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 #: _____

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:

__X__ HYDROLOGY/ DRAINAGE
_____ TRAFFIC/ TRANSPORTATION
_____ MS4/ EROSION & SEDIMENT CONTROL

TYPE OF SUBMITTAL:

_____ ENGINEER/ ARCHITECT CERTIFICATION

_____ CONCEPTUAL G & D PLAN
__X__ GRADING PLAN
_____ DRAINAGE MASTER PLAN
__X__ DRAINAGE REPORT
_____ CLOMR/LOMR

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

_____ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

_____ BUILDING PERMIT APPROVAL
_____ CERTIFICATE OF OCCUPANCY

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

_____ PRE-DESIGN MEETING
_____ OTHER (SPECIFY) _____

IS THIS A RESUBMITTAL?: _____ Yes __X__ No

DATE SUBMITTED: 5/20/16 By: SCOTT STEFFEN

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED: ___

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:

Bohannan Huston
Engineering
Spatial Data
Advanced Technologies

DRAINAGE REPORT
FOR
MONTECITO VISTAS
SUBDIVISION
UNITS 1 THROUGH 4

MAY 20, 2016

Prepared for:

PULTE HOMES OF NEW MEXICO
7601 JEFFERSON STREET NE, SUITE 320
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Erica Newman, E.I. — Design Engineer — Date: 5.20.16

Scott J. Steffen, P.E. — Project Manager — Date: 5/20/16

Bohannan Huston

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EXHIBITS

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 Bohannan Huston, Inc., dated January 2014
- *Amendment to the Montecito West Subdivision Units 1 and 2 Drainage Report* prepared by Bohannan 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 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.

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	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

Bohannan Huston

EXISTING CONDITIONS AHYMO SUMMARY FILE

Bohannan Huston

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      AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                        - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =
04/12/2016
    INPUT FILE = DEV_Cond.HYM                                                                   USER NO.= AHYMO-S-9702c1BohanHu-AH

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

    *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
    *S                    *******************************
    *S                    *  COMPUTE OFFSITE "D" BASINS  *
    *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                    *******************************
```

```
                          FROM  TO                   PEAK         RUNOFF             TIME TO    CFS
                HYDROGRAPH   ID   ID        AREA     DISCHARGE    VOLUME     RUNOFF    PEAK     PER
COMMAND       IDENTIFICATION   NO.  NO.     (SQ MI)    (CFS)      (AC-FT)   (INCHES)  (HOURS)  ACRE     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                   ******************************
*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                   ***********************
*S                   *COMPUTE ONSITE BASINS*
*s                   ***********************
*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          TO GET PROJECT SITE DISCHARGE TO AP_1***********
ADD HYD                6D.5_6 11&12  25        .03498       27.48        .780       .41792    1.533    1.227
*S
*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	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										

EXISTING CONDITIONS AHYMO OUTPUT FILE

Bohannan Huston

```
    AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
         RUN DATE (MON/DAY/YR) = 04/12/2016
         START TIME (HR:MIN:SEC) = 17:01:35     USER NO.= AHYMO-S-9702c1BohanHu-AH
         INPUT FILE = DEV_Cond.HYM

*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
     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 ************************************************
*
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 =   .177858HR    TP =   .161864HR    K/TP RATIO =  1.098817     SHAPE CONSTANT, N =  3.216827
     UNIT PEAK =   439.34    CFS   UNIT VOLUME =    1.000       B =   299.05      P60 = 1.7200
     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 =      .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 (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       5 TIMES.  AVERAGE NUMBER ITERATIONS =  1.0847
  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     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             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 (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)                                        (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      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       1.1          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
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```
    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                   *  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      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
      HRS       CFS            HRS       CFS            HRS       CFS            HRS       CFS            HRS       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      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         .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 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.


*
```

```
*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      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       3.1          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 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
```

EXISTING CONDITIONS AHYMO INPUT FILE

Bohannan Huston

```
*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                     *  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                    *  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
```

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

DEVELOPED CONDITIONS AHYMO SUMMARY FILE

Bohannan Huston

```
       AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                        - VERSION:  1997.02c      RUN DATE (MON/DAY/YR) =
05/12/2016
    INPUT FILE = DEV_Cond.HYM                                                                    USER NO.= AHYMO-S-9702c1BohanHu-AH

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

    *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                                                                                                          TIME=       .00
    LOCATION                       DEFAULT
    RAINFALL  TYPE= 1                                                                                              RAIN6=    2.210
    *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
```

```
                              FROM  TO                    PEAK         RUNOFF              TIME TO    CFS      PAGE =   2
                  HYDROGRAPH   ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF    PEAK     PER
COMMAND       IDENTIFICATION   NO.  NO.      (SQ MI)      (CFS)       (AC-FT)    (INCHES)  (HOURS)   ACRE     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               *******************************************
*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
*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
```

```
                          FROM  TO                        PEAK          RUNOFF                  TIME TO   CFS      PAGE =   3
                 HYDROGRAPH  ID   ID         AREA      DISCHARGE      VOLUME      RUNOFF     PEAK     PER
COMMAND        IDENTIFICATION  NO.  NO.      (SQ MI)      (CFS)       (AC-FT)    (INCHES)  (HOURS)   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                    ********************************
*S                    *  COMPUTE OFFSITE "E" BASINS  *
*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               *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                    ***************************
```

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

*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            AP_OFF.NEW 55&47  25        .56080       232.17      18.956       .63379    2.000     .647
*S
*S ADD AP2_ON TO NEW AP_OFF TO GET AP#2 AT MIDDLE BRANCH BOCA NEGRA ARROYO ***
ADD HYD                 AP_2 25&72  24        .57886       237.91      20.093       .65082    2.000     .642
*S ANALYSIS POINT 1, SOUTHERN STORM DRAIN TO VISTA VIEJA SUBDIVISION *******
*S DIVIDE 6D.3 FOR 30.0% RETAINAGE
DIVIDE HYD          6D.3_OUT   10   12        .01279        20.59        .714      1.04575    1.533    2.514
                 6D.3_RETAIN  and   13        .00548         8.82        .306      1.04575    1.533    2.514
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 ************************************
ADD HYD                 AP_1 12&11  14        .03381        60.74       2.116      1.17337    1.500    2.807
*S
FINISH
```

DEVELOPED CONDITIONS AHYMO OUTPUT FILE

Bohannan Huston

```
          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   .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
                               LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0           .075000             .7000
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     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 =   .177858HR    TP =   .161864HR    K/TP RATIO =  1.098817     SHAPE CONSTANT, N =  3.216827
     UNIT PEAK =   439.34    CFS   UNIT VOLUME =    1.000       B =   299.05      P60 = 1.7200
     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 =      .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
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    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    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     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 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
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    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   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     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   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     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=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.
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*
*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      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
      HRS       CFS            HRS       CFS            HRS       CFS            HRS       CFS            HRS       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       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=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   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 (KKMAX) =   4 OCCURRED       4 TIMES.  AVERAGE NUMBER ITERATIONS =  1.0689
  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     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               *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 = 1.7200
     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
```

```
                              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      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW           TIME      FLOW
      HRS       CFS            HRS       CFS            HRS       CFS            HRS       CFS            HRS       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       FLOW        FLOW        MAX
                                       SURFACE      AREA        RATE        WIDTH
                                        ELEV        SQ FT       CFS         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   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    .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
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    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=   .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 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
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*
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
      .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 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
```

```
     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           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.



*
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```
*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 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

DEVELOPED CONDITIONS AHYMO INPUT FILE

Bohannan Huston

```
*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
*
**************************************************
*
**************************************************
*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 ************************************************
*
*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               *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                    *  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                     *  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               *********************************************
```

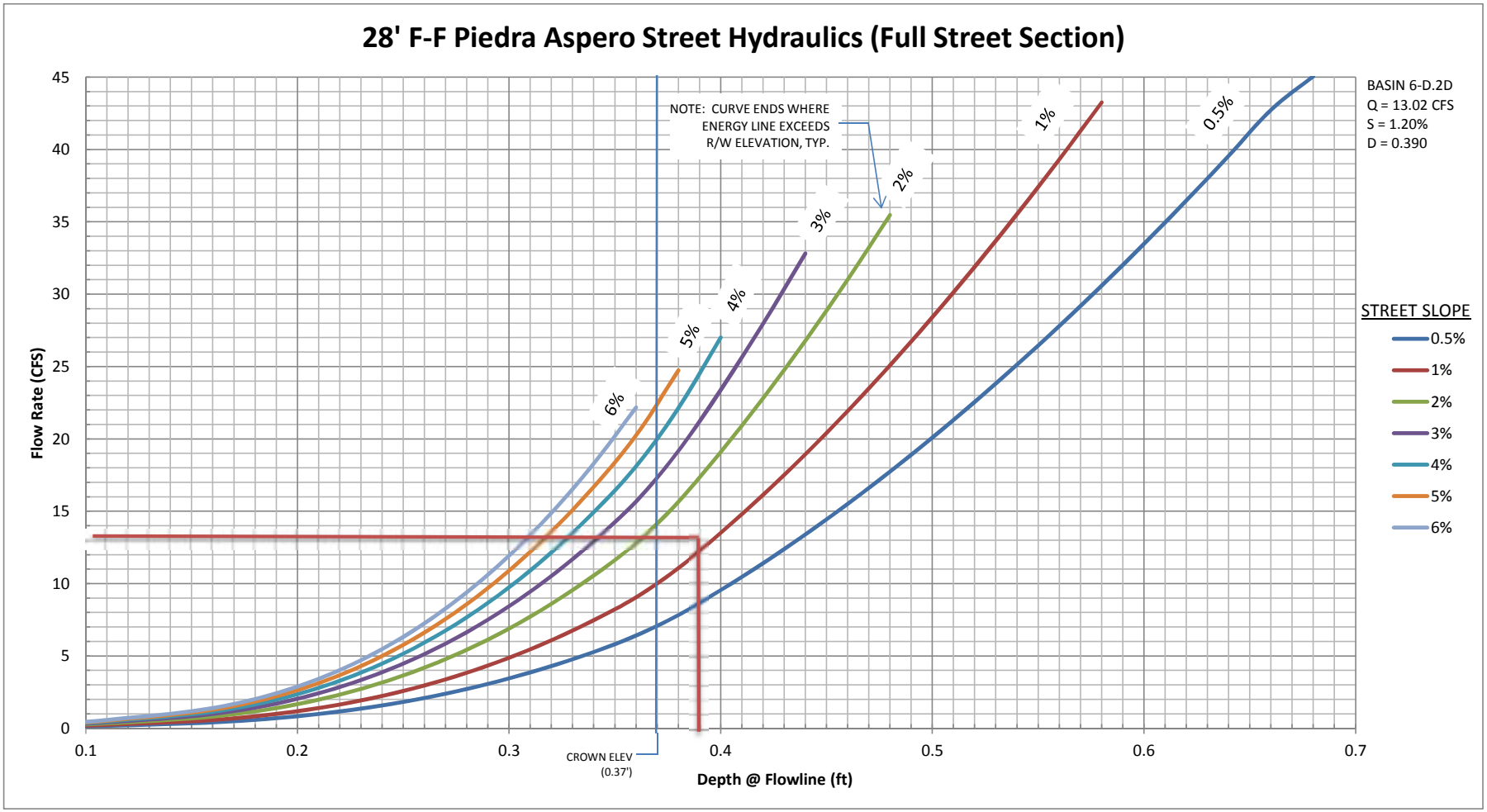
```
*S
*S NO CHANGE FROM MONTECITO WEST DMP
*S
*S COMPUTE BASIN 6-D.4 ************************************************
*
COMPUTE NM HYD       ID=2 HYD=6_D.4  AREA=0.015778  PER A=0 PER B=29
                      PER C=29 PER D=42  TP=0.13333  RAINFALL=-1
PRINT HYD                ID=2   CODE=1
*
*S COMPUTE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

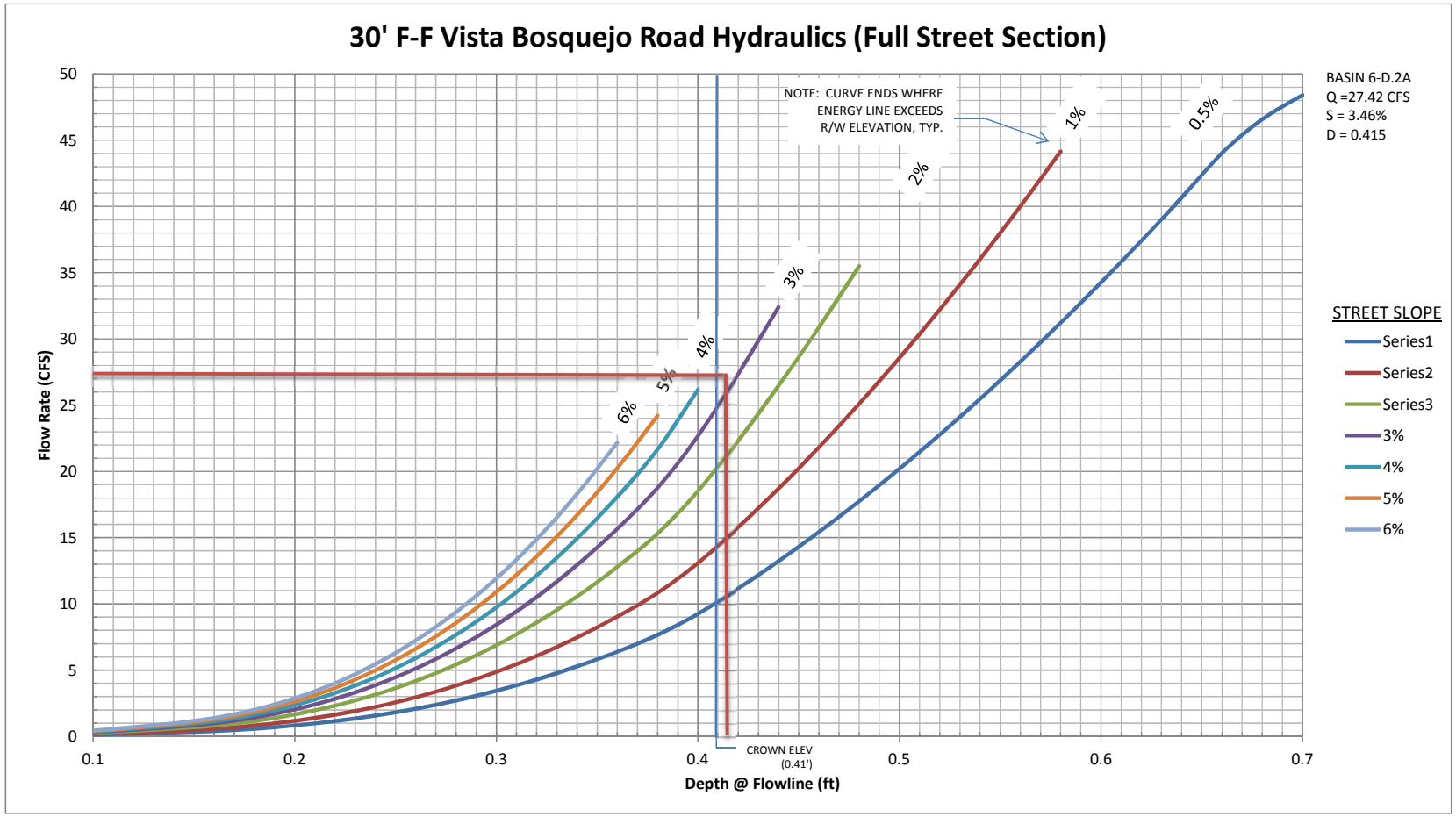
```
*S ADD 6D.3_OUT TO 6D.4_7 TO GET AP_1 ************************************
*
ADD HYD             ID=14   HYD NO=AP_1 ID I=12 ID II=11
PRINT HYD           ID=14   CODE=1
*S

FINISH
```

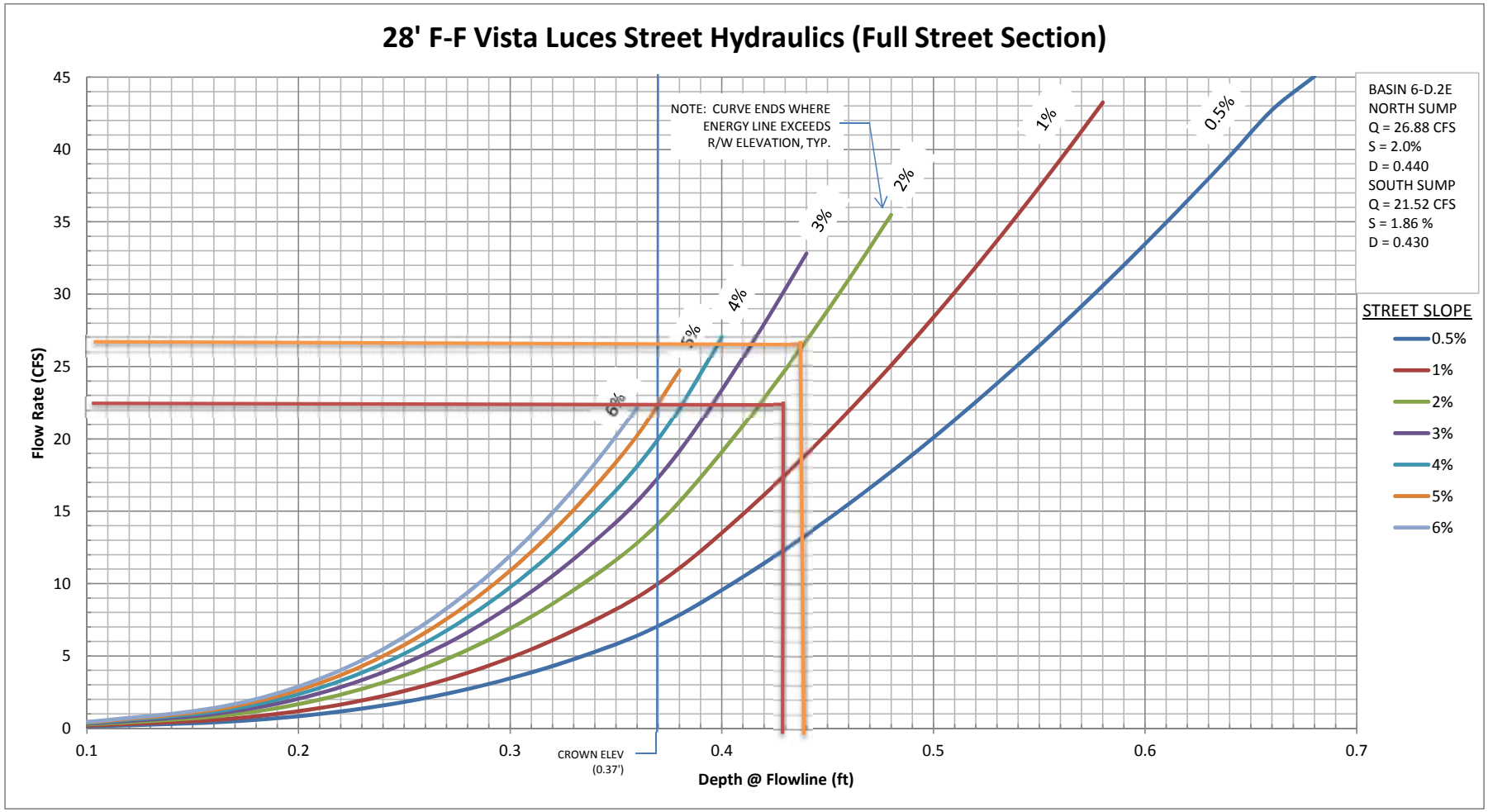
APPENDIX C -

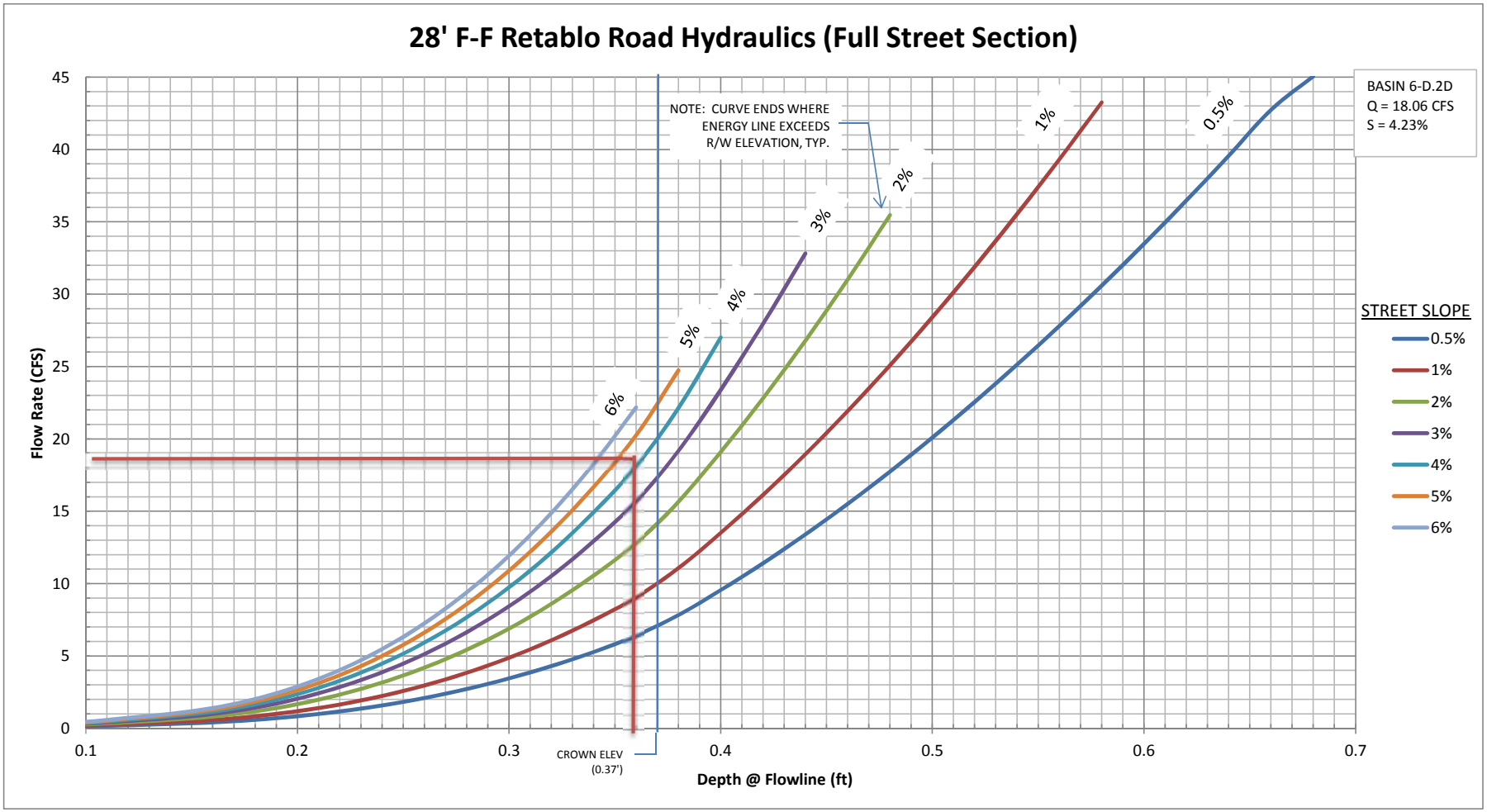
STREET HYDRAULICS AND STORM DRAIN INLET ANALYSIS

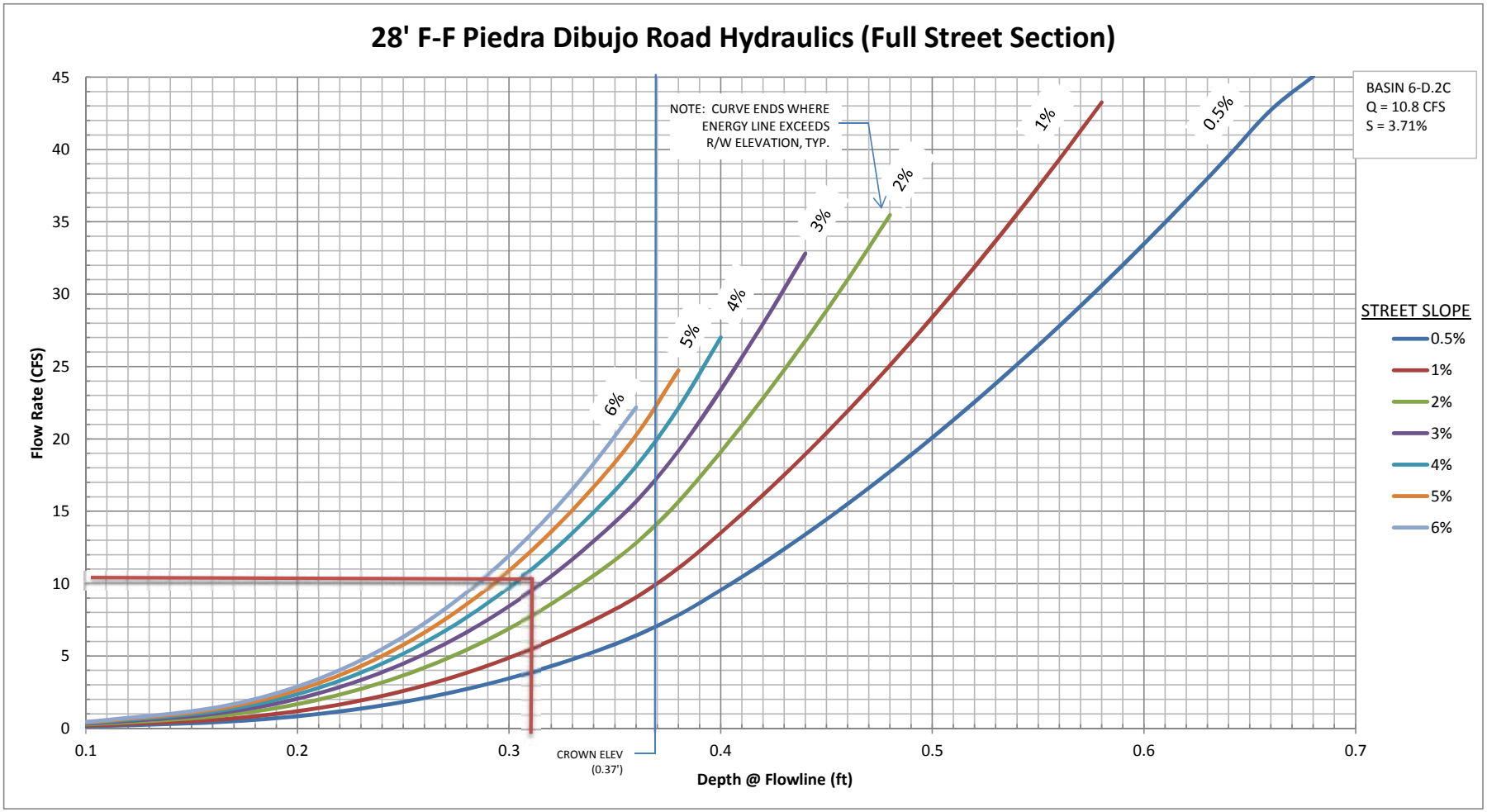
Bohannan Huston

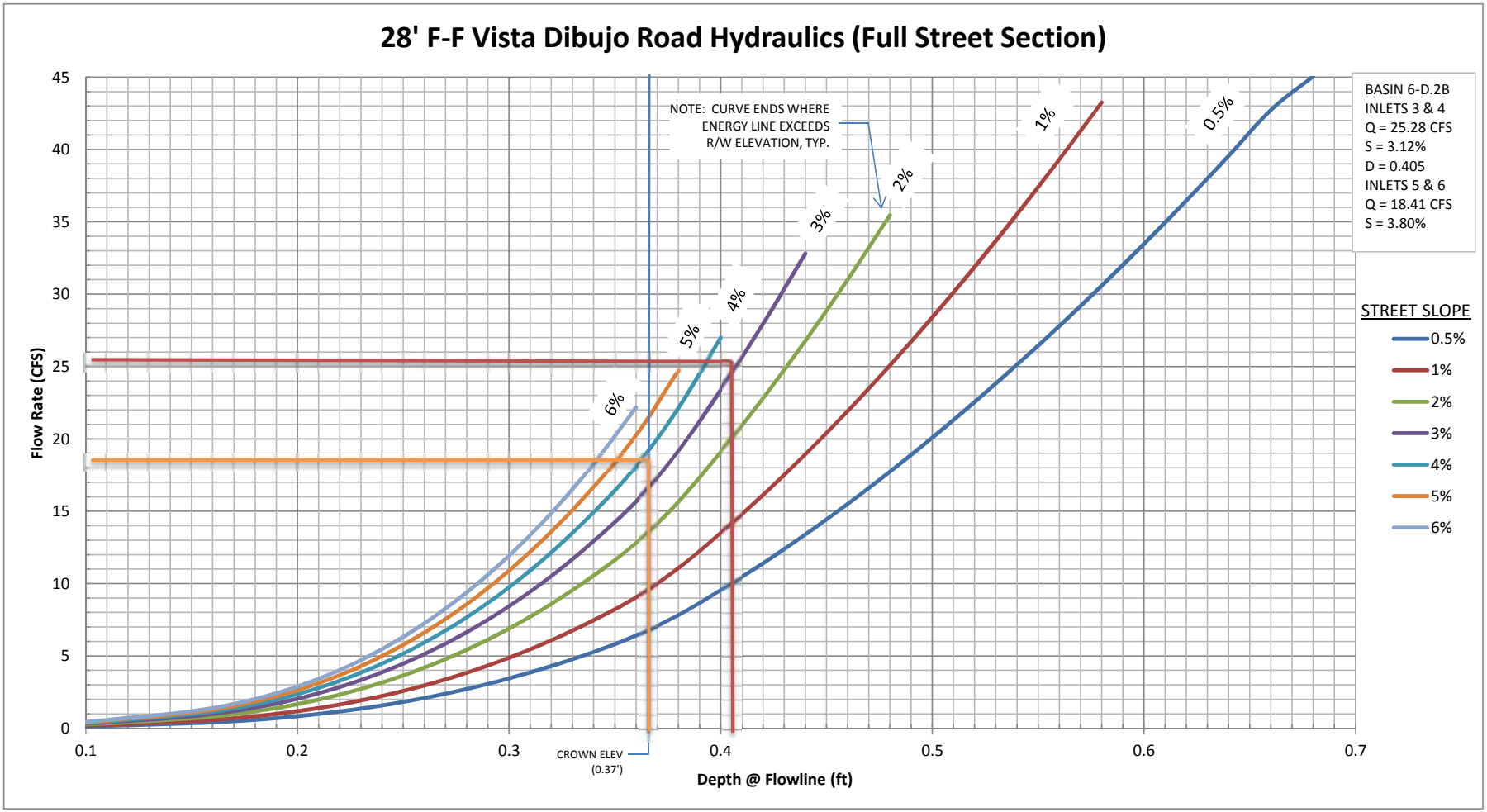

28' F-F Piedra Aspero Street Hydraulics (Full Street Section)
Flow Rate (CFS)
Depth @ Flowline (ft)
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
CROWN ELEV (0.37')
0.5%
1%
2%
3%
4%
5%
6%
BASIN 6-D.2D
Q = 13.02 CFS
S = 1.20%
D = 0.390
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%


30' F-F Vista Bosquejo Road Hydraulics (Full Street Section)
Flow Rate (CFS)
Depth @ Flowline (ft)
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
CROWN ELEV (0.41')
BASIN 6-D.2A
Q =27.42 CFS
S = 3.46%
D = 0.415
STREET SLOPE
Series1
Series2
Series3
3%
4%
5%
6%
0.5%
1%
2%


28' F-F Vista Luces Street Hydraulics (Full Street Section)
Flow Rate (CFS)
Depth @ Flowline (ft)
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
CROWN ELEV (0.37')
0.5%
1%
2%
3%
4%
5%
6%
BASIN 6-D.2E
NORTH SUMP
Q = 26.88 CFS
S = 2.0%
D = 0.440
SOUTH SUMP
Q = 21.52 CFS
S = 1.86 %
D = 0.430
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%


28' F-F Retablo Road Hydraulics (Full Street Section)
Flow Rate (CFS)
Depth @ Flowline (ft)
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
CROWN ELEV (0.37')
BASIN 6-D.2D
Q = 18.06 CFS
S = 4.23%
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%


28' F-F Piedra Dibujo Road Hydraulics (Full Street Section)
Flow Rate (CFS)
Depth @ Flowline (ft)
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
CROWN ELEV (0.37')
BASIN 6-D.2C
Q = 10.8 CFS
S = 3.71%
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%


28' F-F Vista Dibujo Road Hydraulics (Full Street Section)
Flow Rate (CFS)
Depth @ Flowline (ft)
NOTE: CURVE ENDS WHERE ENERGY LINE EXCEEDS R/W ELEVATION, TYP.
CROWN ELEV (0.37')
0.5%
1%
2%
3%
4%
5%
6%
BASIN 6-D.2B
INLETS 3 & 4
Q = 25.28 CFS
S = 3.12%
D = 0.405
INLETS 5 & 6
Q = 18.41 CFS
S = 3.80%
STREET SLOPE
0.5%
1%
2%
3%
4%
5%
6%

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

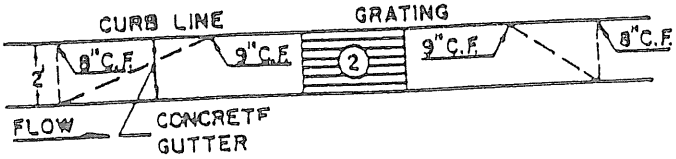
28' Street Depth VS Flowrate, n=0.017
(NORMAL CROWN)

	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	7.822	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

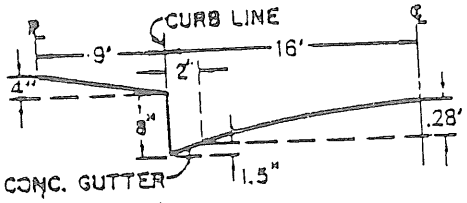
30' Street Depth VS Flowrate, n=0.017
(NORMAL CROWN)

	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												

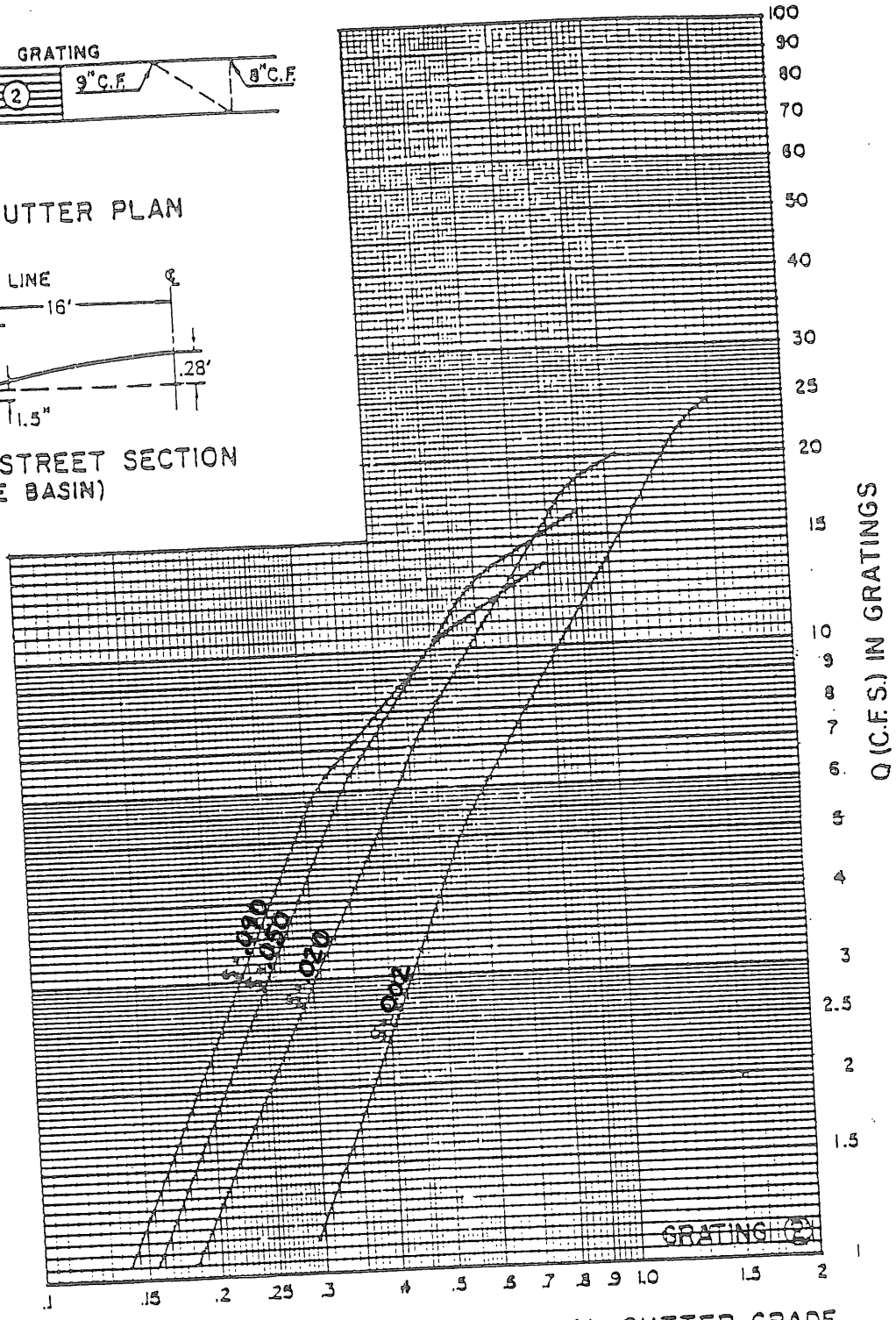
GRATING CAPACITIES FOR TYPE "A" , "C" and "D"

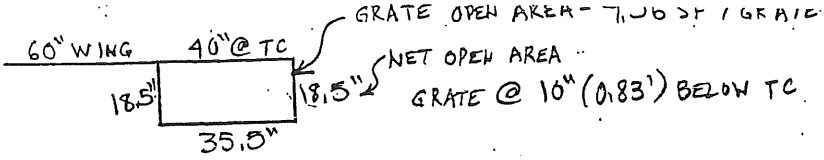


GRATING & GUTTER PLAN



TYPICAL HALF STREET SECTION
(ABOVE BASIN)





GRATE OPEN AREA = 7.06 SF / GRATE

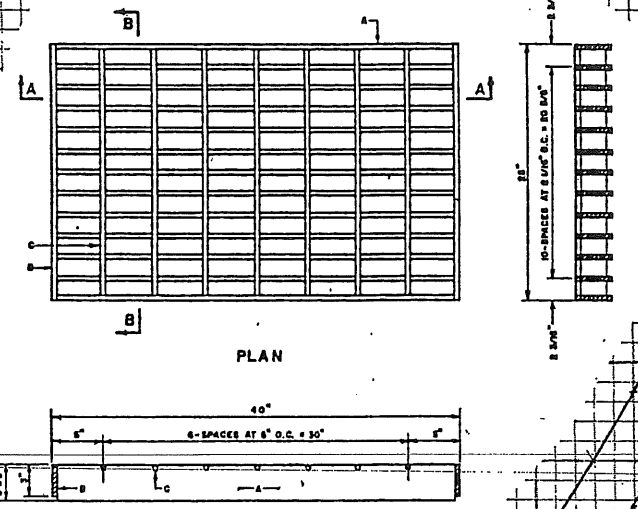
NET OPEN AREA

GRATE @ 10" (0.83') BELOW TC

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 ($h \le 0.83'$)	$36.4\,h^{1.5}$	$46.2\,h^{1.5}$	$56.0\,h^{1.5}$	$65.7\,h^{1.5}$
3) 4-SIDED WEIR ($h > 0.83'$)	ADD TO 2): $11(h-.83)^{1.5}$	ADD TO 2): $22(h-.83)^{1.5}$	ADD TO 2): $33(h-.83)^{1.5}$	ADD TO 2): $44(h-.83)^{1.5}$

1) $Q = 0.6A\sqrt{2gh} + 3.3(5')h^{1.5}$

2) & 3) $Q = 3.3\,Ph^{1.5}$



GRATE CAPACITY (Q) IN CFS

HEAD (h) IN FEET

TRIPLE GRATE

DOUBLE GRATE

SINGLE GRATE

TC 0.83'

BOHANNAN-HUSTON INC.

PROJECT NAME _____ SHEET _____ OF _____

PROJECT NO. _____ BY JPK DATE 4/9/92

SUBJECT RATING CURVE FOR TYPE A INLETS CH'D _____ DATE _____

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

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								LOSS_COEFFICENTS							
Str_ID	Hf	Hb	Hstr	Hc	He	Hj	Total	Dstr	Ko	CD	Cd	Cq	Cp	Cb	K
Outfall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP1	0.15	-	-	-	-	-	0.15	-	-	-	-	-	-	-	-

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	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	SuperCrt	-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-

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	-	-	-	-	-	-	-

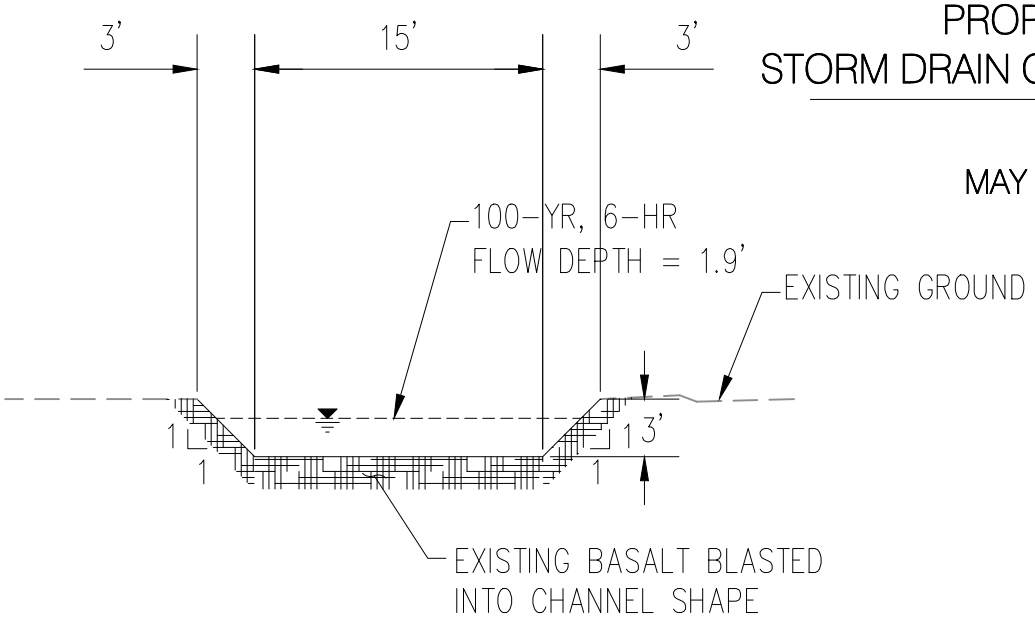
APPENDIX D -
OPEN CHANNEL OUTFALL ALTERNATIVE SECTIONS

Bohannan Huston

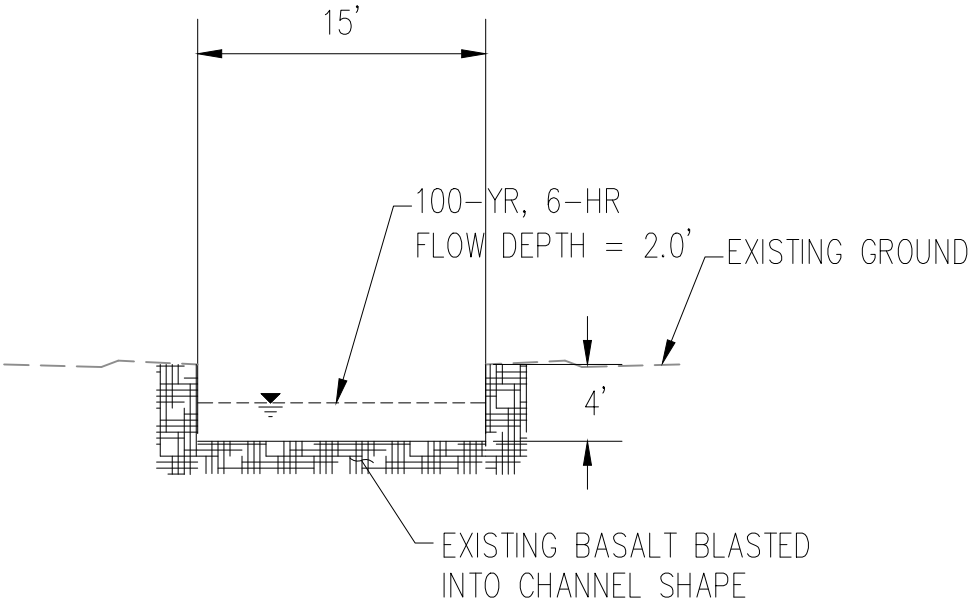
MONTECITO WEST UNITS 3-6

PROPOSED
STORM DRAIN OUTFALL DESIGN

MAY 2016



A — TRAPEZOIDAL CHANNEL TYPICAL SECTION
SCALE: N.T.S.



B — RECTANGULAR CHANNEL TYPICAL SECTION
SCALE: N.T.S.

Bohannan Huston

C:\Users\vwine\appdata\local\temp\AcPublish_20864\Channel_Sections.dwg
May 17, 2016 - 6:16pm

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:

$$Freeboard(ft) = 1.0 + .025Vd^{1/3}$$

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

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, May 16 2016

<Name>

Rectangular

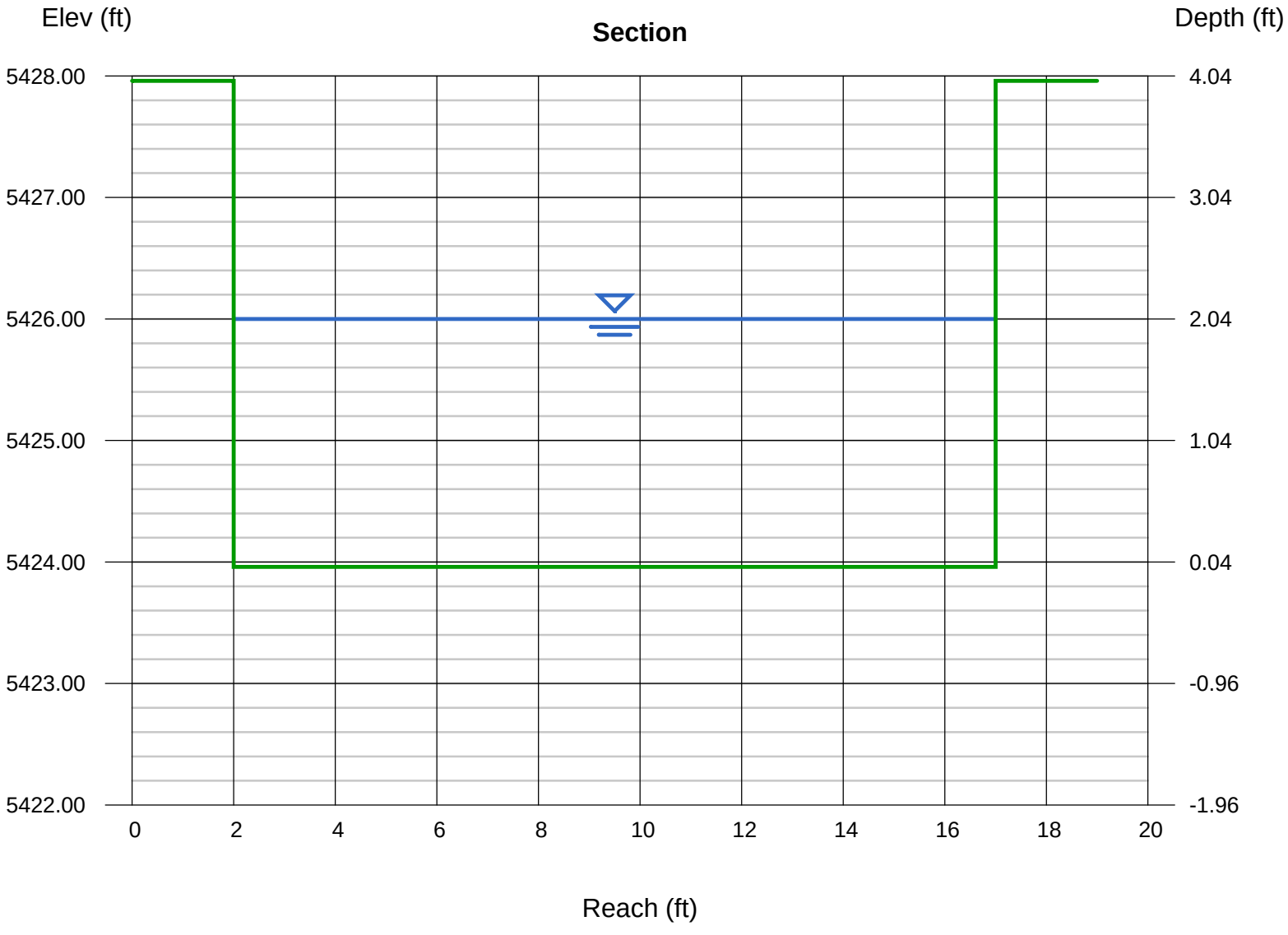
Bottom Width (ft)	= 15.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 5423.96
Slope (%)	= 0.65
N-Value	= 0.045

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

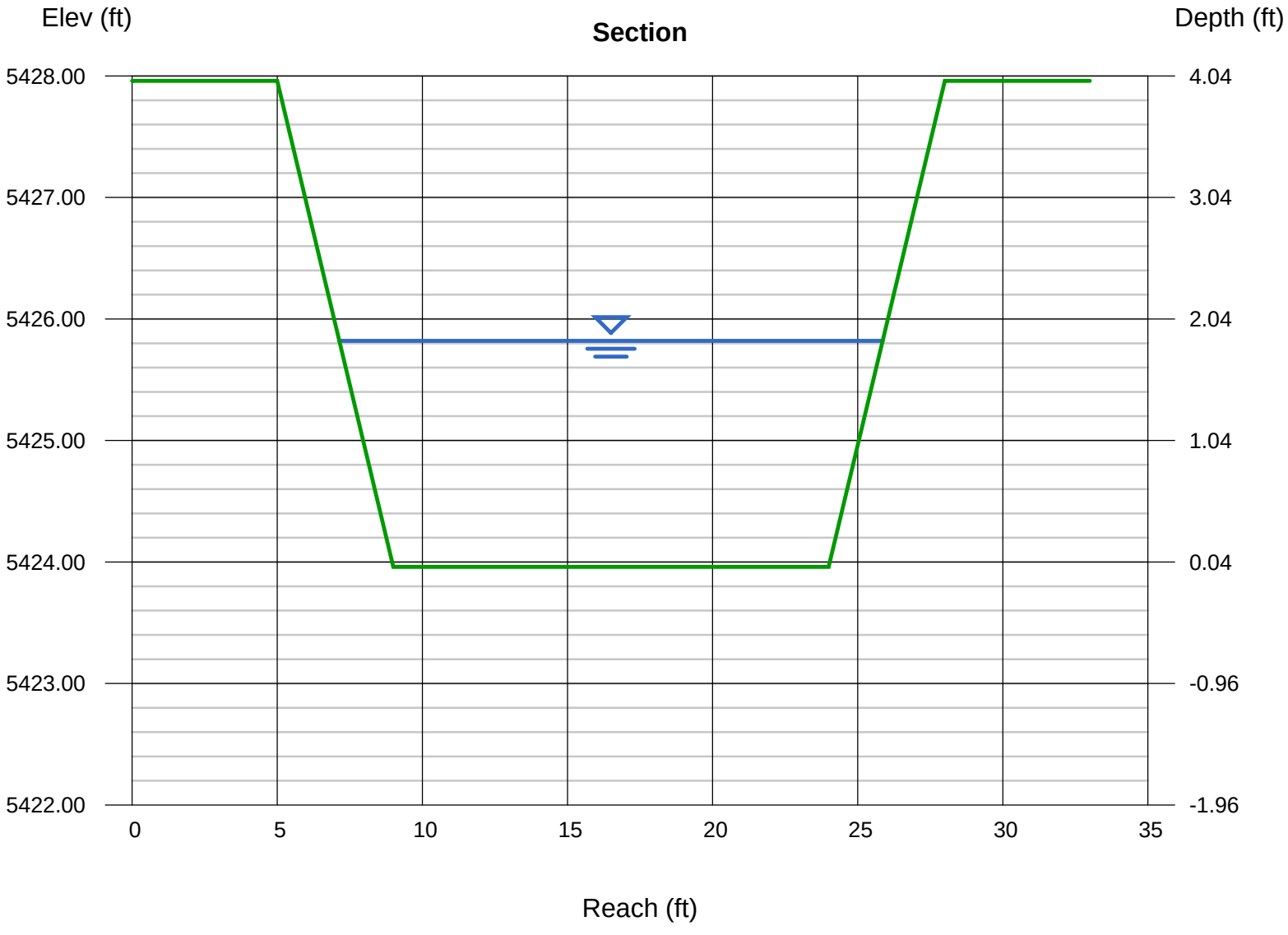
Bottom Width (ft)	= 15.00
Side Slopes (z:1)	= 1.00, 1.00
Total Depth (ft)	= 4.00
Invert Elev (ft)	= 5423.96
Slope (%)	= 0.65
N-Value	= 0.045

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

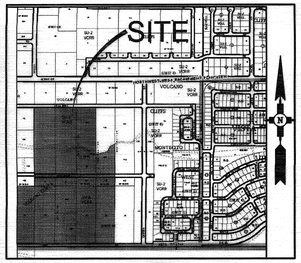
EXHIBIT 1 -

PRELIMINARY PLAT

Bohannan Huston

PRELIMINARY PLAT FOR
MONTECITO VISTAS UNITS 1–4

CITY OF ALBUQUERQUE
BERNALILLO COUNTY, NEW MEXICO
SECTION 20 & 21
T. 11 N., R. 2 E., N.M.P.M.
MAY 2016



VICINITY MAP
NOT TO SCALE ZONE ATLAS C-09-Z

100 50 0 100
1" = 100'

VOLCANO CLIFFS SUBDIVISION UNIT 9 (06-12-1970, D4-83)

TRACT 14 VOLCANO CLIFFS SUBDIVISION UNIT 9

TRACT 13-C VOLCANO CLIFFS SUBDIVISION UNIT 9 (06-18-1970, B11-127)

TRACT 13-B VOLCANO CLIFFS SUBDIVISION UNIT 9 (06-18-1970, B11-127)

TRACT 13-A VOLCANO CLIFFS SUBDIVISION UNIT 9 (06-18-1970, B11-127)

TRACT 12 VOLCANO CLIFFS SUBDIVISION UNIT 9 (06-12-1970, D4-83)

UNIT 3

TRACT 27 VOLCANO CLIFFS SUBDIVISION UNIT 6

PIEDRA ASPERO STREET

68' R/W

TRACT 7 VOLCANO CLIFFS SUBDIVISION UNIT 6

UNIT 4

TRACT 26-B VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 26-A VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 8 VOLCANO CLIFFS SUBDIVISION UNIT 6

VIA MONTECITO STREET

CITY OWNED MAJOR PUBLIC OPEN SPACE

VISTA VIEJA AVENUE

VISTA BOSQUEJO ROAD

VISTA DIBUJO ROAD

PIEDRA DIBUJO ROAD

RETABLO ROAD

TRACT 9-C VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 9-B VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 9-A VOLCANO CLIFFS SUBDIVISION UNIT 6

51' R/W

VILLA REAL DRIVE

TRACT 25 VOLCANO CLIFFS SUBDIVISION UNIT 6

UNIT 1

UNIT 2

VISTA LUCES STREET

TRACT 24 VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 10-C VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 10-B VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 10-A VOLCANO CLIFFS SUBDIVISION UNIT 6 (06-16-1978, C14-148)

TRACT 23 VOLCANO CLIFFS SUBDIVISION UNIT 6 (06-16-1970, D4-81)

TRACT 11-C VOLCANO CLIFFS SUBDIVISION UNIT 6

TRACT 11-B VOLCANO CLIFFS SUBDIVISION UNIT 6 (06-16-1978, C14-144)

50' R/W

TRACT 22 VOLCANO CLIFFS SUBDIVISION UNIT 6 (06-16-1970, D4-81)

QUIVARA DRIVE

64' R/W

LEGEND

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

SURVEY NOTES:

1. ALL BOUNDARY CORNERS SHOWN (●) ARE FOUND REBAR W\CAP.
2. ALL STREET CENTERLINE MONUMENTATION SHALL BE INSTALLED AT ALL CENTERLINE PC'S, PTS, ANGLE POINTS, AND STREET INTERSECTIONS AND SHOWN THUS (▲) AND WILL BE MARKED BY (4") ALUMINUM CAP STAMPED "CITY OF ALBUQUERQUE CENTERLINE MONUMENTATION MARKED, DO NOT DISTURB PLS 14271".
3. THE SUBDIVISION BOUNDARY WILL BE TIED TO THE NEW MEXICO STATE PLANE COORDINATE SYSTEM AS SHOWN.
4. BASIS OF BEARINGS WILL BE NEW MEXICO STATE PLANE BEARINGS.
5. DISTANCES SHALL BE GROUND DISTANCES.
6. MANHOLES WILL BE OFFSET AT ALL POINTS OF CURVATURE, TANGENCY STREET INTERSECTIONS, AND ALL OTHER ANGLE POINTS TO ALLOW USE OF CENTERLINE MONUMENTATION.

APPROVED

Soren N. Risahoover P.S. 5/19/16
CITY SURVEYOR DATE

FOR SCOTT SCHIABOR
VICTORY LAND, LLC DATE

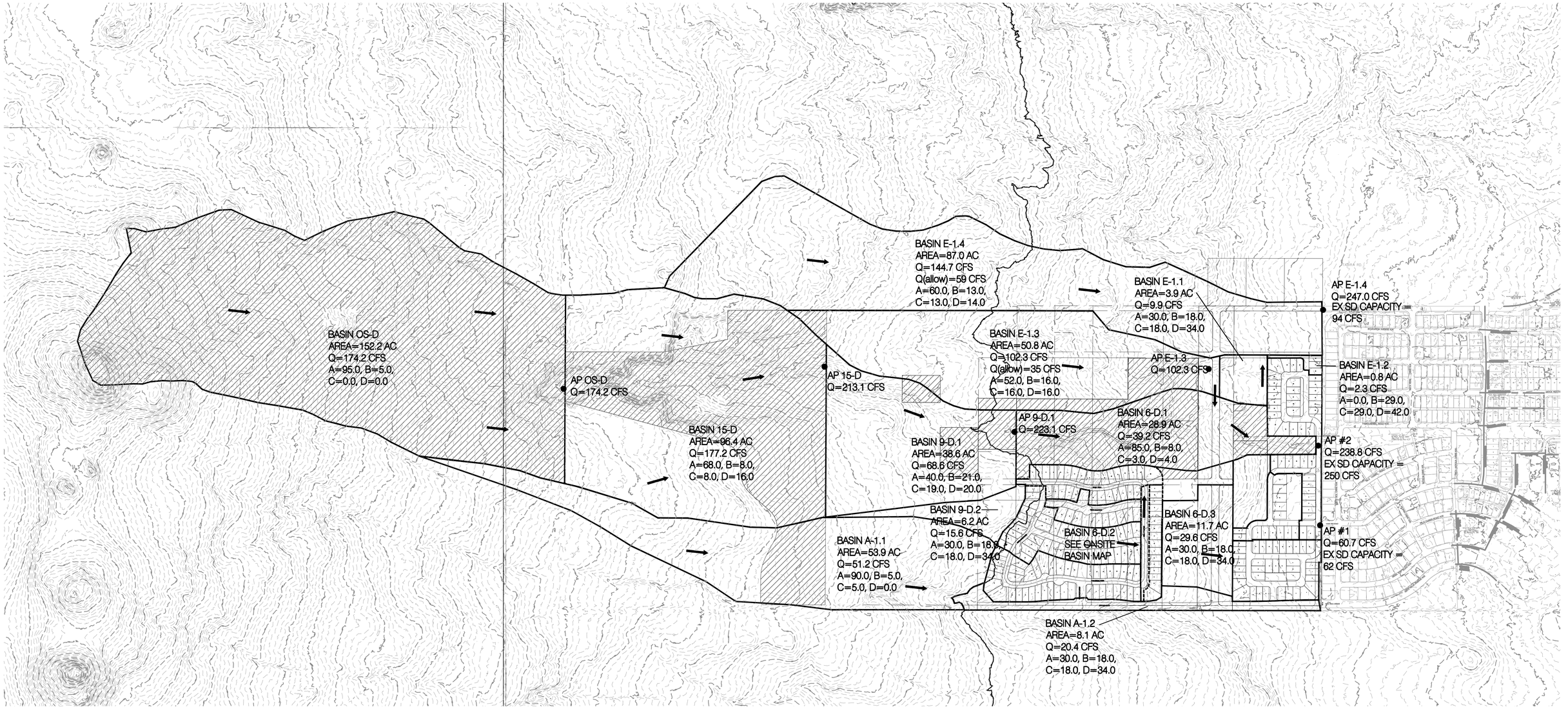
P:\20160398\CDP\Plans\General\PrePlat\Unit 3\20160398_Preplat_OVERALL.dwg
May 19, 2016 – 9:40am

Bohannan Huston

EXHIBIT 2 -

OVERALL BASIN MAP

Bohannan Huston



LEGEND

BASIN BOUNDARY

FLOW ARROW

OPEN SPACE

SCOTT J. BUSH
14664
REGISTERED PROFESSIONAL ENGINEER
5/26/16

N

400 200 0 400

1" = 400'

DEVELOPED CONDITIONS
OVERALL BASIN MAP

Bohannan Huston

P:\20160398\CDP\Plans\General\Drainage\20170017 Overall Developed Basin Map.dwg
May 20, 2016 - 8:14am

EXHIBIT 3 -

ON-SITE BASIN MAP

Bohannan Huston

AP 9-D.1
Q=226.6 CFS

BASIN 6-D.2D
AREA=6.9 AC
Q=19.4 CFS
A=0.0, B=34.5,
C=34.5, D=31.0

AP 6_9-D.2
Q=107.8 CFS

RETABLO ROAD

BASIN 9-D.2
AREA=6.2 AC
Q=15.6 CFS
A=30.0, B=18.0,
C=18.0, D=34.0

BASIN 6-D.2C
AREA=3.8 AC
Q=10.8 CFS
A=0.0, B=34.0,
C=34.0, D=32.0

PIEDRA DIBUJO ROAD

BASIN 6-D.2E
AREA=1.5 AC
Q=4.6 CFS
A=0.0, B=30.5,
C=30.5, D=39.0

VISTA DIBUJO STREET

BASIN 6-D.2B
AREA=10.4 AC
Q=31.4 CFS
A=0.0, B=29.0,
C=29.0, D=42.0

VISTA DIBUJO ROAD

BASIN 6-D.2F
AREA=2.7 AC
Q=8.0 CFS
A=0.0, B=30.5,
C=30.5, D=39.0

AP 9-D.2
Q=0.8 CFS

BASIN 6-D.2A
AREA=10.9 AC
Q=32.9 CFS
A=0.0, B=29.5,
C=29.5, D=41.0

VISTA BOSQUEJO ROAD

MONTECITO STREET

VISTA VIEJA AVENUE

VISTA VIEJA AVENUE

LEGEND

BASIN BOUNDARY	
FLOW ARROW	
PROPOSED STORM DRAIN	
EXISTING STORM DRAIN	

N

100 50 0 100
1" = 100'

ONSITE BASIN MAP
MONTECITO WEST UNITS 3-6 SUBDIVISION

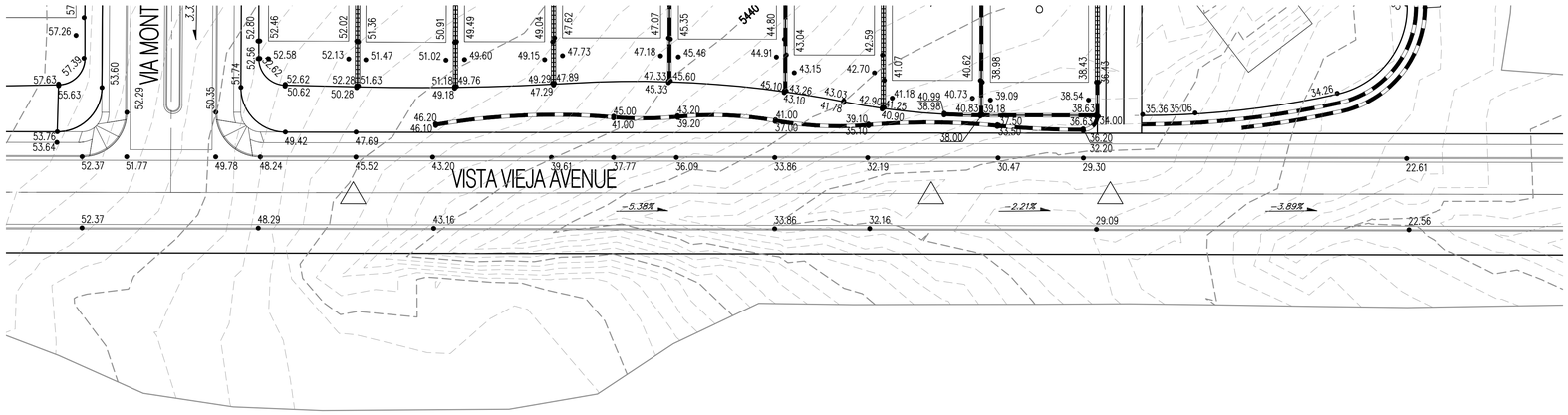
P:\20160398\CDP\Plans\General\Drainage\20170017 Onsite Developed Basin Map.dwg
May 20, 2016 - 7:55am

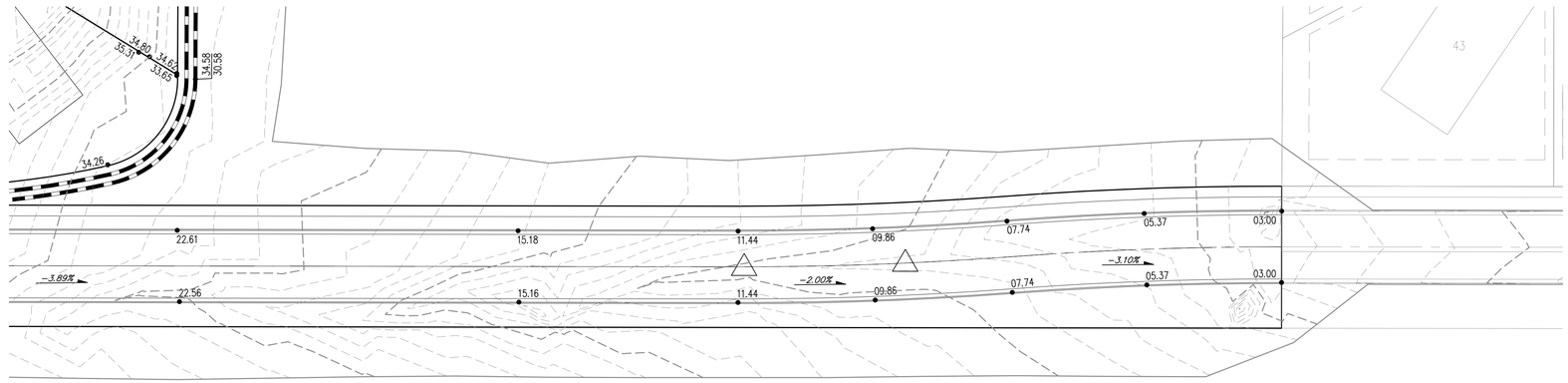
Bohannan Huston

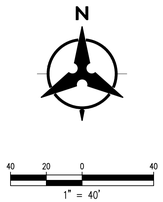
EXHIBIT 4 -

GRADING PLAN

Bohannan Huston







GENERAL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT BY X8e VINYARD, DATED 10-30-13

3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.

4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AS PER DETAIL, SHEET 3B, AND WETTING THE SOIL TO KEEP IT FROM BLOWING.

5. ALL SPOT ELEVATIONS ARE TO FLOWLINE UNLESS OTHERWISE NOTED.

6. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.

7. ALL WALLS SHOWN ARE TO BE PLACED ALONG PROPERTY LINE. WALLS ARE SHOWN OFFSET FOR VISUAL PURPOSE ONLY.

- 91.62 PROPOSED SPOT ELEVATION
- × 92.46 EXISTING SPOT ELEVATION (GRND & TC)
- EXISTING CURB & GUTTER
- PROPOSED MOUNTABLE CURB & GUTTER
- PROPOSED STANDARD CURB & GUTTER
- 5470 EXISTING CONTOUR W/ INDEX ELEVATION
- FLOW ARROW
- PROPOSED RETAINING WALL
- PROPOSED SLOPE
- PROPOSED STORM DRAIN
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- HIGH POINT

SPOT ELEVATIONS TF=TOP OF FLOODWALL, BW=FINISHED GRADE ON LOW SIDE OF WALL, TW=FINISHED GRADE ON HIGH SIDE OF WALL.

Bohannan Huston

AS-BUILT INFORMATION
CONTRACTOR DATE
AS-BUILTED BY DATE
INSPECTOR'S NOTATIONS BY DATE
FIELD VERIFICATION BY DATE
DRAWING CORRECTED BY DATE

BENCH MARKS

MICROFILM INFORMATION
RECORDED BY DATE
NO.

SURVEY INFORMATION
FIELD NOTES
NO. BY DATE

ENGINEER'S SEAL
STATE OF NEW MEXICO 14664 PROFESSIONAL ENGINEER
5/20/16

No.	Date	REMARKS / REVISIONS / DESIGN	By
		DESIGN	
		DATE: 05/2016	Designed By: SJS
		DATE: 05/2016	Drawn By: BJG
		DATE: 05/2016	Checked By: SJS

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTECITO VISTAS
GRADING PLAN
VISTA VIEJA AVENUE

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
Coa #	D-09	1	6

Fri, 20-May-2016 - 8:59:am, Plotted by: RGAUNA
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- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN INLET
- HIGH POINT

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N

40 20 0 40

1" = 40'

Bohannan Huston

AS-BUILT INFORMATION

BENCH MARKS

NO.	BY	DATE	REMARKS
			REVISIONS
			DESIGN

SURVEY INFORMATION
FIELD NOTES

CONTRACTOR DATE
NOTES STAKED BY DATE
INSPECTOR'S CERTIFICATE DATE
FIELD VERIFICATION BY DATE
DRAWING CORRECTED BY DATE

MICROFILM INFORMATION
RECORDED BY DATE
NO.

Designed By: SJS DATE: 05/2016
Drawn By: BJB DATE: 05/2016
Checked By: SJS DATE: 05/2016

ENGINEER'S SEAL
STEVEN J. STRUSS
14664
REGISTERED PROFESSIONAL ENGINEER

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTECITO VISTAS
GRADING PLAN
UNIT 1

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
Coa #	D-09	2	6

Fri, 20-May-2016 - 9:01:am, Plotted by: RGAUNA
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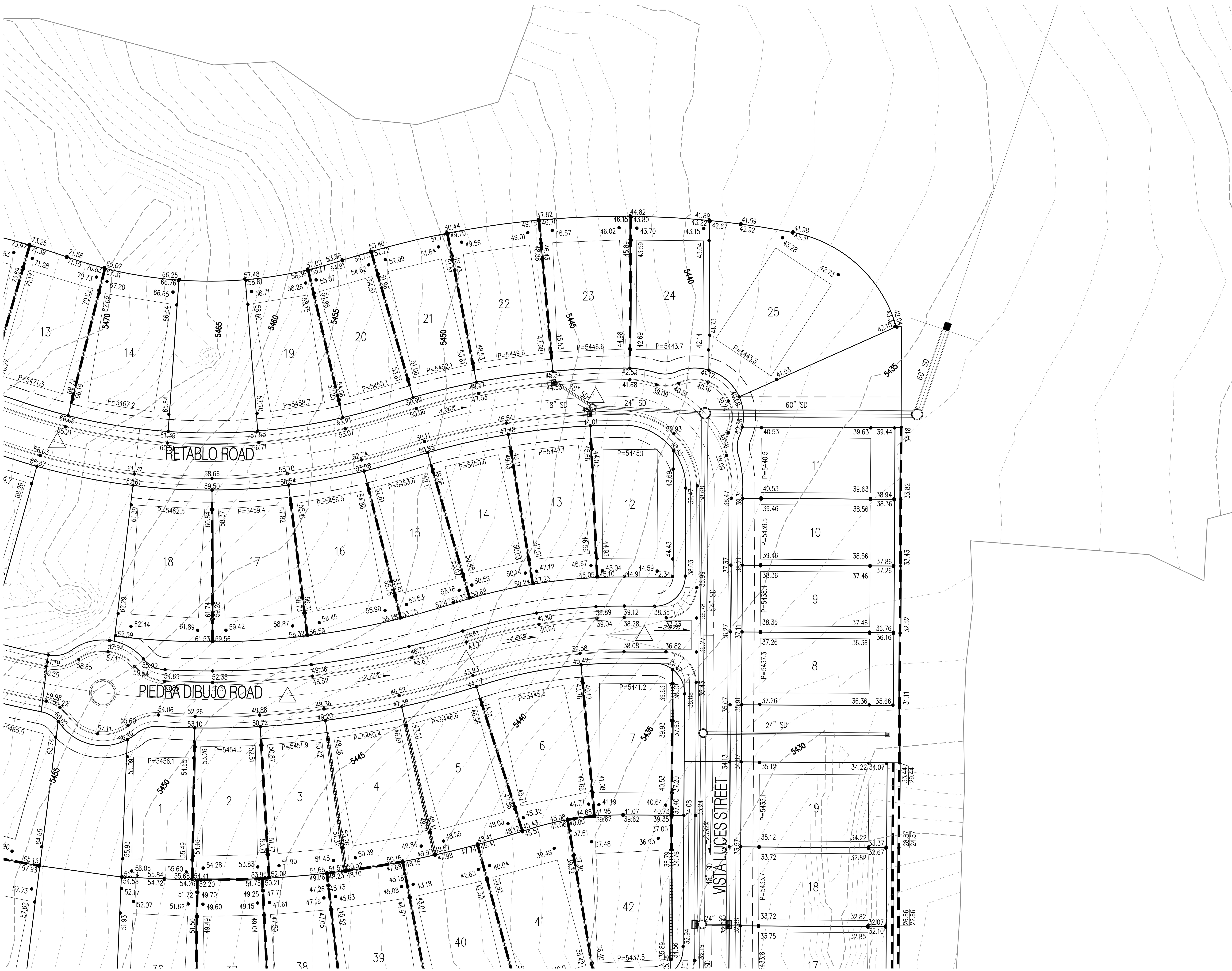

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92.46	EXISTING SPOT ELEVATION (GRND & TC)
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	PROPOSED STANDARD CURB & GUTTER
5470	EXISTING CONTOUR W/ INDEX ELEVATION
	FLOW ARROW
	PROPOSED RETAINING WALL
	PROPOSED SLOPE
	PROPOSED STORM DRAIN
	PROPOSED STORM DRAIN MANHOLE
	PROPOSED STORM DRAIN INLET
	HIGH POINT

SPOT ELEVATIONS TF=TOP OF FLOODWALL, BW=FINISHED GRADE ON LOW SIDE OF WALL, TW=FINISHED GRADE ON HIGH SIDE OF WALL.

N

1" = 40'

AS–BUILT INFORMATION: CONTRACTOR — DATE

BENCH MARKS

SURVEY INFORMATION — FIELD NOTES: NO. | BY | DATE

ENGINEER'S SEAL

REMARKS / REVISIONS / DESIGN — No. | Date | By

Designed By: SJS — DATE: 05/2016
Drawn By: BJG — DATE: 05/2016
Checked By: SJS — DATE: 05/2016

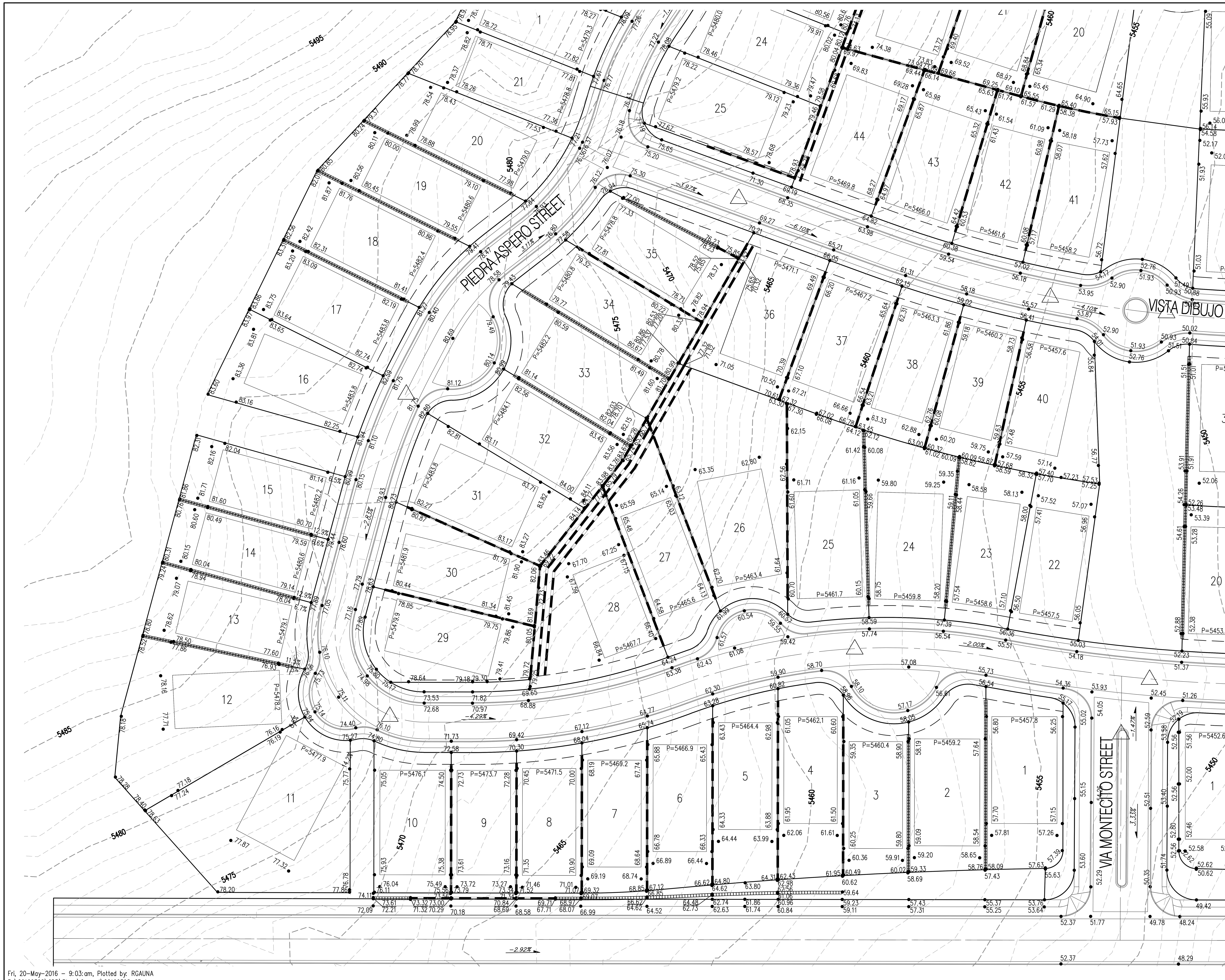
Bohannan Huston

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTECITO VISTAS
GRADING PLAN
UNIT 2

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
Coa #	D–09	3	6



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AS-BUILT INFORMATION | BENCH MARKS | SURVEY INFORMATION | FIELD NOTES | ENGINEER'S SEAL | REVISIONS | REMARKS | DESIGN

Designed By: SJS DATE: 05/2016
Drawn By: BJG DATE: 05/2016
Checked By: SJS DATE: 05/2016

Bohannan Huston

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTECITO VISTAS
GRADING PLAN
UNIT 3

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
Coa #	D-09	4	6

Fri, 20-May-2016 - 9:03:am, Plotted by: RGAUNA
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RETABLO ROAD

PIEDRA DIBUJO ROAD

PEDERO STREET

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N

40 20 0 40

1" = 40'

Bohannan Huston

AS-BUILT INFORMATION

CONTRACTOR — DATE

NOTES

STAKED BY — DATE

INSPECTOR'S CHANGES

FIELD VERIFICATION BY — DATE

DRAWING CORRECTED BY — DATE

BENCH MARKS

MICROFILM INFORMATION

RECORDED BY — DATE

NO.

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

ENGINEER'S SEAL

STATE OF NEW MEXICO 14664 PROFESSIONAL ENGINEER 5/26/16

No.	Date	REMARKS	By
		REVISIONS	
		DESIGN	

Designed By: SJS — DATE: 05/2016

Drawn By: BJG — DATE: 05/2016

Checked By: SJS — DATE: 05/2016

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTECITO VISTAS
GRADING PLAN
UNIT 4

Design Review Committee	City Engineer Approval	Last Design Update	Mo./Day/Yr.	Mo./Day/Yr.

City Project No.	Zone Map No.	Sheet	Of
Coa #	D-09	5	6

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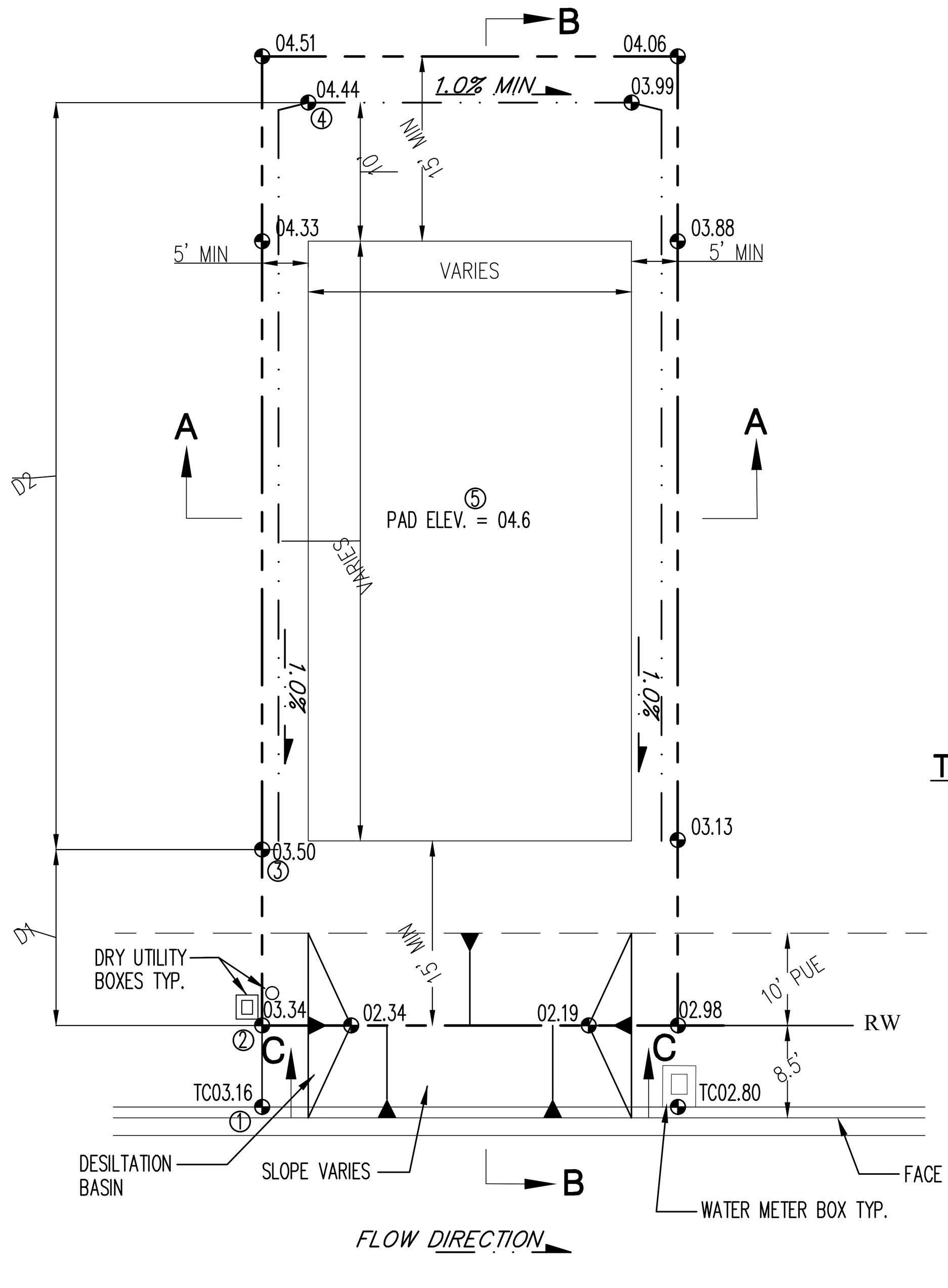
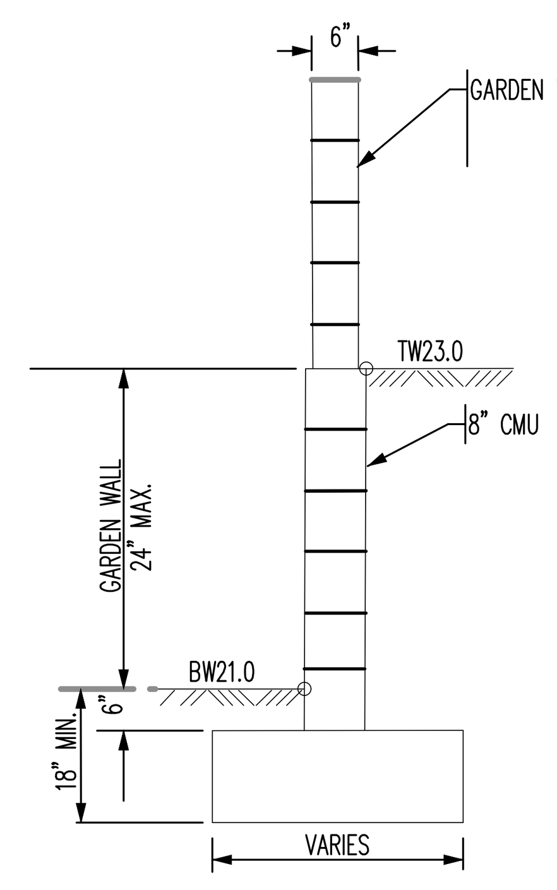


TYPICAL LOT GRADE DETAIL WITH DESILTATION BASIN FOR SEDIMENTATION CONTROL

NOT TO SCALE

TO SET SPOT②- ADD 0.17' TO SPOT①
TO SET SPOT③- MULTIPLY D1 BY 1.0% AND ADD TO SPOT②
TO SET SPOT④- MULTIPLY D2 BY 1.0% AND ADD TO SPOT③
TO SET SPOT⑤- ADD 0.2' TO SPOT④

BOTTOM OF BASIN IS 1' BELOW PROPERTY LINE ELEVATION.
SEE GRADING PLANS FOR EXACT ELEVATIONS.
CONTRACTOR SHALL CONSTRUCT TEMPORARY DESILTATION BASIN AT EACH LOT.

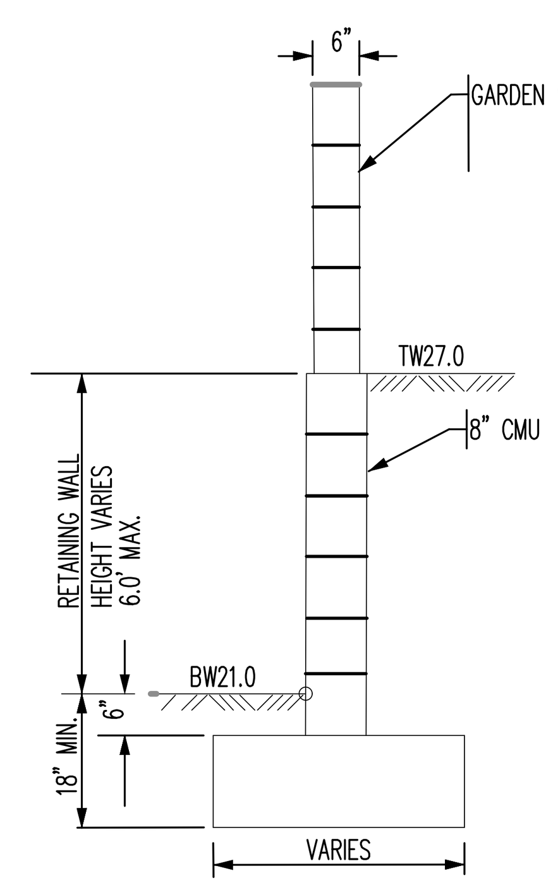


TW=FINISHED GRADE ELEVATION AT TOP OF GARDEN WALL
BW=FINISHED GRADE ELEVATION AT BOTTOM OF GARDEN WALL

TYPICAL GARDEN WALL NOMENCLATURE

NOT TO SCALE

(RETAINING HEIGHT IS TAKEN TO BE DIFFERENCE IN FINISHED GRADES ON LEFT AND RIGHT SIDE OF WALL.)

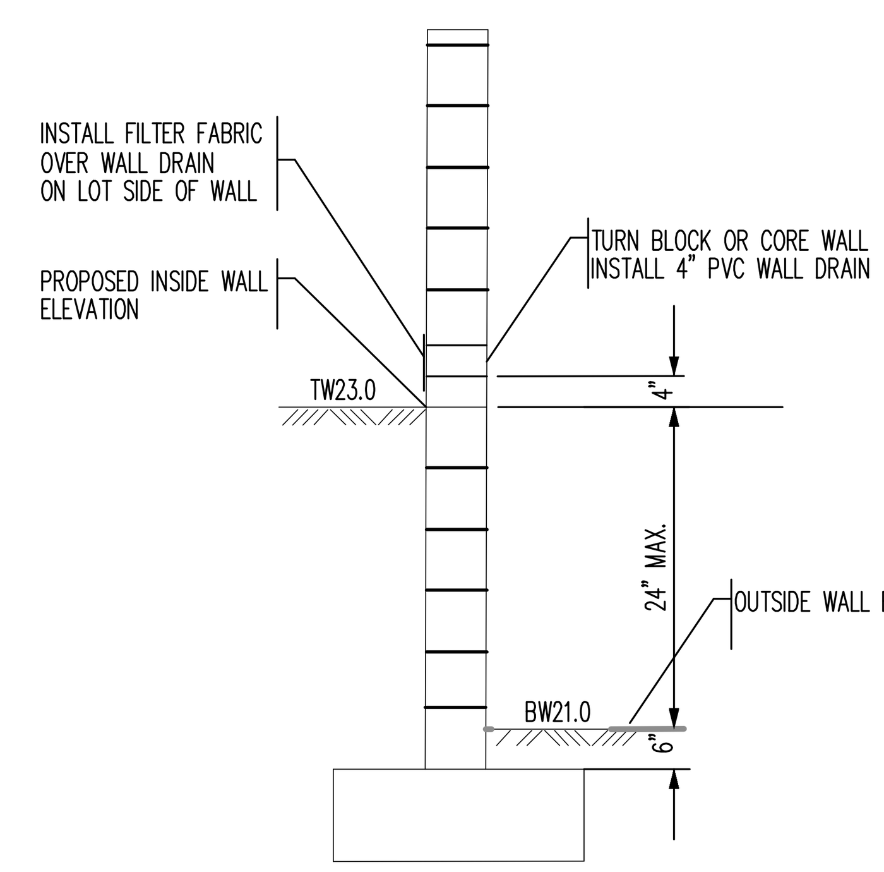


TW=FINISHED GRADE ELEVATION AT TOP OF RETAINING WALL
BW=FINISHED GRADE ELEVATION AT BOTTOM OF RETAINING WALL

TYPICAL RETAINING WALL NOMENCLATURE

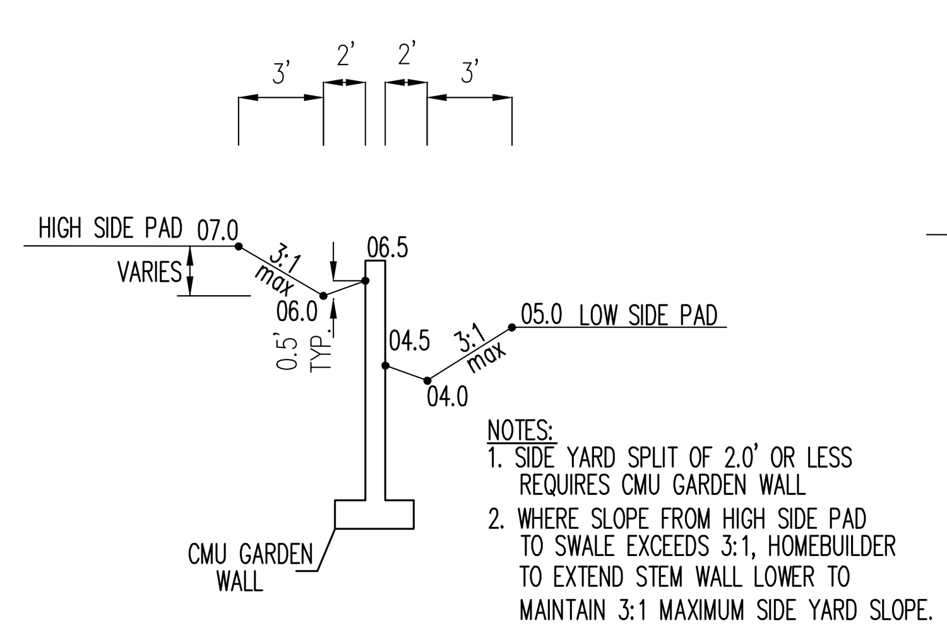
NOT TO SCALE

(RETAINING HEIGHT IS TAKEN TO BE DIFFERENCE IN FINISHED GRADES ON LEFT AND RIGHT SIDE OF WALL.)



WALL DRAIN DETAIL

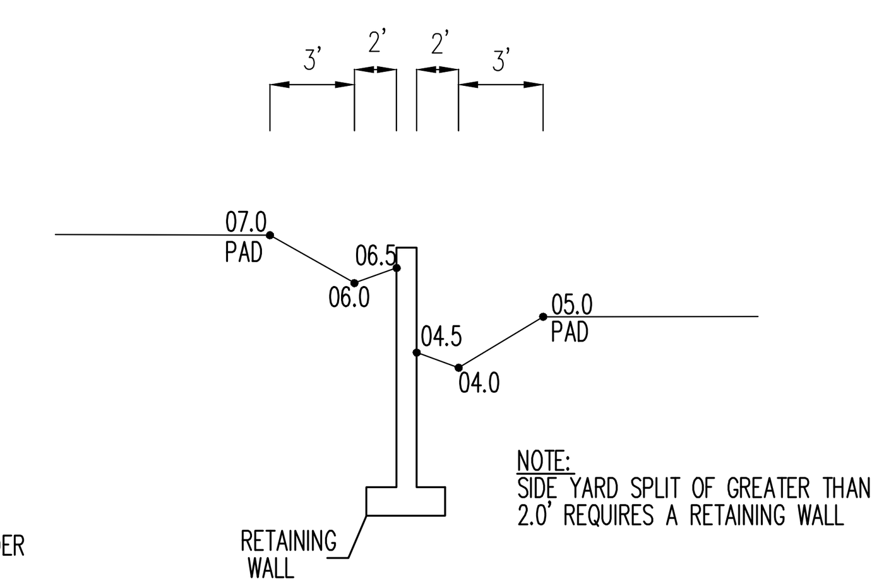
NOT TO SCALE



NOTES:
1. SIDE YARD SPLIT OF 2.0' OR LESS REQUIRES CMU GARDEN WALL
2. WHERE SLOPE FROM HIGH SIDE PAD TO SWALE EXCEEDS 3:1, HOMEBUILDER TO EXTEND STEM WALL LOWER TO MAINTAIN 3:1 MAXIMUM SIDE YARD SLOPE.

SIDE YARD GARDEN WALL DETAIL

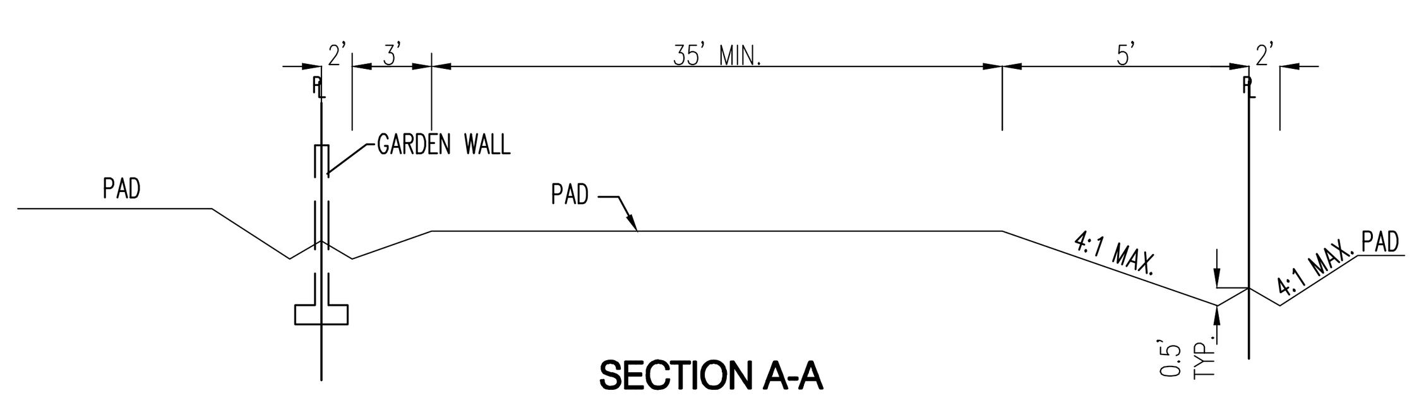
NOT TO SCALE



NOTE:
SIDE YARD SPLIT OF GREATER THAN 2.0' REQUIRES A RETAINING WALL

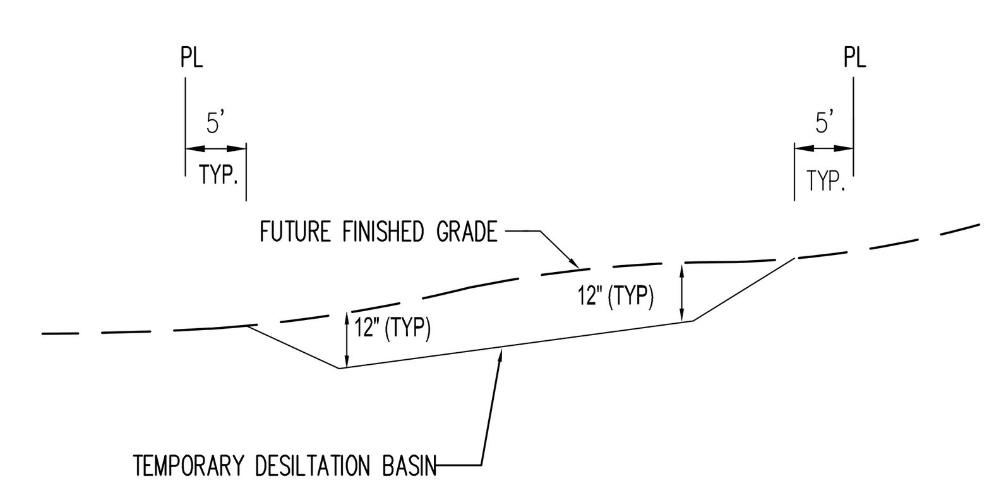
SIDE YARD RETAINING WALL DETAIL

NOT TO SCALE



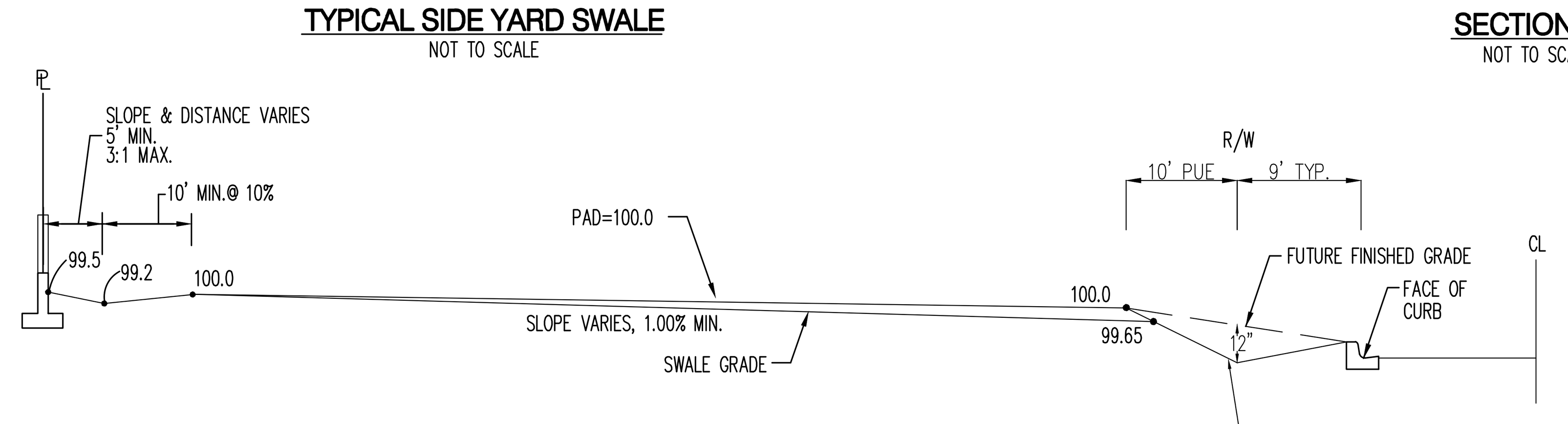
SECTION A-A
TYPICAL SIDE YARD SWALE

NOT TO SCALE



SECTION C-C

NOT TO SCALE



SECTION B-B

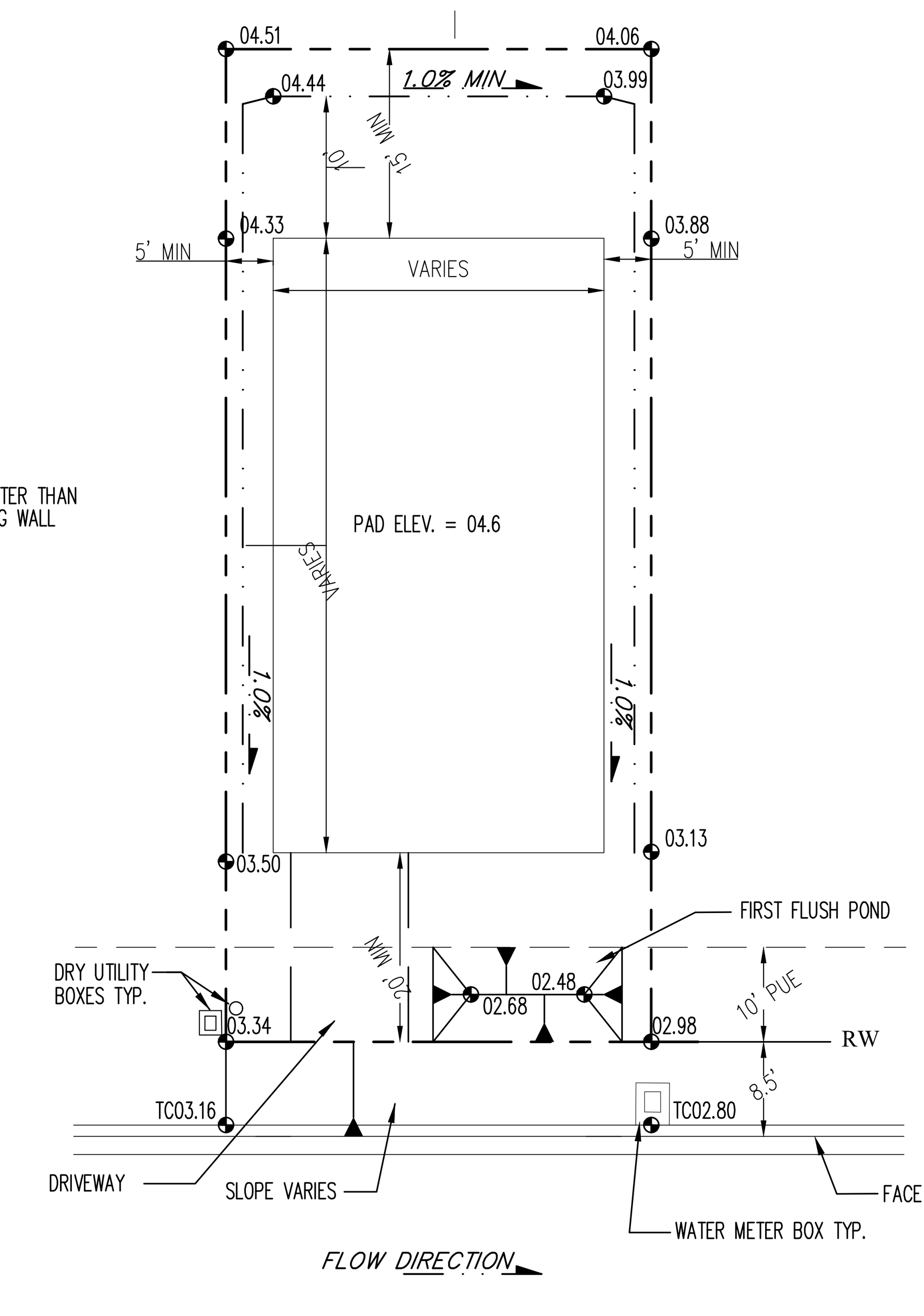
NOT TO SCALE

NOTE:

1. CONTRACTOR IS TO MASS GRADE ROADS TO 2' BEYOND FUTURE CURB. EXCESS FROM DRY UTILITY TRENCH IS TO BE USED TO BACK FILL BEHIND CURB.

2. FRONT YARDS ARE TO BE GRADED AS SHOWN ON THIS DETAIL FOR FINAL GRADING AND CERTIFICATION THIS DETAIL TO BE COORDINATED WITH.

3. HOME BUILDER TO BRING FRONT YARD TO ULTIMATE FRONT YARD GRADES AFTER HOME CONSTRUCTION IS COMPLETED. SEE ULTIMATE FRONT YARD GRADING DETAIL ON THIS SHEET.



TYPICAL LOT GRADE DETAIL WITH FIRST FLUSH POND

NOT TO SCALE

FIRST FLUSH VOLUME REQUIRED:
45'x75' PAD – 47 CUBIC FEET
50'x75' PAD – 53 CUBIC FEET

HOMEBUILDER SHALL CONSTRUCT FIRST FLUSH POND PRIOR TO LANDSCAPING FRONT YARD

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AS-BUILT INFORMATION
CONTRACTOR — DATE
WORK STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICROFILM INFORMATION
RECORDED BY — DATE
NO.

BENCH MARKS
Δα = -00°16'58.43"

SURVEY INFORMATION
FIELD NOTES
NO. | BY | DATE

ENGINEER'S SEAL

REMARKS
REVISIONS
DESIGN
No. | Date | By

Designed By: SJS — DATE: 05/2016
Drawn By: BJG — DATE: 05/2016
Checked By: SJS — DATE: 05/2016

Bohannan ▲ Huston

CITY OF ALBUQUERQUE
PUBLIC WORKS DEPARTMENT

MONTECITO VISTAS
GRADING PLAN
DETAILS

Design Review Committee	City Engineer Approval	Mo./Day/Yr.	Mo./Day/Yr.

Last Design Update

City Project No.	Zone Map No.	Sheet	Of
Coa #	D-09	6	6

Fri, 20-May-2016 - 8:58:am, Plotted by: RGAUNA
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EXHIBIT 5 -

STORM DRAIN CAPACITY CALCULATIONS

Bohannan Huston

MONTECITO WEST UNITS 3-6

PROPOSED
STORM DRAIN NETWORK

MAY 2016

STORM INLET SUMMARY						
INLET	STREET GRADE (%)	UPSTREAM HALF ST FLOW (CFS)	UPSTREAM DEPTH (FT)	FLOW CAPTURED BY INLET (CFS)	BYPASS FLOW (CFS)	INLET TYPE
1	4.2%	9.0	0.36	5.8	3.3	A
2	4.2%	9.0	0.36	5.8	3.3	A
3	N/A SUMP	13.4	0.44	13.4	0.0	A
4	N/A SUMP	13.4	0.44	13.4	0.0	A
5	3.1%	12.6	0.41	6.5	6.1	A
6	3.1%	12.6	0.41	6.5	6.1	A
7	3.8%	9.2	0.37	6.5	2.7	C
8	3.8%	9.2	0.37	6.5	2.7	C
9	N/A SUMP	10.8	0.43	10.8	0.0	A
10	N/A SUMP	10.8	0.43	10.8	0.0	A
11	3.5%	13.7	0.42	7.0	6.7	A
12	3.5%	13.7	0.42	7.0	6.7	A
13	N/A SUMP	8.0	N/A	8.0	0.0	D

STORM DRAIN PIPE SUMMARY				
SDP	SIZE (IN)	SLOPE (%)	FLOW (CFS)	MAX CAPACITY (CFS)
1	24"	13.1%	11.6	81.9
2	60"	0.2%	108.0	120.9
3	60"	0.2%	108.0	116.5
4	54"	0.2%	96.4	89.1
5	24"	1.0%	8.0	22.6
6	48"	0.2%	88.4	65.5
7	36"	0.2%	61.6	31.1
8	24"	6.0%	26.0	55.3
9	24"	4.0%	13.0	45.1
10	24"	4.0%	13.0	45.2
11	36"	2.1%	35.6	30.2
12	24"	2.1%	14.0	32.8
13	24"	2.8%	14.0	38.0
14	24"	3.6%	14.0	43.0

NOTES: 1. ALL INLETS ABOVE ARE SINGLE GRATE.
2. ALL LATERAL PIPES CONNECTING INLETS TO MANHOLES ARE 18" DIA., EXCEPT LATERAL TO MANHOLE FROM IN3, IN4, IN9, IN10, AND IN13 WHICH ARE 24" DIA.

LEGEND

PROPOSED STORM DRAIN PIPE

PROPOSED STORM DRAIN MANHOLE

PROPOSED STORM DRAIN INLET

N

100 50 0 100

SCALE: 1"=100'

Bohannan Huston

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May 19, 2016 - 3:18pm