD NO=6D.3_OUT
                                           ID II=13 HYD NO=6D.3_RETAIN
*
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 *****
*
ADD HYD          ID=14    HYD NO=AP_1 ID I=12 ID II=11
PRINT HYD        ID=14    CODE=1

```

HYDROGRAPH FROM AREA AP_1

RUNOFF VOLUME = 1.17337 INCHES = 2.1157 ACRE-FEET
PEAK DISCHARGE RATE = 60.74 CFS AT 1.500 HOURS BASIN AREA = .0338 SQ. MI.

*S

FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 09:24:52

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -
05/12/2016
INPUT FILE = DEV_Cond.HYM

- VERSION: 1997.02c

RUN DATE (MON/DAY/YR) =

USER NO.= AHYMO-S-9702c1BohanHu-AH

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1	NOTATION
*S THE VISTA VIEJA SUBDIVISION DRAINAGE BASIN (D) PROPOSED											
*S 100 YEAR - 6 HOUR STORM											
*S											
*S REVISED 2005 AHYMO TO REFLECT UPDATED LAND TREATMENTS											
*S MONTECITO WEST DMP UPDATE WITH MONTEICITO VISTA DEVELOPMENT 5/12/16											
START											
LOCATION											
RAINFALL TYPE= 1											
*S											
*S											
*S *****											
*S * COMPUTE OFFSITE "D" BASINS *											
*S *****											
*S											
*S											
*S											
*S COMPUTE BASIN OS-D *****											
*S NO CHANGE FROM MONTECITO WEST DMP											
COMPUTE NM HYD OS_D - 17 .23780 174.20 5.322 .41961 1.533 1.145 PER IMP= .00											
*S ROUTE OS-D THRU 15-D IN CHANNEL NO.15*****											
ROUTE MCUNGE 100.01 17 50 .23780 170.91 5.282 .41646 1.833 1.123 CCODE = .1											
*S COMPUTE BASIN 15-D *****											
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF											
*S NO CHANGE FROM MONTECITO WEST DMP											
COMPUTE NM HYD 15_D - 15 .15060 177.15 5.638 .70193 1.500 1.838 PER IMP= 16.00											
*S ADD SUB-BASIN OS-D TO SUB-BASIN 15-D*****											
ADD HYD 101.00 15&50 33 .38840 213.08 10.920 .52715 1.800 .857											
*S ROUTE 15-D/OS-D THRU 9-D.1 IN CHANNEL NO.9*****											
ROUTE MCUNGE 100.01 33 40 .38840 210.93 10.881 .52527 2.067 .849 CCODE = .1											
*S COMPUTE BASIN 9-D.1 *****											
*S UPDATED TO SHOW 30% OPEN SPACE AND REMOVED 0.0125 SQ MI FROM BASIN											
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF											
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6											
COMPUTE NM HYD 9_D.1 - 9 .06030 68.56 2.691 .83686 1.567 1.777 PER IMP= 20.00											
*S ADD 15-D/OS-D TO SUB-BASIN 9-D.1 *****											
ADD HYD 104.00 40& 9 44 .44870 223.13 13.572 .56714 2.067 .777											
*S ROUTE 9-D.1/15-D/9-D.1 THRU 6-D.1 IN CHANNEL NO.6 *****											
ROUTE MCUNGE 104.10 44 30 .44870 218.30 13.539 .56577 2.300 .760 CCODE = .1											
*S COMPUTE BASIN 6-D.1 *****											
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE) AND REMOVED											
*S 0.065625 SQ MI FROM BASIN											
*S LAND TREATMENT CHANGES DUE TO MORE COA OPEN SPACE DUE TO MW UNITS 3-6											
COMPUTE NM HYD 6_D.1 - 6 .04590 39.17 1.218 .49739 1.533 1.333 PER IMP= 4.00											
*S											
*S ADD SUB-BASIN (OS-D,15-D,9-D.1) TO SUB-BASIN 6-D.1 TO GET AP_OFF *****											
*S											
ADD HYD AP OFF 30& 6 55 .49460 220.51 14.757 .55942 2.300 .697											
*S COMPUTE BASIN 9-D.2 *****											
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF											
*S DECREASE AREA BY 0.00283 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6											

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 = 2 NOTATION
COMPUTE NM HYD	9 D.2	-	5	.00967	15.64	.539	1.04568	1.500	2.527	PER IMP= 34.00
*S ROUTE 9D.2 FLOW THRU 1200' OF CHANNEL *****										
ROUTE MCUNGE	100.01	5	7	.00967	15.09	.536	1.04013	1.767	2.439	CCODE = .1
*S COMPUTE BASIN 6-D.2*****										
*S UPDATED TO SHOW 30% OPEN SPACE (NON COA OPEN SPACE)										
*S BREAK BASIN 6-D.2 INTO SUBBASINS FOR MW UNITS 3-6										
*S *****										
*S *COMPUTE MONTECITO VISTAS UNITS 1-4 ONSITE BASINS*										
*S *****										
*S										
*S										
*S COMPUTE BASIN 6-D.2A *****										
COMPUTE NM HYD	6 D.2A	-	31	.01709	32.89	1.138	1.24844	1.500	3.007	PER IMP= 41.00
*S COMPUTE BASIN 6-D.2B *****										
COMPUTE NM HYD	6 D.2B	-	32	.01623	31.42	1.091	1.26047	1.500	3.025	PER IMP= 42.00
*S COMPUTE BASIN 6-D.2C *****										
COMPUTE NM HYD	6 D.2C	-	33	.00590	10.78	.359	1.14016	1.500	2.854	PER IMP= 32.00
*S COMPUTE BASIN 6-D.2D *****										
COMPUTE NM HYD	6 D.2D	-	34	.01071	19.43	.644	1.12813	1.500	2.835	PER IMP= 31.00
*S COMPUTE BASIN 6-D.2E *****										
COMPUTE NM HYD	6 D.2E	-	35	.00242	4.61	.158	1.22438	1.500	2.981	PER IMP= 39.00
*S COMPUTE BASIN 6-D.2F *****										
COMPUTE NM HYD	6 D.2F	-	36	.00418	7.96	.273	1.22438	1.500	2.977	PER IMP= 39.00
*S ADD 9-D.2 TO 6-D.2A *****										
ADD HYD	6 9D.2A	7&31	39	.02676	33.64	1.674	1.17314	1.500	1.964	
*S ADD 6-D.2B TO 6 9D.2A *****										
ADD HYD	6 9D.2AB	32&39	41	.04299	65.06	2.765	1.20611	1.500	2.365	
*S ADD 6-D.2C TO 6 9D.2AB *****										
ADD HYD	6 9D.2ABC	33&41	42	.04889	75.84	3.124	1.19814	1.500	2.424	
*S ADD 6 D.2D TO 6 9D.2ABC *****										
ADD HYD	6 9D.2ABCD	34&42	43	.05960	95.27	3.769	1.18556	1.500	2.498	
*S ADD 6 D.2E TO 6 9D.2ABCD *****										
ADD HYD	6 D.2ABCDE	35&43	46	.06202	99.88	3.926	1.18706	1.500	2.516	
*S ADD 6 D.2F TO 6 9D.2ABCDE TO GET PROJECT SITE DISCHARGE, AP=6 9D.2*****										
ADD HYD	6 9D.2ABCDEF	36&46	47	.06620	107.84	4.199	1.18942	1.500	2.545	
*S COMPUTE BASIN 6-D.3*****										
*S UPDATED TO SHOW 30% OPEN SPACE										
*S NO CHANGE FROM MONTECITO WEST DMP										
COMPUTE NM HYD	6 D.3	-	9	.01828	29.55	1.019	1.04568	1.500	2.526	PER IMP= 34.00
*S***** ROUTE OFFSITE FLOW THRU 850' OF 36" RCP PIPE										
ROUTE MCUNGE	RT.2AB2	9	10	.01828	29.41	1.019	1.04577	1.533	2.514	CCODE = .2
*S *****										
*S * COMPUTE OFFSITE "A" BASINS *										
*S *****										
*S										
*S COMPUTE BASIN A-1.1 *****										
*S ABOVE 4W WATER ZONE DEVELOPED RUNOFF RESTRICTED TO UNDEVELOPED RUNOFF										
*S NO CHANGE FROM MONTECITO WEST DMP										

PAGE = 3

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
COMPUTE NM HYD	A_1.1	-	60	.08421	51.19	1.964	.43725	1.567	.950	PER IMP= .00
*S COMPUTE BASIN A-1.2 *****										
*S UPDATED TO SHOW 30% OPEN SPACE										
*S DECREASE AREA BY 0.0101 SQ MI, AREA INCORPORATED INTO MW UNITS 3-6										
COMPUTE NM HYD	A_1.2	-	65	.01261	20.39	.703	1.04568	1.500	2.527	PER IMP= 34.00
*S ADD A-1.1 TO A-2.2 TO GET FLOW IN VISTA VIEJA AVENUE *****										
ADD HYD	A_1.1_1.2	60&65	66	.09682	68.67	2.667	.51650	1.567	1.108	
*S *****										
*S * COMPUTE OFFSITE "E" BASINS *										
*S *****										
*S *****										
*S *****										
COMPUTE NM HYD	E_1.1	-	21	.00613	9.92	.342	1.04568	1.500	2.528	PER IMP= 34.00
*S COMPUTE BASIN E-1.3 *****										
*S UPDATED TO SHOW 30% OPEN SPACE										
*S NO CHANGE FROM MONTECITO WEST DMP										
COMPUTE NM HYD	E_1.3	-	70	.08120	102.27	3.249	.75028	1.500	1.968	PER IMP= 16.00
*S COMPUTE BASIN E-1.4 *****										
*S UPDATED TO SHOW 30% OPEN SPACE										
*S NO CHANGE FROM MONTECITO WEST DMP										
COMPUTE NM HYD	E_1.4	-	75	.13593	144.66	5.076	.70019	1.533	1.663	PER IMP= 14.00
*S *****										
*S *COMPUTE MONTECITO WEST UNITS 1-2 ONSITE BASINS*										
*S *****										
*S *****										
*S NO CHANGE FROM MONTECITO WEST DMP										
*S *****										
COMPUTE NM HYD	6_D.4	-	2	.01578	30.55	1.061	1.26047	1.500	3.025	PER IMP= 42.00
*S COMPUTE BASIN 6-D.5 *****										
COMPUTE NM HYD	6_D.5	-	3	.00752	13.73	.457	1.14016	1.500	2.853	PER IMP= 32.00
*S COMPUTE BASIN 6-D.6 *****										
COMPUTE NM HYD	6_D.6	-	4	.00644	4.95	.141	.41046	1.533	1.202	PER IMP= .00
*S COMPUTE BASIN 6-D.7 *****										
COMPUTE NM HYD	6_D.7	-	1	.00524	9.96	.341	1.22285	1.500	2.971	PER IMP= 39.00
*S COMPUTE BASIN 6-D.8 *****										
COMPUTE NM HYD	6_D.8	-	20	.01076	20.69	.716	1.24691	1.500	3.004	PER IMP= 41.00
*S COMPUTE BASIN E-1.2 *****										
COMPUTE NM HYD	1_E.2	-	22	.00118	2.29	.079	1.26047	1.500	3.044	PER IMP= 42.00
*S ADD E_1.1 TO E_1.2 *****										
ADD HYD	E_1.2	21&22	71	.00731	12.21	.421	1.08022	1.500	2.611	
*S ADD 6_D.8 TO E_1.1_1.2 TO GET PROJECT SITE DISCHARGE TO AP_2 *****										
ADD HYD	AP2 ON	71&20	72	.01807	32.90	1.137	1.17950	1.500	2.845	
*S ADD 6_D.4 TO 6_D.7 TO GET PROJECT SITE DISCHARGE TO AP_1 *****										
ADD HYD	6D.4_7	2& 1	11	.02101	40.50	1.402	1.25107	1.500	3.012	
*S ADD 6_D.5 TO 6_D.6 (RETAINED ONSITE FOR 30.0% RETAINAGE) *****										
ADD HYD	6D.5_6	3& 4	12	.01396	18.68	.598	.80354	1.500	2.091	
*S *****										
*S *****										

FORM DRWS: DRAINAGE REPORT / WATER & SANITARY SEWER AVAILABILITY
THIS FORM IS REQUIRED WITH THE DEVELOPMENT REVIEW BOARD APPLICATION
FOR MAJOR SUBDIVISIONS AND SITE DEVELOPMENT PLANS.

PROJECT NAME: MONTECITO VISTAS

AGIS MAP # D-9

LEGAL DESCRIPTIONS: TRACTS 7-8, 9A-C, 10B-C, 24-25, 26A-B, & 27 VOLCANO
CLIFFS SUBDIVISION UNIT 6 AND TRACT 14 VOLCANO CLIFFS SUBDIVISION UNIT 9

___ DRAINAGE REPORT

A drainage report, as per the Drainage Ordinance, was submitted to the City of Albuquerque Public Works Department, Hydrology Division (2nd Floor Plaza del Sol) on _____ (date).

Applicant/Agent

Date

Hydrology Division Representative

Date

___ WATER AND SEWER AVAILABILITY STATEMENT

A Water and Sewer Availability Statement for this project was requested from the City of Albuquerque Utilities Development Division (2nd floor, Plaza del Sol) on _____ (date).

Applicant/Agent

Date

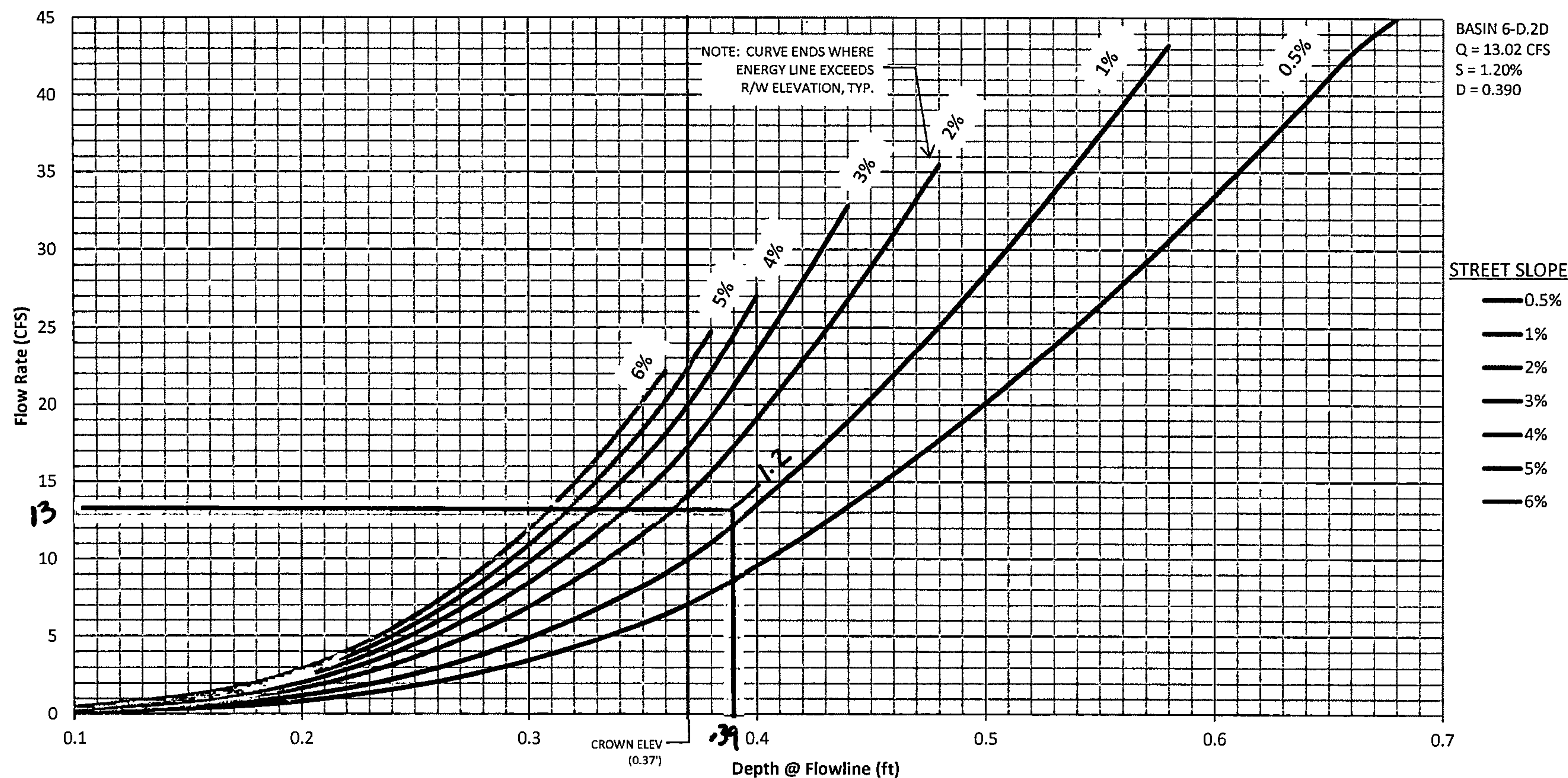
Utilities Division Representative

Date

PROJECT # _____

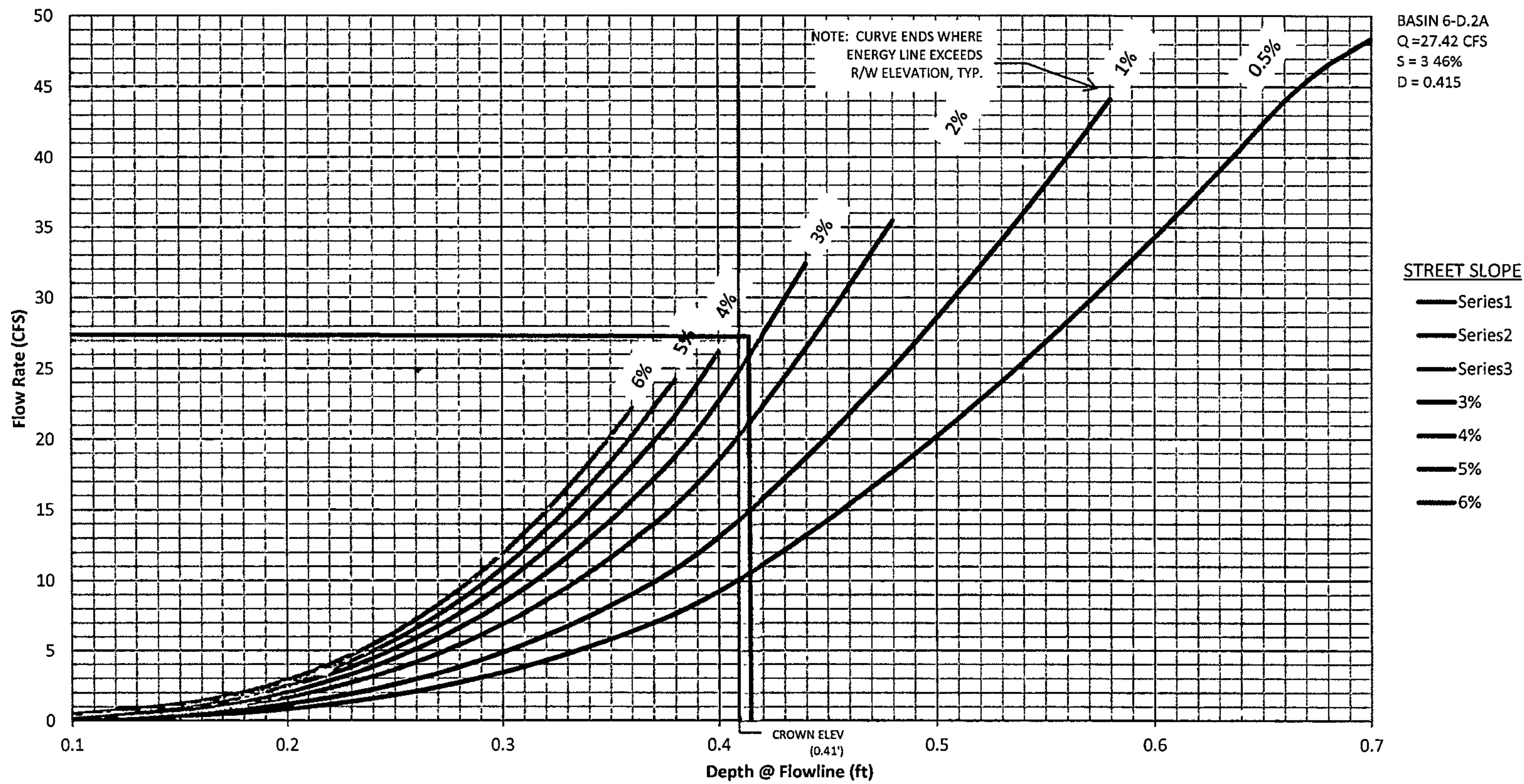
**APPENDIX C -
STREET HYDRAULICS AND STORM DRAIN INLET
ANALYSIS**

28' F-F Piedra Aspero Street Hydraulics (Full Street Section)

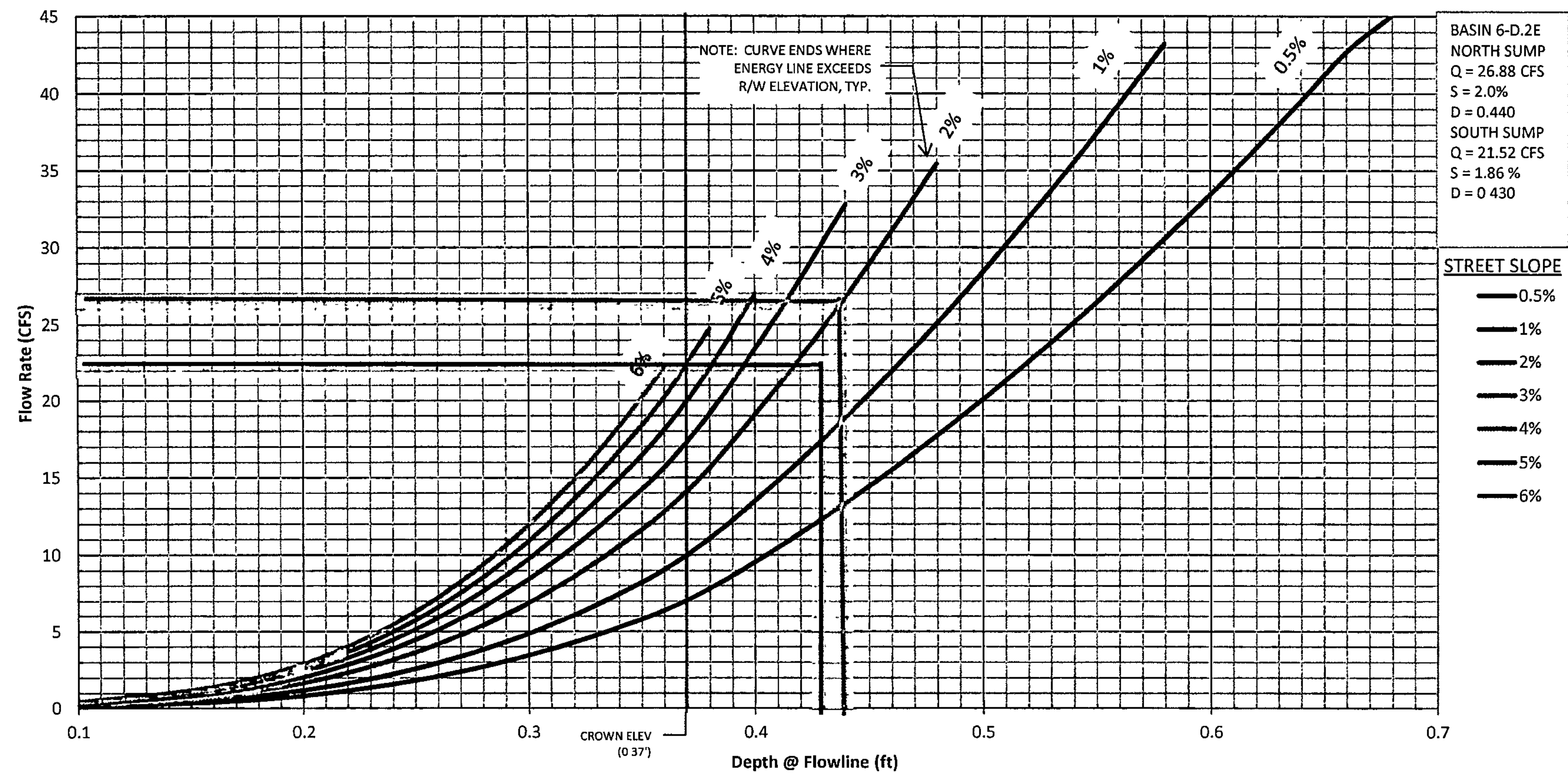


Not clear where 13 cfs
comes from, but max capacity
of ~ 38 cfs exceeds basin 6-D.2B
total outfall, so ok.

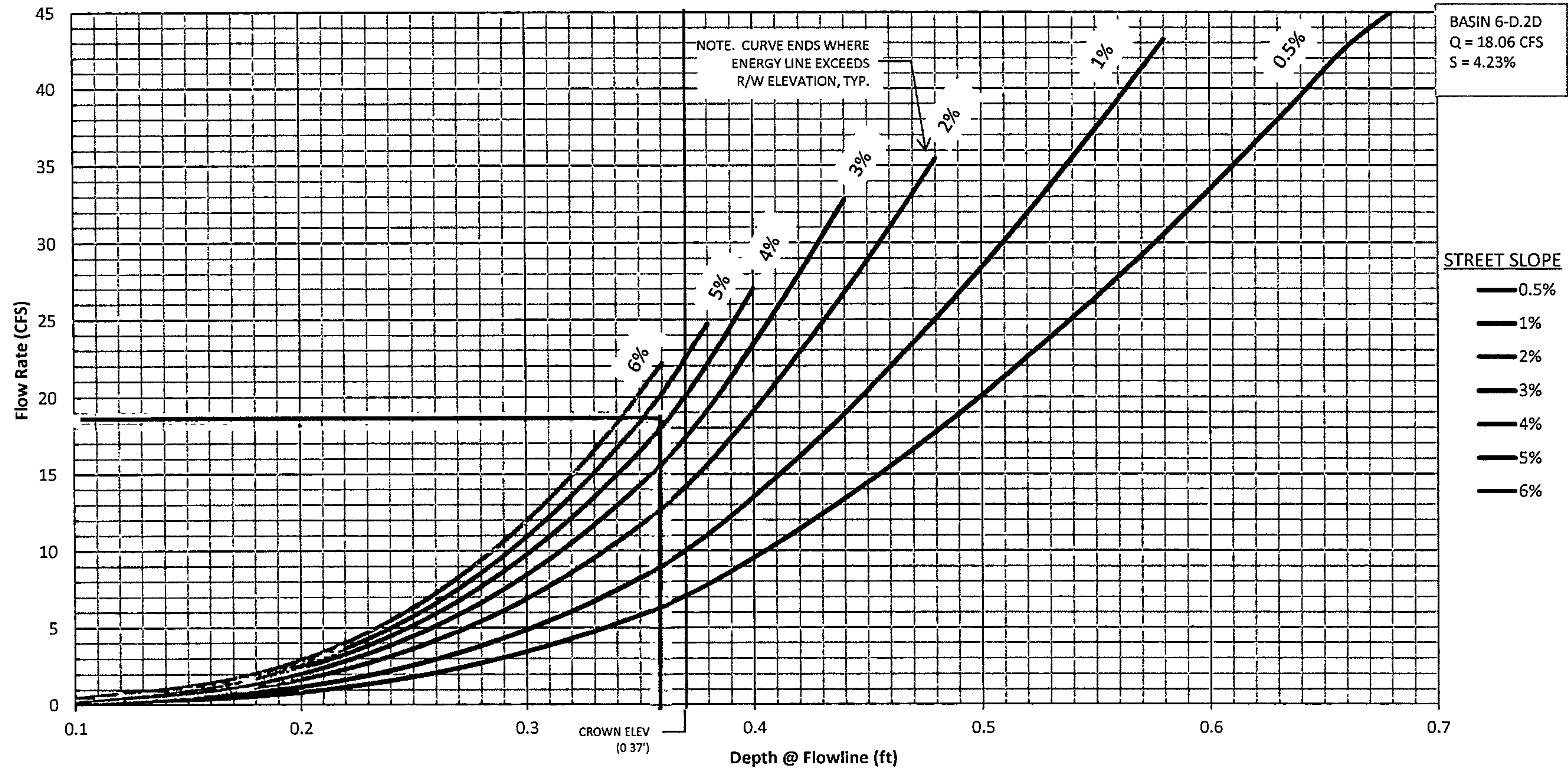
30' F-F Vista Bosquejo Road Hydraulics (Full Street Section)



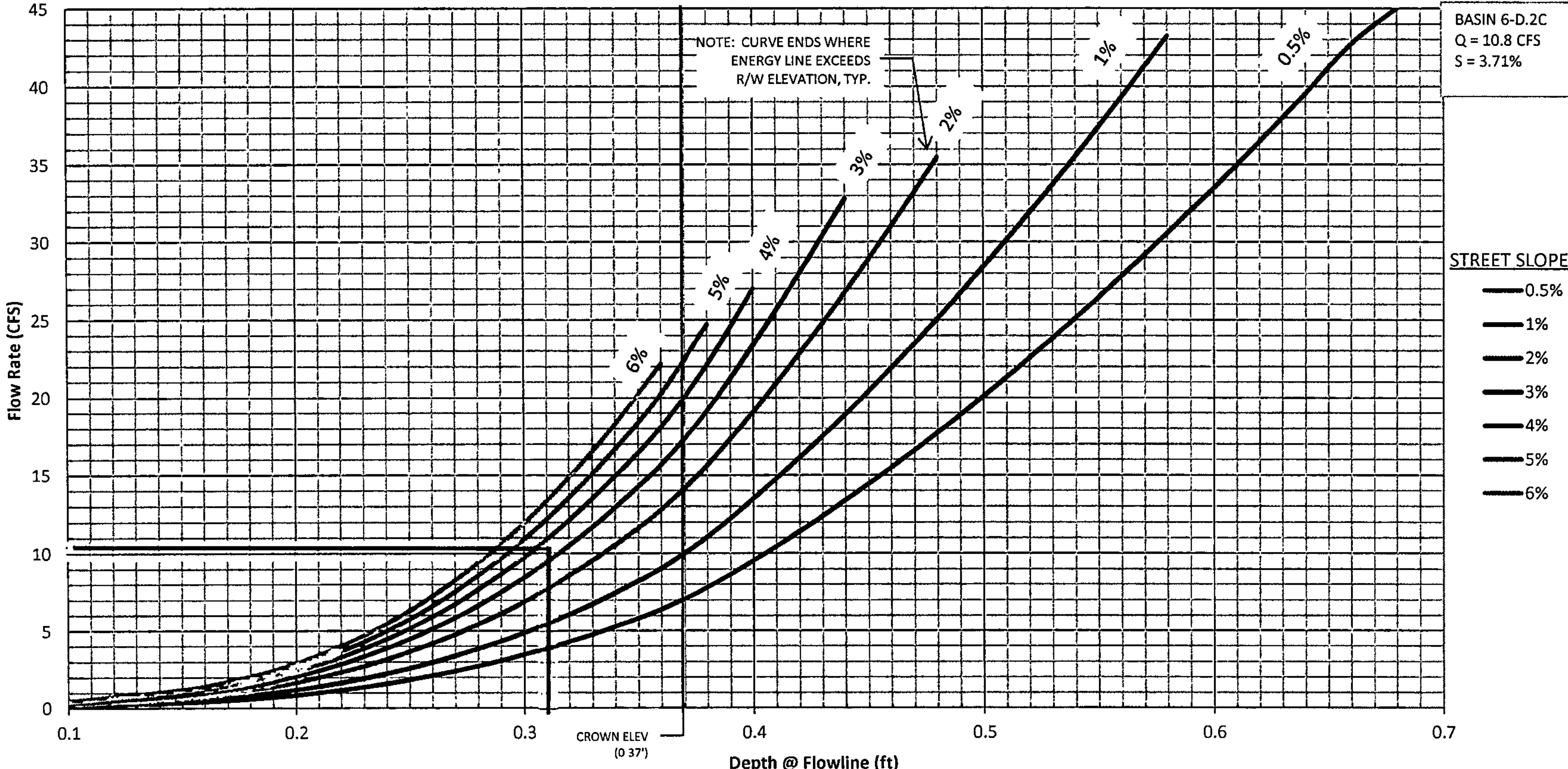
28' F-F Vista Luces Street Hydraulics (Full Street Section)



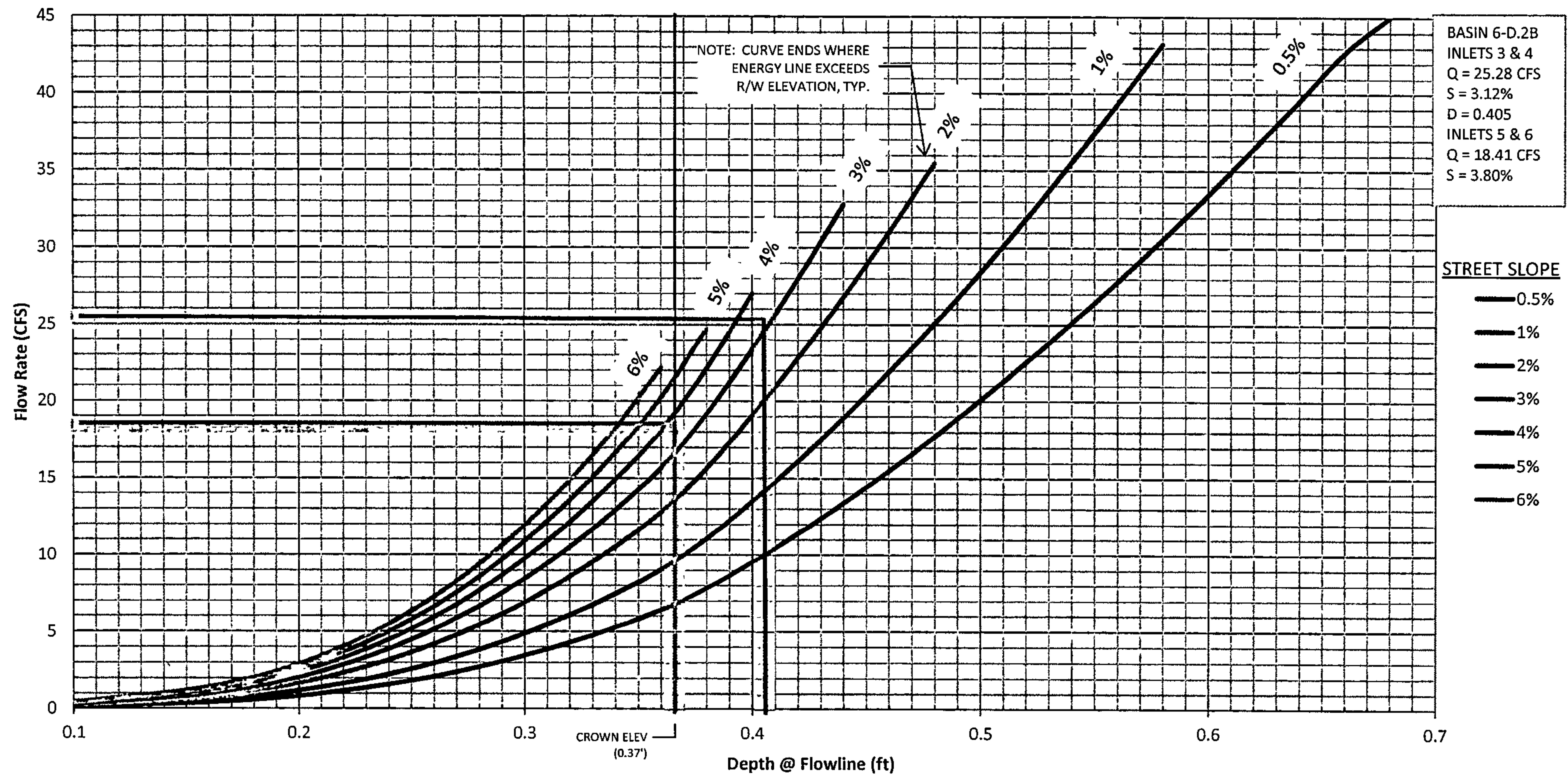
28' F-F Retablo Road Hydraulics (Full Street Section)



28' F-F Piedra Dibujo Road Hydraulics (Full Street Section)



28' F-F Vista Dibujo Road Hydraulics (Full Street Section)



C7_Street Capacities Stream Input_MW.txt
X,Y INPUT FILES FOR STREAM CALCULATOR - STREET CAPACITIES

NORMAL CROWN 28' F-F

0	0.86
9.33	0.67
9.5	0.0
11.5	0.13
23.5	0.37
35.5	0.13
37.5	0.0
37.67	0.67
47.0	0.86

NORMAL CROWN 30' F-F

0	0.88
10.33	0.67
10.5	0.0
12.5	0.13
25.5	0.39
38.5	0.13
40.5	0.0
40.67	0.67
51.0	0.88

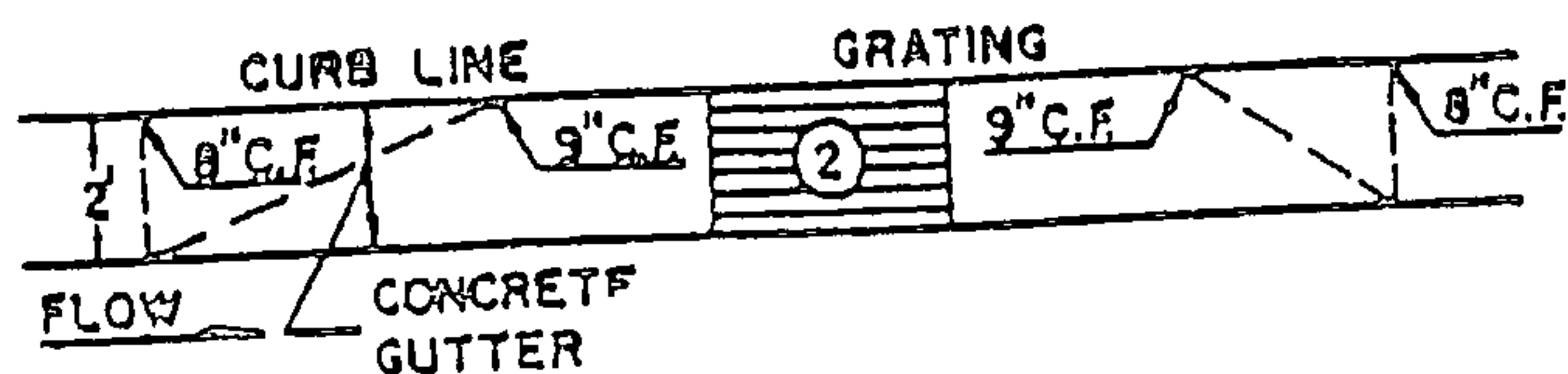
28' Street Depth VS Flowrate, n=0.017
(NORMAL CROWN)

Depth	S=0.5%		S=1.0%		S=2.0%		S=3.0%		S=4.0%		S=5.0%		S=6.0%	
	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E
0.02	0.002	0.021	0.002	0.022	0.003	0.025	0.004	0.027	0.005	0.03	0.005	0.032	0.006	0.034
0.04	0.011	0.043	0.016	0.046	0.022	0.052	0.027	0.058	0.031	0.064	0.035	0.07	0.038	0.076
0.06	0.032	0.065	0.046	0.07	0.065	0.081	0.08	0.091	0.092	0.101	0.103	0.112	0.113	0.122
0.08	0.07	0.088	0.099	0.095	0.14	0.11	0.171	0.126	0.198	0.141	0.221	0.156	0.242	0.171
0.1	0.127	0.11	0.179	0.12	0.254	0.141	0.311	0.161	0.359	0.182	0.401	0.202	0.439	0.223
0.12	0.206	0.133	0.292	0.146	0.413	0.172	0.505	0.198	0.583	0.224	0.652	0.25	0.715	0.277
0.14	0.289	0.153	0.408	0.167	0.578	0.194	0.707	0.221	0.817	0.248	0.913	0.275	1	0.302
0.16	0.403	0.174	0.57	0.187	0.807	0.214	0.988	0.242	1.141	0.269	1.275	0.296	1.397	0.323
0.18	0.582	0.195	0.823	0.21	1.164	0.24	1.426	0.27	1.646	0.3	1.84	0.33	2.016	0.36
0.2	0.832	0.217	1.176	0.234	1.663	0.268	2.037	0.302	2.352	0.336	2.63	0.37	2.881	0.404
0.22	1.161	0.239	1.642	0.259	2.322	0.298	2.843	0.337	3.283	0.376	3.671	0.415	4.021	0.454
0.24	1.578	0.262	2.232	0.284	3.156	0.329	3.866	0.373	4.464	0.418	4.99	0.462	5.467	0.507
0.26	2.092	0.285	2.959	0.31	4.184	0.361	5.125	0.411	5.918	0.462	6.616	0.512	7.248	0.563
0.28	2.711	0.308	3.835	0.337	5.423	0.394	6.642	0.451	7.669	0.508	8.574	0.564	9.393	0.621
0.3	3.444	0.332	4.87	0.364	6.888	0.427	8.436	0.491	9.741	0.555	10.891	0.618	11.93	0.682
0.32	4.298	0.355	6.078	0.391	8.595	0.461	10.527	0.532	12.155	0.603	13.59	0.673	14.887	0.744
0.34	5.28	0.379	7.467	0.418	10.56	0.496	12.933	0.574	14.934	0.652	16.696	0.73	18.29	0.808
0.36	6.398	0.403	9.049	0.446	12.797	0.531	15.673	0.617	18.097	0.702	20.233	0.788	22.164	0.873
0.38	7.822	0.429	11.062	0.478	15.644	0.575	19.159	0.673	22.123	0.77	24.735	0.868	27.096	0.965
0.4	9.547	0.457	13.502	0.514	19.094	0.629	23.386	0.743	27.003	0.857	30.191	0.972	33.072	1.086
0.42	11.406	0.486	16.13	0.552	22.812	0.683	27.939	0.815	32.261	0.947	36.069	1.078	39.511	1.21
0.44	13.393	0.515	18.94	0.59	26.786	0.739	32.806	0.889	37.881	1.038	42.352	1.188	46.395	1.337
0.46	15.504	0.544	21.926	0.628	31.008	0.796	37.977	0.964	43.852	1.132	49.028	1.299	53.707	1.467
0.48	17.735	0.573	25.081	0.667	35.47	0.853	43.442	1.04	50.162	1.227	56.083	1.414	61.436	1.6
0.5	20.082	0.603	28.401	0.706	40.165	0.912	49.192	1.118	56.802	1.324	63.506	1.53	69.568	1.736
0.52	22.543	0.633	31.881	0.746	45.087	0.971	55.22	1.197	63.762	1.423	71.288	1.649	78.093	1.874
0.54	25.115	0.663	35.518	0.786	50.229	1.032	61.518	1.277	71.035	1.523	79.42	1.769	87	2.015
0.56	27.794	0.693	39.307	0.826	55.588	1.093	68.081	1.359	78.613	1.625	87.892	1.891	96.281	2.158
0.58	30.578	0.724	43.244	0.867	61.157	1.154	74.902	1.441	86.489	1.728	96.698	2.016	105.927	2.303
0.6	33.466	0.754	47.328	0.908	66.932	1.217	81.975	1.525	94.656	1.833	105.829	2.141	115.93	2.45
0.62	36.455	0.785	51.555	0.95	72.91	1.279	89.296	1.609	103.11	1.939	115.28	2.269	126.283	2.598
0.64	39.542	0.816	55.921	0.991	79.085	1.343	96.859	1.694	111.843	2.046	125.044	2.397	136.979	2.749
0.66	42.727	0.847	60.425	1.034	85.454	1.407	104.66	1.781	120.851	2.154	135.115	2.528	148.012	2.901
0.68	45.06	0.87	63.724	1.059	90.12	1.439	110.373	1.818	127.448	2.198	142.491	2.577	156.092	2.957
0.7	46.652	0.886	65.976	1.071	93.304	1.442	114.274	1.813	131.952	2.184	147.527	2.555	161.608	2.926
0.72	48.482	0.903	68.564	1.085	96.964	1.45	118.756	1.815	137.127	2.18	153.313	2.545	167.946	2.91
0.74	50.542	0.92	71.477	1.101	101.083	1.462	123.801	1.823	142.953	2.184	159.827	2.545	175.081	2.905
0.76	52.827	0.939	74.709	1.118	105.654	1.477	129.4	1.835	149.418	2.194	167.054	2.552	182.999	2.911
0.78	55.336	0.959	78.257	1.137	110.672	1.495	135.544	1.852	156.513	2.21	174.987	2.567	191.689	2.924
0.8	58.066	0.979	82.118	1.158	116.133	1.515	142.233	1.873	164.237	2.23	183.622	2.588	201.148	2.945
0.82	61.019	0.999	86.294	1.179	122.039	1.537	149.466	1.896	172.589	2.255	192.96	2.613	211.377	2.972
0.84	64.195	1.02	90.786	1.201	128.391	1.562	157.246	1.922	181.572	2.283	203.004	2.644	222.379	3.005

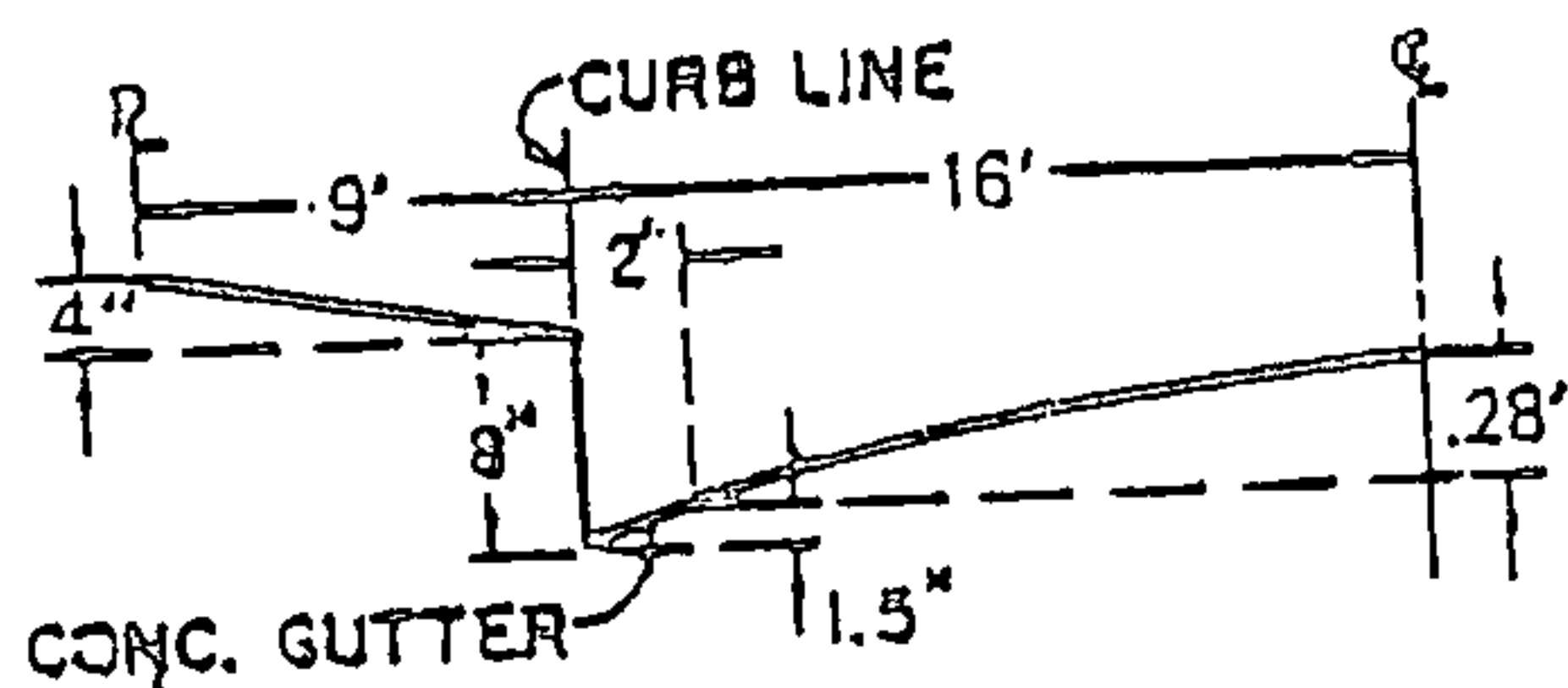
(NORMAL CROWN)

	S=0.5%		S=1.0%		S=2.0%		S=3.0%		S=4.0%		S=5.0%		S=6.0%	
Depth	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E	Q	E
0.02	0.002	0.021	0.002	0.022	0.003	0.025	0.004	0.027	0.005	0.03	0.005	0.032	0.006	0.034
0.04	0.011	0.043	0.016	0.046	0.022	0.052	0.027	0.058	0.031	0.064	0.035	0.07	0.038	0.076
0.06	0.032	0.065	0.046	0.07	0.065	0.081	0.08	0.091	0.092	0.101	0.103	0.112	0.113	0.122
0.08	0.07	0.088	0.099	0.095	0.14	0.11	0.171	0.126	0.198	0.141	0.221	0.156	0.242	0.171
0.1	0.127	0.11	0.179	0.12	0.254	0.141	0.311	0.161	0.359	0.182	0.401	0.202	0.439	0.223
0.12	0.206	0.133	0.292	0.146	0.413	0.172	0.505	0.198	0.583	0.224	0.652	0.25	0.715	0.277
0.14	0.289	0.153	0.408	0.167	0.578	0.194	0.707	0.221	0.817	0.248	0.913	0.275	1	0.302
0.16	0.403	0.174	0.57	0.187	0.807	0.214	0.988	0.242	1.141	0.269	1.275	0.296	1.397	0.323
0.18	0.582	0.195	0.823	0.21	1.164	0.24	1.426	0.27	1.646	0.3	1.84	0.33	2.016	0.36
0.2	0.832	0.217	1.176	0.234	1.663	0.268	2.037	0.302	2.352	0.336	2.63	0.37	2.881	0.404
0.22	1.161	0.239	1.642	0.259	2.322	0.298	2.843	0.337	3.283	0.376	3.671	0.415	4.021	0.454
0.24	1.578	0.262	2.232	0.284	3.156	0.329	3.866	0.373	4.464	0.418	4.99	0.462	5.467	0.507
0.26	2.092	0.285	2.959	0.31	4.184	0.361	5.125	0.411	5.918	0.462	6.616	0.512	7.248	0.563
0.28	2.711	0.308	3.835	0.337	5.423	0.394	6.642	0.451	7.669	0.508	8.574	0.564	9.393	0.621
0.3	3.444	0.332	4.87	0.364	6.888	0.427	8.436	0.491	9.741	0.555	10.891	0.618	11.93	0.682
0.32	4.298	0.355	6.078	0.391	8.595	0.461	10.527	0.532	12.155	0.603	13.59	0.673	14.887	0.744
0.34	5.28	0.379	7.467	0.418	10.56	0.496	12.933	0.574	14.934	0.652	16.696	0.73	18.29	0.808
0.36	6.398	0.403	9.049	0.446	12.797	0.531	15.673	0.617	18.097	0.702	20.233	0.788	22.164	0.873
0.38	7.66	0.427	10.833	0.473	15.32	0.567	18.764	0.66	21.666	0.753	24.224	0.847		
0.4	9.252	0.453	13.085	0.506	18.504	0.611	22.663	0.717	26.169	0.823				
0.42	11.171	0.481	15.799	0.543	22.343	0.665	27.364	0.788						
0.44	13.231	0.51	18.711	0.58	26.462	0.721	32.409	0.861						
0.46	15.426	0.539	21.816	0.619	30.852	0.777								
0.48	17.752	0.569	25.105	0.657	35.504	0.834								
0.5	20.205	0.598	28.574	0.696	40.41	0.893								
0.52	22.782	0.628	32.218	0.736										
0.54	25.478	0.658	36.032	0.776										
0.56	28.292	0.688	40.011	0.816										
0.58	31.221	0.718	44.153	0.857										
0.6	34.262	0.749												
0.62	37.412	0.78												
0.64	40.67	0.81												
0.66	44.033	0.841												
0.68	46.581	0.865												
0.7	48.412	0.882												

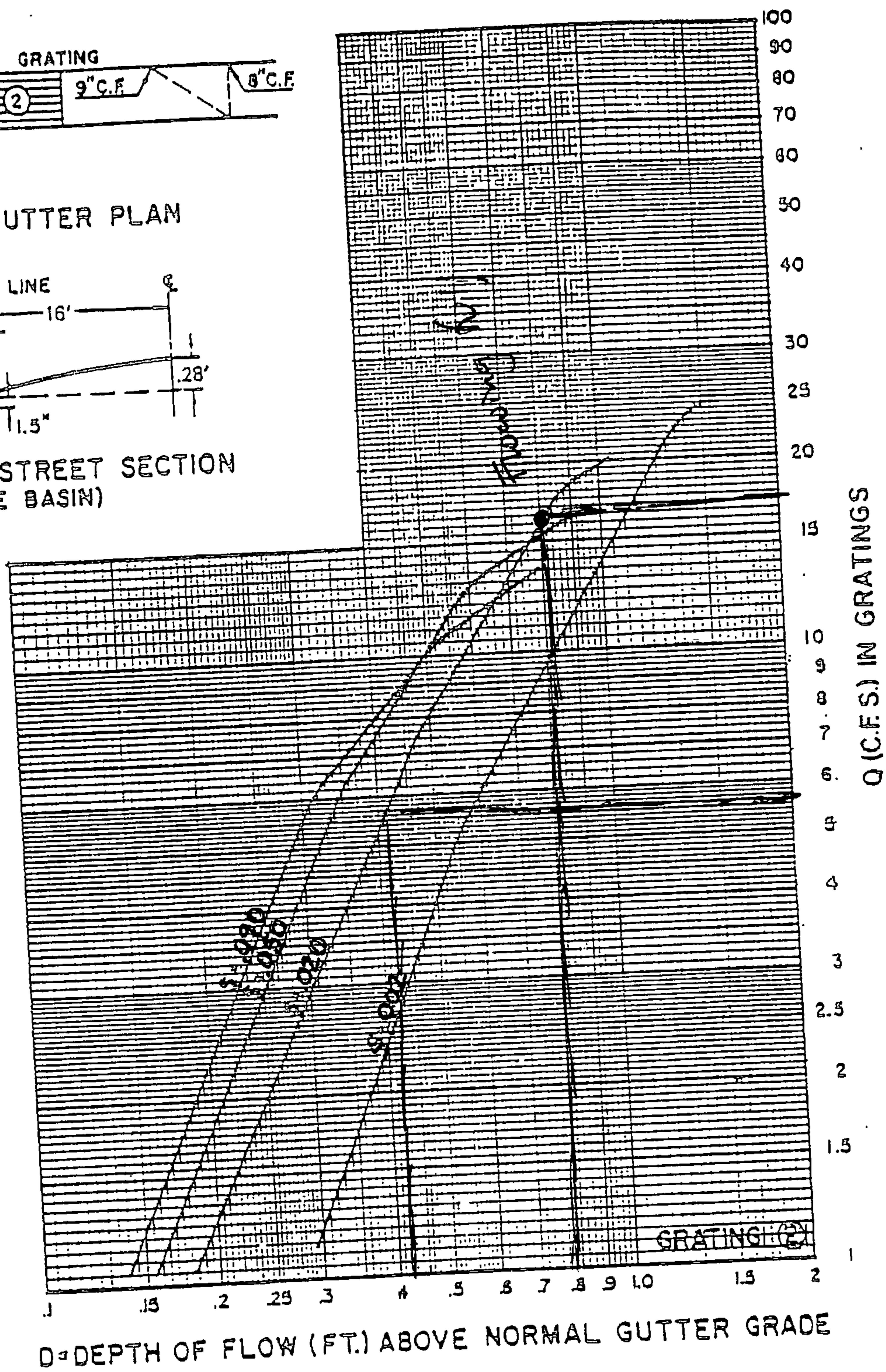
GRATING CAPACITIES FOR TYPE "A", "C" and "D"

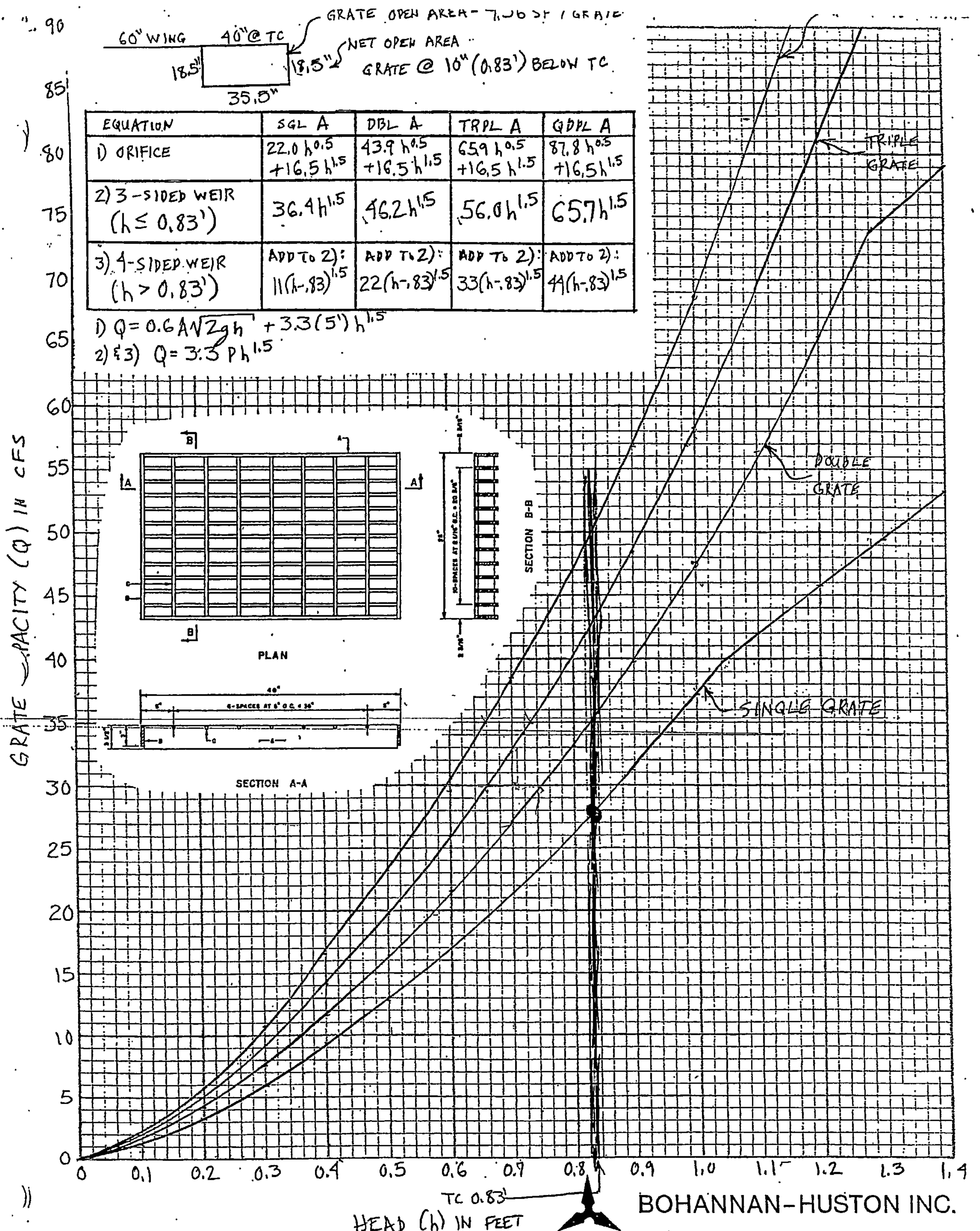


GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)





BOHANNAN-HUSTON INC.

PROJECT NAME _____ SHEET _____ OF _____
 PROJECT NO. _____ BY JPK DATE 4/9/92
 SUBJECT GRATING CURVES FOR TYPES A AND B _____

Design Log

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InRoads Storm & Sanitary Design Log

Drainage File: P:\20160398\CDP\Control\Data\20160398_SD.sdb

Design File: P:\20160398\CDP\DESIGN\WORKAREA\ACAD-20160398_UTIL.DWG

Display Log: P:\20160398\CDP\DESIGN\WORKAREA\design.log

Date: Wednesday, May 18, 2016 12:14:31 PM

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HGL/EGL Computations:

Table A:

Struct_ID	D (in)	Q (cfs)	L (ft)	V (ft/s)	d (ft)	dc (ft)	V ² /2g (ft)	Sf (ft/ft)	Dn (ft)	Soffit (ft)	EGLdn (ft)	HGLdn (ft)	Tot_Loss (ft)	EGLup (ft)	HGLup (ft)	Rim Elev. (ft)
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5427.96	-
SDP1	60	108.00	72.51	6.73	3.81	2.96	0.70	0.0020	5428.96	5428.66	5427.96	5428.81	0.15	5428.81	5428.11	-
SDMH1	-	-	-	-	-	-	-	-	-	-	5428.81	5428.11	0.44	5429.25	5428.55	5434.15
SDP2	60	108.00	174.49	5.50	-	-	0.47	0.0017	5429.20	5429.25	5428.55	5429.55	0.30	5429.55	5429.08	-
SDMH2	-	-	-	-	-	-	-	-	-	-	5429.55	5429.08	0.27	5429.82	5429.35	5440.01
SDP3	54	96.40	263.48	6.06	-	-	0.57	0.0024	5429.16	5429.82	5429.35	5430.46	0.63	5430.46	5429.88	-
SDMH3	-	-	-	-	-	-	-	-	-	-	5430.46	5429.88	0.05	5430.50	5429.93	5434.76
SDP4	48	88.40	157.44	7.03	-	-	0.77	0.0038	5429.29	5430.50	5429.93	5431.10	0.60	5431.10	5430.33	-
SDMH4	-	-	-	-	-	-	-	-	-	-	5431.10	5430.33	0.09	5431.19	5430.42	5432.20
SDP5	36	61.60	76.79	8.71	-	-	1.18	0.0085	5428.70	5431.19	5430.42	5431.84	0.66	5431.84	5430.66	-
SDMH5	-	-	-	-	-	-	-	-	-	-	5431.84	5430.66	0.24	5432.08	5430.90	5433.31
SDP6	36	35.60	229.28	5.04	-	-	0.39	0.0028	5428.95	5432.08	5430.90	5432.73	0.65	5432.73	5432.34	-
SDMH6	-	-	-	-	-	-	-	-	-	-	5432.73	5432.34	0.10	5432.83	5432.44	5433.34
SDP7	24	14.00	156.62	4.46	-	-	0.31	0.0038	5428.51	5432.83	5432.44	5433.43	0.60	5433.43	5433.13	-
SDMH7	-	-	-	-	-	-	-	-	-	-	5433.43	5433.13	0.33	5433.76	5433.46	5435.00
SDP8	24	14.00	82.16	4.46	-	-	0.31	0.0038	5431.80	5433.76	5433.46	5434.08	0.31	5434.08	5433.77	-
SDMH8	-	-	-	-	-	-	-	-	-	-	5434.08	5433.77	0.09	5434.17	5433.86	5437.13
SDP11	24	14.00	179.75	12.22	-	-	2.32	0.0038	5434.10	5434.17	5433.86	5441.53	-	5441.53	5439.22	-
SDMH9	-	-	-	-	-	-	-	-	-	-	5441.53	5439.22	-	5441.53	5439.22	5443.43
SDP26	18	7.00	26.33	11.15	0.58	1.02	1.93	-	5440.03	5441.15	5439.22	5442.05	-	5442.05	5440.12	-
IN5	-	-	-	-	-	-	-	-	-	-	5442.05	5440.12	-	5442.05	5440.12	5443.37
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	5429.55	5429.08	-
SDMH2	-	-	-	-	-	-	-	-	-	-	5429.55	5429.08	0.09	5429.64	5429.17	5440.01
SDP16	24	11.60	93.40	18.42	-	-	5.27	0.0026	5428.66	5429.64	5429.17	5443.78	-	5443.78	5438.51	-
SDMH10	-	-	-	-	-	-	-	-	-	-	5443.78	5438.51	-	5443.78	5438.51	5443.18
SDP17	18	5.80	36.68	12.73	0.46	0.92	2.52	-	5439.60	5441.08	5438.56	5443.68	-	5443.68	5441.16	-
IN7	-	-	-	-	-	-	-	-	-	-	5443.68	5441.16	-	5443.68	5441.16	5444.53
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	5430.46	5429.88	-
SDMH3	-	-	-	-	-	-	-	-	-	-	5430.46	5429.88	0.03	5430.48	5429.91	5434.76
SDP10	24	8.00	151.81	2.55	-	-	0.10	0.0013	5427.28	5430.48	5429.91	5430.67	0.19	5430.67	5430.57	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	5431.10	5430.33	-
SDMH4	-	-	-	-	-	-	-	-	-	-	5431.10	5430.33	0.07	5431.17	5430.40	5432.20
SDP13	24	13.40	4.55	4.27	-	-	0.28	0.0035	5429.60	5431.17	5430.40	5431.19	0.02	5431.19	5430.90	-
IN1	-	-	-	-	-	-	-	-	-	-	5431.19	5430.90	-	5431.19	5430.90	5432.04

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New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5431.10	5430.33	-
SDMH4	-	-	-	-	-	-	-	-	-	-	-	-	5431.10	5430.33	0.07
SDP12	24	13.40	20.02	4.27	-	-	0.28	0.0035	5429.60	5431.17	5430.40	0.07	5431.24	5430.96	-
IN2	-	-	-	-	-	-	-	-	-	-	-	-	5431.24	5430.96	5432.04
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5431.84	5430.66	-
SDMH5	-	-	-	-	-	-	-	-	-	-	-	-	5431.84	5430.66	0.41
SDP19	24	26.00	36.00	8.28	-	-	1.06	0.0132	5427.95	5432.25	5431.07	0.48	5432.73	5431.66	-
SDMH11	-	-	-	-	-	-	-	-	-	-	-	0.44	5433.16	5432.10	5434.01
SDP20	24	13.00	77.11	4.14	-	-	0.27	0.0033	5429.90	5433.16	5432.10	0.25	5433.42	5433.15	-
SDMH12	-	-	-	-	-	-	-	-	-	-	-	0.05	5433.47	5433.20	5436.88
SDP21	24	13.00	156.97	12.42	-	-	2.40	0.0033	5432.90	5433.47	5433.20	-	5440.13	5437.73	-
SDMH13	-	-	-	-	-	-	-	-	-	-	-	-	5440.13	5437.73	5443.05
SDP22	18	6.50	31.49	12.96	0.49	0.98	2.61	-	5439.17	5440.77	5438.16	-	5442.90	5440.29	-
IN11	-	-	-	-	-	-	-	-	-	-	-	-	5442.90	5440.29	5443.68
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5432.34	-
SDMH6	-	-	-	-	-	-	-	-	-	-	-	0.11	5432.84	5432.45	5433.34
SDP14	24	10.80	20.44	3.44	-	-	0.18	0.0023	5429.66	5432.84	5432.45	0.05	5432.89	5432.71	-
IN4	-	-	-	-	-	-	-	-	-	-	-	-	5432.89	5432.71	5433.18
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5432.34	-
SDMH6	-	-	-	-	-	-	-	-	-	-	-	0.11	5432.84	5432.45	5433.34
SDP15	24	10.80	6.54	3.44	-	-	0.18	0.0023	5429.66	5432.84	5432.45	0.01	5432.86	5432.67	-
IN3	-	-	-	-	-	-	-	-	-	-	-	-	5432.86	5432.67	5433.18
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5441.53	5439.22	-
SDMH9	-	-	-	-	-	-	-	-	-	-	-	-	5441.53	5439.22	5443.43
SDP27	18	7.00	5.56	22.43	0.35	1.02	7.82	-	5440.03	5447.03	5439.22	-	5447.75	5439.93	-
IN6	-	-	-	-	-	-	-	-	-	-	-	-	5447.75	5439.93	5443.41
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5443.78	5438.51	-
SDMH10	-	-	-	-	-	-	-	-	-	-	-	-	5443.78	5438.51	5443.18
SDP18	18	5.80	5.27	23.39	0.30	0.92	8.50	-	5439.60	5447.01	5438.51	-	5448.10	5439.60	-
IN8	-	-	-	-	-	-	-	-	-	-	-	-	5448.10	5439.60	5443.17
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5431.66	-
SDMH11	-	-	-	-	-	-	-	-	-	-	-	0.24	5432.97	5431.90	5434.01
SDP24	18	6.50	20.11	3.68	-	-	0.21	0.0038	5429.40	5432.97	5431.90	0.08	5433.04	5432.83	-
IN9	-	-	-	-	-	-	-	-	-	-	-	-	5433.04	5432.83	5433.59
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5432.73	5431.66	-
SDMH11	-	-	-	-	-	-	-	-	-	-	-	0.24	5432.97	5431.90	5434.01
SDP25	18	6.50	5.84	3.68	-	-	0.21	0.0038	5429.40	5432.97	5431.90	0.02	5432.99	5432.78	-
IN10	-	-	-	-	-	-	-	-	-	-	-	-	5432.99	5432.78	5433.93
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	5440.13	5437.73	-
SDMH13	-	-	-	-	-	-	-	-	-	-	-	-	5440.13	5437.73	5443.05
SDP23	18	6.50	5.52	32.26	0.26	0.98	16.18	-	5438.60	5453.91	5437.73	-	5455.43	5439.26	-
IN12	-	-	-	-	-	-	-	-	-	-	-	-	5455.43	5439.26	5442.93

Table B:

LOSSES	Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	- LOSS_COEFFICIENTS	Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	SDP1	0.15	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-	-

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SDMH1	-	-	0.44	-	-	-	0.44	4.01	1.432	1.000	0.438	1.000	1.000	1.000	0.627
SDP2	0.30	-	-	-	-	-	0.30	-	-	-	-	-	-	-	-
SDMH2	-	-	0.27	-	-	-	0.27	4.52	1.502	1.000	0.471	0.812	1.000	1.000	0.575
SDP3	0.63	-	-	-	-	-	0.63	-	-	-	-	-	-	-	-
SDMH3	-	-	0.05	-	-	-	0.05	4.70	0.133	1.000	0.513	1.155	1.000	1.000	0.079
SDP4	0.60	-	-	-	-	-	0.60	-	-	-	-	-	-	-	-
SDMH4	-	-	0.09	-	-	-	0.09	4.73	0.150	1.000	0.553	1.408	1.000	1.000	0.117
SDP5	0.66	-	-	-	-	-	0.66	-	-	-	-	-	-	-	-
SDMH5	-	-	0.24	-	-	-	0.24	4.81	0.200	1.000	0.664	1.523	1.000	1.000	0.202
SDP6	0.65	-	-	-	-	-	0.65	-	-	-	-	-	-	-	-
SDMH6	-	-	0.10	-	-	-	0.10	5.93	0.200	1.000	0.752	1.687	1.000	1.000	0.254
SDP7	0.60	-	-	-	-	-	0.60	-	-	-	-	-	-	-	-
SDMH7	-	-	0.33	-	-	-	0.33	3.43	1.553	1.000	0.690	1.000	1.000	1.000	1.073
SDP8	0.31	-	-	-	-	-	0.31	-	-	-	-	-	-	-	-
SDMH8	-	-	0.09	-	-	-	0.09	1.77	0.615	1.000	0.465	1.000	1.000	1.000	0.286
SDP11	0.69	0.01	-	-	-	-	0.70	-	-	-	-	-	-	-	-
SDMH9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IN5	-	-	-	-	-	-	-	0.58	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH2	-	-	0.09	-	-	-	0.09	4.52	0.227	1.000	0.471	1.827	1.000	1.000	0.195
SDP16	0.25	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-
SDMH10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IN7	-	-	-	-	-	-	-	0.46	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH3	-	-	0.03	-	-	-	0.03	4.70	1.462	1.000	0.513	0.063	1.000	1.000	0.047
SDP10	0.19	-	-	-	-	-	0.19	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH4	-	-	0.07	-	-	-	0.07	4.73	1.487	1.000	0.553	0.116	1.000	1.000	0.096
SDP13	0.02	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-
IN1	-	-	-	-	-	-	-	2.86	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH4	-	-	0.07	-	-	-	0.07	4.73	1.488	1.000	0.553	0.116	1.000	1.000	0.095
SDP12	0.07	-	-	-	-	-	0.07	-	-	-	-	-	-	-	-
IN2	-	-	-	-	-	-	-	2.92	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH5	-	-	0.41	-	-	-	0.41	4.81	1.553	1.000	0.664	0.337	1.000	1.000	0.348
SDP19	0.48	-	-	-	-	-	0.48	-	-	-	-	-	-	-	-
SDMH11	-	-	0.44	-	-	-	0.44	3.86	0.388	1.000	0.742	1.430	1.000	1.000	0.411
SDP20	0.25	-	-	-	-	-	0.25	-	-	-	-	-	-	-	-
SDMH12	-	-	0.05	-	-	-	0.05	2.35	0.311	1.000	0.551	1.000	1.000	1.000	0.171
SDP21	0.52	-	-	-	-	-	0.52	-	-	-	-	-	-	-	-
SDMH13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
IN11	-	-	-	-	-	-	-	0.49	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH6	-	-	0.11	-	-	-	0.11	5.93	1.553	1.000	0.752	0.237	1.000	1.000	0.278
SDP14	0.05	-	-	-	-	-	0.05	-	-	-	-	-	-	-	-
IN4	-	-	-	-	-	-	-	3.53	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH6	-	-	0.11	-	-	-	0.11	5.93	1.553	1.000	0.752	0.237	1.000	1.000	0.278
SDP15	0.01	-	-	-	-	-	0.01	-	-	-	-	-	-	-	-
IN3	-	-	-	-	-	-	-	3.49	-	-	-	-	-	-	-

20160398_SD_HGL.txt

New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP27	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-	-	-
IN6	-	-	-	-	-	-	-	0.35	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP18	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-	-	-
IN8	-	-	-	-	-	-	-	0.30	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH11	-	-	0.24	-	-	-	0.24	3.86	1.553	1.000	0.742	0.194	1.000	1.000	0.224	-	-
SDP24	0.08	-	-	-	-	-	0.08	-	-	-	-	-	-	-	-	-	-
IN9	-	-	-	-	-	-	-	3.23	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH11	-	-	0.24	-	-	-	0.24	3.86	1.553	1.000	0.742	0.194	1.000	1.000	0.224	-	-
SDP25	0.02	-	-	-	-	-	0.02	-	-	-	-	-	-	-	-	-	-
IN10	-	-	-	-	-	-	-	2.78	-	-	-	-	-	-	-	-	-
New Branch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDMH13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP23	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-	-	-
IN12	-	-	-	-	-	-	-	0.26	-	-	-	-	-	-	-	-	-

**APPENDIX D -
OPEN CHANNEL OUTFALL ALTERNATIVE
SECTIONS**



MAY 2016
 PROPOSED
 STORM DRAIN OUTFALL DESIGN
 MONTECITO WEST UNITS 3-6

Montecito Outfall Channel Freeboard Calculations

Reference: "City of Albuquerque, DPM" Ch. 22 Section 3.C.4

Required Freeboard for Rectangular Channels: 2 ft

Freeboard for flow rates less than 100 cfs and average flow velocity of less than 35 fps:

$$\text{Freeboard}(ft) = 1.0 + .025Vd^{1/3}$$

Channel Shape	Bottom Width	Side Slopes	Channel Slope	n-value	Q Total	Water Depth (1)	Velocity (1)	Required Freeboard	Total Required Depth (2)
	(ft)	(ft/ft)			(cfs)	(ft)	(ft/s)	(ft)	(ft)
Rectangular	15	0	0.65%	0.045	111	2.04	3.63	2.00	4.04
Trapezoidal	15	1	0.65%	0.045	111	1.86	3.54	1.05	3.00

Notes:

1. Input values above were calculated in hydraflow, see link below to see the output files.

<\\a-abq-fs2\projects\20160398\WR\Calculations\Programs\Hydraflow>

2. Total Required Depth = Water Depth + Required Freeboard

Channel Report

<Name>

Rectangular

Bottom Width (ft) = 15.00
Total Depth (ft) = 4.00

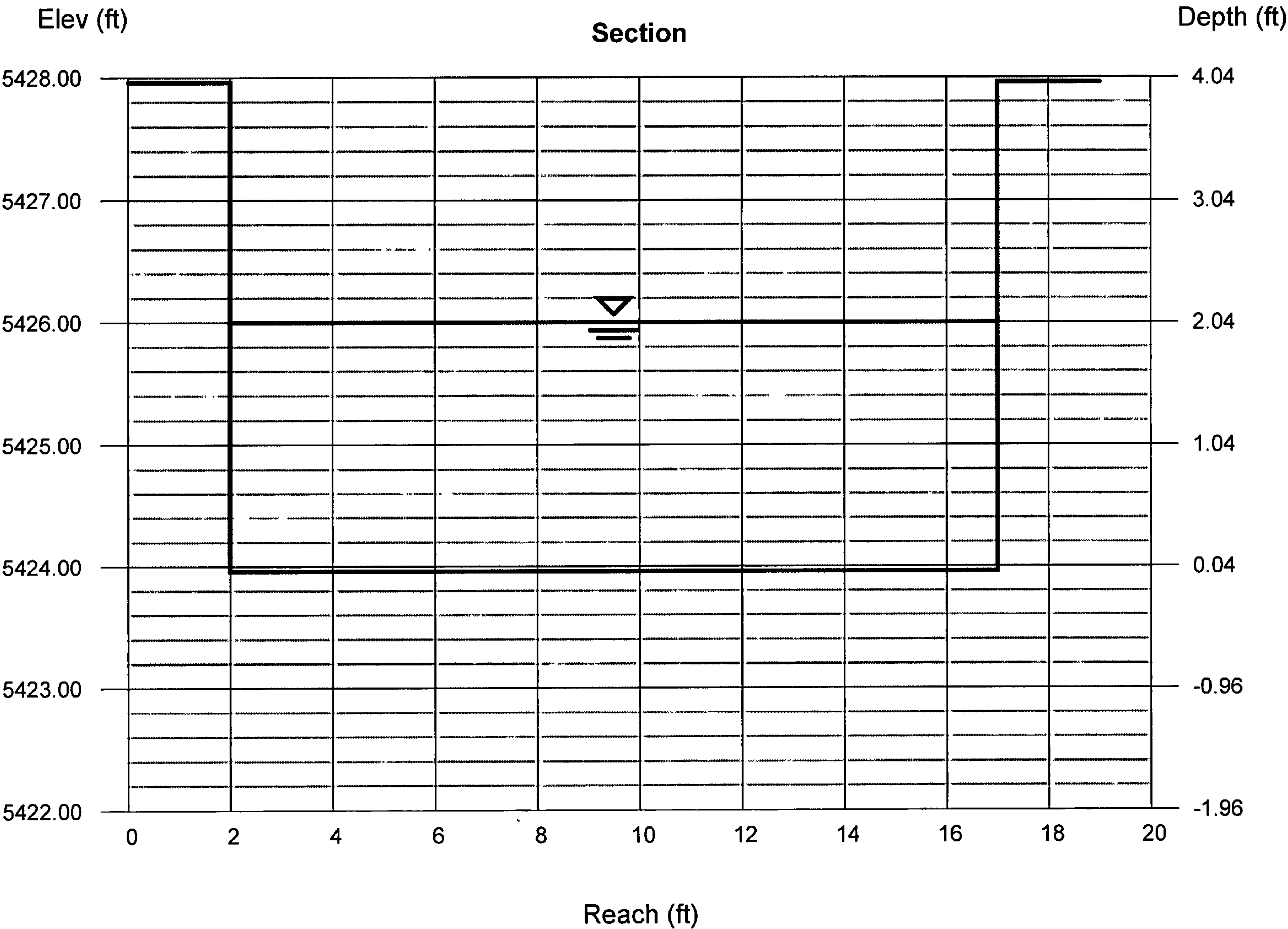
Invert Elev (ft) = 5423.96
Slope (%) = 0.65
N-Value = 0.045

Calculations

Compute by: Known Q
Known Q (cfs) = 111.00

Highlighted

Depth (ft) = 2.04
Q (cfs) = 111.00
Area (sqft) = 30.60
Velocity (ft/s) = 3.63
Wetted Perim (ft) = 19.08
Crit Depth, Yc (ft) = 1.20
Top Width (ft) = 15.00
EGL (ft) = 2.24



Channel Report

<Name>

Trapezoidal

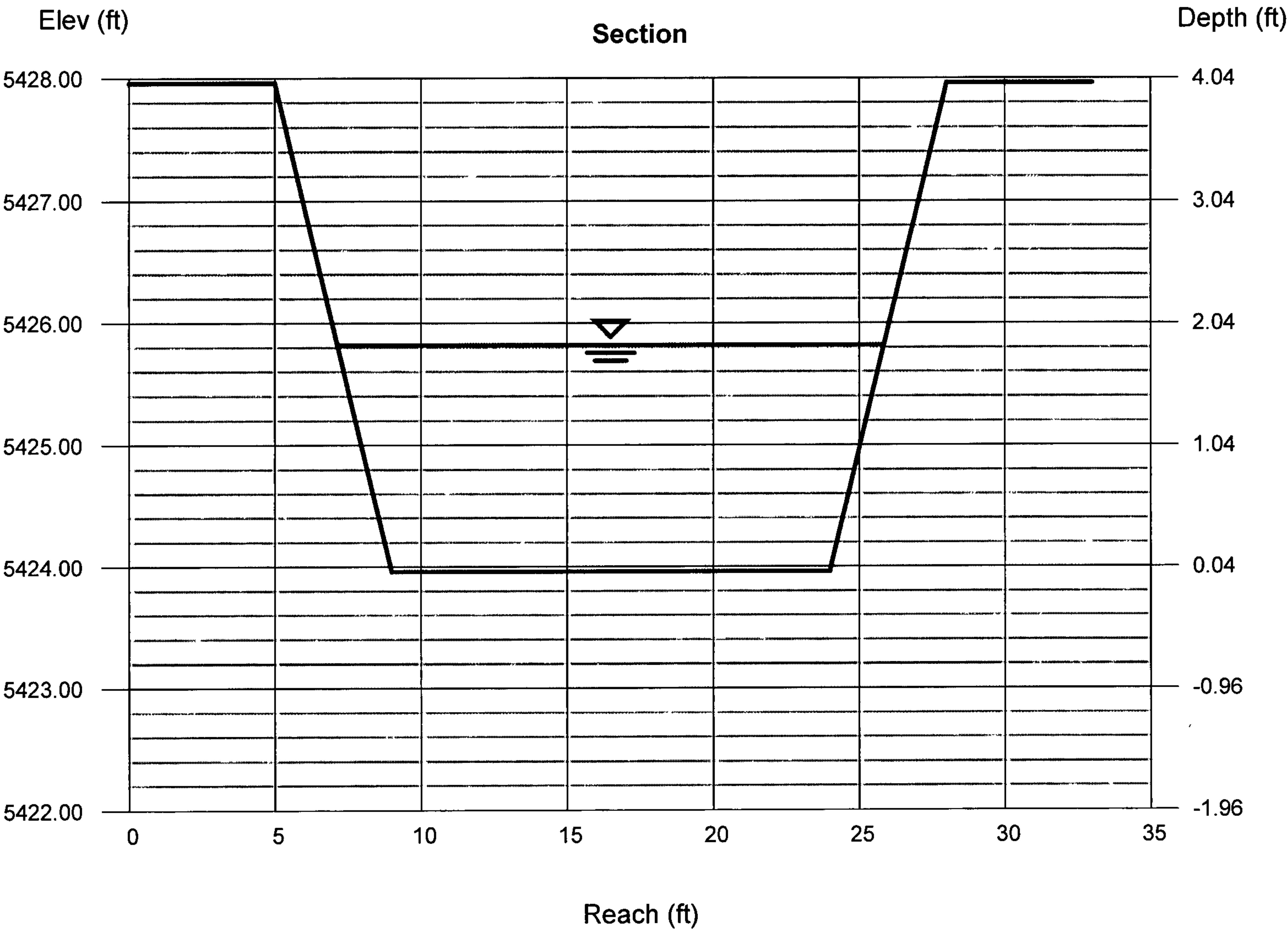
Bottom Width (ft) = 15.00
Side Slopes (z:1) = 1.00, 1.00
Total Depth (ft) = 4.00
Invert Elev (ft) = 5423.96
Slope (%) = 0.65
N-Value = 0.045

Calculations

Compute by: Known Q
Known Q (cfs) = 111.00

Highlighted

Depth (ft) = 1.86
Q (cfs) = 111.00
Area (sqft) = 31.36
Velocity (ft/s) = 3.54
Wetted Perim (ft) = 20.26
Crit Depth, Yc (ft) = 1.17
Top Width (ft) = 18.72
EGL (ft) = 2.05



EXHIBITS

EXHIBIT 1: PRELIMINARY PLAT

EXHIBIT 2: OVERALL BASIN MAP

EXHIBIT 3: ON-SITE BASIN MAP

EXHIBIT 4: GRADING PLAN

**EXHIBIT 5: STORM DRAIN CAPACITY
CALCULATIONS**

**EXHIBIT 1 -
PRELIMINARY PLAT**

**EXHIBIT 2 -
OVERALL BASIN MAP**

**EXHIBIT 3 -
ON-SITE BASIN MAP**

**EXHIBIT 4 -
GRADING PLAN**

**EXHIBIT 5 -
STORM DRAIN CAPACITY CALCULATIONS**

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