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West I-40 DMP Update (2011)
Bohannan Huston, Inc.
Bohannan Huston, 2011

WEST I-40 DRAINAGE MANAGEMENT PLAN UPDATE (2011)

DECEMBER 2011

Prepared for:

Albuquerque Public Schools

and

Western Albuquerque Land Holdings, LLC.

Prepared by:

Bohannan Huston

Engineering

Spatial Data

Advanced Technologies

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2600 Prospect N.E., Albuquerque, NM 87107
Phone: (505) 884-2215 Fax: (505) 884-0214
Website: www.amafca.org

DATE: 6/5/18

NAME: Doug

COMPANY: CoA

ADDRESS:

TELEPHONE: 924-3986

SIGNATURE: Doug Hoyt

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WEST I-40
DRAINAGE MANAGEMENT PLAN (DMP) UPDATE (2011)

DECEMBER 2011

Prepared For:

ALBUQUERQUE PUBLIC SCHOOLS

AND

WESTERN ALBUQUERQUE LAND HOLDINGS, LLC.

Prepared By:

BOHANNAN HUSTON INC.

COURTYARD ONE

7500 JEFFERSON NE

ALBUQUERQUE, NM 87109

PREPARED BY:

12/6/11

Craig W. Hoover, P.E. Date

Reviewed by

12/6/11

Jonathan Ellison, E.I. Date

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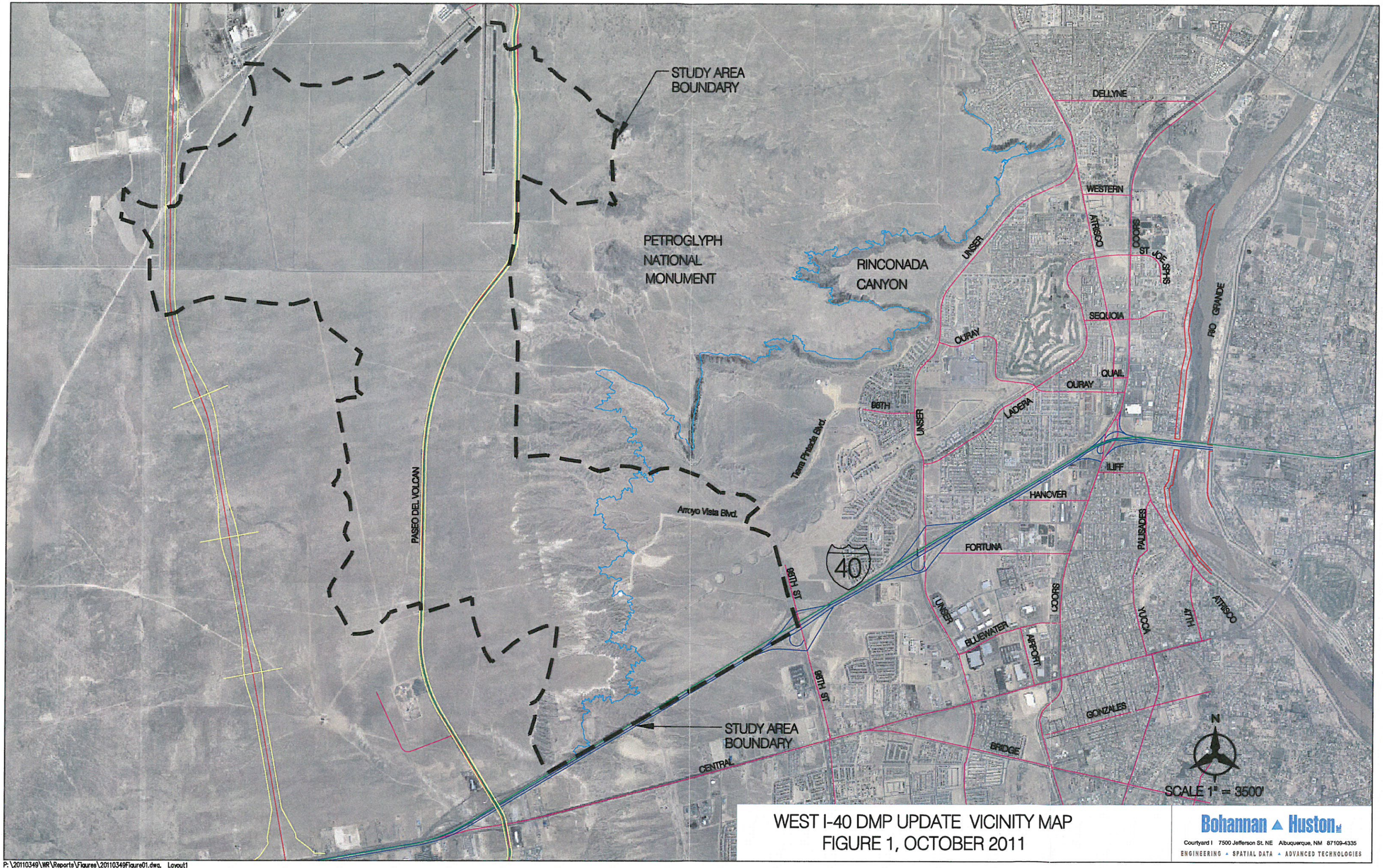
I. INTRODUCTION

Bohannan Huston Inc. (BHI) was retained by Western Albuquerque Land Holding LLC. (WALH) and Albuquerque Public Schools (APS) in coordination with AMAFCA to perform an update of the approved 2006 West I-40 DMP (2006 DMP Update). The purpose of this 2011 West I-40 DMP Update (2011 DMP Update) is to optimize the existing and proposed area drainage systems to reflect:

- revisions to area land use plans, specifically for two 110 acre sites north of the Ladera Dam system located primarily in the Ladera Dam 5 and Ladera Dam 9 Watersheds.
- current land planning for the area south of the Ladera Dams and west of 98th Street and
- recent improvements to the West I-40 Diversion drainage system.

The areas covered by this updated analysis begin just west of 98th Street and extends westward along I-40 to the top of the escarpment. Then the boundary heads north along the escarpment until reaching the East Amole basins that drain across Paseo Del Volcan (formerly Double Eagle II. The northern and western boundaries extend to the limits of the Ladera Dam 12 watershed that flow into the Petroglyph Diversion. Interstate 40 (I-40) serves as the southern boundary of the study area while the northern and eastern boundaries extend to the limits of the watershed which ultimately drain to the Ladera Dam System upstream of Dam 6 including areas draining to the Petroglyph Diversion as shown in Figure 1. Although the study area does not include the Ladera system below Ladera Dam 5 or the lower West I-40 system east of 98th Street, the hydrologic models include these areas to ensure that proposed changes do not exceed the downstream capacity of the existing conveyance facilities.

Watersheds affected by this study include portions of the Ladera and the East Amole. This study began with basins derived in previous studies, but modified as needed to reflect development in place since 2006 and current land use plans for the area. The total study area encompasses approximately 12 square miles divided into the following major watershed areas: the Southern Terrace, Upper Dam 5, Open Space, Ladera, and East Amole. The Open Space areas drain to either the Southern Terrace or Upper Dam basins and will be discussed with those basins. Figure 2 shows the drainage basin map with abbreviated labels representing the areas listed above.



WEST I-40 DMP UPDATE VICINITY MAP
FIGURE 1, OCTOBER 2011

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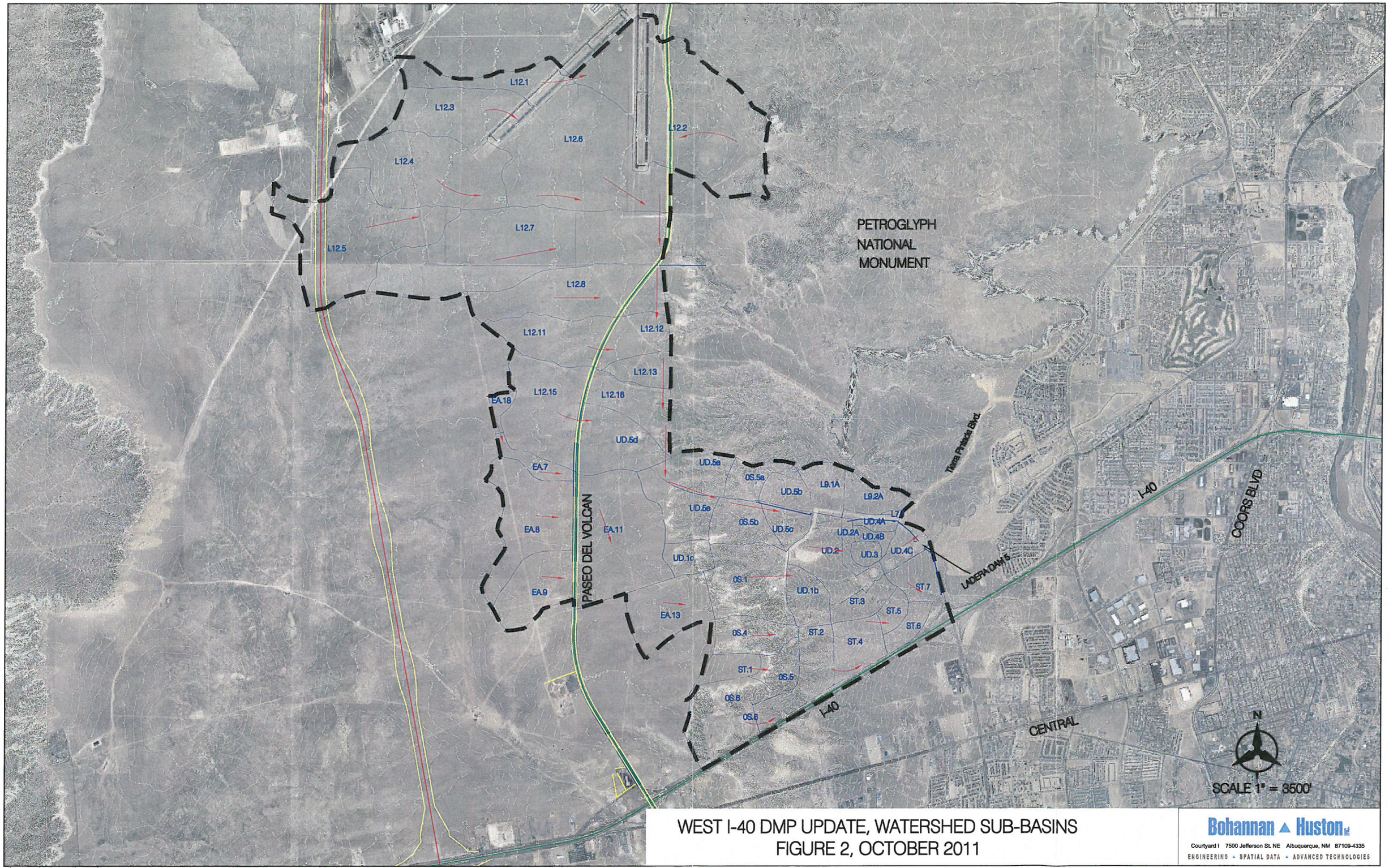

WEST I-40 DMP UPDATE, WATERSHED SUB-BASINS
FIGURE 2, OCTOBER 2011

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The 2000 West I-40 DMP (BHI) and 2006 DMP Update (BHI) evaluated many different options for managing drainage in the area, and several of its key structures were re-evaluated within the current study, including:

2000 West I-40 DMP

- The proposed Petroglyph Diversion, this diversion will divert flow that historically drained through Petroglyph National Monument to the south around the Monument and ultimately to Ladera Dam 5. Flow from the proposed Paseo Del Volcan Dam will be conveyed in a pipe through two Dams, the A2 Dam and the C Dam to D5 Dam.
- The proposed D5 Dam, this facility will collect discharge from the Petroglyph diversion and will regulate and discharge flows in the Dam 5 Arroyo to Ladera Dam 5.
- Ladera Dam 5 Diversion, this diversion will divert flows from Ladera Dam 5 that historically flow to Ladera Dam 6 and will convey a portion of the flows to the West I-40 Diversion Drainage system that runs parallel to I-40 from Nine Mile Hill to the Rio Grande. The Ladera Dam 5 Diversion proves to be needed in most but not all options.

2006 DMP Update

- Diversion of East Amole watershed basins down the face of the escarpment into Dam 0 of the Ladera Dam system.
- Expansion of Ladera Dams 0 and Dam 1, these facilities will regulate incoming flows from both the Ladera Watershed and the diverted portion of the East Amole Watershed.

Many options and system modifications regarding the overall existing drainage system (Ladera Dam system) were analyzed given recent changes in downstream infrastructure, to reflect development since 2006, and to reflect current land use plans in the study area, all the while working to provide a detailed analysis of routing and detention facilities to optimize efficiencies in the drainage system. Significant proposed changes to storage elements of the previously adopted system include:

- Dam 5 arroyo conveyance channel will be changed to a pipe conveyance from D5 Dam to the proposed Pond 5 Soccer (Pond 5S).
- Addition of the Ladera Dam 9 Arroyo Diversion to protect the proposed APS schools site. This facility will divert flow that previously flowed through the proposed school

site to the existing Storm Cloud Storm Drain at Tierra Pintada. Instead these flows will be diverted south via an earthen berm to the proposed Pond 5S.

- Addition of Pond 5S to increase the detention volume in the Ladera Dam 5 watershed to accommodate flows from the Petroglyph Diversion while allowing the flows from Dam 5 arroyo to be conveyed around the proposed APS Stadium Site through a storm drain that will convey flows to Ladera Dam 5.
- Addition of Storm Cloud Diversion. This diversion, located in Tierra Pintada downstream of the school site, will divert flows, essentially equal to those diverted by the Ladera Dam 9 Arroyo Diversion, from the conveyance to Ladera Dam 5 back to their historic outfall, the Storm Cloud Storm Drain. This returns flows to their historic location and reduces the need to increase the size of Ladera Dam 5 while decreasing the size of the Ladera Dam 5 diversion to the West I-40 Diversion drainage system from 72" to 48".

These changes optimize the operation of the existing and proposed storm drainage system thereby enhancing flood protection while reducing future construction costs.

II. METHODOLOGY

Hydrologic modeling was performed using the Arid Lands Hydrologic Model (AHYMO, Aug 97) in accordance with the City of Albuquerque Development Process Manual Section 22.2. This model requires inputs for basin area, land treatments related to pervious and impervious area, routing, precipitation and time to peak.

A. PRECIPITATION

The design storm for this study was the 24-hour, 100-year event. The rainfall parameters originally came from the Amole-Westgate DMP, and were also used in the 2000 West I-40 DMP and in the 2006 DMP Update. All of these studies were approved by AMAFCA. The 2006 DMP Update used three different rainfalls for the various watersheds in the study area: Amole watershed, Ladera watershed above Dam 12, and Ladera watershed below Dam 12 including the West Bluff. These rainfalls originally came from the NOAA 2 atlas. For this update, rainfall depths from the NOAA 14 atlas were used for the design storm. Rainfall depths are summarized in Table 1.

Table 1 – Rainfall Depths for Design Storm Events

NOAA 2 ATLAS									
Precip Duration	AMOLE WATERSHED			LADERA WATERSHED ABOVE DAM 12			LADERA WATERSHED BELOW DAM 12 AND WEST BLUFF		
	2yr	10yr	100yr	2yr	10yr	100yr	2yr	10yr	100yr
15 min	-	-	-	-	-	-	-	-	-
1 hr	0.73	1.24	1.87	0.69	1.16	1.76	0.76	1.25	1.90
6 hr	0.95	1.47	2.2	0.93	1.43	2.14	0.96	1.47	2.20
24 hr	1.15	1.77	2.66	1.13	1.74	2.60	1.15	1.77	2.65

NOAA 14 ATLAS									
Precip Duration	AMOLE WATERSHED			LADERA WATERSHED ABOVE DAM 12			LADERA WATERSHED BELOW DAM 12 AND WEST BLUFF		
	2yr	10yr	100yr	2yr	10yr	100yr	2yr	10yr	100yr
15 min	-	-	-	-	-	-	-	-	-
1 hr	0.71	1.14	1.81	0.7	1.12	1.78	0.69	1.11	1.77
6 hr	0.99	1.5	2.31	0.97	1.48	2.28	0.97	1.47	2.26
24 hr	1.26	1.83	2.72	1.25	1.82	2.71	1.22	1.77	2.63

B. BASIN DELINEATION

Orthophoto topographic maps using a 10-foot contour interval, and the 2006 WALH Master Plan were used to adjust basin boundaries created in the previous 2000 West I-40 DMP and the 2006 DMP Update. Basin boundaries were digitalized in AutoCAD®, and the digital map was used to determine the sub-basin sizes. Basins originally delineated for the 2000 West I-40 DMP were modified to reflect changes to existing and proposed land development boundaries where known. The proposed development of the APS Stadium Site and Schools Site includes new drainage infrastructure, creating new analysis points for basin delineation within these areas. Basins within developed areas were adjusted to more accurately follow existing drainage paths. In areas without development, streets and zoning divisions proposed in the 2006 WAHL Master Plan were used to define developed basins as shown in Figure 3.

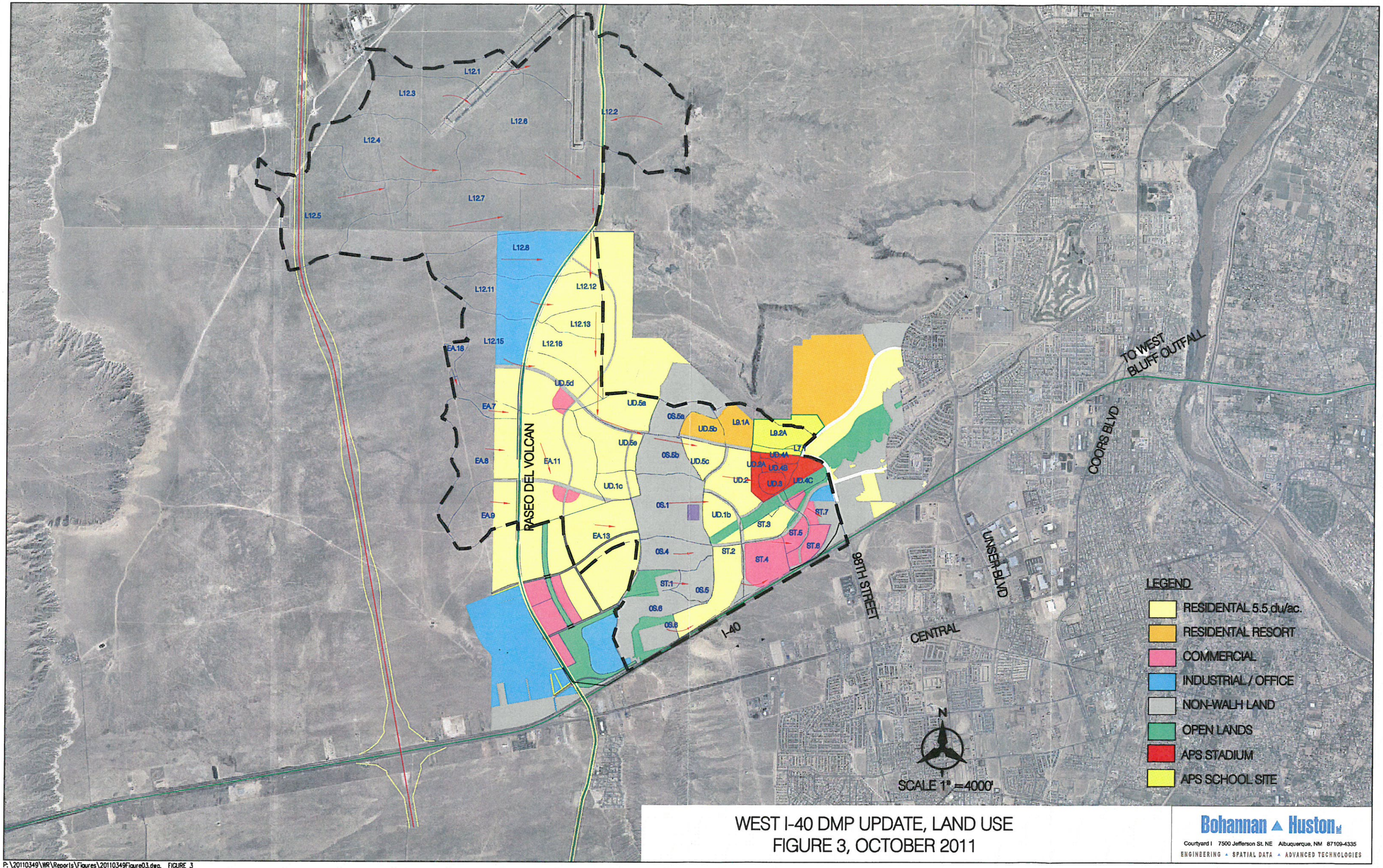
C. LAND TREATMENTS

Land treatments were assigned to sub-basins based on proposed land usage according to the procedure outlined in the COA Development Process Manual, Section 22.2. Land treatment percentages were established by land use occurring in a basin relative to the 2006 WAHL Master Plan (see Figure 3). The proportion of treatments A, B, and C in undeveloped open areas were determined from existing Bernalillo County aerial mapping generated by BHI in 2010. Table 2 shows land treatment percentages relative to land use type based on zoning categories. Land treatment percentages for the APS Stadium Site and Schools Site were determined from the proposed conceptual design plans for the two sites, see Figure 4. The proposed land uses for the Stadium Site is less intense than what was assumed in previous land use plans and in the two West I-40 DMP reports. Consequently, the impact on the watershed and downstream facilities is less. A full list of land treatments used for each basin is included in the Appendix.

Table 2 – Land Treatments by Land Use Category

Land Treatment	Residential 5.5 du/ac	Resort	Commercial C-1	Town Center TC	Industrial Park IP	Parks PARK/OL	Schools
A	0%	0%	0%	0%	0%	5%	0%
B	23.5%	35%	5%	5%	10%	40%	25%
C	23.5%	35%	5%	5%	10%	40%	25%
D	53%	30%	90%	90%	80%	15%	50%

For areas west of the 2006 WALH Master Plan area where land use designations have not been established, a weighted average of overall land use type from the master plan was created. The 2000 West I-40 DMP assumed 5 dwelling units per acre for areas west of Double Eagle II Road (existing Paseo del Volcan). This assumption was maintained in this 2011 DMP Update.



WEST I-40 DMP UPDATE, LAND USE
FIGURE 3, OCTOBER 2011

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P:\20110349\WR\Reports\Figures\20110349Figure03.dwg, FIGURE 3
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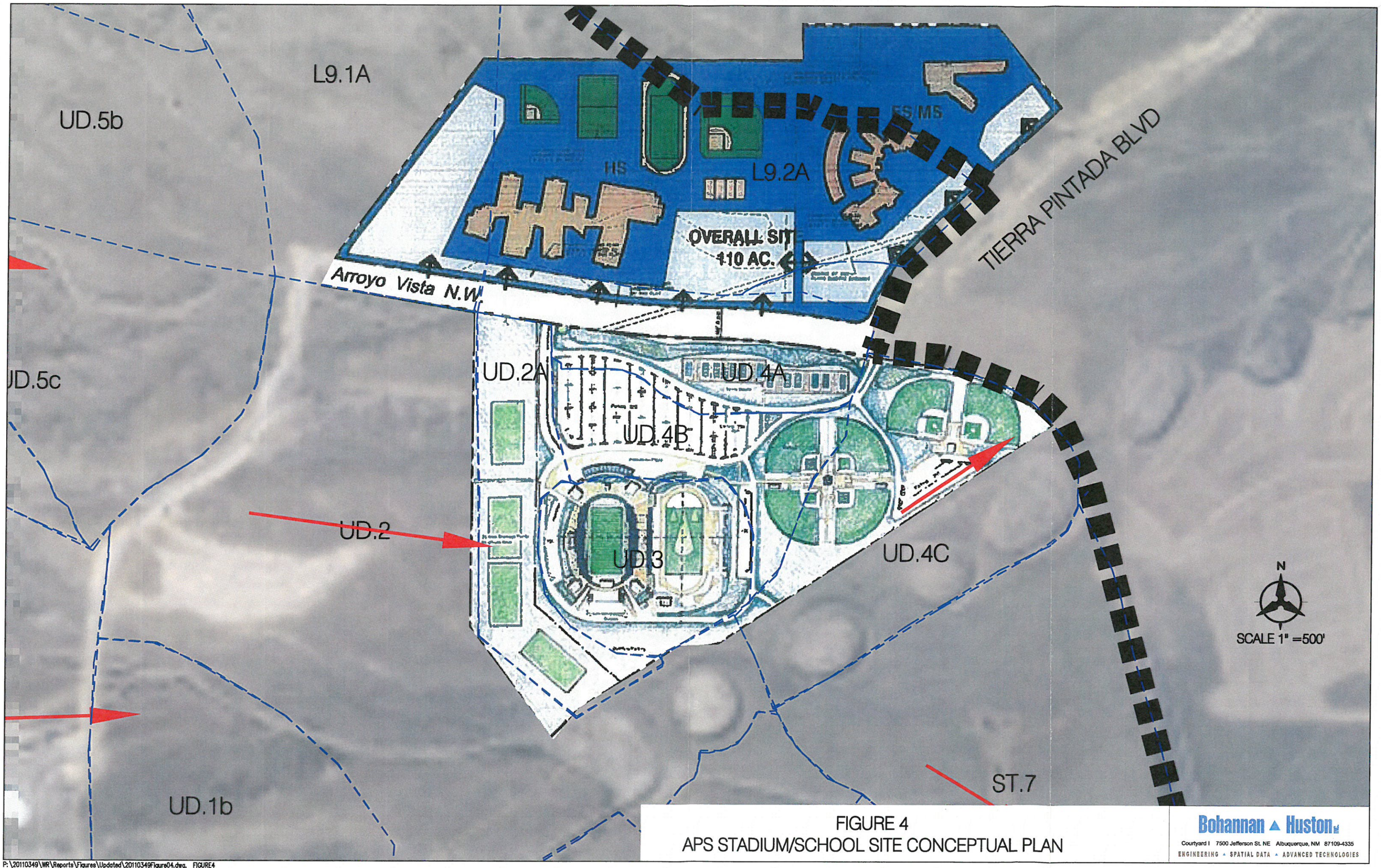

FIGURE 4
APS STADIUM/SCHOOL SITE CONCEPTUAL PLAN

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D. ROUTING

The Muskingum-Cunge method was used for all flow routing, consistent with previous studies in the area, and in accordance with locally adopted policy. Basin routing was adjusted from the previous model relative to creation of new conveyance infrastructure and revised basin boundaries. In areas where future development is not yet formally planned open channels were used for routing purposes instead of storm drains. Formal development plans and design of local conveyance systems may permit other options in the future. Otherwise, storm drain and detention facilities were modeled consistent with the 2000 West I-40 DMP and the 2006 West I-40 DMP Update.

Basins west of the 2006 WALH Master Plan area were routed through six-foot deep lined trapezoidal channels with a ten foot wide bottom and 2 to 1 side-slopes. A Manning's "n" value of 0.022 was applied within all proposed channels to allow for flexibility in future design decisions in choosing lining types other than concrete. In other areas with defined land uses, reinforced concrete pipe (RCP) was selected as the most reasonable means of conveyance underground.

The routing scenario used in the modeling process included the combination of routing scenarios adopted in the 2006 DMP Update. The routing for basins within the Southern Terrace, Upper Ladera System, and the Ladera System were modeled using a free discharge scenario to allow for development without the use of creating a surge pond condition within each basin within the watershed. Basins within the East Amole and basins ST.2a and St.2b are planned to construct surge ponds in the future. Within the hydrologic model, a DIVIDE HYD command was inserted sending 75% of the base hydrograph into the conveyance system while the 25% remaining peak portion was detained within local facilities. This is consistent with the surge pond scenario for limited portions of the watershed introduced in the 2006 DMP Update. This approach was introduced as a means of embracing the opportunity for sustainable design through the use of techniques including localized detention ponding and catchments, infiltration basins, multi-use facilities accepting infrequent saturation, and other innovative means, while also reducing flows to acceptable levels to allow the downstream West I-40 Diversion system to be reduced in size to fit with the then available public and private funding. Table 3 summarizes the basins for which flows were reduced using a surge pond.

Table 3 – Optimized Basins – Surge Ponds Included

Watershed	Basins Affected
East Amole	EA.7, EA.8, EA.9, EA.11, EA.13, EA.18
Southern Terrace	ST.2A, ST.2B

E. RUNOFF FLOW CONCENTRATION - TIME TO PEAK

Time to peak (Tp) values were calculated using the SCS Upland Method as prescribed in the COA DPM Section 22.2. Specific values for each basin Tp are included in the Appendix.

F. SEDIMENT BULKING

Sediment bulking parameters were originally developed by Mussetter Engineering, Inc. (MEI), and reported in "Analysis of Existing Conditions Sediment Yields and Detention Dam Trap Efficiencies, April 1996 (Volume IV)." The MEI study estimated sediment yield, sediment trapping, and bulking factors for dams in the Ladera system. The results from the MEI study were used in the 2000 West I-40 DMP, and have been carried over to this study. A uniform bulking factor of 2.5% bulking was applied to all developed basins within the study area while the bulking factor varies for open space areas from 5% to 23% percent depending upon the location, slopes, and soils in accordance with the 2000 West I-40 DMP bulking factors.

G. MULTI-USE FACILITIES

In each drainage management option the proposed detention facilities are envisioned to be multi-use facilities that combine other uses with the basic flood control function. Notably, the newly proposed Pond 5S located in the northwest corner of the stadium and will also function as a soccer facility. Where appropriate, the expansion of existing Ladera Dams may afford the opportunity to incorporate other uses such as ball fields, park facilities, or open space.

H. WATER QUALITY

Improving the quality of storm water runoff is becoming increasing important to our community, particularly with new EPA requirements associated with a pending new Watershed Based MS4 Permit for the discharges to the Rio Grande. As such, water quality best management practices (BMPs) should be included as a part of each drainage management option. Detention facilities should be designed to maximize sediment and debris trapping efficiencies. Storm water quality inlets and manholes should be a standard element of each

storm drain system designed in the watershed. Specific water quality BMPs will be identified and included as part of the design phase as the drainage management options, included in this 2011 DMP Update, are implemented.

III. HYDROLOGY AND DRAINAGE IMPROVEMENTS APPROACH

This study constitutes an update to the 2006 DMP Update and the 2000 West I-40 DMP; therefore existing conditions hydrology was not considered as it was analyzed previously. This update modeled basins based on proposed fully-developed conditions in response to changes in the study area already discussed. In general, runoff will flow from west to east and discharge from the study area at the Ladera Dam 5 Outfall to Ladera Dam 6 and under some options at the outfall from Ladera Dam 5 Diversion to the West I-40 Diversion. Many of the drainage facilities included in the model do not currently exist but were included as recommendations to ensure safe and efficient operation of the conveyance system under fully developed conditions. Proposed structures from the 2006 DMP Update that remain as part of this 2011 DMP Update include:

- the future Paseo Del Volcan Dam,
- the A2 Dam,
- the "C" Dam,
- the D5 Dam, and
- the connecting Petroglyph Diversion,
- the EA.11 Dam and associated EA.11 Diversion to Ladera Dam 0
- the expansion of Ladera Dams 0 and 1 and
- the Ladera Dam 5 Diversion (only in some options)
- Dam 5 arroyo

New drainage facilities proposed with this update may include the following depending upon the drainage management option:

- the Pond 5S,
- the Dam 9 Arroyo Diversion,
- the Pond 5S Storm Drain (replaces a portion of Dam 5 arroyo), and
- the Storm Cloud Storm Drain Diversion (only Option 4).

The drainage management options include specifics of developed condition flows, detention, and conveyance and are discussed in Section IV.

A. EAST AMOLE WATERSHED

These basins are unchanged from the 2006 DMP Update.

B. OPEN SPACE AREAS

These basins are unchanged from the 2006 DMP update

C. LADERA WATERSHED (UPSTREAM OF PETROGLYPH DIVERSION)

The Ladera Dam watershed that historically drained to Ladera Dam 12 (L12 basins) extends from the eastern edge of the West Amole watershed to the west and is bound to the east by the proposed Petroglyph diversion and extends to the south to the Upper Dam 5 watershed. The natural drainage pattern of this area is from northwest to southeast. There is one historical playa in the watershed which helps attenuate peak flows. This playa will be preserved in the developed conditions model and is expected to serve as localized ponding within open space when development occurs. Location and configuration can be modified to optimize efficiency and maintenance of facilities and development. The Upper Ladera watershed's existing conditions are undeveloped, and no significant master planning exists. Consequently, basins were assumed to have same land treatments as in the 2000 West I-40 DMP. The Ladera Watershed (L12 basins) is approximately 7.5 square miles in area, all of which will be diverted into the proposed Petroglyph Diversion. To allow flexibility with respect to conveyance of flows either around or through the Petroglyph National Monument, the Petroglyph Diversion, consistent with Option 2D, from the 2000 West I-40 DMP was included in this study. This ensures that the downstream system does not get undersized by excluding Petroglyph Diversion.

The Petroglyph Diversion will be used to divert flows around the Petroglyph Monument, thus preserving the Monument. This diversion is accomplished with a series of buried storm drain rather than open channels, reducing the potential future constraints on development while also creating several opportunities for neighborhood parks and multi-use facilities. Flow from the proposed Paseo Del Volcan Dam will be conveyed in a pipe through two dams, the A2 Dam and the C Dam. Flow will then be conveyed in the Dam 5 arroyo to the D5 Dam.

D. UPPER DAM 5 WATERSHED

The Upper Dam 5 watershed includes areas north of the Ladera Dam system that contribute flow to this series of dams and includes, as a worst case scenario, the Petroglyph Diversion to the Upper Dam 5 watershed. This Petroglyph Diversion is discussed above as part of the Ladera Watershed. This Update does not make any recommendation as to options 2D or 3C.1 of the 2000 West I-40 DMP. Part of this area is planned for residential and commercial development with the updated planned areas for the APS Stadium Site and Schools Site. Basins in this Upper Dam 5 watershed are denoted with a "UD" prefix.

Initial flows into Dam 0 include OS.1, OS.4, and UD.1c and flow diverted from portions of the East Amole watershed as previously described. The pond outflow is routed through basin UD.1b and into Ladera Dam 1. Runoff from basins UD.2, UD.3, UD.4b, and UD.4c were evenly divided into the Ladera dams directly downstream. Basins UD.2, UD.2a, UD.3, UD.4a, UD.4b, and UD.4c have been modified from previous 2006 West I-40 Update to reflect the proposed APS Stadium Site development plan. Runoff from UD.2a and UD.4a will be conveyed to Ladera Dam 5. Two significant adjustments to the previous model are described below.

1. IMPROVED DAM 0

Dam 0 was included in the previous 2000 West I-40 DMP and is part of the Ladera system. Dam 0 currently acts as a diversion for flow into the Ladera system, but is not large enough to detain runoff or significantly attenuate flow. This study proposes enlarging Dam 0 to detain runoff from basins UD.1c, OS.1, OS.4, which have a combined area of approximately 0.59 sq. miles and from the East Amole EA.11 Diversion. The enlargement of Dam 0 to detain approximately 36 acre-feet of runoff enables effective operation of the entire West I-40 Diversion system once the diversion from the EA.11 pond is completed and flows from on top of the escarpment are conveyed eastward. This facility is common to all drainage management plan options.

2. IMPROVED DAM 1

Enlargement of Dam 1 was included in the previous 2000 West I-40 DMP and is part of the Ladera system. Dam 1 is currently undersized and is not large enough to detain runoff or significantly attenuate flow. This study proposes enlarging Dam 1 to detain the outflow of Dam 0 and flows from basins UD.1b, and basin UD.2. The capacity needed for the expansion of Ladera

Dam 1 differs in each drainage management plan. See Section IV for details about the capacity of this facility.

E. SOUTHERN TERRACE WATERSHED

Although the current land planning for the area south of the Ladera Dams and west of 98th Street has been updated from the 2006 DMP Update these basins land treatments have not changed. Therefore, these basins within the study area have not been modified from the 2006 DMP Update.

F. LADERA DAMS 6-15

Ladera Dams 6 through 15 were not reanalyzed in this study except as discussed below, but are included in the AHYMO models to ensure that the downstream facilities still have capacity with this 2011 DMP Update.

The AHYMO analysis developed by BHI for the Storm Cloud Subdivision and outlined in the approved "Amendment No. 2 Stormcloud Subdivision Drainage Report" dated September 03, 2010 was inserted for this revision. This analysis found that under developed conditions, Dams 9, 10, and 11 were undersized and recommended improvements to Dams 8 and 9. These improvements have now been constructed and are complete. The constructed improvements include expanding the storage pool of each dam and installing orifice plates to the primary spillways. The improvements to Dams 8 and 9 provide 1 foot of freeboard for each dam and alleviate the need to increase the size of Dams 10 and 11. However, Dam 12 may require expansion in the future to accommodate fully developed conditions. Additional analysis may be necessary to assess interim conditions and determine the point of which expansion of Dam 12 is needed. Dam 12 has sufficient capacity for current existing conditions and for the interim conditions presented in this 2011 DMP Update.

IV. DRAINAGE MANAGEMENT OPTIONS

This Update does not make any recommendation as to options 2D or 3C.1 of the 2000 West I-40 DMP. Rather it assumes a worst case scenario for the study area, which corresponds with Option 2D that includes the diversion of flows to the south around the Petroglyph National Monument ultimately to Ladera Dam 5. Without this diversion of flows, by the proposed Petroglyph Diversion, the Ladera Dam 5 Diversion is not required. However, since a decision to divert or not divert flows around the monument has not been made, this study assumes the worst case scenario such that AMAFCA and project stakeholders have the

flexibility to choose either Option 2D or 3C.1 once development is eminent in the upper portions of the watershed, on top of the escarpment. Until that time, development can continue below the escarpment in the Lower Petroglyphs as described in any of the following options, without precluding the adoption of either Option 2D or 3C.1 in the future.

Four primary drainage management options were developed and evaluated under this report to optimize the existing and proposed area drainage systems to reflect:

- revisions to area land use plans specifically for two 110 acre sites (the Stadium and Schools sites) north of the Ladera Dam system located primarily in the Ladera Dam 5 and Ladera Dam 9 Watersheds, respectively
- current land planning for the area south of the Ladera Dams and west of 98th Street and
- recent improvements to the West I-40 diversion drainage system

A. OPTION 1

Option 1, as shown in Figure 5, seeks to optimize the existing Ladera system and eliminate the need for the Ladera Dam 5 Diversion. The reason for this elimination of the Dam 5 diversion was to avoid cost associated with the placement of the storm drain within limited right of way or land that is not owned or controlled by WALH. The key element of Option 1 is a large dam, the D5 Dam, with a storage volume of approximately 320 acre-feet, compared to 102 acre-feet in the 2006 DMP Update and 2000 West I-40 DMP. This Dam was also relocated from the previous location at the top of the escarpment to a new location within basin OS.5 located near the bottom of the escarpment. Inclusion of this additional storage in the Ladera Dam 5 Watershed upstream of Ladera Dam 5 allows for the elimination of the proposed Ladera Dam 5 Diversion. Option 1 includes the following changes from the 2006 DMP Update.

1. ENLARGED D5 DAM

D5 Dam was first proposed, as a 102-acre foot facility, in the 2000 West I-40 DMP. It remained unchanged by the 2006 DMP Update. Under Option 1 of this 2011 DMP Update it is proposed to increase the dam's storage by approximately 250 acre-feet to make the facility large enough to significantly attenuate the flow from the Petroglyph Diversion. The D5 Dam was modeled as a 320 acre-feet pond with a 30" outlet pipe. The peak inflow to the dam was determined to be 642 cfs with a peak discharge of 88 cfs.

2. IMPROVED DAM 1

Enlargement of Dam 1 was included in the 2000 West I-40 DMP. Dam 1 is currently undersized and is not large enough to detain runoff or significantly attenuate flow. This study proposes enlarging Dam 1 to manage the outflow of Dam 0 and flows from basins UD.1b and UD.2. The capacity of Ladera Dam 1 was increased by 10.4 acre-feet from the original design of the 29.9 acre-feet at the spillway crest to 40.3 acre-feet at the crest. Ladera Dam 1 was modeled as a 40.4 acre-feet pond with a 30 inch outlet. The peak inflow into Ladera Dam 1 was calculated at 389 cfs and has a peak discharge of 64 cfs.

3. IMPROVED DAM 3

Enlargement of Ladera Dam 3 was included in the 2000 West I-40 DMP as well as the 2006 DMP Update. This dam will manage runoff from basin UD.2, UD.3, and outflow from Ladera Dam 2. This study also proposes enlarging Dam 3 to manage these flows. The capacity of this dam will be increased to 49.6 acre-feet at the spillway crest. The dam was modeled as a 49.6acre-feet pond with a 24 inch outlet. The peak inflow into Ladera Dam 3 was calculated at 298 cfs and has a peak discharge of 42 cfs.

4. STORM DRAIN FROM D5 DAM TO POND 5S

The storm drain from D5 Dam to Pond 5S is a new facility for this update. In the previous, 2006 DMP Update, this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo. Within this option the flow from D5 Dam will be conveyed in a 36-inch storm drain to 118th Street and then will be conveyed in a 42-inch storm drain to Pond 5S

5. POND 5S

This study proposes to build Pond 5S (a new dam) to divert flow that historically flowed through the Dam 5 Arroyo which currently flows through the proposed APS Stadium Site. The dam will manage runoff from basins from UD.2A, UD.5b, L9.1A, as well as flow from the Petroglyph Diversion. Runoff from basin L9.1A will be diverted through an earthen diversion channel (the Dam 9 Arroyo Diversion) to Pond 5S. Pond 5S was modeled as a 31 acre-feet pond with a 36 inch outlet with orifice plates. The peak inflow into the dam was calculated as 397 cfs with a peak outflow of 77 cfs. This flow will be conveyed in a new 36 inch storm drain in the proposed extension of Arroyo Vista down to existing Ladera Dam 5.

6. LADERA DAM 9 ARROYO DIVERSION

Ladera Dam 9 Arroyo Diversion is a new facility being proposed in this update. The proposed diversion will be an earthen berm that will divert a peak flow of 167 cfs from basin L9.1A to the proposed Pond 5S. This diversion will protect the proposed APS School Site while also allowing development of the site with fewer drainage constraints and removing the existing floodplain. Further, for developed conditions due to the timing of the runoff, with the peak flow in the Dam 9 Arroyo Diversion occurring well before the peak inflow into Pond 5S this diversion of flows does not necessitate any increase in the size of Pond 5S or the downstream storm drain conveyance in Arroyo Vista

7. STORM DRAIN FROM POND 5S TO LADERA DAM 5

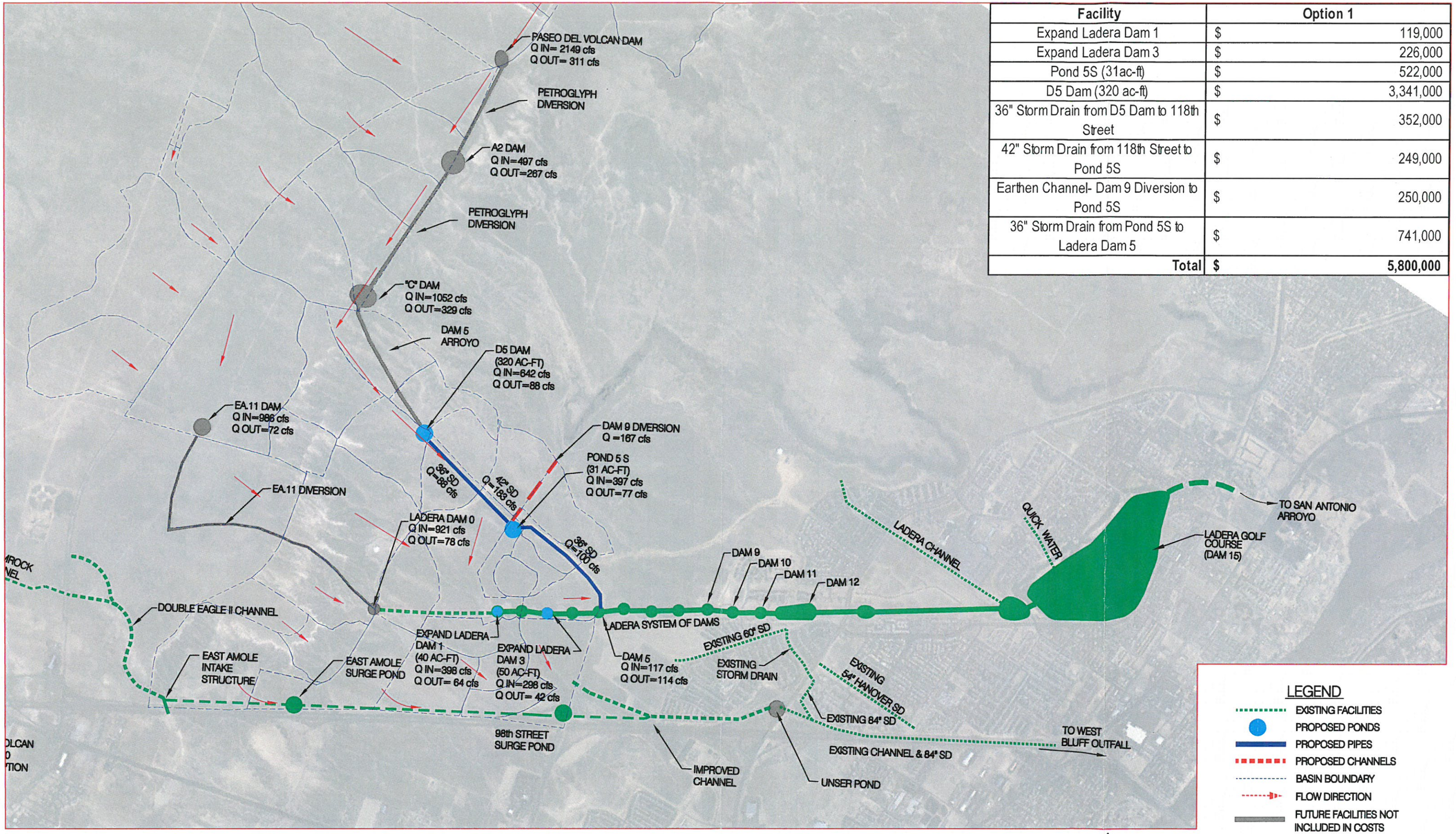
The storm drain from Pond 5S to Ladera Dam 5 is a new facility for this update. In the previous 2006 DMP Update, this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo, to Ladera Dam 5. Within this update the storm drain was modeled as a 36-inch pipe that will convey the flow from Pond 5S and basin UD.4a to Ladera Dam 5. This facility will convey a peak flow rate of 100 cfs.

From the analysis, the estimated total project cost of Option 1 is approximately $5.80 million, including construction contingencies (25%) and soft costs (20%). This includes the expansion of Ladera Dams 1 and 2, D5 Dam, Pond 5S, the storm drain from D5 Dam to Pond 5S, the Ladera Dam 9 Diversion, and the storm drain from Pond 5S to Ladera Dam 5.

B. OPTION 2

Option 2, as shown in Figure 6, is similar to Option 1 in that its goal is to optimize the existing Ladera system however, it does not include the expansion of the D5 Dam or the elimination of the Ladera Dam 5 Diversion. Specifically, Ladera Dams 1-5 are all enlarged to just under 50 acre-feet of storage, expanding their capacities but keeping each facility non-jurisdictional with respect to the requirements of the New Mexico Office of the State Engineer Dam Safety Bureau Rules and Regulations. Dams currently are jurisdictional if their storage volume, measured to the crest of the emergency spillway, exceeds 50 acre-feet or if the height also measured to the crest of the emergency spillway from the toe of the downstream slope exceeds 25 feet. Under Option 2, the D5 Dam remains as previously proposed at 102 acre-feet. Then, even with the expansion of the Ladera Dams 1-5 to the maximum extent possible while keeping them non-jurisdictional, diversion of flow from Ladera

Facility	Option 1	
Expand Ladera Dam 1	$	119,000
Expand Ladera Dam 3	$	226,000
Pond 5S (31ac-ft)	$	522,000
D5 Dam (320 ac-ft)	$	3,341,000
36" Storm Drain from D5 Dam to 118th Street	$	352,000
42" Storm Drain from 118th Street to Pond 5S	$	249,000
Earthen Channel- Dam 9 Diversion to Pond 5S	$	250,000
36" Storm Drain from Pond 5S to Ladera Dam 5	$	741,000
Total	**$**	**5,800,000**



LEGEND

- EXISTING FACILITIES
- PROPOSED PONDS
- PROPOSED PIPES
- PROPOSED CHANNELS
- BASIN BOUNDARY
- FLOW DIRECTION
- FUTURE FACILITIES NOT INCLUDED IN COSTS

SCALE: 1"=2500'

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1"=2500'

FIGURE 5
FACILITY SCHEMATIC OPTION 1

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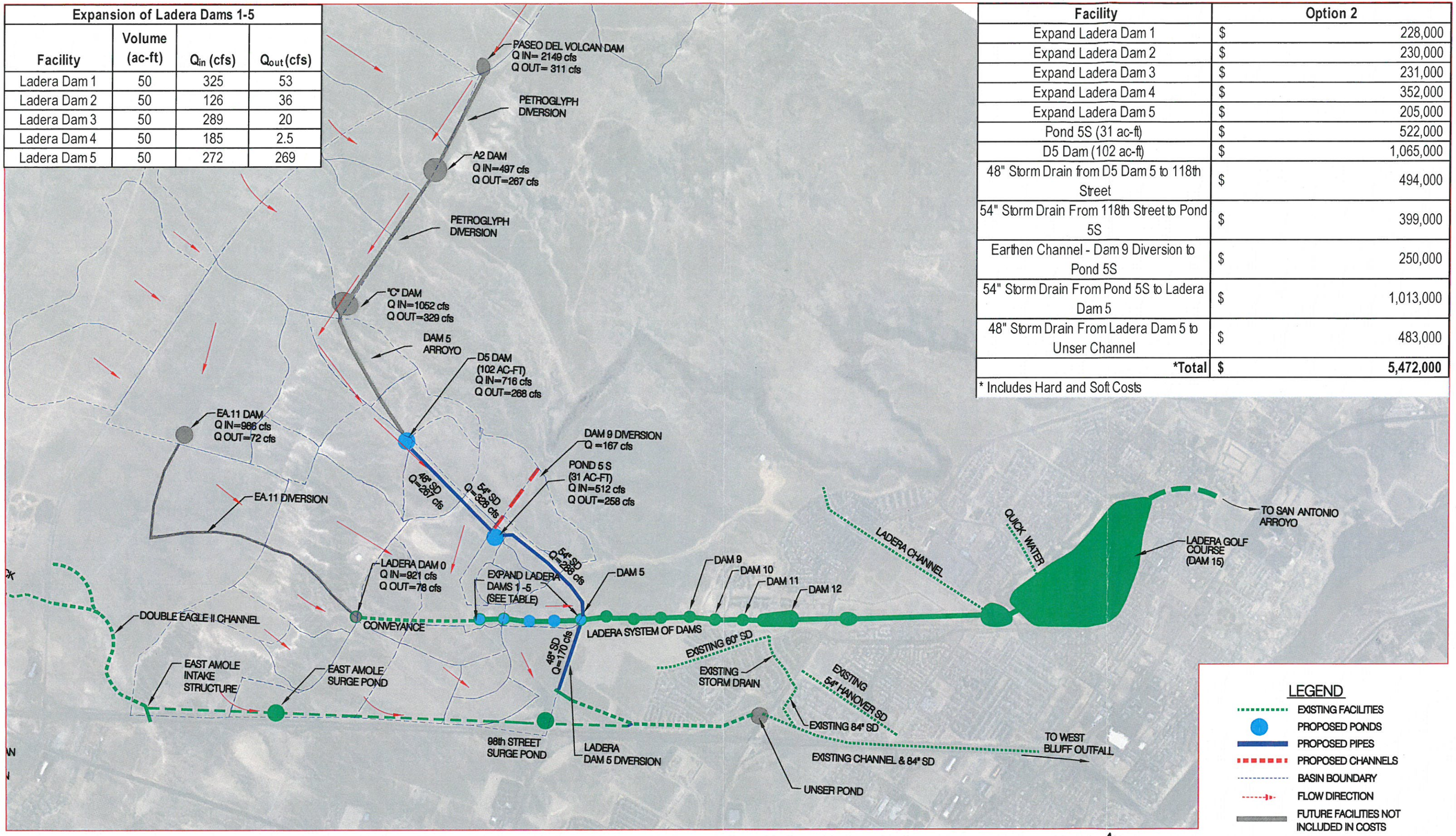
Expansion of Ladera Dams 1-5			
Facility	Volume (ac-ft)	Q_{in} (cfs)	Q_{out} (cfs)
Ladera Dam 1	50	325	53
Ladera Dam 2	50	126	36
Ladera Dam 3	50	289	20
Ladera Dam 4	50	185	2.5
Ladera Dam 5	50	272	269



Facility	Option 2
Expand Ladera Dam 1	$ 228,000
Expand Ladera Dam 2	$ 230,000
Expand Ladera Dam 3	$ 231,000
Expand Ladera Dam 4	$ 352,000
Expand Ladera Dam 5	$ 205,000
Pond 5S (31 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ 1,065,000
48" Storm Drain from D5 Dam 5 to 118th Street	$ 494,000
54" Storm Drain From 118th Street to Pond 5S	$ 399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
54" Storm Drain From Pond 5S to Ladera Dam 5	$ 1,013,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$ 483,000
***Total**	**$ 5,472,000**

* Includes Hard and Soft Costs

LEGEND
- EXISTING FACILITIES
- PROPOSED PONDS
- PROPOSED PIPES
- PROPOSED CHANNELS
- BASIN BOUNDARY
- FLOW DIRECTION
- FUTURE FACILITIES NOT INCLUDED IN COSTS

SCALE: 1"=2500'

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1"=2500'

FIGURE 6
FACILITY SCHEMATIC OPTION 2

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Dam 5 is still required to prevent overwhelming the remainder of the downstream Ladera Dams such as Dams 6-12. However, the size of the Ladera Dam 5 Diversion is reduced from a 72" conveyance previously proposed in the 2006 DMP Update to a 48" storm drain. The facilities that will be included in Option 2 are as follows:

1. D5 DAM

The D5 Dam remains as proposed in the 2000 West I-40 DMP and the 2006 DMP Update at 102 acre-feet.

2. STORM DRAIN FROM D5 DAM TO POND 5S

The storm drain from D5 Dam to Pond 5S is a new facility for this update. In the previous update this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo. Within this option the flow from D5 Dam will be conveyed in a 48-inch storm drain to 118th Street and then in a 54-inch storm drain to Pond 5S.

3. LADERA DAM 9 ARROYO DIVERSION

Ladera Dam 9 Arroyo Diversion is a new facility being proposed in this update. The proposed diversion will be an earthen berm that will divert a peak flow of 167 cfs from basin L9.1A to the proposed Pond 5S. This diversion will protect the proposed APS Schools Site while also allowing development of the site with fewer drainage constraints and removing the floodplain.

4. POND 5S

This study proposes to build Pond 5S to divert flow that historically flowed through the Dam 5 Arroyo which currently flows through the proposed APS Stadium Site. The dam will manage runoff from basins from UD.2A, UD.5b, L9.1A, as well as flow from the Petroglyph Diversion. Runoff from basin L9.1A will be diverted through an earthen embankment to the Dam. Pond 5S was modeled as a 31 acre-feet pond with a 54 inch outlet with orifice plates. Under Option 2, the peak inflow into the dam was calculated as 512 cfs with a peak outflow of 258 cfs. This flow will be conveyed in a 54 inch storm drain to existing Ladera Dam 5.

5. STORM DRAIN FROM POND 5S TO LADERA DAM 5

The storm drain from Pond 5S to Ladera Dam 5 is a new facility for this update. In the previous update this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo, to Ladera Dam 5. Within this update the storm drain was modeled as a 54-inch pipe

that will convey the flow from Pond 5S and basin UD.4a to Ladera Dam 5. This facility will convey a peak flow rate of 280 cfs.

6. DAM 5 DIVERSION

The Dam 5 diversion was included in 2000 West I-40 DMP along with the 2006 DMP Update. Under Option 2 the Ladera Dam 5 Diversion is still required, again assuming the worst case upstream scenario that includes the future construction of the Petroglyph Diversion. A notable change with this update is how the Ladera Dam 5 outlet works would be modified to create the Dam 5 Diversion. Previously the model assumed the lower portion of the hydrograph would flow from Ladera Dam 5 to Ladera Dam 6 with the excess (top portion of the hydrograph) being diverted to the I-40 Diversion. However, to improve the performance of the lower Ladera Dams (Dams 6-12) this update proposes diversion of the bottom portion of the hydrograph, approximately 170 cfs, to the I-40 Diversion with the remaining upper portion of the hydrograph, about 100 cfs, discharging to Ladera Dam 6. This sends the bulk of the flow volume to the I-40 Diversion rather than the lower Ladera Dams which is very beneficial to the function of these dams. The resultant Dam 5 Diversion would be a 48-inch storm drain along the 98th Street that will discharge into the existing box culverts on 98th Street just north of the interchange and enter the I-40 Diversion System.

From the analysis the estimated cost of Option 2 is approximately $5.47 million, including construction contingencies (25%) and soft costs (20%). This includes the expansion of Ladera Dams 1 through 5, D5 Dam, Pond 5S, the storm drain from D5 Dam to Pond 5S, the Ladera Dam 9 Diversion, the storm drain from Pond 5S to Ladera Dam 5, and the Ladera Dam 5 Diversion.

C. OPTION 3

Option 3, as shown in Figure 7, seeks to optimize the existing Ladera system without the elimination of the Ladera Dam 5 Diversion. This option is very similar to Option 2 above but without the expansion of Ladera Dams 2, 3, 4, and 5. This option closely replicates the model that was used to describe Option 2D from the 2000 West I-40 DMP without the expansion of Ladera Dams 3 and 5. The key element to this option is the Ladera Dam 5 Diversion through a 54" storm drain to the West I-40 Diversion System. The Ladera Dam 5 Diversion in this option is only 6" larger than in Option 2 and does not need the extra storage capacity within the upper watershed as in Option 1 or Option 2. This reduces the cost of Option 3 compared to both Option 1 and Option 2. This system optimizes the existing Ladera Dams 2 through 5 without the

Facility	Option 3
Expand Ladera Dam 1	$ 231,000
Pond 5S (31 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ 1,065,000
48" Storm Drain from D5 Dam 5 to 118th Street	$ 494,000
54" Storm Drain From 118th Street to Pond 5S	$ 399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
54" Storm Drain From Pond 5S to Ladera Dam 5	$ 1,013,000
54" Storm Drain From Ladera Dam 5 to Unser Channel	$ 737,000
Total	**$ 4,711,000**

* Includes Hard and Soft Costs

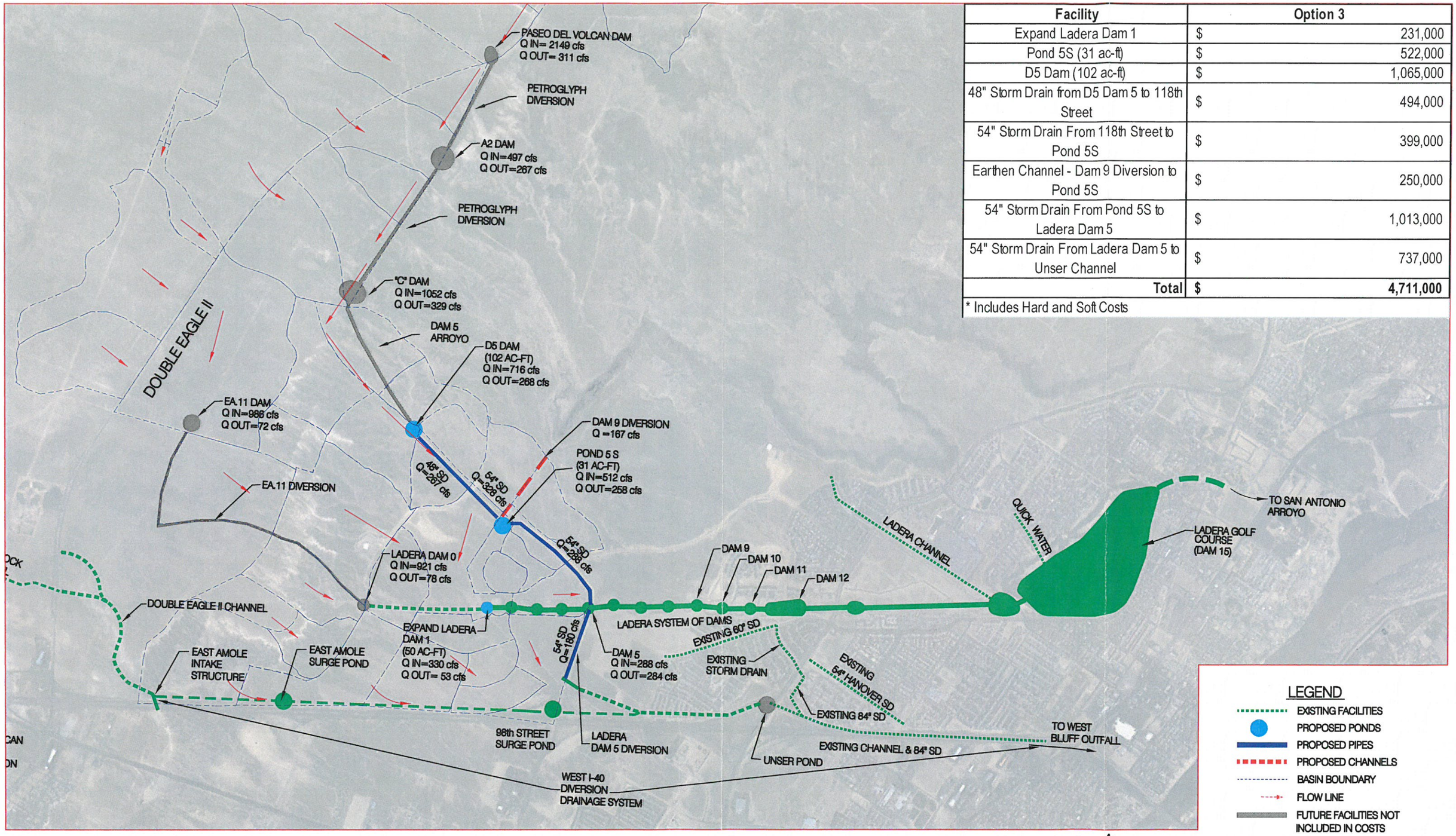

FIGURE 7
FACILITY SCHEMATIC OPTION 3

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need for the expansion as in Option 2. Option 3 includes the following changes from the 2006 update.

1. D5 DAM

The D5 Dam remains as proposed in the 2000 West I-40 DMP and the 2006 DMP Update at 102 acre-feet.

2. STORM DRAIN FROM D5 DAM TO POND 5S

The storm drain from D5 Dam to Pond 5S is a new facility for this update. In the previous update this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo. Within this option the flow from D5 Dam will be conveyed in a 54-inch storm drain to 118th Street then flow will be conveyed in a 54-inch storm drain to Pond 5S.

3. IMPROVED DAM 1

Enlargement of Dam 1 was included in the previous 2000 West I-40 DMP. Dam 1 is currently undersized and is not large enough to detain runoff or significantly attenuate flow. This study proposes enlarging Dam 1 to manage the outflow of Dam 0 and flows from basins UD.1b, and basin UD.2. The capacity of Ladera Dam 1 was increased by 20 acre-feet from the original design of the 29.9 acre-feet at the spillway crest to 49.9 acre-feet at the crest. The Dam was modeled as a 49.9 acre-feet pond with a 30 inch outlet. The peak inflow into Ladera Dam 1 was calculated at 330 cfs and has a peak discharge of 53 cfs.

4. LADERA DAM 9 ARROYO DIVERSION

Ladera Dam 9 Arroyo Diversion is a new facility being proposed in this update. The proposed diversion will be an earthen berm that will divert a peak flow of 167 cfs from basin L9.1A to the proposed Pond 5S. This diversion will protect the proposed APS School Site while also allowing development of the site with fewer drainage constraints and removing the floodplain.

5. POND 5S

This study proposes to build Pond 5S to divert flow that historically flow through the Dam 5 Arroyo which currently flows through the proposed APS Stadium Site. The dam will manage runoff from basins from UD.2A, UD.5b, L9.1A, as well as flow from the Petroglyph Diversion. Runoff from basin L9.1A will be diverted through an earthen embankment to the Dam. Pond 5S was modeled as a 31 acre-feet pond with a 54 inch outlet. The peak inflow into the dam was

calculated as 512 cfs with a peak outflow of 258 cfs. This flow will be conveyed in a 54 inch storm drain to existing Ladera Dam 5.

6. STORM DRAIN FROM POND 5S TO LADERA DAM 5

The storm drain from Pond 5S to Ladera Dam 5 is a new facility for this update. In the previous update this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo, to Ladera Dam 5. Within this update the storm drain was modeled as a 54-inch pipe that will convey the flow from Pond 5S and basin UD.4a to Ladera Dam 5. This facility will convey a peak flow rate of 288 cfs.

7. DAM 5 DIVERSION

The Dam 5 diversion was included in 2000 West I-40 DMP along with the 2006 DMP Update. Under Option 3 the Ladera Dam 5 Diversion is still required, again assuming the worst case upstream scenario that includes the future construction of the Petroglyph Diversion. The Dam 5 Diversion would be very similar to that proposed in Option 2 with slightly different flow rates. 180 cfs would be diverted to the I-40 Diversion, while 104 cfs will discharge to Ladera Dam 6. The resultant Dam 5 Diversion would be a 54" storm drain along 98th Street to the Unser Channel.

From the analysis the estimated cost of Option 3 is approximately $4.71 million including construction contingencies (25%) and soft costs (20%). This includes the expansion of Ladera Dam 1, the D5 Dam, Pond 5S, the storm drain from D5 Dam to Pond 5S, the Ladera Dam 9 Diversion, the storm drain from Pond 5S to Ladera Dam 5, and the Ladera Dam 5 Diversion. See Figure 7.

D. OPTION 4

Option 4, as shown in Figure 8A, seeks to optimize the existing Ladera system without the elimination of the Ladera Dam 5 Diversion. This option is very similar to Option 3 above but with the addition of the "Storm Cloud Diversion." This diversion located in Tierra Pintada downstream of the school site, will divert flows, essentially equal to those diverted by the Ladera Dam 9 Arroyo Diversion, from the 48 inch storm drain conveyance to Ladera Dam 5 back to their historic outfall the Storm Cloud Storm Drain. This returns flows to their historic location and reduces the need to increase the size of Ladera Dam 5 while decreasing the size of the Ladera Dam 5 diversion to the West I-40 Diversion. This option will also include these significant changes from the 2006 DMP update.

Facility	Option 4
Expand Ladera Dam 1	$ 231,000
Pond 5S (50 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ 1,065,000
48" Storm Drain From D5 Dam to 118th Street	$ 494,000
54" Storm Drain From 118th Street to Pond 5S	$ 399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
48" Storm Drain From Pond 5S to Ladera Dam 5	$ 768,000
36" Storm Drain Diversion to Storm Cloud	$ 156,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$ 583,000
***Total**	**$ 4,468,000**

* Includes Hard and Soft Costs

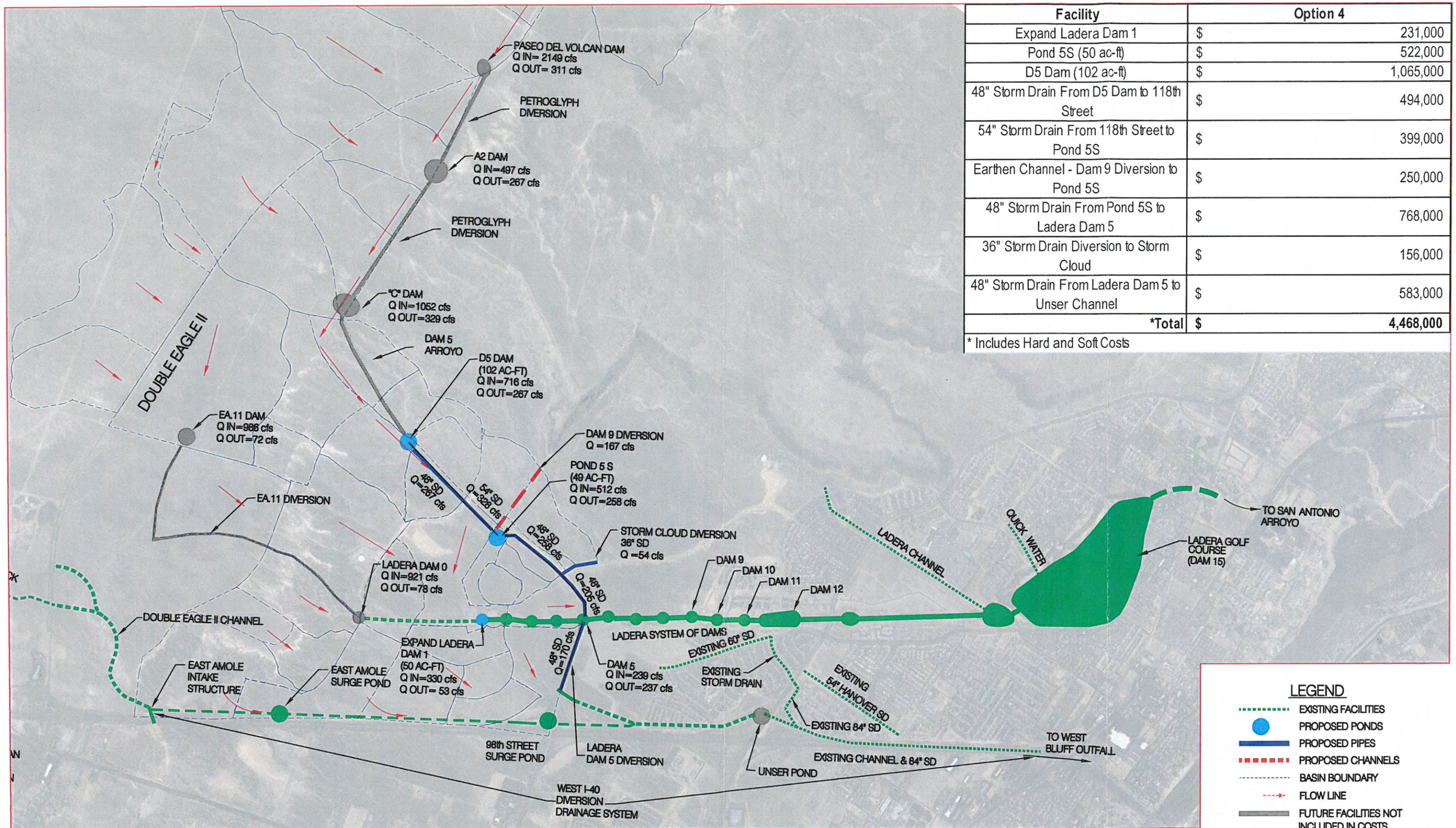

FIGURE 8A
FACILITY SCHEMATIC OPTION 4

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1. D5 DAM

The D5 Dam remains as proposed in the 2000 West I-40 DMP and the 2006 DMP Update at 102 acre-feet.

2. STORM DRAIN FROM D5 DAM TO POND 5S

The storm drain from D5 Dam to Pond 5S is a new facility for this update. In the previous update this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo. Within this option the flow from D5 Dam will be conveyed in a 54-inch storm drain to 118th Street then flow will be conveyed in a 54-inch storm drain to Pond 5S.

3. IMPROVED DAM 1

Enlargement of Dam 1 was included in the previous 2000 West I-40 DMP. Dam 1 is currently undersized and is not large enough to detain runoff or significantly attenuate flow. This study proposes enlarging Dam 1 to manage the outflow of Dam 0 and flows from basins UD.1b, and basin UD.2. The capacity of Ladera Dam 1 was increased by 20 acre-feet from the original design of the 29.9 acre-feet at the spillway crest to 44.9 acre-feet at the crest. The Dam was modeled as a 49.9 acre-feet pond with a 30 inch outlet with an orifice plate. The peak inflow into Ladera Dam 1 was calculated at 330 cfs and has a peak discharge of 53 cfs.

4. LADERA DAM 9 ARROYO DIVERSION

Ladera Dam 9 Arroyo Diversion is a new facility being proposed in this update. The proposed diversion will be an earthen berm that will divert a peak flow of 167 cfs from basin L9.1A to the proposed Pond 5S. This diversion will protect the proposed APS School Site while also allowing development of the site with fewer drainage constraints and removing the floodplain.

5. POND 5S

This study proposes to build Pond 5S to divert flow that historically flow through the Dam 5 Arroyo which currently flows through the proposed APS Stadium Site. The dam will manage runoff from basins from UD.2A, UD.5b, L9.1A, as well as flow from the Petroglyph Diversion. Runoff from basin L9.1A will be diverted through an earthen embankment to the Dam. Pond 5S was modeled as a 31 acre-feet pond with a 54 inch outlet. The peak inflow into the dam was calculated as 512 cfs with a peak outflow of 258 cfs.

6. STORM DRAIN FROM POND 5S TO LADERA DAM 5

The storm drain from Pond 5S to Ladera Dam 5 is a new facility for this update. In the previous update this section of the conveyance was modeled as an open channel, the Dam 5 Arroyo, to Ladera Dam 5. Within this update the storm drain was modeled as a 48-inch pipe that will convey the flow from Pond 5S and basin UD.4a to the proposed Storm Cloud Diversion and then Ladera Dam 5. The DIVIDE HYD command was used to divert 205 cfs to the Ladera Dam 5 and 54 cfs to the Storm Cloud storm drain. The 205 cfs will then be conveyed in a 48-inch storm drain to Ladera Dam 5

7. STORM CLOUD DIVERSION

This diversion receives runoff from the storm drain that outfalls from Pond 5S. This diversion was put in place to divert flow that was diverted in the Dam 9 Arroyo Diversion back through the Storm Cloud storm drain to Ladera Dam 9. This was done to fully utilize the existing capacity within the Storm Cloud drainage system. The DIVIDE HYD command was used to divert approximately 50 cfs from Pond 5S outfall. The flow will be diverted through a 36 inch pipe which will connect to the existing Storm Cloud storm drain located within Tierra Pintada. The design flow rate for the existing Storm Cloud storm drain is 296 cfs. The inclusion of the Dam 9 Diversion along with the proposed Storm Cloud diversion the proposed design flow rate within the existing Storm Cloud Storm drain is 260 cfs.

8. DAM 5 DIVERSION

The Dam 5 diversion was included in 2000 West I-40 DMP along with the 2006 DMP Update. Under Option 4 the Ladera Dam 5 Diversion is still required, again assuming the worst case upstream scenario that includes the future construction of the Petroglyph Diversion. The Dam 5 Diversion would be very similar to that proposed in Option 3 with slightly different flow rates. 170 cfs would be diverted to the I-40 Diversion, while 67 cfs will discharge to Ladera Dam 6. The resultant Dam 5 Diversion would be a 48" storm drain along 98th Street to the Unser Channel.

From the analysis the estimated project construction cost of Option 4 is approximately $4.5 million. This includes the expansion of Ladera Dam 1, the D5 Dam, Pond 5S, the storm drain from D5 Dam to Pond 5S, the Ladera Dam 9 Diversion, the storm drain from Pond 5S to Ladera Dam 5, the Storm Cloud Diversion, and the Ladera Dam 5 Diversion.

Compared to the first three options, Option 4 is the most cost effective option as illustrated in the following table.

Option	Total Estimated Project Cost
1	$5.80 million
2	$5.47 million
3	$4.71 million
4	$4.47 million

Consequently, Option 4 was further evaluated to determine what improvements within Option 4 are required with the development of the two APS sites. This analysis resulted in the development of APS Projects as discussed in the following section.

E. APS PROJECTS

APS Projects is a subset of Option 4 that presents the drainage improvements within Option 4 that must be constructed with the development of the APS Stadium and School Sites. This model assumes future development of the entire Lower Petroglyphs including Ladera Basins L9.1A, L9.2A, and L7.1, without the Petroglyph Diversion. Although the Petroglyph Diversion is not included in this option the facilities within APS Projects are sized for the full development of the watershed including the Petroglyph Diversion. From this analysis it was determined that the Ladera Dam 9 Diversion, Pond 5S and storm drain conveyance to Ladera Dam 5, and the Storm Cloud Diversion would need to be constructed to ensure proper function of the overall system. See Figure 8B. From the analysis the estimated total project cost of APS Projects is approximately $1.7 million, including construction contingencies (25%) and soft costs (20%).

F. OPTION 5

A fifth option was considered that would consist of combining Ladera Dams 1-5 or Ladera Dams 2-5. This option would create a large jurisdictional detention facility in this location west of 98th Street and eliminate the need to maintain as many detention facilities. However, because of the significant elevation difference between the flood pool of Ladera Dam 1 at elevation 5422 and Ladera Dam 5 at elevation 5334, a difference of 88 feet, it was determined that the process of combining these dams would be cost prohibitive. Preliminary estimates suggested the cost to remove soil to bring the existing ground from Dams 1-4 down to the level of Dam 5 would essentially double the excavation needed to create the actual water

storage volume needed. While considered, this option was rejected and not developed further to the level of the first four options and their sub-options.

V. DRAINAGE IMPROVEMENTS: APS STADIUM AND SCHOOL SITES

A. PREVIOUS (2000 WEST I-40 DMP) RECOMMENDATIONS

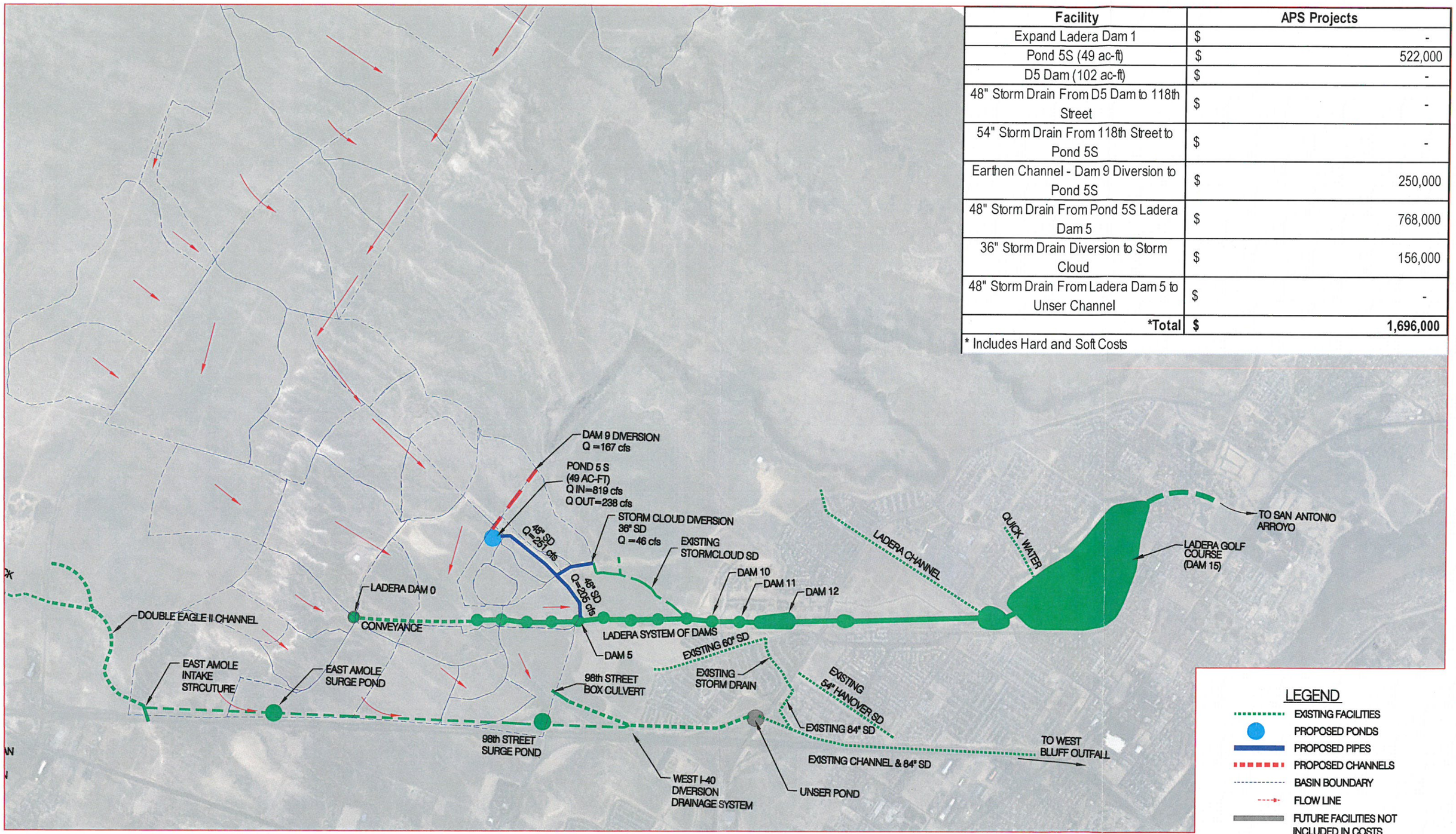
In order to assess the drainage options developed in this 2011 DMP Update for the two APS sites it is necessary to compare APS Projects to the drainage requirements for the same area as included in the 2000 West I-40 DMP. Development of the APS Stadium and School Sites in accordance with the 2000 West I-40 DMP would have included the following:

- Dam 5 Arroyo conveyance as a lined open channel from the northwest corner of the Stadium Site to Ladera Dam 5.
- Enlargement of Ladera Dams 1 and 3

In addition, storm drains in Arroyo Vista and Tierra Pintada along each site's frontage would have been required. The estimated cost of the improvements from the 2000 West I-40 DMP is $2.5 million while roadway drainage in Arroyo Vista and Tierra Pintada is estimated at $200 thousand, for a total cost of $2.7 million.

Facility	APS Projects
Expand Ladera Dam 1	$ -
Pond 5S (49 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ -
48" Storm Drain From D5 Dam to 118th Street	$ -
54" Storm Drain From 118th Street to Pond 5S	$ -
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
48" Storm Drain From Pond 5S Ladera Dam 5	$ 768,000
36" Storm Drain Diversion to Storm Cloud	$ 156,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$ -
***Total**	**$ 1,696,000**

* Includes Hard and Soft Costs



LEGEND

- EXISTING FACILITIES
- PROPOSED PONDS
- PROPOSED PIPES
- PROPOSED CHANNELS
- BASIN BOUNDARY
- FLOW LINE
- FUTURE FACILITIES NOT INCLUDED IN COSTS

N

2500 1250 0 2500

1"=2500'

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FIGURE 8B
FACILITY SCHEMATIC APS PROJECTS

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

Table 4 – Facility and Flow Summary (Option 4)

Reservoirs	**Flow**		**100-year**	**100-year**			
Location	**Source**	**Inflow Q**	**Stored Volume**	**Water Surface Elev.**	**Freeboard***	**Peak Discharge**	**Time to Peak**
		cfs	acre-feet	ft	ft	cfs	hours
Paseo del Volcan Dam	Basins L12.3 - L12.8	2149	199	5792.8	1	311	3.7
Mirehaven A2 Dam	PDV Outflow, Basins L12.9W, L12.11, & L12.12W	497	48	5729.9	1	267	7.4
Mirehaven C Dam	A2 Outflow, L12.14W, L12.15 & L12.16W	1052	44	5745.4	1	379	2.9
D5 Dam	Mirehaven C Dam Outflow, UD.5a, UD.5d, UD.5e, OS.5a, & OS.5b	716	102	5791.6	1	267	12.9
Pond 5S	Dam 5 Arroyo Dam Outflow, UD.5b, UD.5c, UD.2a, & L9.1a	512	31	--	1	258	16.3
Ladera Dam 5	198 cfs from Pond 5S plus UD.4a & Pond 4 Outflow	239	23	5335.8	1	237	22.6
Ladera Dam 0	EA.11, OS.1, OS.4, & UD.1C	921	35	5520.9	1	78	3.4
Ladera Dam 1	Dam 0 Outflow, UD.1B & UD.2	330	43	5425.9	1	53	16.9

* Freeboard calculated here based on spillway elevation in stage-storage-discharge curve used in AHYMO model OPT4_FINAL_10_31_11.out.

This compares to a cost of $1.7 million for the drainage improvements based on the APS Projects developed in this 2011 DMP Update. From this it can be concluded the 2011 DMP Update APS Projects is more cost effective.

B. MAINTENANCE OF PROPOSED FACILITIES

The 2000 West I-40 DMP envisioned the drainage conveyance for the Dam 5 Arroyo as a lined concrete channel that would be maintained by AMAFCA. With the 2011 DMP Update the conveyance is now proposed as a pipe to be located within the public right-of-way of Arroyo Vista. As such the pipe would be maintained by the City of Albuquerque. The newly proposed Pond 5S will be located on property owned by APS however, a drainage easement will be granted to AMAFCA and AMAFCA will be responsible for maintenance of the facility with respect to flood control. As a multi-use facility, the soccer field component will be maintained by APS.

VI. RECOMMENDATIONS

This study established the fully developed and interim (full development of the Lower Petroglyphs without the future Petroglyph Diversion) hydrology for the 100-year events and provides four proposed options for drainage management within the study area. Option 1 utilizes a large dam, the D5 Dam, with a storage volume of approximately 320 acre-feet, compared to 102 acre-feet in the 2006 DMP Update and the West I-40 2000 DMP. Inclusion of this additional storage in the Ladera Dam 5 Watershed upstream of Ladera Dam 5 allows for the elimination of the proposed Ladera Dam 5 Diversion unlike Options 2 through 4. Options 2 through 4 are very similar in nature in the sense that they do not exclude the Ladera Dam 5 Diversion to the West I-40 Diversion. Option 2 proposes expanding Ladera Dams 1 through 5 to allow for more volume to be stored in these facilities to reduce the cost and size of the Ladera Dam 5 Diversion. Option 3 requires a slightly larger Dam 5 diversion structure but eliminates the necessity to expand Ladera Dams 2 through 5. Option 4, is essentially the same as Option 3 except it adds the Storm Cloud diversion to divert flow back into the Storm Cloud system thus better utilizing the existing conveyance facilities and storage in Ladera Dam 9 while reducing the size of the Ladera Dam 5 diversion.

Based on the overall project costs for each option and the ability to allow development with fewer restrictions, the recommended option is Option 4. This option will address the long-term drainage needs of the West I-40 watershed and ensure the proper function of facilities downstream of the project area.

For the initial development of APS Stadium Site and APS Schools Site, a subset of Option 4 referred to as APS Projects is recommended. APS Projects includes: Pond 5S, Ladera Dam 9 Arroyo Diversion, the storm drain from Pond 5S to Ladera Dam 5, and the Storm Cloud diversion which collectively address the drainage needs for the development of these two sites while also accommodating the future expansion of the drainage system in accordance with Option 4. The remaining infrastructure of Option 4 would be constructed as required to support future development of the lower Petroglyph areas.

VII. CONCLUSION

The West I-40 drainage system has been thoroughly analyzed and the final system configuration suitable to support sustainable development determined. It is recommended that Option 4 be adopted to address the drainage requirements for the Lower Petroglyph area. This option is recommended based on the overall project cost and the ability to allow for development with fewer restrictions. The construction of the D5 Dam, Pond 5S, the storm drain from D5 Dam to Pond 5S, the Dam 9 Arroyo Diversion, the storm drain from Pond 5S to Ladera Dam 5, the expansion of Ladera Dams 0 and 1, the Ladera Dam 5 diversion, and the Storm Cloud diversion are recommended to ensure effective operation of the comprehensive drainage facility network in fully developed conditions for the Lower Petroglyph area.

APPENDIX

Time to Peak Calculations

Calculation of Time to Peak
Revised DPM procedure
10/10/2011

Description	Var.	Unit	EA.7	EA.8	EA.9	EA.11	EA.13	EA.18	L12.1	L12.2	L12.3	L12.4
Basin												
Basin Area	A	Acres	48.7	272.7	163.8	387.2	175.8	22.4	142.0	727.0	212.0	385.0
Total Reach	L	Feet	3870.0	5250.0	3950.0	3980.0	5100.0	2050.0	7300.0	3500.0	6500.0	8625.0
Overland Reach	L1	Feet	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Overland K	K1		0.7	0.7	0.7	0.7	1	0.7	1	1	1	1
Overland Slope	S1	Percent	0.20	0.57	1.01	0.53	6.75	0.20	1.00	17.00	3.00	2.10
Adj. Overland Slope	S1'	Percent	0.200	0.570	1.010	0.530	5.406	0.200	1.000	6.328	3.000	2.100
Gully Reach	L2	Feet	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0
Gully K	K2		2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
Gully Slope	S2	Percent	0.200	0.570	0.700	0.530	4.680	0.200	0.940	6.060	0.940	2.310
Adj. Gully Slope	S2'	Percent	0.200	0.570	0.700	0.530	4.562	0.200	0.940	5.217	0.940	2.310
Arroyo Reach	L3	Feet	1870.0	3250.0	1950.0	1980.0	3100.0	50.0	5300.0	1500.0	4500.0	6625.0
Arroyo K	K3		3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Arroyo Slope	S3	Percent	0.200	0.700	1.010	2.400	0.690	0.200	0.550	1.800	0.530	0.850
Adj. Arroyo Slope	S3'	Percent	0.200	0.700	1.010	2.400	0.690	0.200	0.550	1.800	0.530	0.850
Lca	Lca	Feet	1900.0	1750.0	1980.0	1940.0	2550.0	1900.0	2550.0	0.0	3000.0	3750.0
Base Discharge	Qb	cfs	100.0	100.0	100.0	100.0	100.0	100.0	245.0	1592.0	414.0	734.0
Ground Slope S	S	Percent	0.200	0.650	0.884	1.460	2.417	0.200	0.660	5.485	0.783	1.179
Adjusted Slope S'	S'	Percent	0.200	0.650	0.884	1.460	2.417	0.200	0.660	5.001	0.783	1.179
K	K		1.940	2.092	1.934	1.426	1.856	1.477	2.491	1.881	2.357	2.484
K'	K'		1.940	2.092	1.934	1.426	1.832	1.477	2.491	1.775	2.357	2.484
K"	K"		15.470	8.578	7.357	5.725	4.450	15.470	10.006	5.091	10.097	9.122
K"'	K"'		10.604	5.880	5.042	3.924	3.050	10.604	6.858	3.490	6.921	6.253
Kn	Kn		0.021	0.021	0.021	0.021	0.021	0.021	0.023	0.033	0.023	0.023
Orig. TC	TC	Hrs.	1.239	0.632	0.603	0.642	0.394	0.862	0.545	0.221	0.546	0.478
Adjusted TC	TC'	Hrs.	1.239	0.632	0.603	0.642	0.394	0.862	0.545	0.125	0.546	0.478
Time Lag	Lg	Hrs.	-	-	-	-	-	-	-	-	-	-
Time to Peak	TP	Hrs.	**0.826**	**0.421**	**0.402**	**0.428**	**0.262**	**0.575**	**0.363**	**0.147**	**0.364**	**0.319**

Note:
Minimum Tp=0.133 hours used in AHYMO model.

Description	Var.	Unit	L12.5	L12.6	L12.7	L12.8	*L12.9W	L12.11	*L12.12W	*L12.14W	L12.15	*L12.16W
Basin												
Basin Area	A	Acres	468.0	605.0	676.0	270.0		175.0			281.0	
Total Reach	L	Feet	9300.0	7100.0	12000.0	8150.0		4900.0			3250.0	
Overland Reach	L1	Feet	400.0	400.0	400.0	400.0		400.0			400.0	
Overland K	K1		1	1	1	1		1			1	
Overland Slope	S1	Percent	1.25	1.25	5.35	0.15		0.45			1.00	
Adj. Overland Slope	S1'	Percent	1.25	1.25	4.94	0.15		0.45			1.00	
Gully Reach	L2	Feet	1600.0	1600.0	1600.0	1600.0		1600.0			1600.0	
Gully K	K2		2.000	2.000	2.000	2.000		2.000			2.000	
Gully Slope	S2	Percent	1.000	0.690	2.060	0.310		0.380			0.380	
Adj. Gully Slope	S2'	Percent	1.000	0.690	2.060	0.310		0.380			0.380	
Arroyo Reach	L3	Feet	7300.0	5100.0	10000.0	6150.0		2900.0			1250.0	
Arroyo K	K3		3.000	3.000	3.000	3.000		3.000			3.000	
Arroyo Slope	S3	Percent	1.330	0.390	0.570	0.520		0.590			0.330	
Adj. Arroyo Slope	S3'	Percent	1.330	0.390	0.570	0.520		0.590			0.330	
Lca	Lca	Feet	5100.0	4050.0	6000.0	3875.0		2500.0			0.0	
Base Discharge	Qb	cfs	531.0	1080.0	703.0	348.0		223.0			372.0	
Ground Slope S	S	Percent	1.270	0.506	0.928	0.461		0.510			0.437	
Adjusted Slope S'	S'	Percent	1.270	0.506	0.928	0.461		0.510			0.437	
K	K		2.526	2.469	2.421	2.260		2.176			2.029	
K'	K'		2.526	2.469	2.418	2.260		2.176			2.029	
K"	K"		8.292	14.925	10.202	12.759		11.192			13.256	
K"'	K"'		5.684	10.230	6.993	8.746		7.671			9.086	
Kn	Kn		0.023	0.023	0.023	0.023		0.023			0.023	
Orig. TC	TC	Hrs.	0.504	0.644	0.574	0.677		0.706			0.673	
Adjusted TC	TC'	Hrs.	0.504	0.644	0.574	0.677		0.706			0.673	
Time Lag	Lg	Hrs.	-	-	-	-	-	-			-	
Time to Peak	TP	Hrs.	**0.357**	**0.429**	**0.383**	**0.451**	**0.133**	**0.471**	**0.030**	**0.294**	**0.449**	**0.285**

*** Tp values taken from West I-40 DMP (2000)**

Note:
Minimum Tp=0.133 hours used in AHYMO model.

Calculation of Time to Peak
Revised DPM procedure
10/1/2011

Description	Var.	Unit	OS.1	OS.4	OS.5	OS.5A	OS.5B	OS.6	ST.1	ST.2A	ST.2B	ST.3
Basin												
Basin Area	A	Acres	219.3	101.8	68.0	68.0	68.0	205.1	51.9	29.3	79.8	71.8
Total Reach	L	Feet	3567.9	3596.2	2016.9	3216.6	2934.1	2957.3	2490.0	2400.0	2000.0	3200.0
Overland Reach	L1	Feet	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Overland K	K1		1	1	1	1	1	1	1	1	1	1
Overland Slope	S1	Percent	8.70	10.00	2.50	7.50	6.20	13.75	2.80	5.00	8.75	4.10
Adj. Overland Slope	S1'	Percent	5.720	5.847	2.500	5.555	5.261	6.118	2.800	4.760	5.726	4.097
Gully Reach	L2	Feet	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0
Gully K	K2		2.000	2.000	7.800	2.000	2.000	2.000	2.000	2.000	2.000	2.000
Gully Slope	S2	Percent	5.000	5.000	9.000	2.500	5.200	6.870	2.800	2.900	5.938	4.100
Adj. Gully Slope	S2'	Percent	4.760	4.760	5.753	2.500	4.867	5.433	2.800	2.900	5.176	4.097
Arroyo Reach	L3	Feet	1567.9	1596.2	16.9	1216.6	934.1	957.3	490.0	400.0	0.0	1200.0
Arroyo K	K3		3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Arroyo Slope	S3	Percent	4.470	5.000	1.200	5.000	3.960	4.200	2.800	1.100	1.100	4.100
Adj. Arroyo Slope	S3'	Percent	4.000	4.760	1.200	4.760	3.960	4.189	2.800	1.100	1.100	4.097
Lca	Lca	Feet	1125.0	1600.0	1200.0	870.0	650.0	1500.0	830.0	1200.0	980.0	1570.0
Base Discharge	Qb	cfs	100.0	276.2	175.4	73.0	129.7	488.0	76.5	77.1	77.1	323.2
Ground Slope S	S	Percent	5.182	5.556	7.646	4.067	4.942	6.936	2.800	2.950	6.500	4.100
Adjusted Slope S'	S'	Percent	4.858	5.032	5.579	4.066	4.727	5.448	2.800	2.950	5.345	4.097
K	K		2.116	2.112	2.234	1.914	1.976	1.974	1.826	1.801	1.692	2.000
K'	K'		2.036	2.066	2.485	1.852	1.946	1.917	1.826	1.791	1.668	2.000
K"	K"		3.139	3.703	3.241	3.242	3.335	3.943	3.940	3.844	2.856	4.222
K"'	K"'		2.151	2.538	2.221	2.222	2.286	2.703	2.700	2.635	1.957	2.894
Kn	Kn		0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
Orig. TC	TC	Hrs.	0.206	0.201	0.091	0.231	0.186	0.158	0.226	0.215	0.129	0.219
Adjusted TC	TC'	Hrs.	0.209	0.175	0.106	0.199	0.164	0.130	0.226	0.215	0.123	0.152
Time Lag	Lg	Hrs.	-	-	-	-	-	-	-	-	-	-
Time to Peak	TP	Hrs.	**0.139**	**0.134**	**0.133**	**0.154**	**0.133**	**0.133**	**0.151**	**0.144**	**0.133**	**0.146**

Note:
Minimum Tp=0.133 hours used in AHYMO model.

Description	Var.	Unit	ST.4A	ST.4B	ST.5	ST.6	ST.7	UD.1B	*UD.1C	UD.2	UD.2A	UD.3
Basin												
Basin Area	A	Acres	78.2	34.6	30.5	34.5	82.5	81.0	56.2	138.4	24.3	24.9
Total Reach	L	Feet	2608.75	1640.0	1119.11	1400.21	1950.0	1990		3143	1500	1603
Overland Reach	L1	Feet	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Overland K	K1		1	1	1	1	1	1	1	1	1	1
Overland Slope	S1	Percent	0.25	6.20	2.50	2.50	2.90	6.03		1.24	1.65	1.93
Adj. Overland Slope	S1'	Percent	0.250	5.261	2.500	2.500	2.900	5.207	0.000	1.241	1.650	1.934
Gully Reach	L2	Feet	1600.0	1240.0	719.1	1000.2	1550.0	1590.0	-400.0	1600.0	1100.0	1203.0
Gully K	K2		2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000	1.000	2.000
Gully Slope	S2	Percent	4.680	8.870	4.680	4.680	2.900	6.030		1.24	1.65	1.93
Adj. Gully Slope	S2'	Percent	4.562	5.739	4.562	4.562	2.900	5.207		1.241	1.650	1.934
Arroyo Reach	L3	Feet	608.8	0.0	1.0	1.0	0.0	0.0	0.0	1143.0	0.0	0.0
Arroyo K	K3		3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Arroyo Slope	S3	Percent	3.300	4.200	3.300	3.300	2.900	6.030		1.24	1.65	1.93
Adj. Arroyo Slope	S3'	Percent	3.300	4.189	3.300	3.300	2.900	5.207	0.000	1.241	1.650	1.934
Lca	Lca	Feet	1901.0	1300.0	1902.0	1903.0	975.0	1000.0		1587.0	1300.0	800.0
Base Discharge	Qb	cfs	426.5	426.5	131.63	197.62	197.62	100.0	100.0	0.0	0.0	0.0
Ground Slope S	S	Percent	3.679	8.219	3.904	4.060	2.900	6.030		1.241	1.650	1.934
Adjusted Slope S'	S'	Percent	3.679	5.662	3.904	4.059	2.900	5.207		1.241	1.650	1.934
K	K		1.061	1.551	1.351	1.435	1.660	1.665		1.988	1.000	1.601
K'	K'		1.057	1.591	1.344	1.426	1.660	1.665		1.988	1.000	1.601
K"	K"		4.683	3.775	3.679	3.882	4.593	3.032		0.000	0.000	0.000
K"'	K"'		3.210	2.588	2.522	2.661	3.148	2.078		0.000	0.000	0.000
Kn	Kn		1.021	0.021	2.021	3.021	0.021	0.021		0.021	0.021	0.021
Orig. TC	TC	Hrs.	0.356	0.102	0.116	0.135	0.192	0.135		0.394	0.324	0.200
Adjusted TC	TC'	Hrs.	0.356	0.074	0.116	0.073	0.192	0.117		0.394	0.324	0.200
Time Lag	Lg	Hrs.	-	-	-	-	-	-		-		-
Time to Peak	TP	Hrs.	**0.237**	**0.133**	**0.133**	**0.133**	**0.133**	**0.133**	**0.133**	**0.263**	**0.216**	**0.133**

*** Tp values taken from West I-40 DMP (2006)**

Note:
Minimum Tp=0.133 hours used in AHYMO model.

Calculation of Time to Peak
Revised DPM procedure
10/1/2011

Description	Var.	Unit	UD.4A	UD.4B	UD.4C	UD.5A	UD.5B	UD.5C	UD.5D	UD.5E
Basin										
Basin Area	A	Acres	14.9	21.8	70.0	97.9	89.5	54.4	171.60	119.70
Total Reach	L	Feet	1733	1742	2156	2500	5800	2094.55	4017	3400
Overland Reach	L1	Feet	400.0	400.0	400.0	400.0	400.0	400.0	400.0	400.0
Overland K	K1		1	1	1	1	1	1	1	1
Overland Slope	S1	Percent	4.04	3.33	3.34	2.60	4.80	8.70	0.74	0.86
Adj. Overland Slope	S1'	Percent	4.040	3.330	3.340	2.600	4.641	5.720	0.740	0.860
Gully Reach	L2	Feet	1333.0	1342.0	1600.0	1600.0	1600.0	1600.0	1600.0	1600.0
Gully K	K2		2.000	2.000	2.000	2.000	2.000	2.000	2.000	2.000
Gully Slope	S2	Percent	4.040	3.33	3.34	2.600	4.800	3.700	0.740	5.900
Adj. Gully Slope	S2'	Percent	4.040	3.330	3.340	2.600	4.641	3.700	0.740	5.163
Arroyo Reach	L3	Feet	0.0	0.0	156.0	500.0	3800.0	94.6	2017.0	1400.0
Arroyo K	K3		3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000
Arroyo Slope	S3	Percent	4.040	3.33	3.34	2.600	4.800	3.200	0.740	5.900
Adj. Arroyo Slope	S3'	Percent	4.040	3.330	3.340	2.600	4.641	3.200	0.740	5.163
Lca	Lca	Feet	1050.0	1200.0	1050.0	1900.0	1900.0	1300.0	2000.0	1500.0
Base Discharge	Qb	cfs	1.0	0.0	1.0	100.0	300.0	322.9	100.0	100.0
Ground Slope S	S	Percent	4.040	3.330	3.340	2.600	4.800	4.632	0.740	5.307
Adjusted Slope S'	S'	Percent	4.040	3.330	3.340	2.600	4.641	4.530	0.740	4.920
K	K		1.625	1.627	1.722	1.829	2.351	1.710	2.145	1.549
K'	K'		1.625	1.627	1.722	1.829	2.351	1.638	2.145	1.550
K"	K"		1.503	0.000	1.653	4.291	3.914	4.014	8.043	3.119
K"'	K"'		1.030	0.000	1.133	2.941	2.683	2.752	5.513	2.138
Kn	Kn		0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021
Orig. TC	TC	Hrs.	0.147	0.163	0.190	0.235	0.245	0.158	0.602	0.265
Adjusted TC	TC'	Hrs.	0.159	0.163	0.190	0.235	0.228	0.099	0.602	0.199
Time Lag	Lg	Hrs.	-	-	-	-	-	-	-	-
Time to Peak	TP	Hrs.	**0.133**	**0.133**	**0.133**	**0.157**	**0.164**	**0.133**	**0.615**	**0.176**

Note:
Minimum Tp=0.133 hours used in AHYMO model.

Description	Var.	Unit	L7.1A	L9.1A	L9.2A
Basin					
Basin Area	A	Acres	6.00	56.09	70.40
Total Reach	L	Feet	1000	2212	2556
Overland Reach	L1	Feet	400.0	400.0	400.0
Overland K	K1		0.7	1	1
Overland Slope	S1	Percent	3.00	5.00	3.56
Adj. Overland Slope	S1'	Percent	3.000	4.760	3.560
Gully Reach	L2	Feet	600.0	1600.0	1600.0
Gully K	K2		2.000	2.000	2.000
Gully Slope	S2	Percent	3.670	6.800	4.150
Adj. Gully Slope	S2'	Percent	3.670	3.670	4.144
Arroyo Reach	L3	Feet	0.0	212.0	556.0
Arroyo K	K3		3.000	3.000	3.000
Arroyo Slope	S3	Percent	3.800	4.700	4.500
Adj. Arroyo Slope	S3'	Percent	3.800	4.576	4.434
Lca	Lca	Feet	500.0	1000.0	1200.0
Base Discharge	Qb	cfs	13.0	100.0	100.0
Ground Slope S	S	Percent	3.402	6.273	4.134
Adjusted Slope S'	S'	Percent	3.402	5.282	4.129
K	K		1.114	1.704	1.816
K'	K'		1.114	1.518	1.815
K"	K"		2.598	3.010	3.405
K"'	K"'		1.781	2.063	2.334
Kn	Kn		0.021	0.021	0.021
Orig. TC	TC	Hrs.	0.135	0.144	0.192
Adjusted TC	TC'	Hrs.	0.135	0.130	0.150
Time Lag	Lg	Hrs.	-	-	-
Time to Peak	TP	Hrs.	**0.133**	**0.212**	**0.133**

Note:
Minimum Tp=0.133 hours used in AHYMO model.

Land Treatment Calculations

Basin ID	Area (ac)	Area (sq. mi.)	Developed Land Treatments (%)				Sum
			%A	%B	%C	%D	
EA.7	48.7	0.08	14.50%	21.60%	21.60%	42.30%	100.00%
EA.8	272.7	0.43	14.50%	21.60%	21.60%	42.30%	100.00%
EA.9	163.8	0.26	14.50%	21.60%	21.60%	42.30%	100.00%
EA.11	387.2	0.61	0.00%	23.40%	23.40%	53.20%	100.00%
EA.13	175.8	0.27	0.00%	23.40%	23.40%	53.20%	100.00%
EA.18	22.4	0.03	14.50%	21.60%	21.60%	42.30%	100.00%
L12.1	142.0	0.22	0.00%	0.00%	65.00%	35.00%	100.00%
L12.2	727.0	1.14	39.00%	4.00%	38.00%	19.00%	100.00%
L12.3	212.0	0.33	0.00%	3.00%	38.00%	59.00%	100.00%
L12.4	385.0	0.60	8.00%	2.00%	44.00%	46.00%	100.00%
L12.5	468.0	0.73	36.00%	5.00%	43.00%	16.00%	100.00%
L12.6	605.0	0.95	2.00%	4.00%	29.00%	65.00%	100.00%
L12.7	676.0	1.06	44.00%	7.00%	28.00%	21.00%	100.00%
L12.8	270.0	0.42	2.00%	14.00%	18.00%	66.00%	100.00%
L12.9W	65.0	0.10	34.00%	26.00%	16.00%	24.00%	100.00%
L12.11	175.0	0.27	2.00%	13.00%	18.00%	67.00%	100.00%
L12.12W	66.7	0.10	29.00%	16.00%	16.00%	39.00%	100.00%
L12.14W	55.6	0.09	27.00%	35.00%	12.00%	26.00%	100.00%
L12.15	281.0	0.44	2.00%	21.00%	23.00%	54.00%	100.00%
L12.16W	286.0	0.45	15.00%	21.00%	21.00%	43.00%	100.00%
OS.1	219.3	0.34	50.00%	25.00%	25.00%	0.00%	100.00%
OS.4	101.8	0.16	15.00%	75.00%	10.00%	0.00%	100.00%
OS.5	68.0	0.11	50.00%	25.00%	25.00%	0.00%	100.00%
OS.5A	68.0	0.11	50.00%	25.00%	25.00%	0.00%	100.00%
OS.5B	68.0	0.11	50.00%	25.00%	25.00%	0.00%	100.00%
OS.6	205.1	0.32	45.00%	30.00%	25.00%	0.00%	100.00%
ST.1	51.9	0.08	5.00%	40.00%	40.00%	15.00%	100.00%
ST.2a	29.3	0.05	0.00%	22.36%	22.36%	55.28%	100.00%
ST.2b	79.8	0.12	0.00%	22.77%	22.77%	54.46%	100.00%
ST.3	71.8	0.11	0.00%	15.00%	15.00%	70.00%	100.00%
ST.4a	78.2	0.12	0.00%	5.00%	5.00%	90.00%	100.00%
ST.4b	34.6	0.05	0.00%	5.00%	5.00%	90.00%	100.00%
ST.5	30.5	0.05	0.00%	5.00%	5.00%	90.00%	100.00%
ST.6	34.5	0.05	0.00%	5.00%	5.00%	90.00%	100.00%
ST.7	82.4	0.13	0.00%	5.00%	5.00%	90.00%	100.00%
UD.1B	81.0	0.13	1.01%	28.03%	28.03%	42.93%	100.00%
UD.1C	56.2	0.09	0.00%	23.40%	23.40%	53.20%	100.00%
UD.2	138.4	0.22	0.00%	23.40%	23.40%	53.20%	100.00%
UD.2A	24.3	0.04	0.00%	25.40%	74.60%	0.00%	100.00%
UD.3	24.9	0.04	0.00%	7.60%	12.80%	79.60%	100.00%
UD.4A	14.9	0.02	20.60%	0.00%	37.30%	42.10%	100.00%
UD.4B	21.8	0.03	0.00%	13.30%	18.20%	68.50%	100.00%
UD.4C	70.0	0.11	63.40%	28.40%	3.70%	4.50%	100.00%
UD.5A	97.9	0.15	0.00%	23.40%	23.40%	53.20%	100.00%
UD.5B	89.5	0.14	5.76%	33.85%	33.85%	26.54%	100.00%
UD.5C	54.4	0.09	0.00%	23.40%	23.40%	53.20%	100.00%
UD.5D	171.6	0.27	0.00%	23.40%	23.40%	53.20%	100.00%
UD.5E	119.7	0.19	50.00%	25.00%	25.00%	0.00%	100.00%
L7.1A	6.0	0.01	0.00%	16.70%	33.30%	50.00%	100.00%
L9.1A	56.1	0.09	0.00%	30.46%	30.46%	39.08%	100.00%
L9.1B	42.9	0.07	41.50%	13.90%	19.60%	25.00%	100.00%
L9.2A	70.4	0.11	0.00%	23.40%	23.40%	53.20%	100.00%

AHYMO Input – Option 4

```
*S   AHYMO FILE FOR WEST I-40 DMP REVISED
;    DEVELOPED CONDITIONS, 24HR, 100YR.
;    WITH SEDIMENT BULKING & WITHOUT SEDIMENT REDUCTION AT PONDS.
;
*S  FILE: OPT4_FINAL_10_31_11.TXT
*S  DATE REVISED: 10/31/11

    COPIED FROM FILES: WI40R10.TXT

*   EDITED AHYMO FILES FROM:
*        1.  WEST I40DMP REVISION BY BHI, DEVELOPED CONDITIONS 2006

;*****************************************************************************************
    MODEL DEVELOPED TO REFLECT EXISTING AND PROPOSED CHANGES TO THE WEST I-40 DRAINAGE PLAN
*   BASINS FROM ORIGINAL BHI DMP, CHANGED EAST OF PASEO DEL VOLCAN TO REFLECT
*   DEVELOPED CONDITIONS.
    MODEL WAS REVISED TO SHOW EXISTING DEVELOPMENT BETWEEN UNSER AND THE RIO GRANDE RIVER
    PROPOSED LAYOUT FOR STORMCLOUD, SUNDURO, AND GRASSLANDS WERE USED
    ROUTING FOR THE WEST I-40 DIVERSION AT UNSER BLVD WAS TAKEN FROM WEST I40 SD BY WILSON
*   LAND USE FOR CURRENTLY UNDEVELOPED AREAS TAKEN FROM THE WESTLAND MASTER PLAN, BY BHI 2006
*

    ASSUMPTIONS:
    2. ALL VSC ROUTING MUSKINGUM-CUNGE ROUTING.
*   3. LAND TREATMENTS REFLECT PROPOSED LAND USAGES
*   5. DIVERT FLOWS FROM AMOLE WATERSHED NORTH OF I-40 INTO I-40 CHANNEL.
    6. ROUTING DETERMINED FROM PROPOSED AND EXISTING DEVELOPMENT PLANS
    8. ESCARPMENT LAND DIRECTLY WEST OF DESIGNATED LAND GRANT IS ASSUMED TO NOT BE DEVELOPED
    9. ONSITE PONDING WITH SURGE PONDS WILL ACCOUNT FOR 25% OF RUNOFF IN RESIDENTIAL AREAS WEST OF 98TH STREET
*   10. FREE DISCHARGE FOR AREAS BELOW THE ESCARPMENT FOR AREAS EAST OF THE OPEN SPACE.
*
;*****************************************************************************************
;   MODEL REVISED FROM ORIGINAL WI40 REVISED MODEL FOR DESIGN PURPOSES
;     CHANGES:
*S       1.  ALLOWED PORTION OF LOCAL FLOW FROM OS.6 TO FLOW UNDER I40 THOUGH EXISTING 42" AND 36" PIPE 6/8/06 WI40REV.TXT
*S       2.  REROUTED ST.6 TO FLOW UNDER I40 THROUGH EXISTING CULVERT  6/8/06
*S       3.  ADDED I40 FLOW TO 98TH STREET BOXES OUTFALL EAST OF 98TH STREET IN CHANNEL  6/8/06
;        4.  DIVIDED BASINS ALONG I40 TO ACCOUNT FOR STUB-OUT PLACEMENTS  6/13/06        WI40R2.TXT
;        5.  EASP RESIZED FOR SURGE POND CONDITIONS 6/13/06
*S       6.  ROADWAY FLOW ADDED TO THE I-40 SD AT 8 LOCATIONS. 6/21/06
*S       7.  ROUTED FLOW FROM 98TH BOXES AND SD TOGETHER IN ST.8    6/28/06          WI40R5.TXT
*S       8.  CHANGED I40 PIPE SIZES TO REFECT CURRENT DESIGN        6/28/06
;        9.  CHANGED BUSINESS PARK LAYOUT AT DEII TO ACOMODATE FRONTAGE ROAD. 10/13/06
;        10. ALLOWED EA.17 TO CONTINUE THROUGH EA BOXES FOR 404 REQUIREMENT. 10/13/06
;        11. UPDATED MODEL WITH CORRECTED STAGE STORAGE CURVES FOR DAM 0, 2, AND 4
*S       12. ADDED A POND ALONG DAM 5 ARRROYO NEAR THE STADUIM SITE THAT WILL CONVEY FLOW TO DAM 5
*S       13. MADE DAM 5 ARROYO DAM 250 ACRE FEET LARGER TO A TOTAL OF 376 ACRE FEET AND
;            CHANGED THE OUTFLOW PIPE FROM 4.5' TO 3' IN DIAMETER
;        14. CHANGED ORIFCE PLATE ON DAM5S TO MAXIMIZE STORAGE IN SOCCER FIELD DAM
;        15. ADDED ORIFICE PLATE TO DAM #2
*S       16. ADDED ORIFICE PLATE TO DAM #1P
*S       17. CHANGED OUTLET PIPE IN PROPOSED DAM 5 ARROYO DAM
;        18. REMOVED ORIFICE PLATES ON DAMS 8 AND 9
;        19. added a diversion from dam 5s to stormcloud subdivision
;
*S*************************************************************************************************************
*S
;*****************************************************************************************
    MODEL REVISED by BHI (SJG) - NOTES FOR JDE - 10/10/11
      CHANGES:
*        1.  ALL SEDIMENT BULK FOR MODEL IS 1.025. ALL OTHER SEDIMENT BULK COMMANDS COMMENTED OUT OF MODEL
*        2.  CORRECTED LAND TREATMENT TYPES SO SUM=100 FOR BASINS IN1, IN2, IN3, IN4, IN5, IN6, & IN7
         3.  EDITED LAND TREATMENT FOR BASIN UD.3 TO SUM=100
         4.  ADDED THE SURGE POND CONDITIONS BACK INTO THE MODEL FOR BASINS ST.2A AND ST.2B
         5.  EDITED THE ROUTE FOR THE COMBINED FLOW IN DAM 5 ARROYO TO END OF BASIN UD.4A
*            FROM A 54 INCH PIPE - EDITED TO 66 INCH PIPE.
*        6.  EDITED THE ROUTE FOR THE DAM 5 ARROYO BETWEEN POND D5 AND DAM 5S FROM CHANNEL TO
             A 54 INCH STORM DRAIN.
         7.  ROUTE DAM5 SPILLWAY FLOWS SOUTH IN PROPOSED DAM 5 DIVERSION FLOW ROUTED IN 48
             INCH STORM DRAIN.
*        8.  JONATHAN UPDATED 100-YEAR RAINFALL - 10/14/11
*        9.  UPDATED LAND TREAMENT TYPES FOR BASINS WITHOUT ROUNDING - BASINS EA.11, EA.12A,
             EA.12B, EA.13, EA.14, L9.2A, L9.2B, UD.5D, UD.5A, UD.5C, UD.1C, ST.9, ST.10A,
             ST.10B, ST.12, L15.5

*************************************************************************************************************
*S//////////////////////////////////////////////////////////////
;
;                WEST I-40 DRAINAGE MANAGEMENT PLAN REVISION
*S
*S//////////////////////////////////////////////////////////////
*
 ART                    TIME=0.0
  2 YEAR RAINFALL TABLE
 RAINFALL                TYPE=2  RAIN QUARTER=0.0
*                        RAIN ONE=0.73 IN  RAIN=0.95 IN
*                        RAIN DAY=1.15 IN  DT=0.05 HRS
  10 YEAR RAINFALL TABLE
 AINFALL                 TYPE=2  RAIN QUARTER=0.0
                         RAIN ONE=1.24 IN  RAIN=1.47 IN
*                        RAIN DAY=1.77 IN  DT=0.05 HRS
*  100 YEAR RAINFALL TABLE
 INFALL                  TYPE=2  RAIN QUARTER=0.0
```

```
                    RAIN ONE=1.81 IN  RAIN=2.31 IN
                    RAIN DAY=2.72 IN  DT=0.05 HRS

SEDIMENT BULK       CODE=1   BULK FACTOR=1.025
*S
*S      SUB-BASIN WA.1

COMPUTE NM HYD      ID=1  HYD NO=WA.1  AREA=1.44625 SQ MI
                    PER A=73.04  PER B=11.97  PER C=3.66  PER D=11.33
                    TP=0.337 HR  MASS RAIN=-1
PRINT HYD           ID=1     CODE=1
*
*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=1 PER=-75  ID I=1 HYD=WA.1
                    ID II=88 HYD=SURGE
PRINT HYD           ID=1  CODE=1
PRINT HYD           ID=88 CODE=1
*
*       SUB-BASIN WA.2
*
COMPUTE NM HYD      ID=2  HYD NO=WA.2  AREA=0.14350 SQ MI
                    PER A=53.32  PER B=15.21  PER C=9.71  PER D=21.76
                    TP=0.390 HR  MASS RAIN=-1
PRINT HYD           ID=2     CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=2 PER=-75  ID I=2 HYD=WA.2
                    ID II=88 HYD=SURGE
PRINT HYD           ID=2  CODE=1
PRINT HYD           ID=88 CODE=1
*S
*S    COMBINED FLOW FROM WA.1 & WA.2 FLOW INTO SMALL PLAYA THEN ROUTE THROUGH
*     WA.3
   PLAYA EXPANDED TO ACT AS A WEIR.  EXISTING STAGE STORAGE CURVE USED IN DESIGN- LEM 1/28/06
*
ADD HYD             ID=3     HYD=WA.1.2   ID I=1  ID II=2
PRINT HYD           ID=3     CODE=10

ROUTE RESERVOIR     ID=4   HYD=WA.1.2   INFLOW ID=3  CODE=1
                    OUTFLOW (CFS)     STORAGE (AC-FT)  ELEV (FT)
                      0               0                5924.4
                      0.005           7.44             5926.0
                      0.006           20.0             5927.0
                      0.007           26.3             5927.5
                      0.008           27.6             5927.6
                      17.9            28.9             5927.65
                      50.6            29.6             5927.7
                      95.2            32.5             5928.2
                      275.6           37.1             5928.7
                      517.9           41.8             5929.2
                      815.3           46.4             5929.7
                      1164.3          51.1             5930.2

PRINT HYD           ID=4      CODE=1

*
*S     ROUTE THRU SUB-BASIN WA.3

COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                    ELMIN=18.         MAX ELEV=30.
                    CH SLP=.0071          FP SLOPE=.0071
                    N =.022   DIST=34.
                    DIST    ELEV    DIST     ELEV    DIST    ELEV
                    0.      30.0     12.    18.0     22.    18.0
                    34.     30.0
ROUTE MCUNGE        ID=5   HYD=417.2  INFLOW ID=4   DT=0HR  L=3180
                    NS=0  SLOPE=.0071   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=5  CODE=1

*       SUB-BASIN WA.3
*
COMPUTE NM HYD      ID=1  HYD NO=WA.3  AREA=0.19028 SQ MI
                    PER A=53.7  PER B=15.15  PER C=9.59  PER D=21.56
                    TP=0.325 HR  MASS RAIN=-1
PRINT HYD           ID=1     CODE=1
*S
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=1 PER=-75  ID I=1 HYD=WA.3
                    ID II=88 HYD=SURGE
PRINT HYD           ID=1  CODE=1
PRINT HYD           ID=88 CODE=1
*S
*S      SUB-BASIN WA.4

COMPUTE NM HYD      ID=2  HYD NO=WA.4  AREA=0.20419 SQ MI
                    PER A=78.56  PER B=11.06  PER C=1.97  PER D=8.41
                    TP=0.406 HR  MASS RAIN=-1
PRINT HYD           ID=2     CODE=1

*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=2 PER=-75  ID I=2 HYD=WA.4
                    ID II=88 HYD=SURGE
PRINT HYD           ID=2  CODE=1
PRINT HYD           ID=88 CODE=1
```

```
*S
*S      ADD SUB-BASINS WA.3 & WA.4 PLUS ROUTED FLOW THRU WA.1

ADD HYD               ID=3  HYD=WA.3.4   ID I=1  ID II=2
PRINT HYD             ID=3  CODE=1
ADD HYD               ID=4  HYD=420.1    ID I=3  ID II=5
PRINT HYD             ID=4  CODE=1

*S      ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7
*
COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                      ELMIN=94          MAX ELEV=100
                      CH SLP=.0069          FP SLOPE=.0069
                      N =.022   DIST=34
                      DIST    ELEV    DIST     ELEV    DIST    ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
ROUTE MCUNGE          ID=5   HYD=420.2  INFLOW ID=4   DT=0HR  L=9725
                      NS=0  SLOPE=.0069   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=5  CODE=1
*S
*S      SUB-BASIN WA.5

COMPUTE NM HYD        ID=1  HYD NO=WA.5  AREA=0.85401 SQ MI
                      PER A=14.5  PER B=21.6 PER C=21.6  PER D=42.3
                      TP=0.366 HR  MASS RAIN=-1
PRINT HYD             ID=1     CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=1 PER=-75  ID I=1 HYD=WA.5
                      ID II=88 HYD=SURGE
PRINT HYD             ID=1  CODE=1
PRINT HYD             ID=88 CODE=1
*S
*S      ROUTE SUB-BASIN WA.5 THRU SUB-BASIN WA.7
*S        ADD TO PREVIOUSLY ROUTED FLOWS
*
COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                      ELMIN=94        MAX ELEV=100.
                      CH SLP=.0126          FP SLOPE=.0126
                      N =.022   DIST=34
                      DIST    ELEV    DIST     ELEV    DIST    ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
ROUTE MCUNGE          ID=2   HYD=416.1  INFLOW ID=1   DT=0HR  L=6325
                      NS=0  SLOPE=.0126   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=2  CODE=1
ADD HYD               ID=3  HYD=416.2   ID I=2  ID II=5
*S
*S      SUB-BASIN WA.6
*
COMPUTE NM HYD        ID=1  HYD NO=WA.6  AREA=0.15907 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.269 HR  MASS RAIN=-1
PRINT HYD             ID=1     CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=1 PER=-75  ID I=1 HYD=WA.6
                      ID II=88 HYD=SURGE
PRINT HYD             ID=1  CODE=1
PRINT HYD             ID=88 CODE=1
*S
*S     WA.6 ROUTES THROUGH A PLAYA THAT DRAINS TO WA.8

ROUTE RESERVOIR       ID=2  HYD=WA.6 INFLOW ID=1  CODE=20
                      OUTFLOW (cfs)     STORAGE (AC-FT)        ELEV (FT)
                        0.              0.              5849.4
                        0.005           0.75            5850.0
                        0.006           10.8            5852.0
                        25.3            11.6            5852.1
                        71.5            12.5            5852.2
PRINT HYD             ID=2  CODE=1
*S
*S
*S      SUB-BASIN WA.8
*
COMPUTE NM HYD        ID=1  HYD NO=WA.8  AREA=0.11164 SQ MI
                      PER A=14.5 PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.353 HR  MASS RAIN=-1
PRINT HYD             ID=1     CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=1 PER=-75  ID I=1 HYD=WA.8
                      ID II=88 HYD=SURGE
PRINT HYD             ID=1  CODE=1
PRINT HYD             ID=88 CODE=1
*S
*S      ADD FLOW FROM SUB-BASIN WA.6 To WA.8 AND ROUTE THROUGH
*S      A PLAYA BEFORE ROUTING THROUGH WA.9

ADD HYD               ID=4  HYD=WA.8.1  ID I=2  ID II=1
PRINT HYD             ID=4  CODE=1
ROUTE RESERVOIR       ID=2  HYD=WA.8.1  INFLOW ID=4  CODE=20
                      OUTFLOW (cfs)    STORAGE (AC-FT)  ELEV (FT)
```

```
                        0.              0.              5847.9
                        0.005           0.5             5848.0
                        0.006           6.5             5850.0
                        25.3            7.3             5850.1
                        71.5            8.1             5850.2
PRINT HYD               ID=2  CODE=1

*S*  ROUTE WA.6/WA.8 THROUGH WA.9
COMPUTE RATING CURVE    RC=1  VS NO=1 NSEGS=1
*                       ELMIN=94        MAX ELEV=100
*                       CH SLP=.0196          FP SLOPE=.0196
                        N =.022   DIST=34.
                        DIST    ELEV    DIST    ELEV    DIST    ELEV
                        0.      100.0     12.   94.0     22.    94.0
*                       34.     100.0
*S*  ROUTE FLOW THROUGH 24" PIPE --LEM 2/13/06
COMPUTE RATING CURVE    RC=1  VS NO=1 CODE=-1  SLP=0.0196
                        DIA=24   N=0.013
ROUTE MCUNGE            ID=1   HYD=414.3  INFLOW ID=2   DT=0HR  L=5250
                        NS=0  SLOPE=.0196   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=1  CODE=1
*

*       SUB-BASIN WA.9
*
COMPUTE NM HYD          ID=2  HYD NO=WA.9  AREA=0.20075 SQ MI
                        PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                        TP=0.277 HR  MASS RAIN=-1
PRINT HYD               ID=2  CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD              ID=2 PER=-75  ID I=2 HYD=WA.9
                        ID II=88 HYD=SURGE
PRINT HYD               ID=2  CODE=1
PRINT HYD               ID=88 CODE=1
*S
*S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.7

ADD HYD                 ID=4  HYD=WA9.1  ID I=1 ID II=2
PRINT HYD               ID=4  CODE=1
COMPUTE RATING CURVE    RC=1    VS NO=1   NSEGS=1
                        ELMIN=94        MAX ELEV=100.
                        CH SLP=.0090          FP SLOPE=.0090
                        N =.022   DIST=34
                        DIST    ELEV    DIST    ELEV    DIST    ELEV
                        0.      100.0     12.   94.0     22.    94.0
                        34.     100.0
ROUTE MCUNGE            ID=1   HYD=WA9.2  INFLOW ID=4   DT=0HR  L=1000
                        NS=0  SLOPE=.0090   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=1  CODE=1
*S
*S      SUB-BASIN WA.7

COMPUTE NM HYD          ID=2  HYD NO=WA.7  AREA=1.16328 SQ MI
                        PER A=18.82  PER B=20.89  PER C=20.28 PER D=40.01
                        TP=0.364 HR  MASS RAIN=-1
PRINT HYD               ID=2  CODE=1

*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD              ID=2 PER=-75  ID I=2 HYD=WA.7
                        ID II=88 HYD=SURGE
PRINT HYD               ID=2  CODE=1
PRINT HYD               ID=88 CODE=1
*
*       ADD SUB-BASIN WA.7 TO ROUTED FLOWS
*S        ROUTE THRU SUB-BASIN WA.16
*
ADD HYD                 ID=4  HYD=WA.7.1  ID I=1  ID II=2
ADD HYD                 ID=1  HYD=WA.7.2  ID I=4  ID II=3
PRINT HYD               ID=1  CODE=1
COMPUTE RATING CURVE    RC=1      VS NO=1     NSEGS=1
                        ELMIN=94         MAX ELEV=102
                        CH SLP=.0078          FP SLOPE=.0078
                        N =.022   DIST=34
                        DIST    ELEV    DIST    ELEV    DIST    ELEV
                        0.      102.0     18.   94.0     28.    94.0
                        46.     102.0
ROUTE MCUNGE            ID=5   HYD=WA.7.3  INFLOW ID=1   DT=0HR  L=7125
                        NS=0  SLOPE=.0078   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=5  CODE=1
*S
*S      SUB-BASIN WA.10
*
COMPUTE NM HYD          ID=1  HYD NO=WA.10  AREA=0.34125 SQ MI
                        PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                        TP=0.319 HR  MASS RAIN=-1
PRINT HYD               ID=1  CODE=1
*
*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD              ID=1 PER=-75  ID I=1 HYD=WA.10
                        ID II=88 HYD=SURGE
PRINT HYD               ID=1  CODE=1
PRINT HYD               ID=88 CODE=1
*
```

```
*S      WA.10 FLOWS INTO PLAYA BEFORE ROUTING TO WA.11

)UTE RESERVOIR        ID=2  HYD=WA.10   INFLOW ID=1  CODE=20
                      OUTFLOW (CFS)    STORAGE (AC-FT)  ELEV (FT)
                        0.               0.              5819.
                        0.005            1.              5820.
                        8.9              3               5820.05
                        25.3             5              5820.1
                        95.2             25              5820.6
                        275.61           45              5821.1
PRINT HYD             ID=2  CODE=1
*
*
*       SUB-BASIN WA.11
*
COMPUTE NM HYD        ID=1  HYD NO=WA.11  AREA=0.33875 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.318 HR  MASS RAIN=-1
RINT HYD              ID=1  CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD             ID=1 PER=-75  ID I=1 HYD=WA.11
                      ID II=88 HYD=SURGE
RINT HYD              ID=1  CODE=1
PRINT HYD             ID=88 CODE=1
*S
*       ADD FLOWS FROM SUB-BASIN WA.10 AND ROUTE THRU SUB-BASIN WA.12

)D HYD                ID=3  HYD=WA11.1   ID I=1 ID II=2
PRINT HYD             ID=3  CODE=1
COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                      ELMIN=94        MAX ELEV=100
                      CH SLP=.005          FP SLOPE=.005
                      N =.022   DIST=34
                      DIST    ELEV    DIST     ELEV    DIST    ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
)UTE MCUNGE           ID=1   HYD=WA11.2  INFLOW ID=3   DT=0HR  L=410
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=1  CODE=1
*S
*S      SUB-BASIN WA.12

)MPUTE NM HYD         ID=2  HYD NO=WA.12  AREA=0.13927 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.340 HR  MASS RAIN=-1
PRINT HYD             ID=2  CODE=1

  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD             ID=2 PER=-75  ID I=1 HYD=WA.12
                      ID II=88 HYD=SURGE
PRINT HYD             ID=2  CODE=1
RINT HYD              ID=88 CODE=1
*
*       ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.14
*
ADD HYD               ID=3  HYD=WA12.1    ID I=1  ID II=2
RINT HYD              ID=3  CODE=1
)MPUTE RATING CURVE   RC=1      VS NO=1     NSEGS=1
                      ELMIN=94        MAX ELEV=101.
                      CH SLP=.0005          FP SLOPE=.0005
                      N =.022   DIST=34
                      DIST    ELEV    DIST     ELEV    DIST    ELEV
                      0.      101.0     15.    94.0     25.    94.0
                      40.     101.0
ROUTE MCUNGE          ID=1   HYD=WA12.2  INFLOW ID=3   DT=0HR  L=1025
                      NS=0  SLOPE=.0005   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=1  CODE=1
*
*       SUB-BASIN WA.14
*
COMPUTE NM HYD        ID=2  HYD NO=WA.14 AREA=0.05985 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.596 HR  MASS RAIN=-1
RINT HYD              ID=2  CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD             ID=2 PER=-75  ID I=2 HYD=WA.14
                      ID II=88 HYD=SURGE
RINT HYD              ID=2  CODE=1
PRINT HYD             ID=88 CODE=1
*S
*S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.13

)D HYD                ID=3  HYD=WA.14.1  ID I=1  ID II=2
PRINT HYD             ID=3  CODE=1
COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                      ELMIN=94        MAX ELEV=100
                      CH SLP=.0067          FP SLOPE=.0067
                      N =.022   DIST=34
                      DIST    ELEV    DIST     ELEV    DIST    ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
)UTE MCUNGE           ID=1   HYD=WA14.2  INFLOW ID=3   DT=0HR  L=5250
```

```
                    NS=0  SLOPE=.0067   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=1  CODE=1
 S
 S      SUB-BASIN WA.13
*
COMPUTE NM HYD      ID=2  HYD NO=WA.13  AREA=0.97385 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.346 HR  MASS RAIN=-1
 RINT HYD           ID=2  CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD          ID=2 PER=-75  ID I=2 HYD=WA.13
                    ID II=88 HYD=SURGE
 RINT HYD           ID=2  CODE=1
PRINT HYD           ID=88 CODE=1
*S
 S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.16

 DD HYD             ID=3  HYD=WA13.1    ID I=1  ID II=2
PRINT HYD           ID=3  CODE=1
COMPUTE RATING CURVE RC=1      VS NO=1     NSEGS=1
                    ELMIN=94        MAX ELEV=102
                    CH SLP=.0027          FP SLOPE=.0027
                    N =.022   DIST=34
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0.      102.0    18.    94.0     28.    94.0
                    46.     102.0
 OUTE MCUNGE        ID=1   HYD=WA13.2  INFLOW ID=3   DT=0HR  L=2050
                    NS=0  SLOPE=.0027   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=1  CODE=1
*S
*S      SUB-BASIN WA.16

 OMPUTE NM HYD      ID=2  HYD NO=WA.16  AREA=1.39121 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.282 HR  MASS RAIN=-1
PRINT HYD           ID=2  CODE=1
 S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD          ID=2 PER=-75  ID I=2 HYD=WA.16
                    ID II=88 HYD=SURGE
PRINT HYD           ID=2  CODE=1
PRINT HYD           ID=88 CODE=1

 S      ADD ALL ROUTED FLOWS

ADD HYD             ID=3  HYD=WA.16.1   ID I=1  ID II=2
ADD HYD             ID=4  HYD=WA.16.2   ID I=3  ID II=5
 RINT HYD           ID=4  CODE=1

 S      ROUTE THROUGH A PLAYA BEFORE WA.18  THEN
*S      ROUTE FLOW THRU SUB-BASIN WA.18
*S      MADE WEIR LARGER TO ACCOMoNDATE LARGER FLOWS -LEM 1/25/06

 OUTE RESERVOIR     ID=1  HYD=WA.16.1   INFLOW ID=4  CODE=20
                    OUTFLOW          STORAGE          ELEV
                     (CFS)           (AC-FT)          (FT)
                      0.             0.               5874.6
                      0.005          3                5876.0
                      0.006          6                5877.0
                      0.007          9                5877.6
                      8.9            10               5877.65
                      25.3           11               5877.7
                      71.6           13               5877.8
                      95.2           13.02            5878.3
                      275.6          14.87            5878.8
                      517.9          16.72            5879.3
                      815.3          18.57            5879.8
                      1164.3         20.4             5880.3
                      1563.4         22.3             5880.8
                      2011.4         24.1             5881.3
                      2507.9         25.96            5881.8
                      3052.8         27.8             5882.3
                      3646.1         29.65            5882.8
                      4187.9         31.5             5883.3
                      4978.47        33.3             5883.8
                      5718.2         35.2             5884.3

PRINT HYD           ID=1  CODE=1
 OMPUTE RATING CURVE RC=1     VS NO=1     NSEGS=1
                    ELMIN=94        MAX ELEV=103.
                    CH SLP=.0202          FP SLOPE=.0202
                    N =.022   DIST=34
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0.      103.0    21.    94.0     31.    94.0
                    52.     103.0
ROUTE MCUNGE        ID=2   HYD=WA.16.3  INFLOW ID=1   DT=0HR  L=6225
                    NS=0  SLOPE=.0202   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2  CODE=1
 S
 S      SUB-BASIN WA.17

COMPUTE NM HYD      ID=1  HYD NO=WA.17  AREA=0.3126 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.271 HR  MASS RAIN=-1
```

```
PRINT HYD              ID=1  CODE=1

 ;  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=1 PER=-75  ID I=1 HYD=WA.17
                       ID II=88 HYD=SURGE
PRINT HYD              ID=1  CODE=1
PRINT HYD              ID=88 CODE=1
 ;
 ;      ROUTE FLOW FROM SUB-BASIN WA.17 THRU SUB-BASIN WA.18
*
COMPUTE RATING CURVE   RC=1      VS NO=1     NSEGS=1
                       ELMIN=94        MAX ELEV=100.
                       CH SLP=.0068          FP SLOPE=.0068
                       N =.022   DIST=34
                       DIST    ELEV    DIST     ELEV    DIST    ELEV
                       0.      100.0     12.    94.0     22.    94.0
                       34.     100.0
 OUTE MCUNGE           ID=3   HYD=WA.17.1 INFLOW ID=1   DT=0HR  L=6300
                       NS=0  SLOPE=.0068   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=3  CODE=1
*S
 ;      SUB-BASIN WA.18

 OMPUTE NM HYD         ID=1  HYD NO=WA.18  AREA=1.37385 SQ MI
                       PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                       TP=0.287 HR  MASS RAIN=-1
PRINT HYD              ID=1  CODE=1
 ;  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD              ID=1 PER=-75  ID I=1 HYD=WA.18
                       ID II=88 HYD=SURGE
PRINT HYD              ID=1  CODE=1
PRINT HYD              ID=88 CODE=1
 ;

*S     ADD TO ALL ROUTED FLOWS
*
ADD HYD                ID=4  HYD=WA.18.1  ID I=1  ID II=3
 DD HYD                ID=68  HYD=WA.18.2  ID I=4  ID II=2
 RINT HYD              ID=68  CODE=1
*S
*
*S
 ;      COMPUTE SUB-BASIN EA.5
 ;*   BASIN INCLUDES TEMPUR SITE AND CORDERO BUSINESS PARK
COMPUTE NM HYD         ID=2  HYD NO=EA.5  AREA=0.88823 SQ MI
                       PER A=14.5  PER B=21.6  PER C=21.6 PER D=42.3
                       TP=0.303 HR  MASS RAIN=-1
 RINT HYD              ID=2  CODE=1
 ;
 ;* DIVIDE REMINING EA.5 TO ACCOUNT FOR FLOW GOING INTO WEST AMOLE DAM
DIVIDE HYD             ID=2 P=-0.5
                       ID I=4 HYD=WESTAMOLE
                       ID II=3 HYD=SHAMRK/TEMP
 ;* FLOW TO ADD TO WEST AMOLE DAM
 RINT HYD              ID=4 CODE=1
*S
*S      DIVIDE REMAINING FLOW TO ACCOUNT FOR TEMPER SD
 VIDE HYD              ID=3 Q=387.23
                       ID I=63 HYD=TEMPER SD
                       ID II=62 HYD=SHAMROCK
*S* FLOW TO TEMPER SD
PRINT HYD              ID=63 CODE=1
 ;*
 ;* FLOW TO SHAMROCK CHANNEL
 RINT HYD              ID=62 CODE=1


 ROUTE SHAMROCK FLOW TO ADD IN WITH WEST AMOLE OUTFALL
 ROUTE THROUGH 60" PIPE

*COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.02 DIA=60  N=0.013
*ROUTE MCUNGE           ID=62   HYD=SHAMROCK  INFLOW ID=72   DT=0HR  L=1000
                       NS=0  SLOPE=.02   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD              ID=62  CODE=1
 ;
*S
*S* ADD WEST AMOLE WATERSHED FLOW TO PORTION OF EA.5
*S* TOTAL FLOW INTO WEST AMOLE DAM
 D HYD                 ID=24  HYD=WAMOLEIN  ID I=4  ID II=68
 RINT HYD              ID=24  CODE=1
*S*
*S
*S      SUB-BASIN EA.3

 OMPUTE NM HYD         ID=4  HYD NO=EA.3  AREA=0.05863 SQ MI
                       PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                       TP=0.367 HR  MASS RAIN=-1
PRINT HYD              ID=4  CODE=1

 ;  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=4 PER=-75  ID I=4 HYD=EA.3
                       ID II=88 HYD=SURGE
PRINT HYD              ID=4  CODE=1
 RINT HYD              ID=88 CODE=1
```

```
*S
;       ROUTE OVERFLOW THRU SUB-BASIN EA.2
;       ROUTE WITH A 66 IN PIPE
*
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.005 DIA=66  N=0.013
)UTE MCUNGE          ID=1   HYD=EA.3.3  INFLOW ID=4   DT=0HR  L=1320
                     NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
.RINT HYD            ID=1  CODE=1
*S
*S      SUB-BASIN EA.1

)MPUTE NM HYD        ID=2  HYD NO=EA.1  AREA=0.05853 SQ MI
                     PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                     TP=0.207 HR  MASS RAIN=-1
PRINT HYD            ID=2  CODE=1
;  DIVERT 25% FOR SURGE POND CONDITION
:VIDE HYD            ID=2 PER=-75  ID I=2 HYD=EA.1
                     ID II=88 HYD=SURGE
PRINT HYD            ID=2  CODE=1
PRINT HYD            ID=88 CODE=1
;

;     ROUTE THROUGH PLAYA, AND THEN THROUGH EA.2
*  weir enlarged to account for increased flows -LEM 1/25/06

)UTE RESERVOIR       ID=3  HYD=407.01   INFLOW ID=2  CODE=20
                     OUTFLOW            STORAGE          ELEV
                      (CFS)             (AC-FT)          (FT)
                       0.               0.               5803.2
                       0.005            1.1505           5804.0
                       8.9              1.25             5804.1
                       25.3             1.4              5804.2
                       95.2             2.19175          5804.7
                       275.61           2.893            5805.2


:INT HYD             ID=3  CODE=1

COMPUTE RATING CURVE RC=1      VS NO=1     NSEGS=1
                     ELMIN=94          MAX ELEV=100
                     CH SLP=.0070          FP SLOPE=.0070
                     N =.022   DIST=34.0
                     DIST    ELEV    DIST     ELEV    DIST    ELEV
                     0.      100.0     12.    94.0     22.    94.0
                     34.     100.0
)UTE MCUNGE          ID=2   HYD=EA.1.1  INFLOW ID=3   DT=0HR  L=5610
                     NS=0  SLOPE=.0070   MATCODE=0  REGCODE=0  CCODE=0
.RINT HYD            ID=2  CODE=1
*S
*S      SUB-BASIN EA.2

)MPUTE NM HYD        ID=3  HYD NO=EA.2  AREA=0.22414 SQ MI
                     PER A=14.5  PER B=21.6 PER C=21.6 PER D=42.3
                     TP=0.400 HR  MASS RAIN=-1
PRINT HYD            ID=3  CODE=1

;  DIVERT 25% FOR SURGE POND CONDITION
:VIDE HYD            ID=3 PER=-75  ID I=3 HYD=EA.2
                     ID II=88 HYD=SURGE
PRINT HYD            ID=3  CODE=1
:INT HYD             ID=88 CODE=1
;
;      ADD TO PREVIOUSLY ROUTED FLOWS
*
ADD HYD               ID=4 HYD=EA.2.1 ID I=1 ID II=2
)D HYD                ID=7 HYD=EA.2.2 ID I=3 ID II=4
:INT HYD              ID=7 CODE=1

*S commented out diversion under I-40 1/23/06 LEM

;*S      ROUTE FLOW FROM SUB-BASIN EA.2 INTO 2-24" XING
;S      UNDER WESTBOUND I-40 (ASSUME 50% FLOW INTO EACH PIPE).

*DIVIDE HYD           ID=7 Q=46 ID I=2 HYD=EA.2.1 ID II=3 HYD=EA.2.2
*PRINT HYD            ID=2 CODE=1
;*S      FLOW WHICH CANNOT CROSS I-40 FLOWS TO SUB-BASIN EA.6
;S               (route thru sub-basin EA.6)
;
*S      SUB-BASIN EA.4
*
COMPUTE NM HYD        ID=2  HYD NO=EA.4  AREA=0.27562 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.348 HR  MASS RAIN=-1
PRINT HYD             ID=2  CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=2 PER=-75  ID I=2 HYD=EA.4
                      ID II=88 HYD=SURGE
:INT HYD              ID=2  CODE=1
.RINT HYD             ID=88 CODE=1
*S
*S* ADD ROUTED EA.2 AND BASIN EA.4
)D HYD                ID=7  HYD=EA.4.1  ID I=2  ID II=7
```

```
PRINT HYD              ID=7  CODE=1


*S* ROUTE FLOW THROUGH PASEO DEL VOLCAN POND
*S* ADDED TO DECREASE SIZE OF DOUBLE EAGLE II POND - AQC 7/11/06
;* 36" PIPE OUTFLOW WITH 24" ORIFICE OPENING
)UTE RESERVOIR         ID=2  HYD=PASDVOLCAN   INFLOW ID=7  CODE=20
                       OUTFLOW          STORAGE          ELEV
                        (CFS)           (AC-FT)          (FT)
                         0              0                5773.0
                         1.98           1.45             5773.5
                         8.42           2.94             5774.0
                         10.70          4.47             5774.5
                         15.13          6.04             5775.0
                         18.53          7.64             5775.5
                         21.39          9.29             5776.0
                         23.92          10.97            5776.5
                         26.20          12.69            5777.0
                         28.30          14.46            5777.5
                         30.25          16.26            5778.0
                         32.09          18.11            5778.5
                         33.82          19.99            5779.0
                         35.48          21.92            5779.5
                         37.05          23.89            5780.0
PRINT HYD              ID=2  CODE=10

;      ROUTE THRU SUB-BASIN EA.6 TO WEST AMOLE DAM

COMPUTE RATING CURVE   RC=1  VS NO=1 CODE=-1  SLP=0.0089
                       DIA=36   N=0.013
?OUTE MCUNGE           ID=3   HYD=EA.6.1  INFLOW ID=2   DT=0HR  L=10500
                       NS=0  SLOPE=.0089   MATCODE=0  REGCODE=0  CCODE=0
?INT HYD               ID=3  CODE=1
*S

*S      WEST AMOLE DAM
;       36 INCH PIPE PRIMARY SPILLWAY
)UTE RESERVOIR         ID=4  HYD=WESTAMOLE  INFLOW ID=24  CODE=20
                       OUTFLOW          STORAGE          ELEV
                        (CFS)           (AC-FT)          (FT)
                          0              0.00             5752
                          53.81          20.38            5756
                          86.77          97.29            5760
                          110.29         255.42           5764
                          120.33         369.23           5766
                          138.25         679.23           5770
?INT HYD               ID=4  CODE=0


*S ADD FLOW TO SHAMROCK FLOW

)D HYD                 ID=60  HYD=WASHAMROCK  ID I=4  ID II=62
.?INT HYD              ID=60  CODE=1
*S      ROUTE THRU PROPOSED SHAMROCK CHANNEL DETENTION POND
*S       48 INCH PIPE PRIMARY SPILLWAY w/ ORIFICE PLATE
)UTE RESERVOIR         ID=4  HYD=shampond   INFLOW ID=60  CODE=20
                       OUTFLOW          STORAGE          ELEV
                        (CFS)           (AC-FT)          (FT)
                          0              0                5717.0
                          2.64           0.06             5717.5
                          10.84          0.41             5718.0
                          25.15          0.97             5718.5
                          20.05          1.76             5719.0
                          41.74          2.8              5719.5
                          55.52          4.1              5720.0
                          66.50          5.6              5720.5
                          75.91          7.21             5721.0
                          84.28          8.94             5721.5
                          91.88          10.77            5722.0
                          98.91          12.72            5722.5
                          105.47         14.78            5723.0
                          111.64         16.94            5723.5
                          117.49         19.23            5724.0
PRINT HYD              ID=4  CODE=0
*S      ROUTE THRU ALONG EA.16B TO PDV POND ADD-IN

)MPUTE RATING CURVE    RC=1  VS NO=1 CODE=-1  SLP=0.0065
                       DIA=48   N=0.013
ROUTE MCUNGE           ID=60   HYD=EA.6.1  INFLOW ID=4   DT=0HR  L=740
                       NS=0  SLOPE=.0065   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=60  CODE=1

;* ADD ROUTED PDV FLOW TO WEST AMOLE FLOW
ADD HYD                ID=4  HYD=WAMOLEIN  ID I=60  ID II=3
PRINT HYD              ID=4  CODE=1

      ROUTE THRU SUB-BASIN EA.6 TO DOUBLE EAGLE II

COMPUTE RATING CURVE   RC=1  VS NO=1 CODE=-1  SLP=0.037
                       DIA=60   N=0.013
*ROUTE MCUNGE           ID=3   HYD=EA.6.1  INFLOW ID=4   DT=0HR  L=2250
                       NS=0  SLOPE=.037   MATCODE=0  REGCODE=0  CCODE=0
```

```
*PRINT HYD              ID=3  CODE=1
 S

 S      SUB-BASIN EA.6
*S      SUB-BASIN EA.6 IS ALLOWED TO CONTINUE UNDER I40 EXCEPT SECTION EA.6B

 S      SUB-BASIN EA.6B

COMPUTE NM HYD          ID=2  HYD NO=EA.6B  AREA=0.1034 SQ MI
                        PER A=0 PER B=10 PER C=10 PER D=80
                        TP=0.210 HR  MASS RAIN=-1
PRINT HYD               ID=2  CODE=1

S ADD COMBINED FLOW TO EA.6B

ADD HYD                 ID=72  HYD=WASHAMROCK  ID I=2  ID II=4
PRINT HYD               ID=72  CODE=1


*S      ROUTE TO CHANNEL
*S*     ROUTE WITH A 60" PIPE

COMPUTE RATING CURVE    RC=1  VS NO=1 CODE=-1  SLP=0.007
                        DIA=60   N=0.013
ROUTE MCUNGE            ID=61   HYD=RTWASHAM  INFLOW ID=72   DT=0HR  L=1540
                        NS=0  SLOPE=.007  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=61  CODE=1


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

 S      SUB-BASIN EA.18
*
COMPUTE NM HYD          ID=5  HYD NO=EA.18  AREA=0.03494 SQ MI
                        PER A=14.5  PER B=21.6  PER C=21.6 PER D=42.3
                        TP=0.575 HR  MASS RAIN=-1
PRINT HYD               ID=5   CODE=1
*

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD              ID=5 PER=-75  ID I=5 HYD=EA.18
                        ID II=88 HYD=SURGE
PRINT HYD               ID=5  CODE=1
PRINT HYD               ID=88 CODE=1
*S
 S      ASSUME EXISTING PLAYA REMOVED DUE TO DEVELOPMENT.

 S      ROUTE THRU SUB-BASIN EA.7
*S*     ROUTE THRU CONCRETE CHANNEL
*
COMPUTE RATING CURVE    RC=1  VS NO=1  NSEGS=1
                        ELMIN=94          MAX ELEV=100
                        CH SLP=.0039          FP SLOPE=.0039
                        N =.022   DIST=34
                        DIST    ELEV      DIST   ELEV    DIST  ELEV
                        0.      100.0     12.    94.0     22.    94.0
                        34.     100.0
ROUTE MCUNGE            ID=4   HYD=EA.7.1  INFLOW ID=5   DT=0HR  L=4140
                        NS=0  SLOPE=.0039   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=4  CODE=1
 S
 S      SUB-BASIN EA.7

COMPUTE NM HYD          ID=5  HYD NO=EA.7  AREA=0.07607 SQ MI
                        PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                        TP=0.826 HR  MASS RAIN=-1
PRINT HYD               ID=5  CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD              ID=5 PER=-75  ID I=5 HYD=EA.7
                        ID II=88 HYD=SURGE
PRINT HYD               ID=5  CODE=1
PRINT HYD               ID=88 CODE=1
*S

*S      ADD EA.7 TO ROUTED FLOWS

ADD HYD                 ID=6  HYD=EA.7.1  ID I=4  ID II=5
PRINT HYD               ID=6  CODE=1
*

      ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD.) VIA 18" CMP
 S      routed with 54" cmp to account for increased developed flows - 1/23/06 -LEM
COMPUTE RATING CURVE    RC=1  VS NO=1 CODE=-1  SLP=0.005
                        DIA=54   N=0.024
ROUTE MCUNGE            ID=4   HYD=EA.7.2  INFLOW ID=6   DT=0HR  L=74
                        NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
COMPUTE TRAVEL TIME     ID=4  REACHNO=1  NO VS=1  L=74  SLP=.005
ROUTE                   ID=4  HYD=EA.7.2  INFLOW ID=6  DT=0HR  L=74
PRINT HYD               ID=4 CODE=1
*
 S     ROUTE THRU SUB-BASIN EA.11
```

```
*S     ROUTE THRU A CONCRETE CHANNEL
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1
                      ELMIN=94          MAX ELEV=100
                      CH SLP=.0105           FP SLOPE=.0105
                      N =.022   DIST=34
                        DIST    ELEV      DIST   ELEV    DIST  ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
ROUTE MCUNGE          ID=15   HYD=EA.7.3  INFLOW ID=4   DT=0HR  L=5700
                      NS=0  SLOPE=.0105   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=15 CODE=1

*******************************************************************************
*******************************************************************************
*
**SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
*S


*S      SUB-BASIN EA.8


COMPUTE NM HYD        ID=7  HYD NO=EA.8  AREA=0.42610 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.421 HR  MASS RAIN=-1
PRINT HYD             ID=7  CODE=1
*
*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=7 PER=-75  ID I=7 HYD=EA.8
                      ID II=88 HYD=SURGE
PRINT HYD             ID=7  CODE=1
PRINT HYD             ID=88 CODE=1
*


*      ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD.) VIA 24" CMP
*S      routed with 66" cmp to account for increased developed flows - 1/23/06 -LEM

COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0531
                      DIA=66   N=0.024

ROUTE MCUNGE          ID=5   HYD NO=EA.8.1  INFLOW ID=7   DT=0HR  L=74
                      NS=0  SLOPE=0.0531   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=5 CODE=1

*S      ROUTE THROUGH EA.11
*
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1
                      ELMIN=94          MAX ELEV=100
                      CH SLP=.0169           FP SLOPE=.0169
                      N =.022   DIST=34
                      DIST    ELEV      DIST   ELEV    DIST  ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
ROUTE MCUNGE          ID=16   HYD=EA.8.2  INFLOW ID=5   DT=0HR  L=3550
                      NS=0  SLOPE=.0169   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=16 CODE=1


*      SUB-BASIN EA.9
*
COMPUTE NM HYD        ID=6  HYD NO=EA.9  AREA=0.25599 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.402 HR  MASS RAIN=-1
PRINT HYD             ID=6  CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=6 PER=-75  ID I=6 HYD=EA.9
                      ID II=88 HYD=SURGE
PRINT HYD             ID=6  CODE=1
PRINT HYD             ID=88 CODE=1
*S
*
*      ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD) VIA 24" CMP
*      routed with 54" cmp to account for increased developed flows - 1/23/06 -LEM
*
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0531
                      DIA=54   N=0.024

ROUTE MCUNGE          ID=7   HYD=EA.9.1  INFLOW ID=6  DT=0HR  L=74
                      NS=0  SLOPE=0.0531   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=7 CODE=1
*
*      CROSSES PASEO DEL VOLCAN ROUTE THROUGH EA.11

COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1
                      ELMIN=94          MAX ELEV=100
                      CH SLP=.0169           FP SLOPE=.0169
                      N =.022   DIST=34
                      DIST    ELEV      DIST   ELEV    DIST  ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
ROUTE MCUNGE          ID=18   HYD=EA.9.2  INFLOW ID=7  DT=0HR  L=1700
                      NS=0  SLOPE=.0169   MATCODE=0  REGCODE=0  CCODE=0
```

```
PRINT HYD              ID=18 CODE=1

;      SUB-BASIN EA.11
;      LAND TREATMENTS REVISED DUE TO CHANGES IN PLANNED LAND DEVELOPMENT USE- 8/28/06  LEM
COMPUTE NM HYD         ID=9  HYD NO=EA.11  AREA=0.605 SQ MI
                       PER A=0  PER B=23.40  PER C=23.40 PER D=53.20
                       TP=0.428 HR  MASS RAIN=-1
RINT HYD               ID=9  CODE=1
;  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=9 PER=-75  ID I=9 HYD=EA.11
                       ID II=88 HYD=SURGE
RINT HYD               ID=9  CODE=1
RINT HYD               ID=88 CODE=1
;
*
*S      ADD EA.11 AND BASINS ROUTED THROUGH (EA.7, EA.8, & EA.9)

)D HYD                 ID=6  HYD=EA.11.1  ID I=9  ID II=15
)D HYD                 ID=9  HYD=EA.11.2  ID I=6  ID II=16
ADD HYD                ID=10 HYD=EA.11.3  ID I=9  ID II=18
PRINT HYD              ID=10  CODE=1

;* ROUTE THROUGH RESERVOIR AT SOUTHERN PART OF EA.11
;* OUTFLOW WITH A 60" PIPE - LEM 1/25/06
* STORAGE INCREASED TO ALLOW FOR INCREASED FLOWS - LEM 1/25/06
ROUTE RESERVOIR        ID=13 HYD=EA.11.4  INFLOW ID=10 CODE=10
                         OUTFLOW    STORAGE    ELEV
                          (CFS)     (AC-FT)    (FT)
                         0              0.00          5260
                         2.39           5.65          5260.5
                         9.9            11.35         5261
                         23.2           17.09         5261.5
                         43.45          22.89         5262
                         73.11          28.73         5262.5
                         41.68          34.62         5263
                         48.13          40.56         5263.5
                         53.81          46.56         5264
                         58.95          52.60         5264.5
                         63.67          58.69         5265
                         68.07          64.83         5265.5
                         72.2           71.02         5266
                         76.1           77.27         5266.5
                         79.82          83.56         5267
                         83.37          89.91         5267.5
                         86.77          96.30         5268
                         90.05          102.75        5268.5
                         93.21          109.25        5269
                         96.27          115.80        5269.5
                         99.23          122.41        5270

PRINT HYD              ID=13    CODE=1
*
;      ROUTE FLOW ALONG SD ON EAST SIDE OF EA.12
;*     ROUTE FLOW THROUGH CONCRETE CHANNEL - LEM 8/22/06

COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=6
                         CH SLP=0.005 FP SLP=0.005 N=0.017 DIST=36
                         DIST ELEV
                         0          6
                         12         0
                         24         0
                         36         6
)UTE MCUNGE            ID=11   HYD=1EA11RT  INFLOW ID=13  DT=0HR  L=2801.25
                       NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
:INT HYD               ID=11 CODE=1

*S**** COMPUTE BASIN EA.13 ****

)MPUTE NM HYD          ID=14 HYD NO=EA.13 DA=0.2747
                       PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                       TP=0.262 RAIN=-1
PRINT HYD              ID=14 CODE=1
*;  DIVERT 25% FOR SURGE POND CONDITION
 VIDE HYD              ID=14 PER=-75  ID I=14 HYD=EA.13
                       ID II=88 HYD=SURGE
PRINT HYD              ID=14  CODE=1
PRINT HYD              ID=88 CODE=1
*S

;* ADD ROUTED FLOW TO EA.13
ADD HYD                ID=16 HYD=EA.13TOT
                       ID I=14  ID II=11
PRINT HYD              ID=16  CODE=1

;      FLOW ROUTED TO DAM 0
;S*     ROUTE FLOW THROUGH 72 IN PIPE TO EDGE OF ESCARPMENT
*
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0068
                      DIA=72   N=0.013
)UTE MCUNGE           ID=13   HYD=2EA11RT  INFLOW ID=16  DT=0HR  L=3348.49
                      NS=0  SLOPE=.0068   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=13 CODE=1
```

```
*S*      ROUTE FLOW THROUGH ESCARPMENT TO POND 0
*S*      ROUTE THROUGH 54 IN PIPE

COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.028
                      DIA=54   N=0.013
ROUTE MCUNGE          ID=11   HYD=2EA11RT  INFLOW ID=13  DT=0HR  L=3245.41
                      NS=0  SLOPE=.028   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=11 CODE=1


*S       SUB-BASIN EA.10

COMPUTE NM HYD        ID=8  HYD NO=EA.10  AREA=0.30859 SQ MI
                      PER A=14.3  PER B=21.6  PER C=21.6  PER D=42.5
                      TP=0.420 HR  MASS RAIN=-1
PRINT HYD             ID=8  CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=8 PER=-75  ID I=8 HYD=EA.10
                      ID II=88 HYD=SURGE
PRINT HYD             ID=8  CODE=1
PRINT HYD             ID=88 CODE=1
*S
*S       ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD) VIA 24" CMP
*S       routed with 60" cmp to account for increased developed flows - 1/23/06 -LEM
*
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0531
                      DIA=60   N=0.024

ROUTE MCUNGE          ID=9   HYD=EA.9.1  INFLOW ID=8  DT=0HR  L=74
                      NS=0  SLOPE=.0531   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=9 CODE=1


*S       ROUTE ALONG EA.12 THROUGH CONCRETE CHANNEL

COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                           CH SLP=0.005 FP SLP=0.005 N=0.017 DIST=50
                           DIST ELEV
                           0            4
                           8            0
                           42           0
                           50           4
ROUTE MCUNGE          ID=10   HYD=RTEA10  INFLOW ID=9  DT=0HR  L=2836
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=10 CODE=1
*****************************************************************************************************************************************
*****************************************
*S*  CHANGED BASINS TO FIT REVISED MASTERPLAN DEVELOPMENT
*S*  BASINS/LAND PARCELS EAST OF PASEO DEL VOLCAN
*****************************************************************************************************************************************
*****************************************


*S**** COMPUTE BASIN EA.12 ****
*S*    BASIN EA.12 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT

*S**** COMPUTE BASIN EA.12A

COMPUTE NM HYD        ID=1 HYD NO=EA.12A DA=0.1120
                      PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                      TP=0.533 RAIN=-1
PRINT HYD             ID=1 CODE=1
*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=1 PER=-75  ID I=1 HYD=EA.12A
                      ID II=88 HYD=SURGE
PRINT HYD             ID=1  CODE=1
PRINT HYD             ID=88 CODE=1

*S**** COMPUTE BASIN EA.12B

COMPUTE NM HYD        ID=13 HYD NO=EA.12B DA=0.0926
                      PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                      TP=0.618 RAIN=-1
PRINT HYD             ID=13 CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=13 PER=-75  ID I=13 HYD=EA.12B
                      ID II=88 HYD=SURGE
PRINT HYD             ID=13  CODE=1
PRINT HYD             ID=88 CODE=1
*
*S**** COMBINE EA.12A AND EA.12B ****

ADD HYD               ID=9  HYD=EA.12TOT
                      ID=1  ID=13
PRINT HYD             ID=9  CODE=1


*S**** COMBINE ROUTED EA.10 AND EA.12 ****

ADD HYD               ID=8  HYD=EA.11&12
                      ID=9  ID=10
```

```
PRINT HYD              ID=8  CODE=1

*  ROUTE BASIN EA.12 THROUGH BASIN EA.15
*  ROUTE THROUGH CHANNEL
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1  ELMIN=0    MAX ELEV=4
                      CH SLP=.005     FP SLOPE=.005  N =.015   DIST=34
                      DIST    ELEV
                      0         4
                      16        0
                      26        0
                      34        4
UTE MCUNGE            ID=17   HYD=RTEA.12  INFLOW ID=8   DT=0HR  L=2306.24
                      NS=0  SLOPE=0.005   MATCODE=0  REGCODE=0  CCODE=0
INT HYD               ID=17 CODE=0
*S
*S

**** COMPUTE BASIN EA.15 ****
*     BASIN EA.15 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT
*S
*S**** COMPUTE BASIN EA.15A
MPUTE NM HYD          ID=16 HYD NO=EA.15A DA=0.0826
                      PER A=0 PER B=20 PER C=20 PER D=60
                      TP=0.363 RAIN=-1
PRINT HYD             ID=16 CODE=1
*S
  DIVERT 25% FOR SURGE POND CONDITION
VIDE HYD              ID=16 PER=-75  ID I=16 HYD=EA.15A
                      ID II=88 HYD=SURGE
PRINT HYD             ID=16  CODE=1
PRINT HYD             ID=88 CODE=1

**** COMPUTE BASIN EA.15B
MPUTE NM HYD          ID=13 HYD NO=EA.15B DA=0.1737
                      PER A=0 PER B=5 PER C=5 PER D=90
                      TP=0.327 RAIN=-1
PRINT HYD             ID=13 CODE=1
  DIVERT 25% FOR SURGE POND CONDITION
VIDE HYD              ID=13 PER=-75  ID I=13 HYD=EA.15B
                      ID II=88 HYD=SURGE
PRINT HYD             ID=13  CODE=1
PRINT HYD             ID=88 CODE=1

**** COMBINE ROUTED EA.12 WITH EA.15A ****

ADD HYD               ID=20  HYD=TOTEA.15A
                      ID=16  ID=17
INT HYD               ID=20  CODE=1
*

*S**** ADD TOTAL FLOW TO EA.15B ****

D HYD                 ID=22  HYD=TOTEA.15
                      ID=20  ID=13
INT HYD               ID=22  CODE=1
*S*
*S

**** ADD IN TEMPER FLOW ****

ADD HYD               ID=21  HYD=TEMPIN
                      ID=22  ID=63
INT HYD               ID=21  CODE=1

**** COMPUTE BASIN EA.14 ****
*S    LAND TREATMENTS CHANGED TO REFLECT CURRENT DEVELOPMENT SCENARIO- LEM 8/9/06

MPUTE NM HYD          ID=15 HYD NO=EA.14 DA=0.2104
                      PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                      TP=0.308 RAIN=-1
PRINT HYD             ID=15 CODE=1
*
  DIVERT 25% FOR SURGE POND CONDITION
VIDE HYD              ID=15 PER=-75  ID I=15 HYD=EA.14
                      ID II=88 HYD=SURGE
PRINT HYD             ID=15  CODE=1
PRINT HYD             ID=88 CODE=1

   ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17A ADD IN
   USE 72" PIPE
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.00775
                      DIA=72   N=0.024
ROUTE MCUNGE          ID=16   HYD=RTEA.14  INFLOW ID=15  DT=0HR  L=1290
                      NS=0  SLOPE=.00775   MATCODE=0  REGCODE=0  CCODE=0
INT HYD               ID=16 CODE=1

*S**** COMPUTE BASIN EA.17 ****
*S  BASIN EA.17 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
   BASINS ALLOWED FREE DISCHARGE TO EXISTING EAST AMOLE BOXES
*
**** COMPUTE BASIN EA.17B
COMPUTE NM HYD        ID=65 HYD NO=EA.17B DA=0.0216
                      PER A=13.48 PER B=14.04 PER C=14.04 PER D=58.44
                      TP=0.232 RAIN=-1
```

```
PRINT HYD             ID=65 CODE=1
*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=65 PER=-75  ID I=65 HYD=EA.17B
                      ID II=88 HYD=SURGE
PRINT HYD             ID=65  CODE=1
PRINT HYD             ID=88 CODE=1
*
*
***** EA.17B TO EA.14 ****
*ADD HYD               ID=14  HYD=ADDEA.17B
                      ID=13  ID=16
PRINT HYD             ID=14  CODE=1

*  ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17B ADD IN
*S  USE 72" PIPE
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0562
                      DIA=72   N=0.024
ROUTE MCUNGE          ID=15   HYD=RTEA.17B  INFLOW ID=16  DT=0HR  L=1245
                      NS=0  SLOPE=.0562   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=15 CODE=1

*  ROUTE TEMPER ETC FLOW THROUGH CHANNEL TO EA.17 ADD IN
*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1  ELMIN=0    MAX ELEV=10
                      CH SLP=.0094     FP SLOPE=.0094  N =.015   DIST=34
                      DIST    ELEV
                      0         10
                      20         0
                      30         0
                      50         10
ROUTE MCUNGE          ID=22   HYD=TOEA.17BIN INFLOW ID=21   DT=0HR  L=1275
                      NS=0  SLOPE=0.0094   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=22 CODE=0


*S**** COMPUTE BASIN EA.17A
COMPUTE NM HYD        ID=66 HYD NO=EA.17A DA=0.0734
                      PER A=10.97 PER B=13.29 PER C=13.29 PER D=62.45
                      TP=0.374 RAIN=-1
PRINT HYD             ID=66 CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=66 PER=-75  ID I=66 HYD=EA.17A
                      ID II=88 HYD=SURGE
PRINT HYD             ID=13  CODE=1
PRINT HYD             ID=66 CODE=1
*S
*S**** EA.17A TO CHANNEL ****
ADD HYD               ID=14  HYD=ADDEA.17A
                      ID=13  ID=22
PRINT HYD             ID=14  CODE=1


*  BASIN EA.16 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
*
*S**** COMPUTE BASIN EA.16A
*S*
MPUTE NM HYD          ID=13 HYD NO=EA.16A DA=0.0533
                      PER A=25.62 PER B=15.25 PER C=15.25 PER D=43.88
                      TP=0.252 RAIN=-1
PRINT HYD             ID=13 CODE=1
*

*      COMBINE EA.16 INTO CHANNEL FLOW
D HYD                 ID=16  HYD=EA.16ADD
                      ID=13  ID=22
PRINT HYD             ID=16  CODE=1

*      COMBINE PIPE FLOW INTO CHANNEL FLOW
D HYD                 ID=21  HYD=EA.14ADD
                      ID=16  ID=15
PRINT HYD             ID=21  CODE=1

*  ROUTE FLOW THROUGH CHANNEL TO EA.16B ADD IN
*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1  ELMIN=0    MAX ELEV=10
                      CH SLP=.005     FP SLOPE=.005  N =.015   DIST=34
                      DIST    ELEV
                      0         10
                      20         0
                      30         0
                      50         10
ROUTE MCUNGE          ID=22   HYD=TOEA.16BIN INFLOW ID=21   DT=0HR  L=1040
                      NS=0  SLOPE=0.005   MATCODE=0  REGCODE=0  CCODE=0
INT HYD               ID=22 CODE=0


**** COMPUTE BASIN EA.16B ****
*
COMPUTE NM HYD        ID=15 HYD NO=EA.16B DA=0.0562
                      PER A=38.17 PER B=20.27 PER C=20.27 PER D=21.29
                      TP=0.299 RAIN=-1
INT HYD               ID=15 CODE=1
```

```
;*
;*      COMBINE EA.16B INTO CHANNEL FLOW
ADD HYD                 ID=21  HYD=EA.16ADD
                        ID=15  ID=22
PRINT HYD               ID=21  CODE=1
;
;     ADD WEST AMOLE AND SHAMROCK FLOW TO CHANNEL FLOW
ADD HYD                 ID=22  HYD=ADDWAIN
                        ID=21  ID=61
PRINT HYD               ID=22  CODE=1


;**** COMPUTE BASIN EA.16C ****
*S*
COMPUTE NM HYD          ID=15 HYD NO=EA.16C DA=0.0214
                        PER A=0 PER B=5 PER C=5 PER D=90
                        TP=0.347 RAIN=-1
RINT HYD                ID=15 CODE=1
*S
*S*      COMBINE EA.16C INTO CHANNEL FLOW
D HYD                   ID=21  HYD=EA.16CADD
                        ID=15  ID=22
RINT HYD                ID=21  CODE=1


;
;*  ROUTE FLOW THROUGH CHANNEL TO EA.17C ADD IN
;   ROUTE TO EXISTING EAST AMOLE BOXES
*S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
COMPUTE RATING CURVE    RC=1  VS NO=1  NSEGS=1  ELMIN=0     MAX ELEV=10
                        CH SLP=.0212      FP SLOPE=.0212  N =.015    DIST=34
                        DIST     ELEV
                        0          10
                        20          0
                        30          0
                        50         10
UTE MCUNGE              ID=22   HYD=TOEA.17CIN INFLOW ID=21   DT=0HR  L=1700
                        NS=0  SLOPE=0.0212   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=22 CODE=0
*S
*S**** COMPUTE BASIN EA.17C
;*
MPUTE NM HYD            ID=67 HYD NO=EA.17C DA=0.0830
                        PER A=0 PER B=10 PER C=10 PER D=80
                        TP=0.206 RAIN=-1
PRINT HYD               ID=67 CODE=1
   DIVERT 25% FOR SURGE POND CONDITION
VIDE HYD                ID=67 PER=-75  ID I=67 HYD=EA.17C
                        ID II=88 HYD=SURGE
PRINT HYD               ID=67  CODE=1
PRINT HYD               ID=88 CODE=1


;**** ADD EA.17A TO EA.17B AND EA.17C
*S
*S FLOW LEAVES PROJECT AREA THROUGH EXISTING BOX CULVERTS
D HYD                   ID=68  HYD=EA.17AB
                        ID=66  ID=65
RINT HYD                ID=68  CODE=1

ADD HYD                 ID=69  HYD=EA.17ABC
                        ID=68  ID=67


***** ADD EAST AMOLE FLOW AND 90"SD FLOW

DD HYD                   ID=27  HYD=EA.17AB
                        ID=22  ID=69
*PRINT HYD               ID=27  CODE=1
* DIVIDE FLOW TO ACCOUNT FOR FLOW ALLOWED TO CONTINUE UNDER THE FREEWAY
  FLOW LEAVES PROJECT AREA THROUGH EXISTING BOX CULVERTS
IVIDE HYD                ID=27 PER=-1.235  ID I=69 HYD=EABOXES
                        ID II=22 HYD=REMAINDER
*PRINT HYD               ID=69  CODE=1
*S**** ROUTE FLOW TO EAST AMOLE SURGE POND
*;  ROUTE TO NEW AMOLE DAM SITE THRU 90" SD
OMPUTE RATING CURVE     RC=1  VS NO=1   NSEGS=1  ELMIN=97  MAX ELEV=100
                        CH SLP=.0464          FP SLOPE=.0464   N =.03   DIST=22
                        DIST    ELEV    DIST     ELEV    DIST     ELEV
                        0.      100.0     6.       97     16.     97.0
                        22.     100.0
OUTE MCUNGE              ID=30   HYD=RTEAFLOW  INFLOW ID=22   DT=0HR  L=3586.00
                        NS=0  SLOPE=0.0464   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD                ID=30  CODE=0



** ROUTE FLOW VIA 90" PIPE

** ROUTE FLOW DOWN ESCARPMENT IN 90" PIPE
```

```
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.034
                      DIA=90   N=0.015
 OUTE MCUNGE          ID=30   HYD=90"PIPE INFLOW ID=22  DT=0HR  L=3230
                      NS=0  SLOPE=.034    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=30 CODE=1


*S
*S*****************************************************************************
*S     CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA DAMS 1 THROUGH 12,
*S             NORTH OF I-40: (SOUTHERN TERRACE WATERSHED)
*S
*S*****************************************************************************
*
* RAINFALL FOR BASINS BELOW LADERA DAMS, SAME RAIN AS WEST BLUFF
  2YR
RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=0.736
                      RAIN SIX=0.955  RAIN DAY=1.150  DT=.05
* 10YR
*RAINFALL             TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.250
                      RAIN SIX=1.467  RAIN DAY=1.768  DT=.05
  100YR
AINFALL               TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.77
                      RAIN SIX=2.26  RAIN DAY=2.63 DT=.05
*****************************************************************************


  SEDIMENT BULK       CODE=1   BULK FACTOR=1.042
*S

EDIMENT BULK          CODE=1   BULK FACTOR=1.08
*** COMPUTE BASIN OS.6 - REVISED TO INCLUDED WEST PORTION OF ST.2 ****
*
COMPUTE NM HYD        ID=2 HYD NO=OS.6 DA=0.3205
                      PER A=45 PER B=30 PER C=25 PER D=0
                      TP=0.133 RAIN=-1
RINT HYD              ID=2 CODE=1

*S  DIVIDE OS.6 TO ACCOUNT FOR FLOW ALLOWED TO CONTINUE UNDER THE FREEWAY -- LEM 6/8/06
*S  FLOW LEAVES PROJECT AREA THROUGH EXISTING 36" AND 48" PIPE
DIVIDE HYD            ID=2 PER=-6.7  ID I=27 HYD=36"PIPE
                      ID II=95 HYD=REMAINDER
 VIDE HYD             ID=95 PER=-8.8  ID I=1 HYD=42"PIPE
                      ID II=2 HYD=EASP
*S FLOW LEAVING PROJECT AREA THROUGH EXISTING 36" PIPE
PRINT HYD             ID=27  CODE=1
  FLOW LEAVING PROJECT AREA THROUGH EXISTING 42" PIPE
RINT HYD              ID=1 CODE=1
 REMAINING FLOW INTO EASP
PRINT HYD             ID=2 CODE=1

* ROUTE SECTION OF OS.6 THROUGH 36" PIPE
* FLOW LEAVING PROJECT AREA

COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.082
                      DIA=36   N=0.015
 OUTE MCUNGE          ID=88   HYD=36"CULV  INFLOW ID=27  DT=0HR  L=490
                      NS=0  SLOPE=.082     MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=88 CODE=1


* ROUTE SECTION OF OS.6 THROUGH 42" PIPE
* FLOW LEAVING PROJECT AREA

COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.059
                      DIA=42   N=0.015
 OUTE MCUNGE          ID=88   HYD=42"CULV  INFLOW ID=1  DT=0HR  L=280
                      NS=0  SLOPE=.059     MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=88 CODE=1
SEDIMENT BULK         CODE=1   BULK FACTOR=1.025

**** FLOW REACHING IN1 ****
*
COMPUTE NM HYD        ID=27 HYD NO=IN1 DA=0.00141
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
INT HYD               ID=27 CODE=1

S* ADD FLOW FROM IN1 TO I-40 SD
ADD HYD               ID=1  HYD=EATO
                      ID=30  ID=27
INT HYD               ID=1  CODE=1

*S
*S
*S  DIVIDE FLOW FROM 90" SD INTO 36" SD CAPACITY
VIDE HYD          ID=1       Q=83        ID=30      HYD=maxflow36"SD
                                         ID=27      HYD=36"SDoverflow
RINT HYD          ID=30      CODE=0
PRINT HYD         ID=27      CODE=0

* ADD I40 FLOW TO OS.6
```

```
*S* TOTAL FLOW INTO EAST AMOLE DAM
)D HYD                ID=1  HYD=EAIN
                      ID=27  ID=2
PRINT HYD             ID=1  CODE=0
*S*



S* ROUTE I40 CHANNEL FLOW THROUGH EAST AMOLE DAM **
*S* CHANGED DISCHARGE TO A 36" PIPE - AQC 6/13/06
*S  SUBTRACTED CAPACITY OF THE PIPE (83 CFS) FROM OUTFLOW TO ACCOUNT FOR SURGE POND CONDITIONS
S* POND STAGE STORAGE CHANGED TO ACCOMODATE 180 AC-FT

OUTE RESERVOIR        ID=95   HYD=EASTAMOLE INFLOW ID=1 CODE=1
                      OUTFLOW (CFS)       STORAGE (AC-FT)   ELEV (FT)
                      0                   0                 5495
                      0.1                 0.2464            5496
                      0.2                 1.1718            5497
                      0.3                 2.7731            5498
                      0.4                 7.6897            5499
                      0.5                 12.7974           5500
                      0.6                 18.1583           5501
                      0.7                 23.7624           5502
                      0.8                 29.6008           5503
                      0.9                 35.6677           5504
                      1                   41.9563           5505
                      3.9                 48.4606           5506
                      6.3                 55.1782           5507
                      7.5                 62.1091           5508
                      8.8                 69.2535           5509
                      10                  76.6138           5510
                      11.2                84.1942           5511
                      12.4                91.9975           5512
                      13.6                100.0275          5513
                      14.7                108.2823          5514
                      15.9                116.7617          5515
                      17                  125.4688          5516
                      18.1                134.4038          5517
                      19.2                143.5669          5518
                      20.3                152.9578          5519
                      21.4                162.5771          5520
                      22.5                172.4265          5521
                      23.6                182.5086          5522
                      24.68               192.8284          5523
                      25.64               203.4341          5524
                      26.68               214.10301         5525
                      99.47               224.29            5526
                      312.461             224.30            5527
                      682.239             224.31            5528
                      1167.181            224.32            5529
PRINT HYD             ID=95  CODE=0
*S
S  ADD EASP OUTFLOW BACK TO SD FLOW

DD HYD                ID=1 HYD=36INTOT ID I=30 ID II=95
PRINT HYD             ID=1  CODE=0
*


S
S**** FLOW REACHING IN2 ****
*S*
COMPUTE NM HYD        ID=30 HYD NO=IN2 DA=0.00259
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
RINT HYD              ID=30 CODE=1

*S* ADD FLOW FROM IN2 TO I-40 SD
)D HYD                ID=95  HYD=EATO
                      ID=30  ID=1
RINT HYD              ID=95  CODE=1

*S
S
S* ROUTE DAM FLOW IN WEST I40 DIVERSION TO 2a INTERSECTION
S* USE 36 INCH PIPE
*
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.016
                      DIA=36   N=0.015
)UTE MCUNGE           ID=31   HYD=TOEAMOLE  INFLOW ID=95  DT=0HR  L=1760
                      NS=0  SLOPE=.016     MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=31 CODE=1

S**** COMPUTE BASIN ST.1 ****
S*
)MPUTE NM HYD         ID=1 HYD NO=ST.1 DA=0.0811
                      PER A=5 PER B=40 PER C=40 PER D=15
                      TP=0.151 RAIN=-1
PRINT HYD             ID=1 CODE=1


S*      ROUTE ST.1 THROUGH OS.5

OMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=15
                          CH SLP=0.0683 FP SLP=0.0683 N=0.045 DIST=550
```

```
                        DIST ELEV
                        0           15
                        100         5
                        345         0
                        440         5
                        550         15
 )UTE MCUNGE        ID=5   HYD=RTST.1  INFLOW ID=1   DT=0 HR  L=1887.76
                    NS=0    SLOPE=0.0683    MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=5 CODE=1
 *
*S**** COMPUTE BASIN OS.5 ****
 EDIMENT BULK       CODE=1   BULK FACTOR=1.08


COMPUTE NM HYD      ID=3 HYD NO=OS.5 DA=0.0941
                    PER A=45 PER B=30 PER C=25 PER D=0
                    TP=.133 RAIN=-1
 RINT HYD           ID=3 CODE=1

*
*S*  ADD ROUTED ST.1 TO OS.5
 )D HYD             ID=6   HYD=OS.5TOT
                    ID=5      ID=3
 RINT HYD           ID=6    CODE=1
*S

 S*  ROUTE FLOW THROUGH SURGE POND ON EDGE OF ESCARPMENT
 S*  USED 12 IN PIPE OUTFLOW

ROUTE RESERVOIR      ID=24   HYD=ESCARP.POND ID=6 CODE = 10
                    OUTFLOW (CFS)       STORAGE (AC-FT)   ELEV (FT)
                     0                  0.00              5260
                     1.49               1.39              5260.5
                     2.67               2.80              5261
                     3.78               4.24              5261.5
                     4.63               5.70              5262
                     5.35               7.19              5262.5
                     5.98               8.71              5263
                     6.55               10.24             5263.5
                     7.07               11.81             5264
                     7.56               13.40             5264.5
                     8.02               15.01             5265
                     8.46               16.66             5265.5
                     8.87               18.32             5266
                     9.26               20.02             5266.5
                     9.64               21.74             5267
                     10.01              23.49             5267.5
                     10.36              25.27             5268
                     10.7               27.07             5268.5
                     11.03              28.90             5269
                     11.35              30.76             5269.5
                     11.66              32.64             5270
 RINT HYD           ID=24  CODE=1
 EDIMENT BULK       CODE=1   BULK FACTOR=1.025
 S
*S**** COMPUTE BASIN ST.2a ****

 OMPUTE NM HYD      ID=71 HYD NO=ST.2a DA=0.0458
                    PER A=0 PER B=22.36 PER C=22.36 PER D=55.28
                    TP=.144 RAIN=-1
PRINT HYD           ID=71 CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD          ID=71 PER=-75  ID I=71 HYD=ST.2
                    ID II=88 HYD=SURGE
 RINT HYD           ID=71  CODE=1
PRINT HYD           ID=88 CODE=1
*S
 S**** COMPUTE BASIN ST.2b ****

 OMPUTE NM HYD      ID=5 HYD NO=ST.2b DA=0.1247
                    PER A=0 PER B=22.77 PER C=22.77 PER D=54.46
                    TP=.133 RAIN=-1
 RINT HYD           ID=5 CODE=1
 S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD          ID=5 PER=-75  ID I=5 HYD=ST.2
                    ID II=3 HYD=SURGE
PRINT HYD           ID=5  CODE=1
PRINT HYD           ID=3 CODE=1
 S
 S
*S* ADD OPEN SPACE SURGE POND OUTFLOW TO ST.2b
ADD HYD             ID=6  HYD=ST2TOT
                    ID=5  ID=24
 RINT HYD           ID=6  CODE=1

*S* ADD ST.2a TO I40 FLOW
ADD HYD             ID=76  HYD=I40ST2a
                    ID=31  ID=71
 RINT HYD           ID=76  CODE=1
 S


*S
*S**** FLOW REACHING IN3 ****
 S*
```

```
COMPUTE NM HYD        ID=31 HYD NO=IN3 DA=0.00395
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
PRINT HYD             ID=31 CODE=1

*S* ADD FLOW FROM IN3 TO I-40 SD
ADD HYD               ID=71  HYD=EATO
                      ID=31  ID=76
PRINT HYD             ID=71  CODE=1

*S

*S* ROUTE 2a FLOW IN WEST I40 DIVERSION TO 2b
*S* USE 42 INCH PIPE
*
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.035
                      DIA=42   N=0.015
ROUTE MCUNGE          ID=31   HYD=TOEAMOLE  INFLOW ID=71  DT=0HR  L=1960
                      NS=0  SLOPE=.035    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=31 CODE=1

*
***** FLOW REACHING IN4 ****
*
COMPUTE NM HYD        ID=24 HYD NO=IN4 DA=0.00813
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
PRINT HYD             ID=24 CODE=1

*S* ADD FLOW FROM IN4 TO FLOW FROM ST.2B
ADD HYD               ID=76  HYD=EATO
                      ID=6  ID=24
PRINT HYD             ID=76  CODE=1

*S


** ADD ST.2b TO I40 FLOW
ADD HYD               ID=76  HYD=I40ST2b
                      ID=31  ID=76
PRINT HYD             ID=76  CODE=1
*S



*S*****************************************************************************
*  CALCULATE BASINS CONTRIBUTING TO DAM 0
*  START OF DAM 0 DIVERSION
*****************************************************************************

*S**** COMPUTE BASIN UD.1C ****
*
COMPUTE NM HYD        ID=62 HYD NO=UD.1C DA=0.0879
                      PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                      TP=0.133 RAIN=-1
PRINT HYD             ID=62 CODE=1

*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=62 PER=-75  ID I=62 HYD=UD.1C
                      ID II=88 HYD=SURGE
PRINT HYD             ID=62  CODE=1
PRINT HYD             ID=88 CODE=1
*
****  ROUTE UD.1C THROUGH OS.1 *****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=20
                           CH SLP=.05 FP SLP=.05 N=0.045 DIST=302
                           DIST ELEV
                           0            20
                           48           10
                           95           0
                           228          10
                           302          20

ROUTE MCUNGE          ID=61   HYD=RTUD.1C  INFLOW ID=62   DT=0 HR  L= 3289.09
                      NS=0    SLOPE=0.05    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=61 CODE=1
SEDIMENT BULK         CODE=1   BULK FACTOR=1.07
**** COMPUTE BASIN OS.1 ****
*
COMPUTE NM HYD        ID=99 HYD NO=OS.1 DA=0.3426
                      PER A=50 PER B=25 PER C=25 PER D=0
                      TP=0.139 RAIN=-1
PRINT HYD             ID=99 CODE=1

*S*** ADD UD.1C AND OS.1 ****
ADD HYD               ID=99   HYD=OS.1TOT
                      ID=99      ID=61
PRINT HYD             ID=99    CODE=1
SEDIMENT BULK         CODE=1   BULK FACTOR=1.23
**** COMPUTE BASIN OS.4 ****
*S*
COMPUTE NM HYD        ID=70 HYD NO=OS.4 DA=0.1590
                      PER A=15 PER B=75 PER C=10 PER D=0
```

```
                    TP=0.134 RAIN=-1
 PRINT HYD          ID=70 CODE=1


*S*     ROUTE OS.1 AND UD.1C ALONG WEST SIDE OF UD.1B
*S****  ROUTE CHANNEL
 **** ASSUME FLOW COLLECTS IN CHANNEL ON WEST SIDE OF STREET *

COMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1  ELMIN=0  ELMAX=10
                    CH SLP=0.005  FP SLP=0.005   N=.022   STA=50

                    DIST    ELEV     DIST     ELEV      DIST     ELEV
                    0       10       20       0         30       0
                    50      10
ROUTE MCUNGE        ID=13   HYD=RTUD.1A  INFLOW ID=99   DT=0 HR  L=2360.84
                    NS=0    SLOPE=0.005    MATCODE=0  REGCODE=0  CCODE=0
 PRINT HYD          ID=13 CODE=1

 ****** ADD FLOW FROM OS.4 TO CHANNEL FLOW

ADD HYD             ID=61   HYD=DAM0IN
                    ID=13      ID=70
 PRINT HYD          ID=61    CODE=1

*S**** ADD FLOW FROM DAM EA.11 TO TOTAL FLOW
*S* DAM ADDED TO SEE HOW WOULD AFFECT FLOW IN DAM SYSTEM- LEM 2/7/06
 ****** TOTAL INFLOW TO DAM #0
 DD HYD             ID=13   HYD=DAM0IN
                    ID=11      ID=61
PRINT HYD           ID=13    CODE=1


 S  ROUTE FLOW THROUGH POND #0.
    DAM ZERO WAS NOT IN THE DAM15 AHYMO MODEL;
*   DAM WAS RESIZED TO  ATTINUATE DIVERETED FLOW FROM EA.11
*S  OUTFLOW THROUGH 3.25 IN PIPE
ROUTE RESERVOIR     ID=87  HYD=PONDZERO
                    INFLOW ID=13   CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                        0.00           0               5516.5
                        1.20           3.64            5517
                        4.97           7.31            5517.5
                        11.59          11.02           5518
                        17.06          14.77           5518.5
                        32.57          18.57           5519
                        49.00          22.4            5519.5
                        61.99          26.27           5520
                        69.77          30.18           5520.5
                        76.76          34.14           5521
                        83.17          38.13           5521.5
                        89.11          42.16           5522
                        94.69          46.24           5522.5
                        99.95          50.35           5523
                        104.95         54.51           5523.5
                        109.73         58.71           5524
                        114.30         62.95           5524.5
                        118.70         67.23           5525
                        122.94         71.56           5525.5
                        127.04         75.93           5526
                        131.01         80.34           5526.5
                        134.86         84.79           5527

PRINT HYD           ID=87     CODE=10


*S**** ROUTE DAM 0 ALONG NORTH SIDE OF ST.2 ***
COMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1  ELMIN=0  ELMAX=10
                    CH SLP=0.015  FP SLP=0.015    N=0.022  STA=50
*                   DIST    ELEV     DIST     ELEV      DIST     ELEV
*                   0       10       20       0         30       0
*                   50      10
ROUTE MCUNGE          ID=19  HYD=RTDAM0  INFLOW ID=87  DT=0HR  L=1303.98
                      NS=0   SLOPE=0.015   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=19     CODE=10
*
*S*************************************************************************
*S************************** END OF DAM 0 DIVERSION **************************
*S*************************************************************************

*S*  ADD ROUTED ST.1 TO DAM 0
*ADD HYD             ID=5   HYD=118SD
*                    ID=6      ID=19
 PRINT HYD          ID=5    CODE=1
 S
*S  ROUTE FLOW ALONG I40 TO ST.4 INTERCEPT IN 36" PIPE

*S  ROUTE FLOW  FROM 118TH STREET TO ST.4a INTERCEPT IN I-40 SYSTEM
 S  ROUTED THROUGH 54" PIPE

COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.036
                    DIA=54 IN   N=.013
ROUTE MCUNGE        ID=30 HYD=400S.6 INFLOW ID=76 DT=0HR L=1150
                    NS=0  SLOPE=0.036   MATCODE=0  REGCODE=0  CCODE=0
```

```
PRINT HYD              ID=30 CODE=0
;
EDIMENT BULK          CODE=1   BULK FACTOR=1.025
;**** COMPUTE BASIN ST.4a ****
*S*
COMPUTE NM HYD        ID=12 HYD NO=ST.4a DA=0.1221
                      PER A=0 PER B=5 PER C=5 PER D=90
                      TP=0.237 RAIN=-1
RINT HYD              ID=12 CODE=1


;
;**** FLOW REACHING IN5 ****
;*
COMPUTE NM HYD        ID=6 HYD NO=IN5 DA=0.00476
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
RINT HYD              ID=6 CODE=1
;
*S**** FLOW REACHING IN6 ****
*S*
OMPUTE NM HYD         ID=19 HYD NO=IN6 DA=0.00078
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
PRINT HYD             ID=19 CODE=1

;* ADD FLOW FROM IN5 AND IN6
OD HYD                ID=61  HYD=EATO
                      ID=6  ID=19
PRINT HYD             ID=61  CODE=1

;S

;* ADD FLOW FROM IN5 AND IN6 TO FLOW FROM ST.4A
ADD HYD               ID=76  HYD=EATO
                      ID=61  ID=12
PRINT HYD             ID=76  CODE=1

;

*S  ADD ST.4a AND ROUTED I-40 DIVERSION (48" PIPE)
ADD HYD             ID=31   HYD=ST.4&OS.6
                    ID=76      ID=30
RINT HYD            ID=31    CODE=10
;S
*S  ROUTE FLOW FROM ST.4a ALONG I40 TO ST.4b
*S  ROUTED THROUGH 72" PIPE

MPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.023
                    DIA=72 IN   N=.013
ROUTE MCUNGE        ID=30 HYD=40ST.4 INFLOW ID=31 DT=0HR L=2180
                    NS=0  SLOPE=0.023   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=30 CODE=0

;**** COMPUTE BASIN ST.4b ****
*S*
COMPUTE NM HYD      ID=12 HYD NO=ST.4b DA=0.0541
                    PER A=0 PER B=5 PER C=5 PER D=90
                    TP=0.133 RAIN=-1
RINT HYD            ID=12 CODE=1


;**** FLOW REACHING IN7 ****
;*
OMPUTE NM HYD       ID=61 HYD NO=IN7 DA=0.00451
                    PER A=0 PER B=0 PER C=51.02 PER D=48.98
                    TP=0.133 RAIN=-1
RINT HYD            ID=61 CODE=1

;* ADD FLOW FROM IN7 AND ST.4B
ADD HYD             ID=76  HYD=EATO
                    ID=61  ID=12
RINT HYD            ID=76  CODE=1

;  ADD ST.4b AND ROUTED I-40 DIVERSION (48" PIPE)
ADD HYD             ID=31   HYD=ST.4&OS.6
                    ID=76      ID=30
RINT HYD            ID=31    CODE=10
;

*S  ROUTE FLOW FROM ST.4ab ALONG I40 TO 98TH STREET
*S  ROUTED THROUGH 72" PIPE

OMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.018
                     DIA=72 IN   N=.013
ROUTE MCUNGE         ID=30 HYD=40ST.4 INFLOW ID=31 DT=0HR L=1410
                     NS=0  SLOPE=0.018   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=30 CODE=0

;**** COMPUTE BASIN ST.3 ****

COMPUTE NM HYD       ID=15 HYD NO=ST.3 DA=.089
                     PER A=0 PER B=15 PER C=15 PER D=70
                     TP=0.146 RAIN=-1
```

```
PRINT HYD             ID=15 CODE=1

S*      ROUTE ST.3 ALONG STREET TO 98TH STREET STORM DRAIN
S*      ROUTE FLOW IN 48" SD PIPE
COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.018
                      DIA=48 IN   N=.013
OUTE MCUNGE           ID=19 HYD=RTST.3 INFLOW ID=15 DT=0HR L= 2002.26
                      NS=0  SLOPE=0.018   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=19 CODE=0


S******* 98TH STREET **************
S*****************************************************************************
S*                        COMPUTE FLOW THROUGH LADERA DAMS 1-4                 *
*S*****************************************************************************
* 2YR
AINFALL               TYPE=2  RAIN QUARTER=0.0  RAIN ONE=0.683
                      RAIN SIX=0.930  RAIN DAY=1.129  DT=.05
 10YR
*RAINFALL             TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.160
*                     RAIN SIX=1.429  RAIN DAY=1.736  DT=.05
 100YR
AINFALL               TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.77
                      RAIN SIX=2.26  RAIN DAY=2.63  DT=.05
*S* ROUTE FLOW FROM DAM 0 THROUGH AN EARTHEN CHANNEL
*S* ROUTE THROUGH UD.1B
OMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                    MIN ELEV=0     MAX ELEV=5
                    CH SLP=.04     FP SLP=.04
                    N=.030          DIST=50
                    DIST     ELEV     DIST     ELEV     DIST     ELEV
                     0        5        15       0        35       0
                     50       5
OUTE MCUNGE         ID=12  HYD=L0.1_1  INFLOW ID=87  DT=0HR  L=1533.98
                    NS=0   SLOPE=0.04   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=12     CODE=10


S**** COMPUTE BASIN UD.1B ****
*S*
OMPUTE NM HYD       ID=15 HYD NO=UD.1B DA=0.1266
                    PER A=1.01 PER B=28.03 PER C=28.03 PER D=42.93
                    TP=0.133 RAIN=-1
RINT HYD            ID=15 CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD             ID=15 PER=-75  ID I=15 HYD=UD.1B
                      ID II=88 HYD=SURGE
PRINT HYD             ID=15  CODE=1
*PRINT HYD            ID=88 CODE=1
*S

S*** ADD DAM 0 TO UD.1B *****
OD HYD              ID=22   HYD=DAM1IN
                    ID=15      ID=12
PRINT HYD           ID=22    CODE=1



*S  ROUTE FLOW TO DAM 1
*S* ROUTE WITH 54" PIPE

OMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1  SLP=0.053
                    DIA=54 IN  N=0.013
ROUTE MCUNGE        ID=16   HYD=RTUD.1b  INFLOW ID=22   DT=0 HR  L=1133
                    NS=0    SLOPE=0.053    MATCODE=0  REGCODE=0  CCODE=0
INT HYD             ID=16 CODE=1


*S**** COMPUTE BASIN UD.2 ****
*S*
OMPUTE NM HYD       ID=5 HYD NO=UD.2 DA=.2308
                    PER A=0 PER B=25 PER C=25 PER D=50
                    TP=.263 RAIN=-1
PRINT HYD           ID=5 CODE=1
*S
*S  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD             ID=5 PER=-75  ID I=5 HYD=UD.2
                      ID II=88 HYD=SURGE
*PRINT HYD            ID=5  CODE=1
*PRINT HYD            ID=88 CODE=1
*S
S* DIVIDE BASIN INTO PONDS 1, AND 2-3
IVIDE HYD           ID=5 RATIO=-0.33   ID I=20  HYD = PD1
                                       ID II=21 HYD= PD2&3
PRINT HYD           ID=20 CODE=1

S*** ADD 33% OF UD.2 TO DAM 1 INLET FLOW ****
S*** TOTAL DAM 1 INFLOW *****
OD HYD              ID=22   HYD=DAM1IN
                    ID=20      ID=16
PRINT HYD           ID=22    CODE=1
```

```
 S  ROUTE FLOW THROUGH POND #1
*S  OUTLET PIPE CHANGED TO 1 2.18' PIPE
ROUTE RESERVOIR      ID=27  HYD=POND1
                     INFLOW ID=22   CODE=10
                     OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                         0.0             0.0             5418.0
                        17.8             9.5             5420.0
                        34.8            19.7             5422.0
                        45.1            30.8             5424.0
                        53.5            43.3             5426.0
                        57.3            50.0             5427.0

 RINT HYD            ID=27     CODE=10


*S* DIVIDE UD.2 REMAINDER FLOW FOR PONDS #2,&3

 IVIDE HYD           ID=21 RATIO=-0.5  ID I=95  HYD = PD2
                                         ID II=24 HYD= PD3
 RINT HYD            ID=95 CODE=1
PRINT HYD            ID=24 CODE=1


 S*** ADD PART OF BASIN UD.2 TO DAM 1 OUTLET FLOW ****
 S*** DAM 2 INLET FLOW ***
ADD HYD              ID=26   HYD=DAM2IN
                     ID=95     ID=27
PRINT HYD            ID=26    CODE=1


*S  ROUTE FLOW THROUGH POND #2
*S* POND CHANGED TO HAVE A 2-1.35' OUTLETS TO REDUCE FLOW TO #3
ROUTE RESERVOIR      ID=10   HYD=POND2
                     INFLOW ID=26  CODE=10
                     OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                         0.00            0               5402
                        18.44            5.26            5404
                        29.30           10.85            5406
                        37.10           16.79            5408
                        43.52           23.1             5410
                        49.10           29.77            5412
                        535             40.52            5415
 RINT HYD            ID=10    CODE=10


*S*** ADD UD.2 AND TO DAM 2 OUTLFLOW ****
 D HYD               ID=33   HYD=UD.2&UD.2A
                     ID=24      ID=10
. RINT HYD           ID=33    CODE=1

*S**** COMPUTE BASIN UD.3 ****
 S*
 MPUTE NM HYD        ID=34 HYD NO=UD.3 DA=0.0389
                     PER A=0.00 PER B=7.6 PER C=12.8 PER D=79.6
                     TP=0.133 RAIN=-1
PRINT HYD            ID=34 CODE=1

 S*** ADD UD.3 AND ROUTED UD.2 UD.2A AND DAM 2 OUTFALL ****
 D HYD               ID=39   HYD=UD.2&UD.2A
                     ID=34      ID=33
PRINT HYD            ID=39    CODE=1



*S DAM REMOVED TO SEE AFFECTS ON LADERA SYSTEM- LEM 2/9/06
*S  ROUTE FLOW THROUGH POND #3
*S POND OUTLET CHANGED TO 1- 1.9' OUTLET PIPE
 UTE RESERVOIR       ID=10   HYD=POND3
                     INFLOW ID=39  CODE=10
                     OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                         0               0.0             5374.0
                        11               4.15            5375.5
                        24               9.99            5377.5
                        33.0            16.19            5379.5
                        39.6            22.76            5381.5
                        45.2            29.71            5383.5
                        260.0           33.5             5385.5
                        863.0           44.78            5387.5
                        1064.0          55.83            5388.0
*PRINT HYD           ID=10   CODE=10

 S**** COMPUTE BASIN UD.4B ****
 S*
OMPUTE NM HYD        ID=35 HYD NO=UD.4b DA=0.034
                     PER A=0.00 PER B=13.3 PER C=18.2 PER D=68.5
                     TP=0.133 RAIN=-1
 INT HYD             ID=35 CODE=1
```

```
;**** COMPUTE BASIN UD.4C ****
;*
COMPUTE NM HYD       ID=34 HYD NO=UD.3 DA=0.0797
                     PER A=63.4 PER B=28.4 PER C=3.7 PER D=4.5
                     TP=0.133 RAIN=-1
PRINT HYD            ID=34 CODE=1

;*** ADD BASIN UD.4B&C  ****
ADD HYD              ID=41   HYD=UD.4B&C
                     ID=34      ID=35
PRINT HYD            ID=41    CODE=1


*S*** ADD BASIN UD.4B&C AND POND 3 OUTFLOW  ****
*S*** TOTAL INFLOW TO POND #4 ****
ADD HYD              ID=42   HYD=UD.4B&C
                     ID=41      ID=10
PRINT HYD            ID=42    CODE=1


;   ROUTE FLOW THROUGH POND #4
;   POND OUTLET 1-2' OUTLET PIPE
ROUTE RESERVOIR      ID=43  HYD=POND4
                     INFLOW ID=42  CODE=10
                     OUTFLOW          STORAGE          ELEV
                     (CFS)             (AC-FT)         (FT)
                      0.               0.              5349.
                      10.              2.47            5350.
                      25.              7.65            5352.
                      35.              13.16           5354.0
                      45.              19.03           5356.0
                     1450.             25.25           5358.0
                     3040              31.81           5360
PRINT HYD            ID=43    CODE=10
*



*S  SKIP FROM DAM 4 UP TO TOP OF LADERA WATERSHED
*S*************************************************************************
;    CALCULATE RUNOFF BEGINNING AT THE TOP OF LADERA L12 WATERSHED.
;  UPPER LADERA BASINS START AT DOUBLE EAGLE II AIRPORT & DRAIN TO DAM12
*S                          REGION B2



;
;  COMPUTE HYDROGRAPH FOR BASIN L12.1
COMPUTE NM HYD       ID=1      HYD=L12.1   DA=0.2219 SQ MI
                     PER A=0  PER B=0  PER C=65  PER D=35
                     TP=-0.363    RAIN=-1
PRINT HYD            ID=1       CODE=10

* SEDIMENT BULK         CODE=1   BULK FACTOR=1.040
*S
;  COMPUTE HYDROGRAPH FOR BASIN L12.2
COMPUTE NM HYD       ID=2      HYD=L12.2   DA=1.1359 SQ MI
                     PER A=39  PER B=4  PER C=38  PER D=19
                     TP=-0.147    RAIN=-1
PRINT HYD            ID=2       CODE=10

;  COMBINED FLOW FROM BASINS L12.1 AND L12.2 IN DE II AIRPORT AREA.  THERE ARE
;  PONDS W/COMBINED VOLUME OF ALMOST 30 ACRE-FT IN THESE BASINS.  THESE
*S  PONDS ULTIMATELY DISCHARGE TO A 70 ACRE-FT PLAYA THAT IS BISECTED BY
*S  PASEO DEL VOLCAN.  IF PLAYA DOES NOT OVERFLOW, THEN THE BASINS CAN BE
;  CONSIDERED TO BE NON-CONTRIBUTING.  PONDS AND PLAYA NOT IN MODEL.
ADD HYD              ID=4       HYD=L12.2_1
                     ID=1       ID=2
PRINT HYD            ID=4       CODE=10
*
* SEDIMENT BULK         CODE=1   BULK FACTOR=1.025
;
;  COMPUTE HYDROGRAPH FOR BASIN L12.3
COMPUTE NM HYD       ID=1      HYD=L12.3   DA=0.3313 SQ MI
                     PER A=0  PER B=3  PER C=38  PER D=59
                     TP=-0.364    RAIN=-1
PRINT HYD            ID=1       CODE=10

*S  ROUTE L12.3 THROUGH L12.6
* TYPICAL CROSS SECTION A TRANSITIONS TO E
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=3.0
                      CH SLP=0.006 FP SLP=0.006
                      N=0.030       DIST=400
                      DIST    ELEV    DIST    ELEV   DIST    ELEV
                      0       3       180      2      200     0
                      220     2       400      3
ROUTE MCUNGE          ID=49  HYD=L12.3_1  INFLOW ID=1  DT=0HR  L=5400
                      NS=0   SLOPE=0.006   MATCODE=0  REGCODE=0  CCODE=0
COMPUTE RATING CURVE  ID=2    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=4.0
                      CH SLP=0.0013 FP SLP=0.0013
```

```
                    N=0.030       DIST=48
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       4       10       3       19      0
                    29      0       38       3       48      4
ROUTE MCUNGE        ID=50  HYD=L12.3_1  INFLOW ID=49  DT=0HR  L=1600
                    NS=0   SLOPE=0.0013   MATCODE=0  REGCODE=0  CCODE=0
:INT HYD            ID=50     CODE=10
;
;  COMPUTE HYDROGRAPH FOR BASIN L12.5
COMPUTE NM HYD      ID=1      HYD=L12.5   DA=0.7313 SQ MI
                    PER A=36  PER B=5  PER C=43  PER D=16
                    TP=-0.357    RAIN=-1
:INT HYD            ID=1       CODE=10

*S  ROUTE L12.5 THROUGH L12.4
* TYPICAL CROSS SECTION A
)MPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=3.0
                    CH SLP=0.0022 FP SLP=0.0022
                    N=0.030       DIST=400
                    DIST    ELEV    DIST    ELEV
                    0       3       180      2      200      0
                    220      2       400      3
)UTE MCUNGE         ID=51  HYD=L12.4_1  INFLOW ID=1  DT=0HR  L=1850
                    NS=0   SLOPE=0.0022   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=51     CODE=10
;
;  COMPUTE HYDROGRAPH FOR BASIN L12.4
)MPUTE NM HYD       ID=1      HYD=L12.4   DA=0.6016 SQ MI
                    PER A=8  PER B=2  PER C=44  PER D=46
                    TP=-0.319    RAIN=-1
?RINT HYD           ID=1       CODE=10

;  ADD L12.4 AND L12.5
ADD HYD             ID=2       HYD=L12.4_2
                    ID=1       ID=51
PRINT HYD           ID=2       CODE=10

;  ROUTE COMBINED (L12.4 AND L12.5) THROUGH L12.6
* TYPICAL CROSS SECTION A
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=3.0
                    CH SLP=0.0059 FP SLP=0.0059
                    N=0.030       DIST=400
                    DIST    ELEV    DIST    ELEV
                    0       3       180      2      200      0
                    220     2       400      3
)UTE MCUNGE         ID=51  HYD=L12.6_1  INFLOW ID=2  DT=0HR  L=5250
                    NS=0   SLOPE=0.0059   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=51     CODE=10
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.6
)MPUTE NM HYD       ID=1      HYD=L12.6   DA=0.9453 SQ MI
                    PER A=2  PER B=4  PER C=29  PER D=65
                    TP=-0.429    RAIN=-1
PRINT HYD           ID=1       CODE=10
*
;  ADD (L12.4-5) & L12.6
)D HYD              ID=2       HYD=L12.6_2
                    ID=1       ID=51
PRINT HYD           ID=2       CODE=10
*
;  ADD (L12.4-6) & L12.3
)D HYD              ID=4       HYD=L12.6_3
                    ID=2       ID=50
PRINT HYD           ID=4       CODE=10
*
;  ROUTE COMBINED (L12.3, L12.4, L12.5, AND L12.6) THROUGH L12.7
 TYPICAL CROSS SECTION E, 2 SLOPES
)MPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=4.0
                    CH SLP=0.0006 FP SLP=0.0006
                    N=0.030       DIST=48
                    DIST    ELEV    DIST    ELEV
                    0       4       10       3       19      0
                    29       0      38       3       48      4
ROUTE MCUNGE        ID=49  HYD=L12.7_1  INFLOW ID=4  DT=0HR  L=1000
                    NS=0   SLOPE=0.0006   MATCODE=0  REGCODE=0  CCODE=0
)MPUTE RATING CURVE  ID=2    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=4.0
                    CH SLP=0.0097 FP SLP=0.0097
                    N=0.030       DIST=48
                    DIST    ELEV    DIST    ELEV
                    0       4       10       3       19      0
                    29       0      38       3       48      4
ROUTE MCUNGE        ID=50  HYD=L12.7_1  INFLOW ID=49  DT=0HR  L=1350
                    NS=0   SLOPE=0.0097   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=50     CODE=10

;  COMPUTE HYDROGRAPH FOR BASIN L12.7
COMPUTE NM HYD      ID=1      HYD=L12.7   DA=1.0563 SQ MI
                    PER A=44  PER B=7  PER C=28  PER D=21
                    TP=-0.383    RAIN=-1
:INT HYD            ID=1       CODE=10
```

```
*
;  ADD (L12.3-6) & L12.7
)D HYD              ID=3       HYD=L12.7_2
                    ID=1       ID=50
PRINT HYD           ID=3       CODE=10
*S
;  COMPUTE HYDROGRAPH FOR BASIN L12.8
)MPUTE NM HYD       ID=1       HYD=L12.8    DA=0.4219 SQ MI
                    PER A=2  PER B=14  PER C=18  PER D=66
                    TP=-0.451     RAIN=-1
PRINT HYD           ID=1       CODE=10

;  ROUTE L12.8 THROUGH L12.7
   TYPICAL CROSS SECTION E
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                    MIN EL=0     MAX EL=4.0
                    CH SLP=0.0139 FP SLP=0.0139
                    N=0.030        DIST=48
                    DIST     ELEV     DIST     ELEV
                    0        4        10        3      19       0
                    29        0       38        3       48       4
)UTE MCUNGE         ID=50  HYD=L12.7_3  INFLOW ID=1  DT=0HR  L=575
                    NS=0   SLOPE=0.0139   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=50      CODE=10
*
*S  ADD (L12.3-7) & L12.8
)D HYD              ID=3       HYD=L12.7_4
                    ID=3       ID=50
RINT HYD            ID=3       CODE=10
*
*S ROUTE FLOW THROUGH PROPOSED POND AT PASEO DEL VULCAN (PDV)
** PRINCIPAL SPILLWAY 2 - 60" RCP
ROUTE RESERVOIR     ID=50  HYD=PDVPOND
                    INFLOW ID=3    CODE=10
*                   OUTFLOW            STORAGE          ELEV
*                   (CFS)               (AC-FT)         (FT)
*                    0                   0              5780.0
                     60.                 18.7           5782.0
                     194.                38.2           5784.0
                     350.                58.4           5786.0
*                    472.0               79.3           5788.0
*                    564.0               101.1          5790.0
                     624.0               123.6          5792.0
                     712.0               146.9          5794.0
                     766.0               171.0          5796.0
*PRINT HYD          ID=50      CODE=10
*
;  INCREASE POND SIZE BY 1.5 TIMES.  PRINCIPAL SPILLWAY= 60" RCP
)UTE RESERVOIR      ID=50  HYD=PDVPOND
                    INFLOW ID=3    CODE=10
                    OUTFLOW            STORAGE          ELEV
                    (CFS)               (AC-FT)         (FT)
                     0                   0              5780.0
                     45                  28.1           5782.0
                     116                 57.3           5784.0
                     177                 87.6           5786.0
                     222                 119.0          5788.0
                     259                 151.7          5790.0
                     291                 185.4          5792.0
                     320                 220.4          5794.0
PRINT HYD           ID=50      CODE=10
*
;
;*********************************************************************************
;     DIVERSION TO DAM 5 ARROYO BEGINS
*S*********************************************************************************
*S* DIVERSION TO DAM 5 ARROYO NOT ROUTED TO WEST BLUFF.
;* ASSUME STAYS IN PETROGLYPH PARK - 1/31/06 LEM
;*********************************************************************************

*S  ROUTE PDV POND OUTFLOW SOUTH IN PROPOSED PETROGLYPH DIVERSION
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                    MIN EL=0     MAX EL=5
                    CH SLP=0.004   FP SLP=0.004
                    N=0.015        DIST=30
                    DIST     ELEV     DIST     ELEV   DIST    ELEV   DIST    ELEV
                    0        5        10       0      20      0      30      5
)UTE MCUNGE         ID=5  HYD=DIV1  INFLOW ID=50  DT=0HR  L=2500
                    NS=0    SLOPE=0.004    MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=5  CODE=10

* SEDIMENT BULK        CODE=1    BULK FACTOR=1.025
*S
;  COMPUTE HYDROGRAPH FOR BASIN L12.9W
)MPUTE NM HYD       ID=2       HYD=L12.9W    DA=0.1016 SQ MI
                    PER A=34  PER B=26  PER C=16  PER D=24
                    TP=-0.133     RAIN=-1
PRINT HYD           ID=2       CODE=10

;  FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.9W
)D HYD              ID=4       HYD=DIV2
                    ID=2       ID=5
PRINT HYD           ID=4       CODE=10
```

```
*S  ROUTE IN PROPOSED PETROGLYPH DIVERSION
OMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=5
                     CH SLP=0.004  FP SLP=0.004
                     N=0.015        DIST=30
                     DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
                     0        5        10       0       20      0       30      5
OUTE MCUNGE          ID=5  HYD=DIV3  INFLOW ID=4  DT=0HR  L=1500
                     NS=0   SLOPE=0.004   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=5  CODE=10
*
 SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
;
; COMPUTE HYDROGRAPH FOR BASIN L12.11
COMPUTE NM HYD       ID=1       HYD=L12.11   DA=0.2734 SQ MI
                     PER A=2  PER B=13  PER C=18  PER D=67
                     TP=-0.471     RAIN=-1
RINT HYD             ID=1        CODE=10

*S  ROUTE L12.11 THROUGH L12.12W TO PROPOSED PETROGLYPH DIVERSION
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=5
                     CH SLP=0.0189 FP SLP=0.0189
                     N=0.015        DIST=30
                     DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
                     0         5       10       0       20      0       30      5
OUTE MCUNGE          ID=49  HYD=L12.12_1  INFLOW ID=1  DT=0HR  L=1900
                     NS=0   SLOPE=0.0189   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=49    CODE=10
*
* SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
*S
; COMPUTE HYDROGRAPH FOR BASIN L12.12W
OMPUTE NM HYD        ID=2       HYD=L12.12W   DA=0.1415 SQ MI
                     PER A=29  PER B=16  PER C=16  PER D=39
                     TP=-0.301     RAIN=-1
PRINT HYD            ID=2        CODE=10

OD HYD               ID=3      HYD=DIV4
                     ID=2       ID=5
PRINT HYD            ID=3      CODE=10
*
; FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.12W
OD HYD               ID=2      HYD=DIV5
                     ID=3       ID=49
PRINT HYD            ID=2      CODE=10
*
; ROUTE FLOW THROUGH PROPOSED MIREHAVEN A2 DAM
;   PRINCIPAL SPILLWAY 1-36" RCP
ROUTE RESERVOIR      ID=30  HYD=MA2POND
*                    INFLOW ID=2    CODE=10
*                    OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                      0                   0              5718
                      18                  0.24           5720
*                     80                  3.65           5725
*                     110                13.37           5730
                      170                35.50           5735
PRINT HYD             ID=30    CODE=10
; for FINAL2D.HYM increase storage by 3.4x.
*S   PRINCIPAL SPILLWAY 1-54" RCP
ROUTE RESERVOIR      ID=72  HYD=MA2POND
                     INFLOW ID=2    CODE=10
                     OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                      0                   0              5718
                      28                  .82            5720
                      177                12.41           5725
                      265                45.46           5730
                      320               120.70           5735
PRINT HYD            ID=72    CODE=10
*
;  ROUTE IN PROPOSED PETROGLYPH DIVERSION THRU BASIN L12.14W
OMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=5
                     CH SLP=0.004  FP SLP=0.004
                     N=0.015        DIST=30
                     DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
                     0        5        10       0       20      0       30      5
OUTE MCUNGE          ID=5  HYD=DIV6  INFLOW ID=72  DT=0HR  L=1500
                     NS=0   SLOPE=0.004   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=5  CODE=10
*S
 SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
;
*S  COMPUTE HYDROGRAPH FOR BASIN L12.14W
*       MIREHAVEN "B" ARROYO
OMPUTE NM HYD        ID=2       HYD=L12.14W   DA=0.0869 SQ MI
                     PER A=27  PER B=35  PER C=12  PER D=26
                     TP=-0.294     RAIN=-1
RINT HYD             ID=2        CODE=10
*
*S  FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.14W
OD HYD               ID=3      HYD=DIV7
```

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                                                    Opt4_[illegible]AL_10_31_11.txt
                    ID=2      ID=5
 RINT HYD           ID=3     CODE=10

 S  ROUTE IN PROPOSED PETROGLYPH DIVERSION THRU L12.16N[illegible]
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=5
                    CH SLP=0.004  FP SLP=0.004
                    N=0.015       DIST=30
                    DIST    ELEV    DIST    ELEV    DI[illegible]   ELEV   DIST   ELEV
                    0       5       10      0       2O              0      30     5
ROUTE MCUNGE        ID=5  HYD=DIV8  INFLOW ID=3  DT=O[illegible]  L=1500
                    NS=0   SLOPE=0.004   MATCODE=0  R[illegible]  CODE=0  CCODE=0
 RINT HYD           ID=5  CODE=10

* SEDIMENT BULK       CODE=1   BULK FACTOR=1.025
*S
 S  COMPUTE HYDROGRAPH FOR BASIN L12.15
 OMPUTE NM HYD      ID=1      HYD=L12.15   DA=0.4391 SQ[illegible]I
                    PER A=2  PER B=21  PER C=23  PER D=[illegible]
                    TP=-0.449   RAIN=-1
PRINT HYD           ID=1       CODE=10

 S  ROUTE L12.15 THRU L12.16W TO PROPOSED PETROGLYPH DI[illegible]VIA MIREHAVEN "C"
 OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=5
                    CH SLP=0.0123 FP SLP=0.0123
                    N=0.015       DIST=30
                    DIST    ELEV    DIST    ELEV    DI[illegible]   ELEV   DIST   ELEV
                    0       5       10      0       2O              0      30     5
ROUTE MCUNGE        ID=50  HYD=L12.16_1  INFLOW ID=1[illegible]DT=0HR  L=2400
                    NS=0   SLOPE=0.0123   MATCODE=0[illegible]GCODE=0  CCODE=0
 COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=10
                    CH SLP=0.0346  FP SLP=0.0346
*                   N=0.015       DIST=50
*                   DIST    ELEV    DIST    ELEV    D[illegible]T   ELEV   DIST   ELEV
*                   0       10      20      10      O               0      50     10
 ROUTE MCUNGE       ID=1  HYD=L12.16_1  INFLOW ID=5O[illegible]DT=0HR  L=2000
                    NS=0   SLOPE=0.0346   MATCODE=0[illegible]EGCODE=0  CCODE=0
PRINT HYD           ID=50  CODE=10
*
* SEDIMENT BULK       CODE=1   BULK FACTOR=1.025
 S
 S  COMPUTE HYDROGRAPH FOR BASIN L12.16W
COMPUTE NM HYD      ID=4      HYD=L12.16W   DA=0.4468 S[illegible]MI
                    PER A=15  PER B=21  PER C=21  PER D[illegible]3
                    TP=-0.285    RAIN=-1
 RINT HYD           ID=4       CODE=10

 S  ADD L12.16W TO ROUTED L12.15
ADD HYD             ID=3  HYD=L12.16W_1
                    ID=4  ID=50
 RINT HYD           ID=3  CODE=1

 S  ADD L12.15 TO PROPOSED PETROGLYPH DIVERSION
ADD HYD             ID=2  HYD=DIV9
                    ID=3  ID=5
 RINT HYD           ID=2  CODE=1

 S  route flow through new cdam for option 2d_cdam.hym[illegible]hrough 60" RCP
ROUTE RESERVOIR     ID=4  HYD=cdamPOND
                    INFLOW ID=2   CODE=10
                    OUTFLOW          STORAGE                [illegible]LEV
                    (CFS)             (AC-FT)               [illegible]FT)
                    0                 0                     730.0
                    54                .86                   732.5
                    205               5.87                  737.5
                    290               22.13                 5742.5
                    350               55.21                 747.5
                    425               119.5                 752.5
PRINT HYD           ID=4     CODE=10
*
*S  ROUTE IN PROPOSED PETROGLYPH DIVERSION TO DAM 5 ARR[illegible]YO  IN BASIN UD.5E
 ;* PETROGLYPH DIVERSION ADDED BACK IN 2/1/06 TO MODEL[illegible]REATEST POSSIBLE FLOWS IN *S* DOWNSTR
 OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=10
                    CH SLP=0.004  FP SLP=0.004
                    N=0.015       DIST=50
                    DIST    ELEV    DIST    ELEV    DI[illegible]T   ELEV   DIST   ELEV
                    0       10      20      10      3               0      50     10
ROUTE MCUNGE        ID=72  HYD=DIV10  INFLOW ID=4  DT[illegible]0HR  L=3000
                    NS=0   SLOPE=0.004   MATCODE=0  R[illegible]GCODE=0  CCODE=0
PRINT HYD           ID=72  CODE=10

 SEDIMENT BULK       CODE=1   BULK FACTOR=1.025

*S**********************************************[illegible]**********
*S*             CALCULATED RUNOFF FOR BASINS LEADING IN[illegible]TO DAM 5
 ;*             BASINS CHANGED TO REFLECT DEVELOPED ARE[illegible]A
 ;**********************************************[illegible]**********


*S**** COMPUTE BASIN UD.5d ****
 ;****THIS BASIN IS ADDED IN AS BASIN L12.16 w*********[illegible]**
```

```
*S* ASSUME UD.5D FLOWS OUT OF STUDY AREA AND ONTO PETROGLYPHS****
COMPUTE NM HYD       ID=79 HYD NO=UD.5d DA=.2681
                     PER A=0 PER B=23.4 PER C=23.4 PER  D=53.2
                     TP=.615 RAIN=-1
*PRINT HYD           ID=79 CODE=1


*S**** COMPUTE BASIN UD.5A ****
*S*
COMPUTE NM HYD       ID=1 HYD NO=UD.5A DA=.153
                     PER A=0 PER B=23.4 PER C=23.4 PER  D=53.2
                     TP=.157 RAIN=-1
PRINT HYD            ID=1 CODE=1
*S
*S  DIVERT 25% FOR SURGE POND CONDITION
*DIVIDE HYD          ID=1 PER=-75  ID I=1 HYD=UD.5A
                     ID II=88 HYD=SURGE
PRINT HYD            ID=1  CODE=1
PRINT HYD            ID=88 CODE=1
*S

*  ADD PETROGLYPH DIVERSION TO BASIN UD.5A
*D HYD               ID=1  HYD=UD.5ATOT
                     ID=72  ID=1
PRINT HYD            ID=1  CODE=1


*S****  ROUTE UD.5A THROUGH OS.5A TO INLET OF DAM 5 ARROYO
*OMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX  EL=27
                     CH SLP=.0497 FP SLP=.0497 N=0.045 DIST=356
                     DIST ELEV
                     0            27
                     75           17
                     110          7
                     216          0
                     287          7
                     356          17
*OUTE MCUNGE         ID=2   HYD=RTUD.5A  INFLOW ID=1     DT=0 HR   L=1676
                     NS=0    SLOPE=0.0497    MATCODE=0     REGCODE=0  CCODE=0
PRINT HYD            ID=2 CODE=1

*S**** COMPUTE BASIN UD.5E ****
*S*
*OMPUTE NM HYD       ID=90 HYD NO=UD.5E DA=0.1871
                     PER A=50 PER B=25 PER C=25 PER D=0
                     TP=0.176 RAIN=-1
PRINT HYD            ID=90 CODE=1


*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD           ID=90 PER=-75  ID I=90 HYD=UD.5E
                     ID II=88 HYD=SURGE
PRINT HYD            ID=90  CODE=1
PRINT HYD            ID=88 CODE=1
*S
*S* ASSUME HALF OF BASIN UD.5E FLOWS ONTO OS.5A AND HALF ONTO OS.5B
DIVIDE HYD           ID=90 RATIO=-0.5   ID I=51  HYD =  OS.5A
                                        ID II=52 HYD=  OS.5B

*S*
*S****  ROUTE HALF OF UD.5E THROUGH OS.5A TO INLET OF DAM 5 ARROYO
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX  EL=12
                     CH SLP=.032 FP SLP=.032 N=0.045 DIST=504
                     DIST ELEV
                     0            10
                     253          0
                     378          10
                     504          12

*OUTE MCUNGE         ID=1   HYD=ARTUD.5E  INFLOW ID=51        DT=0 HR  L= 1235.63
                     NS=0    SLOPE=0.032    MATCODE=0    REGCODE=0  CCODE=0
PRINT HYD            ID=1 CODE=1


*****  ROUTE HALF OF UD.5E THROUGH OS.5B TO INLET OF DAM 5 ARROYO
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX  EL=30
                     CH SLP=.03 FP SLP=.03 N=0.045 DIST=591
                     DIST ELEV
                     0            30
                     90           20
                     256          10
                     292          0
                     591          10

*OUTE MCUNGE         ID=55   HYD=BRTUD.5E  INFLOW ID=52        DT=0 HR  L= 1078.59
                     NS=0    SLOPE=0.03    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=55 CODE=1


*EDIMENT BULK        CODE=1   BULK FACTOR=1.12
*S**** COMPUTE BASIN OS.5A ****
*S*
COMPUTE NM HYD       ID=3 HYD NO=OS.5A DA=0.1062
                     PER A=50 PER B=25 PER C=25 PER D=0
```

```
                    TP=0.154 RAIN=-1
 RINT HYD           ID=3 CODE=1

 S**** COMPUTE BASIN OS.5B ****
*S*
COMPUTE NM HYD      ID=4 HYD NO=OS.5B DA=0.1540
                    PER A=50 PER B=25 PER C=25 PER D=0
                    TP=0.133 RAIN=-1
RINT HYD            ID=4 CODE=1
SEDIMENT BULK       CODE=1   BULK FACTOR=1.025
*S* ADD ROUTED UD.5E AND OS.5B**
 D HYD              ID=70   HYD=OS.5BTOT
                    ID=4      ID=55
 RINT HYD           ID=70    CODE=1


 * ADD ROUTED UD.5A AND OS.5A**
 D HYD              ID=5   HYD=UD.5AOS.5A
                    ID=2      ID=3
PRINT HYD           ID=5    CODE=1

 * ADD COMBINED FLOW TO ROUTED UD.5E**
 D HYD              ID=75   HYD=OS.5ATOT
                    ID=5      ID=1
PRINT HYD           ID=75    CODE=1

 * TOTAL INLET FLOW TO DAM 5 ARROYO DAM
 D HYD              ID=6   HYD=DAM5INLET
                    ID=70      ID=75
PRINT HYD           ID=6    CODE=1


 **** ROUTE FLOW THROUGH PROPOSED DAM 5 ARROYO DAM
*S     OUTLET PIPE IS A 54" RCP
ROUTE RESERVOIR     ID=7  HYD=D5POND
                    INFLOW ID=6   CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                    (CFS)             (AC-FT)         (FT)
                        0.00           0               5780
                        24.04          12.2            5782
                        101.64         24.8            5784
                        164.90         38              5786
                        203.96         51.6            5788
                        236.65         80.3            5790
                        265.35         95.5            5792
                        291.23         111.2           5794


PRINT HYD           ID=7     CODE=10
*
 ROUTE IN DAM 5 ARROYO TO END OF UD.5C
 FOR OPT 4 - DAM 5 ARROYO IS A 48 INCH STORM DRAIN

* COMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1
*                     MIN EL=0    MAX EL=10
                      CH SLP=0.036  FP SLP=0.036
                      N=0.015       DIST=50
                      DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
*                     0        10      20       0     30     0      50     10
* ROUTE MCUNGE         ID=8  HYD=D5ARROYO  INFLOW ID=7  DT=0HR  L=2421.12
                      NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
 PRINT HYD            ID=8  CODE=10
OMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.036
                     DIA=48 IN  N=0.013
ROUTE MCUNGE         ID=8  HYD=D5ARROYO  INFLOW ID=7  DT=0HR  L=2421.12
                     NS=0   SLOPE=0.036   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=8  CODE=10


*S**** COMPUTE BASIN UD.5C ****
 *
MPUTE NM HYD         ID=11 HYD NO=UD.5C DA=0.085
                     PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                     TP=0.133 RAIN=-1
PRINT HYD            ID=11 CODE=1

 DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD              ID=11 PER=-75  ID I=11 HYD=UD.5C
*                     ID II=88 HYD=SURGE
*PRINT HYD             ID=11  CODE=1

RINT HYD              ID=88 CODE=1


*S* ADD DAM 5 ARROYO AND UD.5C*
*
 D HYD              ID=99   HYD=RTUD.5C
                    ID=11   ID=8
RINT HYD            ID=99   CODE=1


 ROUTE IN DAM 5 ARROYO TO END OF UD.5B
```

```
*S  FOR OPT 4 - DAM 5 ARROYO IS A 54 INCH STORM DRAIN

  COMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1  MIN EL=0    MAX EL=10
                        CH SLP=0.02  FP SLP=0.02    N=0.015       DIST=50
*                       DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
*                       0        10      20       0     30     0      50     10
  ROUTE MCUNGE           ID=8  HYD=D5ARROYO  INFLOW ID=99  DT=0HR  L=3529.63
                        NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
  PRINT HYD              ID=8  CODE=10
*
COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.02
                      DIA=54 IN  N=0.013
  )UTE MCUNGE         ID=8  HYD=D5ARROYO  INFLOW ID=99  DT=0HR  L=2209
                      NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=8  CODE=10
*S
  ;**** COMPUTE BASIN UD.5B ****
  ;*
  OMPUTE NM HYD       ID=9 HYD NO=UD.5B DA=0.0916
                      PER A=5.76 PER B=33.85 PER C=33.85 PER D=26.54
                      TP=0.164 RAIN=-1
  RINT HYD            ID=9 CODE=1


*S* ADD DAM 5 ARROYO AND UD.5B*
*
  )D HYD              ID=10   HYD=ARYDAM5
                      ID=9      ID=8
  RINT HYD            ID=10    CODE=1
*S ROUTE DAM 5 ARROYO AND UD.5B AND UD.5C IN A 54" STORM DRAIN***
COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.033
                      DIA=54 IN  N=0.013
  )UTE MCUNGE         ID=10  HYD=D5ARROYO  INFLOW ID=10  DT=0HR  L=1460
                      NS=0   SLOPE=0.033   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=10  CODE=10


  ;  COMPUTE HYDROGRAPH FOR BASIN L9.1A*****
  ;  THIS BASIN WILL BE DIVERTED IN TO DAM 5 POND.
COMPUTE NM HYD        ID=9       HYD=L9.1A   DA=0.1104 SQ MI
                      PER A=0  PER B=30.46  PER C=30.46  PER D=39.08
                       TP=-.212    RAIN=-1
  RINT HYD            ID=9       CODE=10

"S ROUTE BASIN L9.1A IN THE PROPOSED DIVERSION STRUCTURE TO DAM 5 POND
COMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1  MIN EL=0    MAX EL=10
                      CH SLP=0.02  FP SLP=0.02    N=0.015       DIST=50
                      DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                      0        10      20       0     30     0      50     10
ROUTE MCUNGE          ID=8  HYD=D5ARROYO  INFLOW ID=9  DT=0HR  L=1800.0
                      NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=8  CODE=10

  ;* ADD DAM 5 ARROYO AND UD.5B*

ADD HYD               ID=9   HYD=ARYDAM5&L91.A
                      ID=10     ID=8
  RINT HYD            ID=9    CODE=1

  ;**** COMPUTE BASIN UD.2A ****
*S*
COMPUTE NM HYD        ID=22 HYD NO=UD.2A DA=0.0379
                      PER A=0 PER B=25.4 PER C=74.6 PER D=0
                      TP=0.216 RAIN=-1
  RINT HYD            ID=22 CODE=1

*S* ADD DAM 5 ARROYO AND UD.2A*

  )D HYD              ID=9   HYD=ARYDAM5&L91.A
                      ID=9      ID=22
PRINT HYD             ID=9    CODE=1

  ;* ROUTE FLOW THROUGH DAM 5 POND ON SOCCER FIELDS ****
  ,* OUTLET MODELED AS A 5.5' PIPE
  )UTE RESERVOIR      ID=10   HYD=DAM5S
                      INFLOW ID=9  CODE=10
                      OUTFLOW          STORAGE          ELEV
                      (CFS)            (AC-FT)          (FT)
                          0              0             0.0
                          6.30           1.1           1.0
                          26.18          3.2           2.0
                          35.36          5.6           3.0
                          105.42         8.1           4.0
                          176.79         12.8          5.0
                          233.73         21.6          6.0
                          267.28         34.4          7.0
                          297.06         51.3          8.0

  RINT HYD            ID=10  CODE=10


*S  ROUTE COMBINED FLOW IN DAM 5 ARROYO TO end of BASIN UD.4A
*S  ROUTE WITH 48 INCH PIPE - EDITED TO 48 INCH PIPE (10/31/11)
  COMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1
```

```
*                    MIN EL=0    MAX EL=10
                     CH SLP=0.02  FP SLP=0.02
                     N=0.015       DIST=50
                     DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
*                    0         10      20       0     30     0      50     10
COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.034
                     DIA=48 IN  N=0.013
 OUTE MCUNGE         ID=8  HYD=D5ARROYO  INFLOW ID=10  DT=0HR  L=2006
                     NS=0   SLOPE=0.034   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=8  CODE=10
*S
 S**** COMPUTE BASIN UD.4A ****
 S*
OMPUTE NM HYD       ID=9 HYD NO=UD.4A DA=0.0455
                     PER A=20.6 PER B=0.0 PER C=37.3 PER D=42.1
                     TP=0.133 RAIN=-1
 RINT HYD            ID=9 CODE=1

 S*** ADD FLOW FROM DAM 5 ARROYO UD.4A ***
*S*** TOTAL DAM 5 INFLOW ***
ADD HYD              ID=45   HYD=PD&4D.4A
                     ID=8      ID=9
 RINT HYD            ID=45    CODE=1

*S*** PROPOSED DIVERSION TO STORM CLOUD SUBDIVISION TO LADERA DAM 9****
*S*** DIVERT
 IVIDE HYD           ID=45      Q=205
                     ID=45      HYD=TOPOND5
                     ID=69     HYD=todam9
PRINT HYD            ID=69     CODE=10
PRINT HYD            ID=45      CODE=10

 S ROUTE FLOW FROM DIVERSION TO LADERA DAM 5
 OMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.034
                     DIA=48 IN  N=0.013
ROUTE MCUNGE         ID=8  HYD=UD.4ADAM5  INFLOW ID=45  DT=0HR  L=2006
                     NS=0   SLOPE=0.034   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=8  CODE=10

*S*** ADD FLOW FROM DAM 5 ARROYO TO ROUTED POND #4 OUTFLOW ***
*S*** TOTAL DAM 5 INFLOW ***
^DD HYD              ID=44   HYD=PD5IN
                     ID=8      ID=43
 RINT HYD            ID=44    CODE=1

*S* ROUTE FLOW THROUGH POND 5 ****
ROUTE RESERVOIR      ID=9   HYD=POND5
                     INFLOW ID=44  CODE=10
                     OUTFLOW          STORAGE          ELEV
                     (CFS)            (AC-FT)          (FT)
                         0.00           0             5330.8
                         14.28          4.2           5331.8
                         109.53         12.9          5333.8
                         229.34         22.1          5335.8
                         270.25         27.8          5337
                         822.00         31.9          5337.8
                         4500.00        42.1          5341.8

                         0.00           0             5330.8
                         10.25          4.7           5331.8
*                        98.67          14.5          5333.8
*                        165.09         24.9          5335
                         190.93         35.2          5335.8
                         224.16         37.8          5337
                         822.00         47.4          5337.8
*                        4505.00        59.3          5338.3

 RINT HYD            ID=9     CODE=10


*S  PROPOSED DAM5 DIVERSION
*S  DIVIDE 125 CFS FROM DAM 5 TO DAM 6; REMAINING TO I-40
 IVIDE HYD           ID=9      Q=170
                     ID=71      HYD=dam5div
                     ID=9     HYD=todam6
PRINT HYD            ID=71     CODE=10
PRINT HYD            ID=9      CODE=10

 S  ROUTE DAM5 SPILLWAY FLOWS SOUTH IN PROPOSED DAM 5 DIVERSION
 S  OPT 4 - FLOW ROUTED IN 48 INCH STORM DRAIN (10/7/11)
*COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
*                    MIN EL=0    MAX EL=5
*                    CH SLP=0.01  FP SLP=0.01
                     N=0.015       DIST=30
                     DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
*                    0         5       10       0     20     0      30     5
* ROUTE MCUNGE         ID=73  HYD=D5DIV1  INFLOW ID=71  DT=0HR  L=703
*                    NS=0   SLOPE=0.01   MATCODE=0  REGCODE=0  CCODE=0
  PRINT HYD           ID=73  CODE=10

COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.02
                     DIA=48 IN  N=0.013
ROUTE MCUNGE         ID=73  HYD=D5DIV1  INFLOW ID=71  DT=0HR  L=2096
                     NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
```

```
PRINT HYD              ID=73  CODE=10
```

```
*S*************************************************************************
*S*************************************************************************
*S*                      CONTINUE ON LADERA DAM SYSTEM                    *
*S*                           LADERA WATERSHED                            *
*S*************************************************************************
*S*             DAM SYSTEM FOR DAMS 6-12 TAKEN FROM STORMCLOUD MODEL      *
*S*              TO ACCOUNT FOR STORMCLOUD AND CROSSINGS DEVELOPMENT      *
*S*************************************************************************
*S*************************************************************************

   RAINFALL FOR LADERA BASINS ABOVE DAM #12
* 2YR
*RAINFALL               TYPE=2  RAIN QUARTER=0.0  RAIN ONE=0.683
                        RAIN SIX=0.930  RAIN DAY=1.129  DT=.05
  10YR
*RAINFALL               TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.160
*                       RAIN SIX=1.429  RAIN DAY=1.736  DT=.05
* 100YR
*RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.78
                       RAIN SIX=2.28  RAIN DAY=2.71  DT=.05
   RAINFALL TAKEN FROM STORMCLOUD MODEL
*************************************************************************


*S  COMPUTE HYDROGRAPH FOR BASIN L7.1
* BASIN L7.1A IS THE SAME AS L7.1 IN I-40 DMP, WITH AN INCREASE OF
* 20% IN AREA

*S  COMPUTE HYDROGRAPH FOR BASIN L7.1A
*S  BASIN L7.1A IS DIVERTED TO L9.2A
*COMPUTE NM HYD         ID=99       HYD=L7.1A   DA=0.0094 SQ MI
                        PER A=0  PER B=16.7  PER C=33.3  PER D=50
                        TP=-0.133     RAIN=-1
*PRINT HYD              ID=99       CODE=10


**S  ROUTE OVERLAND FLOW FROM BASIN L7.1 THROUGH  BASIN L7.2
** TYPICAL CROSS SECTION A
*COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                       MIN EL=0    MAX EL=3.0
                       CH SLP=0.0028 FP SLP=0.0028
*                      N=0.030       DIST=400
*                      DIST    ELEV    DIST    ELEV
                       0       3       180      2
                       200     0       220      2
                       400     3
*ROUTE MCUNGE          ID=50  HYD=L7.2_2  INFLOW ID=1  DT=0HR  L=2100
*                      NS=0   SLOPE=0.0028   MATCODE=0  REGCODE=0  CCODE=0
*PRINT HYD             ID=50     CODE=10


*S
*S  COMPUTE HYDROGRAPH FOR BASIN L7.2
*COMPUTE NM HYD         ID=2       HYD=L7.2   DA=0.0406 SQ MI
                       PER A=33  PER B=11  PER C=18  PER D=38
                       TP=-0.133   RAIN=-1
PRINT HYD              ID=2       CODE=10
*



*S  DIVIDE ID=2 INTO 3 THIRDS FOR PONDS 6, 7 AND 8
DIVIDE HYD             ID=2       Q=-.333
                       ID=1       HYD=L7.2_4
                       ID=3       HYD=L7.2_5
*PRINT HYD             ID=1       CODE=10
*
*S  ADD ONE THIRD BASIN L7.2 TO POND 5 OUTFLOW
*S  ADD 1ST THIRD TO ROUTED FLOW
*ADD HYD                ID=10      HYD=TO_DAM6
                       ID=1       ID=9
PRINT HYD              ID=10      CODE=10
*
*S  ROUTE FLOW THROUGH POND #6
   CREST=5327.5, TOP=5331.0
*ROUTE RESERVOIR       ID=9   HYD=POND6
                       INFLOW ID=10  CODE=10
                       OUTFLOW          STORAGE          ELEV
                       (CFS)             (AC-FT)         (FT)
                           0.00           0               5321.0
                           52.62          7.24            5323.0
                           97.38          14.92           5325.0
                           126.15         23.04           5327.0
                           132.36         25.07           5327.5
                           2035.00        40.72           5331.0
```

```
 RINT HYD            ID=9      CODE=10

 S  ADD 2ND THIRD TO POND 6 OUTFLOW
ADD HYD              ID=10     HYD=TO_DAM7
                     ID=1      ID=9
 RINT HYD            ID=10     CODE=10

 S  ROUTE FLOW THROUGH POND #7
*   CREST=5306, TOP=5310.0
*  OUTLET PIPE MODELED AS A 3-2.1' OUTLET PIPES
 UTE RESERVOIR       ID=9   HYD=POND7
                     INFLOW ID=10  CODE=10
                     OUTFLOW           STORAGE          ELEV
                     (CFS)              (AC-FT)         (FT)
                         0.00           0               5300.0
                        63.39           5.25            5302.3
                       102.21          10.85            5304.3
                       129.93          16.82            5306.3
                      3424.00          29.78            5310.0


 RINT HYD            ID=9      CODE=10

*S  ADD LAST THIRD TO POND 7 OUTFLOW
ADD HYD              ID=11     HYD=TO_DAM8
                     ID=1      ID=9
 RINT HYD            ID=11     CODE=10

*S  ROUTE FLOW THROUGH POND #8
*   CREST=5297.0, TOP=5300.0, 2-24" PIPES
***                  .....DISCHARGE.....    EXIST STORAGE
***                  PIPE   SPILLWAY  TOTAL     AC-FT     ELEV
***
****   OUTLET CONDUIT    0                0          0      5287.0
****                    12               12         3.15   5288.0
****                    42               42         9.75   5290.0
***                     60               60        16.79   5292.0
***                     74               74        24.22   5294.0
****                    86               86        32.08   5296.0
****                    90      1        91        36.23   5297.0
****                    98    119       217        40.5    5298
***                    104    765       869        49.14   5300
 S  ROUTE FLOW THROUGH POND #8
*S   CREST=5276.0, TOP=5297.0,  2-24" PIPES WITH 8" ORIFICE PLATES
ROUTE RESERVOIR      ID=10   HYD=POND8
                     INFLOW ID=11  CODE=10
                     OUTFLOW           STORAGE          ELEV
                     (CFS)              (AC-FT)         (FT)
                         0.00           0               5288
                         6.58           2.6             5289
                        19.16           7.9             5290
                        25.48          13.4             5291
                        30.52          19               5292
                        34.84          24.7             5293
                        38.68          30.7             5294
                        42.16          36.8             5295
                        45.40          43               5296
                        48.40          49.4             5297
                        51.24          55.9             5298
                        53.92          62.4             5299
                        56.48          68.9             5300
                      0.00             0.0              5288.0
                      8.16             2.6              5289.0
                     24.28             7.9              5290.0
*                    34.34            13.4              5291.0
*                    42.06            19.0              5292.0
                     48.56            24.7              5293.0
                     54.30            30.7              5294.0
                     59.48            36.8              5295.0
*                    64.24            43.0              5296.0
*                    68.68            49.4              5297.0
                     72.84            55.9              5298.0
                     76.78            62.4              5299.0
                     80.54            68.9              5300.0
PRINT HYD           ID=10     CODE=10
*

 SEDIMENT BULK       CODE=1   BULK FACTOR=1.043
 ;

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


 ;  COMPUTE HYDROGRAPH FOR BASIN L9.1
  BASIN L9.1 IS SUBDIVIDED INTO BASINS L9.1A AND L9.1B

*S  COMPUTE HYDROGRAPH FOR BASIN L9.1A
*COMPUTE NM HYD       ID=1      HYD=L9.1A   DA=0.1977 SQ MI
                     PER A=24.9  PER B=15.0  PER C=25.1  PER D=35
```

```
*                    TP=-.212     RAIN=-1
 PRINT HYD           ID=1        CODE=10


*S  COMPUTE HYDROGRAPH FOR BASIN L9.1B
COMPUTE NM HYD       ID=9        HYD=L9.1B    DA=0.067 SQ MI
                     PER A=41.5  PER B=13.9   PER C=19.6   PER D=25
                     TP=-0.159     RAIN=-1
PRINT HYD            ID=9        CODE=10

*


 S  ROUTE L9.1B THRU "DAM 9.1" ARROYO, LOCATED IN L9.2B
COMPUTE RATING CURVE ID=1      VS NO=1      NO SEGS=1
                     MIN ELEV=0      MAX ELEV=5
                     CH SLP=.035     FP SLP=.035
                     N=.015          DIST=30
                     DIST      ELEV    DIST    ELEV    DIST    ELEV    DIST    ELEV
                      0          5      10      0       20      0       30      5
ROUTE MCUNGE         ID=50  HYD=L9.1B_DAM9.1  INFLOW ID=9  DT=0HR  L=807
                     NS=0   SLOPE=0.035   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=50       CODE=10

* SEDIMENT BULK         CODE=1    BULK FACTOR=1.025
*S


   BASIN L9.2 IS SUBDIVIDED INTO BASINS L9.2, L9.2A AND L9.2B
* BASIN L9.2 NOT USED REPLACED WITH BASIN I-2
**S  COMPUTE HYDROGRAPH FOR BASIN L9.2
 OMPUTE NM HYD       ID=2        HYD=L9.2    DA=0.0085 SQ MI
                     PER A=12  PER B=19  PER C=21  PER D=48
                     TP=-0.133     RAIN=-1
*PRINT HYD           ID=2        CODE=10
*


 S  COMPUTE HYDROGRAPH FOR BASIN L9.2A
COMPUTE NM HYD       ID=3        HYD=L9.2A    DA=0.11 SQ MI
                     PER A=0  PER B=23.4  PER C=23.4  PER D=53.2
                     TP=-0.133     RAIN=-1
 RINT HYD            ID=3        CODE=10

*S  COMPUTE HYDROGRAPH FOR BASIN L9.2B
COMPUTE NM HYD       ID=4        HYD=L9.2B    DA=0.0122 SQ MI
                     PER A=0  PER B=23.4  PER C=23.4  PER D=53.2
                     TP=-0.133     RAIN=-1
 RINT HYD            ID=4        CODE=10


*S  COMBINE ROUTED FLOW FROM DAM 9.1 ARROYO AND BASIN L9.2B
 OD HYD              ID=5      HYD=DAM9.1L9.2B
                     ID=50       ID=4
PRINT HYD            ID=5       CODE=10
*
*
  SEDIMENT BULK         CODE=1    BULK FACTOR=1.025


*S  COMBINE L9.1A AND BASIN L9.2A
*ADD HYD              ID=52      HYD=DAM9.1L9.2B
                     ID=1        ID=3
 PRINT HYD           ID=52       CODE=10


*S  COMBINE FLOWS WITH BASIN L7.1A
 OD HYD              ID=96      HYD=L7.1A
                     ID=3        ID=99
 RINT HYD            ID=96       CODE=10

*S  COMBINE FLOW WITH L7.1A AND DAM5S DIVERSION TO STORM CLOUD*****
 OD HYD              ID=96      HYD=L7.1A
                     ID=69       ID=96
 RINT HYD            ID=96       CODE=10




*S
**********************************************************************************************************************************
**********
**********************************************************************************************************************************
**********
*S  THIS PORTION OF THE .HYM INCORPORTES AND ACCOUNTS FOR THE FLOW
*S  FROM BASIN I-2.  AND FLOW FROM STRUTURES 1 AND 2
**********************************************************************************************************************************
**********
**********************************************************************************************************************************
**********


 S  COMPUTE HYDROGRAPH FOR BASIN I2.1
```

```
COMPUTE NM HYD       ID=92       HYD=I2.1    DA=0.0975 SQ MI
                     PER A=0   PER B=16.7   PER C=33.3   PER D=50
                     TP=-0.133     RAIN=-1
PRINT HYD            ID=92       CODE=10

*S  COMPUTE HYDROGRAPH FOR BASIN I2.4
COMPUTE NM HYD       ID=93       HYD=I2.4    DA=0.017 SQ MI
                     PER A=60  PER B=30  PER C=10  PER D=0
                     TP=-0.133     RAIN=-1
PRINT HYD            ID=93       CODE=10

*  ROUTE FLOW L7.1A THRU I2 VIA 66"RCP
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.03 DIA=5.5  N=0.013
ROUTE MCUNGE         ID=53  HYD=STR1SD1    INFLOW ID=96    DT=0HR  L=1430
                     NS=0  SLOPE=.03    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=53     CODE=10

*  ROUTE FLOW FROM L9.2B THRU I2 VIA 42"RCP
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.03 DIA=3.5  N=0.013
ROUTE MCUNGE         ID=52  HYD=STR2SD4    INFLOW ID=5    DT=0HR  L=814
                     NS=0  SLOPE=.03    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=52     CODE=10


*S  COMBINE ROUTED FLOWS
ADD HYD              ID=54      HYD=COMB
                     ID=52        ID=53
PRINT HYD            ID=54       CODE=10

*S  ROUTE COMBINED FLOW THRU I2 VIA 72"RCP
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.03 DIA=6.0  N=0.013
ROUTE MCUNGE         ID=55  HYD=THRUI2    INFLOW ID=54    DT=0HR  L=956
                     NS=0  SLOPE=.03    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=55     CODE=10


*S  COMBINE I2.1 AND ROUTED FLOW VIA 72"RCP
ADD HYD              ID=60      HYD=I2.2I2.1
                     ID=55        ID=92
PRINT HYD            ID=60       CODE=10


*  COMBINE ROUTED STR1 STR2 AND I2.4
ADD HYD              ID=56      HYD=SD1I2.4
                     ID=93        ID=60
PRINT HYD            ID=56       CODE=10



*S  COMBINE I-2.1 AND I-2.4 AND OTHER UPSTREAM BASINS FLOWING INTO POND#9
ADD HYD              ID=61      HYD=I2OTHERS2D9
                     ID=56        ID=10
PRINT HYD            ID=61       CODE=10


*S  ROUTE FLOW THROUGH DAM #9
    CREST=5276.0, TOP=5279.0,  2-24" PIPES
*    CREST=5276.0, TOP=5279.0,  2-24" PIPES WITH 8.75" ORIFICE PLATES
ROUTE RESERVOIR      ID=99  HYD=POND9
                     INFLOW ID=61  CODE=10
                     OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                         0.00             0               5267
                         4.88             3.5             5268
                         29.12            7.1             5269
                         40.24            10.9            5270
                         48.90            14.8            5271
                         56.24            18.9            5272
                         62.72            23.2            5273
                         68.60            27.5            5274
                         74.00            32.1            5275
                         79.04            36.8            5276
                         83.78            41.5            5277
                         88.26            46.2            5278
                         92.52            51              5279
PRINT HYD            ID=99       CODE=10
**** EXISTING STAGE-STORAGE-DISCHARGE
**** OUTFLOW     AC-FT          ELEV
****(CFS)       (AC/FT)         (FT)
****                  0.                  0.              5267.0
****                  30.                 2.4             5269.0
****                  58.                 8.81            5271.0
****                  78.                 13.71           5273.0
****                  92.                 18.98           5275.0
****                  99                  21.79           5276
****                  507.                24.59           5277.0
****                  2741.               30.57           5279.0

*  SKIP FROM DAM 9 UP TO TOP OF LADERA WATERSHED
*************************************************************************
*S   RETURN TO UPPER LADERA L12 WATERSHED BELOW PROPOSED PETROGLYPH DIVERSION.
*S
SEDIMENT BULK        CODE=1   BULK FACTOR=1.045
```

```
*S  COMPUTE HYDROGRAPH FOR BASIN L12.9E
)MPUTE NM HYD       ID=1       HYD=L12.9E    DA=0.5578 SQ MI
                    PER A=45   PER B=24   PER C=16   PER D=15
                    TP=-0.332     RAIN=-1
PRINT HYD           ID=1        CODE=10
*S
;  ROUTE L12.9E FLOW IN MIREHAVEN A ARROYO THROUGH BASIN L12.12E
 TYPICAL CROSS SECTION C
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                      MIN EL=0     MAX EL=7.0
                      CH SLP=0.0133 FP SLP=0.0133
                      N=0.030        DIST=300
                      DIST     ELEV     DIST     ELEV
                      0        7        110       2       120      0
                      180       0       190       2       300       7
ROUTE MCUNGE          ID=50  HYD=L12.12_3  INFLOW ID=1  DT=0HR  L=1125
                      NS=0   SLOPE=0.0133   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=50      CODE=10
;
* SEDIMENT BULK         CODE=1    BULK FACTOR=1.05
*S  COMPUTE HYDROGRAPH FOR BASIN L12.12E
)MPUTE NM HYD       ID=1       HYD=L12.12E    DA=0.2116 SQ MI
                    PER A=62   PER B=8   PER C=10   PER D=20
                    TP=-0.183     RAIN=-1
PRINT HYD           ID=1        CODE=10
*S
;  ADD DIVIDED L12.12E & L12.9E
)D HYD              ID=3        HYD=L12.12_4
                    ID=1        ID=50
PRINT HYD           ID=3        CODE=10
*
*S  ROUTE L12.11 THROUGH L12.12
S  LTOT=5350 FT.  1ST PART IS CONC CHAN.  LAST 1450' IN PETROG NM, NAT CHAN.
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
*                     MIN EL=0     MAX EL=5
*                     CH SLP=0.0189 FP SLP=0.0189
*                     N=0.015        DIST=30
                      DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
                      0         5       10        0       20      0        30      5
*ROUTE MCUNGE         ID=49  HYD=L12.12_1  INFLOW ID=1  DT=0HR  L=1900
*                     NS=0   SLOPE=0.0189   MATCODE=0  REGCODE=0  CCODE=0
*COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                      MIN EL=0     MAX EL=5
                      CH SLP=0.0246 FP SLP=0.0246
                      N=0.015        DIST=30
*                     DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
*                    0         5       10        0       20      0        30      5
ROUTE MCUNGE          ID=1  HYD=L12.12_1  INFLOW ID=49  DT=0HR  L=2000
                     NS=0   SLOPE=0.0246   MATCODE=0  REGCODE=0  CCODE=0
 NATURAL PART IS TYPICAL CROSS SECTION B
*COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
*                     MIN EL=0     MAX EL=10
                      CH SLP=0.0246 FP SLP=0.0246
                      N=0.030        DIST=300
                      DIST     ELEV     DIST     ELEV
*                     0        10       85        5      135      0
*                     165       0       215       5      300     10
ROUTE MCUNGE          ID=50  HYD=L12.12_1  INFLOW ID=1  DT=0HR  L=1450
                      NS=0   SLOPE=0.0246   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=50      CODE=10
**S
**S  ADD ROUTED L12.11 & L12.3-9
ADD HYD               ID=2        HYD=L12.12_2
                      ID=4        ID=50
PRINT HYD             ID=2        CODE=10
**S
**S  ROUTE COMBINED (L12.3-9,11) THROUGH L12.12 -- VIA MIREHAVEN "A"
 TYPICAL CROSS SECTION C
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                      MIN EL=0     MAX EL=7.0
*                     CH SLP=0.0133 FP SLP=0.0133
*                     N=0.030        DIST=300
                      DIST     ELEV     DIST     ELEV
                      0        7        110       2       120      0
                      180       0       190       2       300       7
*ROUTE MCUNGE         ID=50  HYD=L12.12_3  INFLOW ID=2  DT=0HR  L=1125
*                     NS=0   SLOPE=0.0133   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=50      CODE=10

*SEDIMENT BULK         CODE=1    BULK FACTOR=1.040
*S
* SEDIMENT BULK         CODE=1    BULK FACTOR=1.07
*S
;  COMPUTE HYDROGRAPH FOR BASIN L12.10
)MPUTE NM HYD       ID=1       HYD=L12.10    DA=0.2219 SQ MI
                    PER A=83   PER B=11   PER C=6   PER D=0
                    TP=-0.242     RAIN=-1
PRINT HYD           ID=1        CODE=10

;  ADD L12.10 TO MIREHAVEN ROUTED FLOWS
ADD HYD               ID=4        HYD=L12.10_1
                      ID=1        ID=3
PRINT HYD             ID=4        CODE=10
```

```
*S  ROUTE COMBINED THROUGH L12.13 --
 S  MIREHAVEN "A" ROUTED FROM PLATEAU ABOVE ESCARPMENT TO BELOW ESCARPMENT
  TYPICAL CROSS SECTION C, THREE CHANGES IN SLOPE
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=7.0
                      CH SLP=0.0211 FP SLP=0.0211
                      N=0.030       DIST=300
                      DIST    ELEV    DIST    ELEV
                      0       7       110      2      120     0
                      180      0      190      2      300      7
ROUTE MCUNGE          ID=49  HYD=L12.13_1  INFLOW ID=4  DT=0HR  L=3525
                      NS=0   SLOPE=0.0211   MATCODE=0  REGCODE=0  CCODE=0
 OMPUTE RATING CURVE  ID=1    VS NO=2   SEG NO=1
                      MIN EL=0    MAX EL=7.0
                      CH SLP=0.5231 FP SLP=0.5231
                      N=0.030       DIST=300
                      DIST    ELEV    DIST    ELEV
                      0       7       110      2      120     0
                      180      0       190     2      300      7
ROUTE MCUNGE          ID=4  HYD=L12.13_1  INFLOW ID=49  DT=0HR  L=350
                      NS=0   SLOPE=0.5231   MATCODE=0  REGCODE=0  CCODE=0
 OMPUTE RATING CURVE  ID=1    VS NO=3   SEG NO=1
                      MIN EL=0    MAX EL=7.0
                      CH SLP=0.0600 FP SLP=0.0600
                      N=0.030       DIST=300
                      DIST    ELEV    DIST    ELEV
                      0       7       110      2       120     0
                      180     0       190      2      300      7
 UTE MCUNGE           ID=50  HYD=L12.13_1  INFLOW ID=4  DT=0HR  L=250
                      NS=0   SLOPE=0.0600   MATCODE=0  REGCODE=0  CCODE=0
*ROUTE MCUNGE          ID=50  HYD=L12.13_1  INFLOW ID=4  DT=0HR  L=4125
                       NS=0   SLOPE=0.0237   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=50     CODE=10
 S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.13
COMPUTE NM HYD        ID=1      HYD=L12.13   DA=0.2609 SQ MI
                      PER A=94  PER B=1  PER C=5  PER D=0
                      TP=-0.234    RAIN=-1
 RINT HYD             ID=1       CODE=10
*
*S  ADD ROUTED L12.3-12 & L12.13
*S  TOTAL MIREHAVEN "A" ARROYO FLOW AT BASE OF ESCARPMENT
 D HYD                ID=4       HYD=L12.13_2
                      ID=1       ID=50
PRINT HYD             ID=4       CODE=10
*S
* SEDIMENT BULK        CODE=1   BULK FACTOR=1.056
 S  COMPUTE HYDROGRAPH FOR BASIN L12.14E
 OMPUTE NM HYD        ID=1      HYD=L12.14E   DA=0.3147 SQ MI
                      PER A=34  PER B=39  PER C=11  PER D=16
                      TP=-0.407    RAIN=-1
PRINT HYD             ID=1       CODE=10
 S
  SEDIMENT BULK       CODE=1   BULK FACTOR=1.035
 S  COMPUTE HYDROGRAPH FOR BASIN L12.16E
COMPUTE NM HYD        ID=2      HYD=L12.16E   DA=0.4079 SQ MI
                      PER A=30  PER B=22  PER C=20  PER D=28
                      TP=-0.302    RAIN=-1
 RINT HYD             ID=2       CODE=10

*S  ADD L12.14E & L12.16E
ADD HYD               ID=3       HYD=L12.14_1
                      ID=1       ID=2
 RINT HYD             ID=3       CODE=10

*
**S  ROUTE L12.15 THROUGH L12.16  --  MIREHAVEN "C" ARROYO
 S  LTOT=11100 FT.  1ST PART IS CONC CHAN.  LAST 4100' IN PETROG NM, NAT CHAN.
 OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=5
*                     CH SLP=0.0123 FP SLP=0.0123
*                     N=0.015       DIST=30
                      DIST    ELEV    DIST    ELEV   DIST    ELEV   DIST    ELEV
                      0       5       10      0      20      0      30      5
 OUTE MCUNGE          ID=50  HYD=L12.16_1  INFLOW ID=1  DT=0HR  L=3100
*                     NS=0   SLOPE=0.0123   MATCODE=0  REGCODE=0  CCODE=0
*COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=5
                      CH SLP=0.0346  FP SLP=0.0346
                      N=0.015       DIST=30
*                     DIST    ELEV    DIST    ELEV   DIST    ELEV   DIST    ELEV
*                     0       5       10      0      20      0      30      5
*ROUTE MCUNGE          ID=1  HYD=L12.16_1  INFLOW ID=50  DT=0HR  L=3900
                      NS=0   SLOPE=0.0346   MATCODE=0  REGCODE=0  CCODE=0
 NATURAL PART IS TYPICAL CROSS SECTION C
*COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
*                     MIN EL=0    MAX EL=7.0
*                     CH SLP=0.0345 FP SLP=0.0345
                      N=0.030       DIST=300
                      DIST    ELEV    DIST    ELEV
                      0       7       110      2      120     0
*                     180      0      190      2      300      7
*ROUTE MCUNGE          ID=50  HYD=L12.16_1  INFLOW ID=1  DT=0HR  L=4100
                      NS=0   SLOPE=0.0345  MATCODE=0  REGCODE=0  CCODE=0
```

```
*PRINT HYD              ID=50      CODE=10

'S  ADD ROUTED L12.15 & L12.16
ADD HYD                 ID=2       HYD=L12.16_2
*                       ID=1       ID=50
*PRINT HYD              ID=2       CODE=10
;
;
 SEDIMENT BULK          CODE=1   BULK FACTOR=1.065
*S  COMPUTE HYDROGRAPH FOR BASIN L12.17
COMPUTE NM HYD          ID=1       HYD=L12.17   DA=0.2031 SQ MI
                        PER A=32  PER B=41  PER C=16  PER D=11
                        TP=-0.196    RAIN=-1
.RINT HYD               ID=1       CODE=10
*
*S  ADD  L12.14-16 & L12.17  --  FLOW AT LADERA TRAINING DIKE
)D HYD                  ID=2       HYD=DIKE
                        ID=1       ID=3
RINT HYD                ID=2       CODE=10
*
*S  ROUTE COMBINED (L12.14E,L12.16E,L12.17) IN MIREHAVEN DNSTREAM FROM TRNG DIKE
;    TO CONFLUENCE WITH MIREHAVEN "A" ARROYO BELOW ESCARPMENT
 TYPICAL CROSS SECTION D
)MPUTE RATING CURVE     ID=1    VS NO=1   SEG NO=1
                        MIN EL=0    MAX EL=5.0
                        CH SLP=0.0332 FP SLP=0.0332
                        N=0.030       DIST=400
                        DIST    ELEV    DIST    ELEV
                        0       5       130      2      140     0
                        260     0       270      2      400     5
ROUTE MCUNGE            ID=50  HYD=L12.18_1   INFLOW ID=2  DT=0HR  L=2950
                        NS=0   SLOPE=0.0332   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD                ID=50     CODE=10

*S  ADD  L12.9E,L12.10,L12.12E,L12.13  & L12.14E,L12.16E,L12.17
*S  TOTAL FLOW MIREHAVEN A, B, C ARROYOS BELOW ESCARPMT, DNSTRM FROM TR DIKE
)D HYD                  ID=3       HYD=L12.18_2
                        ID=4       ID=50
RINT HYD                ID=3       CODE=10
^
*S  ROUTE L12.3-17 THROUGH MIREHAVEN ARROYO TO INTERSECTN W/FUTURE 98TH ST
*S  LTOT=4625 FT.  1ST 1300' IN PETROG NM, NAT CHAN.  LAST PART IS CONC CHAN.
 NATURAL PART IS TYPICAL CROSS SECTION D
)MPUTE RATING CURVE     ID=1    VS NO=1   SEG NO=1
                        MIN EL=0    MAX EL=5.0
                        CH SLP=0.0221 FP SLP=0.0221
                        N=0.030       DIST=400
                        DIST    ELEV    DIST    ELEV
                        0       5       130      2      140     0
                        260     0       270      2      400     5
ROUTE MCUNGE            ID=4  HYD=L12.18_3  INFLOW ID=3  DT=0HR  L=1300
                        NS=0   SLOPE=0.0221   MATCODE=0  REGCODE=0  CCODE=0
)MPUTE RATING CURVE     ID=1    VS NO=1   SEG NO=1
                        MIN EL=0    MAX EL=5.0
                        CH SLP=0.0221 FP SLP=0.0221
                        N=0.015       DIST=30
                        DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                        0       5       10      0      20     0      30     5
)UTE MCUNGE             ID=50  HYD=L12.18_3  INFLOW ID=4  DT=0HR  L=3325
                        NS=0   SLOPE=0.0221   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=50     CODE=10
*
 SEDIMENT BULK          CODE=1   BULK FACTOR=1.050

  COMPUTE HYDROGRAPH FOR BASIN L12.18
COMPUTE NM HYD          ID=1       HYD=L12.18   DA=0.5141 SQ MI
                        PER A=42  PER B=21  PER C=21  PER D=16
                        TP=-0.239    RAIN=-1
.INT HYD                ID=1       CODE=10

*S  ADD  L12.3-17 & L12.18 --  TOTAL FLOW IN MIREHAVEN AT FUTURE 98TH STREET
*   POSSIBLE LADERA WEST DAM SITE
)D HYD                  ID=2       HYD=L12.18_4
                        ID=1       ID=50
.INT HYD                ID=2       CODE=10
*S
**********************************************************************************
*  RAINFALL FOR BASINS ABOVE DAM 12 AND BELOW "LADERA WEST DAM"
.INFALL                 TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.78
                        RAIN SIX=2.28  RAIN DAY=2.71 DT=.05
**********************************************************************************
*S  ROUTE COMBINED (L12.13-L12.18) IN MIREHAVEN THRU L12.20 TO DAM#12
COMPUTE RATING CURVE    ID=1    VS NO=1   SEG NO=1
                        MIN EL=0    MAX EL=5.0
                        CH SLP=0.0289 FP SLP=0.0289
                        N=0.015       DIST=30
                        DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                        0       5       10      0      20     0      30     5
)UTE MCUNGE             ID=51  HYD=L12.20_1  INFLOW ID=2  DT=0HR  L=3500
                        NS=0   SLOPE=0.0289   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD                ID=51     CODE=10
*
* SEDIMENT BULK          CODE=1   BULK FACTOR=1.028
```

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

*S  COMPUTE HYDROGRAPH FOR BASIN L12.19
OMPUTE NM HYD       ID=1       HYD=L12.19    DA=0.176 SQ MI
                    PER A=4.25  PER B=16.25  PER C=32  PER D=47.5
                    TP=-0.141     RAIN=-1
PRINT HYD           ID=1        CODE=10
*

S  COMPUTE HYDROGRAPH FOR BASIN L12.20A
OMPUTE NM HYD       ID=4       HYD=L12.20A    DA=0.0118 SQ MI
                    PER A=0  PER B=16.7  PER C=33.3  PER D=50
                    TP=-0.133     RAIN=-1
RINT HYD            ID=4        CODE=10

   ADD HYD FOR MAX Q TO PROPOSED--
ADD HYD             ID=5        HYD=L12.1920A
                    ID=1        ID=4
RINT HYD            ID=5        CODE=10


*S THE FLOW FROM THE 66"RCP WILL NOT BE ROUTED TO POND#10, IN THIS ANALYSIS
*S INSTEAD IT WILL BE ROUTED TO POND#11
S  ROUTE FLOW FROM STR3 THRU 1ST SEGMENT OF I2.2 VIA 66"RCP
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.0162 DIA=5.5  N=0.013
OUTE MCUNGE         ID=55  HYD=THRU66    INFLOW ID=5    DT=0HR  L=887
                    NS=0  SLOPE=.0162    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=55     CODE=10

 BASIN D17 TAKEN FROM "THE CROSSINGS" DRAINAGE REPORT
S  COMPUTE HYDROGRAPH FOR BASIN D17
OMPUTE NM HYD       ID=7       HYD=D17    DA=0.014 SQ MI
                    PER A=0  PER B=16.7  PER C=33.3  PER D=50
                    TP=-0.133     RAIN=-1
RINT HYD            ID=7        CODE=10

 ROUTE D17 THROUGH SMALL SEGMENT OF I2.2 VIA 24" RCP
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.0162 DIA=2.0  N=0.013
ROUTE MCUNGE        ID=10  HYD=D17THRU24"   INFLOW ID=7   DT=0HR  L=262
                    NS=0    SLOPE=0.0162    MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=10      CODE=10

*S COMBINE ROUTED FLOW FROM D17 AND OFFSITE FLOW
ADD HYD             ID=2        HYD=OFFSANDD17
                    ID=10        ID=55
RINT HYD            ID=2        CODE=10

* ROUTE COMBINED FLOW THROUGH 2ND SEGMENT OF I2.2 VIA 66" RCP
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.0162 DIA=5.5  N=0.013
OUTE MCUNGE         ID=1  HYD=STR3D17THRU66    INFLOW ID=2    DT=0HR  L=778
                    NS=0  SLOPE=.0162    MATCODE=0  REGCODE=0  CCODE=0
.RINT HYD           ID=1     CODE=10

*S  COMPUTE HYDROGRAPH FOR BASIN I2.2
OMPUTE NM HYD       ID=95       HYD=I2.2    DA=0.072 SQ MI
                    PER A=0  PER B=16.7  PER C=33.3  PER D=50
                    TP=-0.133     RAIN=-1
PRINT HYD           ID=95       CODE=10

   COMBINE ROUTED FLOW WITH BASIN I2.2 - THIS IS FLOW TO POND#11
   ADD HYD FOR ROUTED FLOW OF 2ND SEGMENT WITH BASIN I2.2
D HYD               ID=2        HYD=D17
                    ID=95        ID=1
PRINT HYD           ID=2        CODE=10

 ROUTE COMBINED FLOW THROUGH 3RD SEGMENT TO POND#10 VIA 66" RCP
 THIS WILL BE THE TOTAL FLOW RE-ROUTED TO POND#10
*S  Note this flow has not been added to the flow from D17.4, and I2.3,
*S  Routed through pipe to merely determine the flow at end of network to Dam#10
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.0162 DIA=5.5  N=0.013
OUTE MCUNGE         ID=97  HYD=TOTALRE-ROUTE10    INFLOW ID=2    DT=0HR  L=900
                    NS=0  SLOPE=.0162    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=97     CODE=10
*
*C THESE BASINS WILL GO TO POND#10 - via sheet flow
   COMPUTE HYDROGRAPH FOR BASIN I2.3
MPUTE NM HYD        ID=94       HYD=I2.3    DA=0.029 SQ MI
                    PER A=0  PER B=46.5  PER C=46.5  PER D=7
                    TP=-0.133     RAIN=-1
PRINT HYD           ID=94       CODE=10

 BASIN D17.4 TAKEN FROM "THE CROSSINGS" DRAINAGE REPORT
*S TAKEN AS AREA LEFT FROM BASIN L12.20 MINUS D17 & I-2

*S  COMPUTE HYDROGRAPH FOR BASIN D17.4
MPUTE NM HYD        ID=8       HYD=D17.4    DA=0.0018 SQ MI
                    PER A=4  PER B=34  PER C=5  PER D=57
                    TP=-0.133     RAIN=-1
PRINT HYD           ID=8        CODE=10
*
   ADD HYD FOR BASINS I2.3 AND D17.4
```

```
ADD HYD              ID=9        HYD=D17I2.3
                     ID=94        ID=8
PRINT HYD            ID=9        CODE=10


*S  ROUTE OUTFLOW FROM DAM 9 OVERLAND THROUGH SMALL PORTION OF BASIN L12.20
    THIS ACCOUNTS FOR THE TIME IT TAKES FLOW TO GET THRU DAM(S) IN BASIN L12.20
COMPUTE RATING CURVE ID=1      VS NO=1      NO SEGS=1
                     MIN ELEV=0      MAX ELEV=5
                     CHSLP=.021     FP SLP=.027
                     N=.030          DIST=50
                     DIST      ELEV      DIST      ELEV      DIST      ELEV
                      0         5         15         0         35         0
                     50         5
ROUTE MCUNGE         ID=10  HYD=TO_DAM10FROMDAM9  INFLOW ID=99  DT=0HR  L=439
                     NS=0   SLOPE=0.021   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=10       CODE=10

*S  ADD ALL COMBINED FLOW INTO DAM#10
*S  ADD HYD FOR D17.4, I2.3 AND OVERLAND FLOW
ADD HYD              ID=11       HYD=TO_DAM10_ALL
                     ID=10       ID=9
PRINT HYD            ID=11       CODE=10

*S  ROUTE COMBINED THROUGH DAM #10
*S  CHANGED DAM BACK TO AS-BUILT STAGE STORAGE JDE 10/03/11
*    CREST=5257.0, TOP=5260.0
ROUTE RESERVOIR      ID=9        HYD=POND10
                     INFLOW ID=11       CODE=10
                            OUTFLOW        STORAGE          ELEVATION
                             (CFS)         (AC/FT)            (FT)
                          0.00             0                5244
                          17.14            6.77             5246
                          29.69            13.95            5248
                          38.33            21.54            5250
                          45.36            29.56            5252
                          51.43            38.01            5254
                          56.86            46.88            5256
                          59.39            51.55            5257
*                              0             2.0                  5244
*                              14.2          8.44                 5246
*                              24.2          16.22                5248
                               31.2          24.6                 5250
                               36.9          33.53                5252
*                              41.8          43.12                5254
*                              48.2          59.02                5257
                               175.2         64.78                5258
                               878.9          68.0                5260
PRINT HYD            ID=9        CODE=10

* OUTFLOW: 1-24" PIPE with a 23" Orifice plate applied
* STORAGE: INITIAL INCREASED BY ACTUAL CALCS FROM DTM - 6-23-05 DAM10-PROP1.DTM
  THE OUTFLOW WAS NOT CHANGED TO BELOW CALCS, ONLY WITH AN ORIFICE PLATE APPLIED

*** EXISTING STAGE-STORAGE-DISCHARGE
**** OUTFLOW     AC-FT          ELEV
****(CFS)       (AC/FT)         (FT)
***  0          0               5244.0
***  14         6.77            5246.0
***  30         13.95           5248.0
****  38        21.54           5250.0
****  47        29.56           5252.0
***  54         38.01           5254.0
***  63         51.55           5257.0
***195          56.22           5258
****960         66.04           5260.0

*S  COMPUTE HYDROGRAPHS FOR BASINS IN THE CROSSINGS


*S  COMPUTE HYDROGRAPHS FOR BASINS 1-5
COMPUTE NM HYD       ID=2        HYD=B1_5   DA=0.016 SQ MI
                     PER A=0  PER B=20  PER C=30  PER D=50
                     TP=-0.133     RAIN=-1
PRINT HYD            ID=2        CODE=10
*
*S  COMPUTE HYDROGRAPHS FOR BASIN D4
COMPUTE NM HYD       ID=1        HYD=D4   DA=0.0012 SQ MI
                     PER A=0  PER B=20  PER C=30  PER D=50
                     TP=-0.133     RAIN=-1
PRINT HYD            ID=1        CODE=10
*
*S  ADD BASINS D4 AND 1-5
ADD HYD              ID=3      HYD=D41_5
                     ID=2       ID=1
PRINT HYD            ID=3      CODE=10
*S

*  COMPUTE HYDROGRAPHS FOR BASIN D9 AND D11
COMPUTE NM HYD       ID=1        HYD=D911   DA=0.006 SQ MI
                     PER A=30  PER B=30  PER C=33  PER D=7
                     TP=-0.133     RAIN=-1
PRINT HYD            ID=1        CODE=10
```

```
*S  ADD BASINS D911 AND UPSTREAM
 )D HYD              ID=1     HYD=D41_5
                     ID=3      ID=1
PRINT HYD            ID=1     CODE=10
*S
*S  COMPUTE HYDROGRAPHS FOR BASIN D10 AND D12
 OMPUTE NM HYD       ID=2      HYD=D1012   DA=0.003 SQ MI
                     PER A=0  PER B=10  PER C=20  PER D=70
                     TP=-0.133    RAIN=-1
PRINT HYD            ID=2       CODE=10
*

 5  ADD BASINS D1012 AND UPSTREAM
 .OD HYD             ID=2     HYD=D41_5
                     ID=2      ID=1
PRINT HYD            ID=2     CODE=10
 5
 5  COMPUTE HYDROGRAPHS FOR BASIN D15
 OMPUTE NM HYD       ID=3      HYD=D15   DA=0.0044 SQ MI
                     PER A=60  PER B=10  PER C=30  PER D=0
                     TP=-0.133    RAIN=-1
 RINT HYD            ID=3       CODE=10

 5  ADD BASINS D15 AND UPSTREAM
ADD HYD              ID=1     HYD=TO_DAM11
                     ID=3      ID=2
 RINT HYD            ID=1     CODE=10
 5

*S  ADD ALL FLOW INTO POND#11 PLUS POND#10 FLOW
ADD HYD              ID=1     HYD=TO_DAM11
                     ID=1      ID=9
 RINT HYD            ID=1     CODE=10
 5

*S THIS FLOW SHOULD BE COMBINATION OF ALL ROUTED TO POND #11
*S WITH THE INCLUSION OF TOTAL OF SD3 FLOW
 5 ADD ALL FLOW FROM POND#10, CROSSINGS, AND TIERRA O, WITH SD3

ADD HYD              ID=2     HYD=TOTAL_INTO_DAM11
                     ID=1      ID=97
PRINT HYD            ID=2     CODE=10
 5


*************************************************************************************************************************************************************
**************************
 :************************************************************************************************************************************************************
 :*************************


*S  ROUTE TOTAL FLOW THROUGH DAM #11
*   CREST=5234.7, TOP=5236.5, 1-24"
 )UTE RESERVOIR      ID=9       HYD=POND11
                     INFLOW ID=2      CODE=10
                     OUTFLOW       STORAGE          ELEVATION
                      (CFS)        (AC/FT)             (FT)
                        0             0                5225
                        8             4                5228
                       37            17                5232
                       47            29                5234.7
                       68            30                5235
                      276            34                5236
                      503          36.17               5236.5
 :INT HYD            ID=9       CODE=10
  CHANGE OUTFLOW FROM 1-24"  TO 1-24"& 1-36"
****                      ......DISCHARGE........   EXIST STORAGE
****                      PIPES   SPILLWAY   TOTAL      AC-FT      ELEV
 ***
 :**   OUTLET CONDUIT       0                  0          0       5225.0
 :**                       63                 63          4       5228.0
****                      117                117         17       5232.0
****                      142       1        143         29       5234.7
*****                     153     225        378         34       5236.0
 **                       157     449        606         36.17    5236.5

*S  ROUTE OVERLAND FLOW FROM DAM #11 THROUGH  BASIN L12.20
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                     MIN ELEV=0     MAX ELEV=5
                     CH SLP=.021    FP SLP=.027
                     N=.030         DIST=50
                     DIST     ELEV     DIST     ELEV     DIST     ELEV
                      0         5        15        0        35        0
                     50         5
 )UTE MCUNGE         ID=10  HYD=L12.20_6  INFLOW ID=9  DT=0HR  L=2150
                     NS=0   SLOPE=0.021   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=10     CODE=10
**S PLOT1
*PLOT HYD            ID=10  ID=0   Q SCALE=3000   T SCALE=6

 5  ADD SECOND HALF OF FLOW FROM L12.20 TO MIREHAVEN CHAN
 5  TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
ADD HYD              ID=3     HYD=L12.20_7
                     ID=2      ID=51
 :INT HYD            ID=3     CODE=10
```

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*S PLOT2  HYD=L12.20_7   TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
 OT HYD            ID=3   ID=0   Q SCALE=3000   T SCALE=6
;
S  COMBINED MIREHAVEN AND DAM #11 OUTFLOW -- TOTAL FLOW INTO DAM #12
ADD HYD            ID=9     HYD=TO_DAM12
                   ID=3     ID=10
RINT HYD           ID=9     CODE=10

 FOR DEVELOPED CONDITION, MAY ADD FLOW FROM
*  BASINS SOUTH OF DAM12 (609, 608) TO COMBINED FLOW ENTERING DAM #12
*ADD HYD            ID=12      HYD=IN12
                   ID=10      ID=35
PRINT HYD          ID=12      CODE=10
;
*S   ROUTE FLOW THROUGH POND #12
*
;*** LADERA POND 12 - EXISTING CHARACTERISTICS
;***
** ELEVATIONS, PIPE DISCHARGE, SPILLWAY CAPACITY, AND STAGE-STORAGE
**** VOLUMES FROM AMAFCA HYDROGRAPHICAL DATA PREPARED BY LEVERTON/DENNEY
**** & MacCORNACK/BURNS
**
**                    .....DISCHARGE.....     STORAGE
**                   PIPE   SPILLWAY   TOTAL     AC-FT     ELEV
****
****   OUTLET CONDUIT    0                0        0       5202
***                     75                75      5.5     5203
**                     170               170    11.32     5204
**                     325               325     16.5     5205
****                   500               500    23.34     5206
****                   680               680     28.5     5207
***                    765               765     32.3   5207.5
**                     825               825    36.09     5208
**                     890               890     39.5   5208.5
****                   945               945     42.8     5209
****                  1055              1055    49.58     5210
****   SPILLWAY CREST 1175         0      1175     57.5   5211.3
**                    1235      1000      2235    63.80     5212
**                    1310      4500      5810     71.2     5213
***                   1370     10000     11370    75.74     5214
****                  1420     17000     18420     82.5     5215
****                  1485     30000     31485    91.48     5216
**   TOP OF DAM       1582     52568     54150    99.65     5217
  CALCULATED NEW STORAGE BASED ON AREAS OBTAINED BY DIGITIZING NEW CONTOURS
    FOR ELEVATIONS 02, 03, 05, 09, 10, AND 11.3 IN DIGIMAP (1/96)
*ROUTE RESERVOIR   ID=10  HYD=POND12
*                  INFLOW ID=9  CODE=10
                   OUTFLOW          STORAGE          ELEV
                   (CFS)             (AC-FT)         (FT)
                       0                0           5202
*                     75                2.0         5203
*                    325               11.3         5205
                     945               36.2         5209
                    1055               43.9         5210
                    1175               55.4         5211.3
*                   2235              63.80         5212
*                   5810               71.2         5213
                   11370              75.74         5214
                   18420               82.5         5215
                   31485              91.48         5216
*                  54150              99.65         5217
*  NEW OUTFLOW DATA PER JASON;STORAGE PER DMP HYDROLOGY;IGNORE DATA OVER 5211.3
; ADDED NUSIANCE FLOW DIVERSION FROM DAM 12 TO I-40 CHANNEL
; 36" CULVERT WITH INVERT 1' BELOW INVERT OF EXISTING PRINCIPAL SPILLWAY
, DISCHARGE CURVE UP TO ELEVATION 11.3 BASED ON 30" ALONE TO BEST MODEL
* 30" PIPE (GROOVE-EDGED)
* OUTFLOW           ELEVATION
  (CFS)              (FT)
    0                5201
    4                5202
*  17                5203
*  42                5205
   57                5207
   63                5208
   68                5209
*  74                5210.2
*  80                5211.3
* 36" PIPE
  OUTFLOW           ELEVATION
  (CFS)              (FT)
*   0                5201
*   5                5202
*  20                5203
   56                5205
   78                5207
   88                5208
*  97                5209
* 106                5210.2
  113                5211.3
  48" PIPE
 OUTFLOW           ELEVATION
* (CFS)              (FT)
*   0                5201
   10                5202
```

```
*  25                5203
   78                5205
  125                5207
  146                5208
* 164                5209
* 182                5210.2
  200                5211.3
  66" PIPE
  OUTFLOW           ELEVATION
* (CFS)               (FT)
*   0                5201
   15                5202
   35                5203
  100                5205
* 180                5207
* 215                5208
  248                5209
  280                5210.2
  310                5211.3


ROUTE RESERVOIR     ID=10  HYD=POND12
                    INFLOW ID=9  CODE=10
                     OUTFLOW          STORAGE          ELEV
*                    (CFS)             (AC-FT)         (FT)
*                       0                0.0          5201
                       15                0.1          5202
                       35                2.0          5203
                      100               11.3          5205
*                     180               28.8          5207
*                     215               32.5          5208
*                     248               36.2          5209
                      280              45.7         5210.2
                      310               55.4       5211.3
*                    4033               67.5          5212.5
*                    9264               75.7          5214
*                   18764               91.48         5216
                    24420               99.65         5217
PRINT HYD           ID=10    CODE=10
S PLOT  HYD=POND 12 OUTFLOW BEFORE DIVIDE HYD
*PLOT HYD           ID=10  ID=0   Q SCALE=3000   T SCALE=6

; DIVERSION TO I-40 THUR 1 - 66" GROOVE EDGE PIPE
; POND STORAGE INCREASED 100% TO PREVENT POND FROM OVERTOPING
S LBS 10/19/06 - MODIFIED POND STORAGE AT SPILLWAY ELEVATION TO PREVENT SPILL
ROUTE RESERVOIR     ID=10  HYD=POND12
                    INFLOW ID=9  CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                       0                0.0          5201
                      15                0.2          5202
                      35                4.0          5203
                     100               22.6          5205
                     180               57.6         5207
                     215               65         5208
                     248              72.4          5209
                     280              91.4       5210.2
                     310             110.8      5211.3
                    4033               135          5212.5
                    9264               151.4         5214
                   18764               183         5216
                   24420                 199.3         5217
INT HYD             ID=10    CODE=10
; PLOT  HYD=POND 12 OUTFLOW BEFORE DIVIDE HYD
OT HYD             ID=10  ID=0   Q SCALE=3000   T SCALE=6
*
**** 100-YEAR SPILLWAY ELEVATION=5211.3

S*** DIVERT 100 CFS FROM DAM 12 TO I-40 DIVERSION PER CRAIG
 THIS HAS BEEN REPLACED BY A RECALLED HYROGRAPH FROM MODEL 3C1 PER DMP
*S SEE BELOW
*DIVIDE HYD          ID=10    PER=-0.09
                     ID=37    HYD=blufdiv
                     ID=38    HYD=ladera

*PRINT HYD           ID=37    CODE=10

*  REPLACED BLUFDIV DIVERSION TO THAT FOUND IN 2d_u.hym,FLOW RATE
  CONDITION INSTEAD OF PERCENTAGE AS SHOWN ABOVE
VIDE HYD            ID=10    MAX=120
                    ID=37    HYD=blufdiv
                    ID=38    HYD=ladera

PLOT6 LADERA CHANNEL
LOT HYD             ID=38  ID=0   Q SCALE=3000   T SCALE=6
*
*S  PLOT  HYD= BLUFDIV
PLOT HYD            ID=37  ID=0   Q SCALE=3000   T SCALE=6
INT HYD             ID=38    CODE=10


*S*****************************************************************
*      CALCULATE TOTAL FLOW IN 98TH STREET STORMDRAIN
```

```
*S*************************************************************************

 S  ADD DAM 5 DIVERSION FLOW AND ROUTED ST.3
ADD HYD              ID=98   HYD=98STFLOW
                     ID=73      ID=19
PRINT HYD            ID=98    CODE=1

 S*      ROUTE  98TH STREET FLOW DOWN 98TH STREET TO 98TH STREET POND
 S*      ROUTE FLOW IN 72" SD PIPE
COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.005
                     DIA=72 IN   N=.013
 OUTE MCUNGE         ID=50 HYD=98RT INFLOW ID=98 DT=0HR L= 1702.71
                     NS=0  SLOPE=0.005   MATCODE=0  REGCODE=0  CCODE=0
.RINT HYD            ID=50 CODE=0


 S**** COMPUTE BASIN ST.5 ****

 OMPUTE NM HYD       ID=16 HYD NO=ST.5 DA=0.0476
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=0.133 RAIN=-1
 RINT HYD            ID=16 CODE=1


*S*      ROUTE  ST.5 ALONG TOP OF BASIN ST.6 TO 98TH STREET BOXES
*S*      ROUTE FLOW IN 36" SD PIPE
 COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.043
                     DIA=36 IN   N=.013
 ROUTE MCUNGE        ID=18 HYD=RTST.3 INFLOW ID=16 DT=0HR L= 1159.37
*                    NS=0  SLOPE=0.043   MATCODE=0  REGCODE=0  CCODE=0
*PRINT HYD           ID=18 CODE=0

 S**** COMPUTE BASIN ST.6 ****
 S*
COMPUTE NM HYD       ID=21 HYD NO=ST.6 DA=0.0538
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=0.133 RAIN=-1
 RINT HYD            ID=21 CODE=1

 S ADD BASIN ST.5 BEFORE ROUTE THROUGH 98TH STREET SURGE POND
ADD HYD              ID=18   HYD=98STPONDIN
                     ID=16      ID=21
 RINT HYD            ID=18    CODE=1

 S*      ROUTE ST.6 THROUGH EXISTING CULVERT AT 98TH STREET INTERCHANGE
*S*      FLOW CONNECTS INTO I40 SYSTEM
*S       ROUTE OUTFLOW THRU 1- 4x6 CBC
 OMPUTE RATING CURVE ID=1      VS NO=1     NO SEGS=1
                     MIN EL=0   MAX EL=4
                     CH SLP=0.023    FP SLOPE=0.023
                     N=0.015       DIST=6.02
                     DIST   ELEV   DIST   ELEV    DIST   ELEV
                     0      4      0.01    0      6.01   0
                    6.02    4
 OUTE MCUNGE         ID=88  HYD=ST.6OUT   INFLOW ID=18   DT=0HR  L=60
                     NS=0  SLOPE=.023   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=88       CODE=10


 S  DIVIDE FLOW FROM 72" SD INTO 42" SD CAPACITY AND EXCESS TO SURGE POND
DIVIDE HYD           ID=30       Q=129        ID=21      HYD=maxflow42"SD
                                              ID=16      HYD=42"SDoverflow
 RINT HYD            ID=21      CODE=1


*S ROUTE THROUGH DUMMY POND TO EXTEND OUTPUT TIME
ROUTE RESERVOIR       ID=99   HYD=TEMP INFLOW ID=21 CODE=4.4
                     OUTFLOW (CFS)       STORAGE (AC-FT)   ELEV (FT)
                      0                  0                 5284
                      200                1                 5285
                      201                1.5               5286
                      202                1.6               5287
                      203                1.7               5288
                      204                1.8               5289
                      205                1.9               5290
                      206                2                 5291

 RINT HYD            ID=99  CODE=1



RINT HYD             ID=16      CODE=5


*S  ADD ST.6 AND I40 POND INFLOW
ADD HYD              ID=30   HYD=I40ST.6
                     ID=16      ID=88
 INT HYD             ID=30    CODE=10


*S* ROUTE FLOW THROUGH SURGE POND **
 S  SUBTRACTED CAPACITY OF THE PIPE (131CFS) FROM OUTFLOW TO ACCOUNT
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*S  FOR SURGE POND CONDITIONS
;  USED 42" PIPE
)UTE RESERVOIR          ID=88   HYD=98SURGE INFLOW ID=30 CODE=1
                       OUTFLOW (CFS)       STORAGE (AC-FT)   ELEV (FT)
                                0                0                5280
                                0.01             1.78             5281
                                0.02             3.67             5282
                                0.03             5.69             5283
                                0.04             7.83             5284
                                0.05             10.1             5285
                                0.06             12.5             5286
                                0.07             15.02            5287
                                0.08             17.68            5288
                                0.09             20.49            5289
                                0.1              23.44            5290
                                0.2              26.54            5291
                                1.0              29.79            5292
                                2.0              31.44            5292.5
 RINT HYD               ID=88  CODE=10
*S
*S  ADD SURGE FLOW OUTFLOW BACK TO SD FLOW

)D HYD                  ID=30 HYD=48INTOT ID I=99 ID II=88
RINT HYD                ID=30  CODE=10

*S**** FLOW REACHING IN8 ****
;*
)MPUTE NM HYD          ID=16 HYD NO=IN8 DA=0.00126
                       PER A=0 PER B=0 PER C=42.53 PER D=57.47
                       TP=0.133 RAIN=-1
PRINT HYD              ID=16 CODE=1

;* ADD FLOW FROM IN8 AND FLOW LEAVING THE SURGE POND
)D HYD                  ID=88  HYD=EATO
                        ID=16  ID=30
PRINT HYD               ID=88  CODE=1
*S
;*      ROUTE FLOW TO WHERE SD EMPTIES INTO CHANNEL
;*      ROUTE FLOW IN 48" SD PIPE
COMPUTE RATING CURVE   CID=1  VS NO=1   CODE=-1  SLOPE=0.0158
                       DIA=48 IN   N=.013
ROUTE MCUNGE           ID=30 HYD=RT98TH INFLOW ID=88 DT=0HR L= 2245
                       NS=0  SLOPE=0.0158   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD               ID=30 CODE=0



;**** COMPUTE BASIN ST.7 ****
;*
COMPUTE NM HYD         ID=17 HYD NO=ST.7 DA=0.129
                       PER A=0 PER B=5 PER C=5 PER D=90
                       TP=0.133 RAIN=-1
RINT HYD               ID=17 CODE=1


*S  ADD ST.7 AND 98TH STREET FLOW
)D HYD                ID=20   HYD=ST.7TOT
                      ID=17      ID=50
.RINT HYD             ID=20    CODE=1
*


;  ADD COMBINED FLOW TO ROUTED ST.5
;  TOTAL 98TH STREET BOXES INFLOW**
ADD HYD               ID=23   HYD=ST.6TOT
                      ID=20      ID=18
.INT HYD              ID=23    CODE=1



;  ROUTE OUTFLOW THRU 2- 10x8 CBC UNDER 98TH ST
   SLOPE OF 98TH ST CBC'S FROM SCANLON PLANS FOR I40 INTERCEPTOR
MPUTE RATING CURVE ID=1      VS NO=1      NO SEGS=1
                   MIN EL=0   MAX EL=8
                   CH SLP=0.022    FP SLOPE=0.022
                   N=0.015       DIST=20.03
                   DIST   ELEV   DIST   ELEV    DIST   ELEV
                   0      8      0.01   0       10.01  0
                   10.02  8      10.03  0       20.02  0
                   20.03  8
ROUTE MCUNGE       ID=2  HYD=98THSUM   INFLOW ID=23   DT=0HR  L=210
                   NS=0  SLOPE=.022   MATCODE=0  REGCODE=0  CCODE=0
:INT HYD           ID=2       CODE=10


*S  ROUTE FLOW FROM 98TH STREET BOXES THROUGH ST.8 TO I40 CHANNEL
   ROUTE FLOW THROUGH CONCRETE CHANNEL

COMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1  ELMIN=0  ELMAX=6
                    CH SLP=0.016  FP SLP=0.016   N=0.013   STA=34
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       6       12      0       22      0
```

```
                    34       6
 OUTE MCUNGE        ID=20  HYD=40BOX    INFLOW ID=2    DT=0HR  L=2000
                    NS=0  SLOPE=0.016    MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=20     CODE=10

*S*  ADD I-40 DIVERSION FLOW TO 98TH STREET BOXES OUTFLOW
 D HYD              ID=23   HYD=14098TH
                    ID=20      ID=30
 RINT HYD           ID=23     CODE=1
*S
*S  ROUTE FLOW FROM 98TH STREET POND THROUGH ST.8 THROUGH I40 CHANNEL
 S  ROUTE FLOW THROUGH CONCRETE CHANNEL

 OMPUTE RATING CURVE CID=1    VS NO=1    NO SEGS=1  ELMIN=0  ELMAX=6
                    CH SLP=0.016  FP SLP=0.016   N=0.013    STA=34
                    DIST     ELEV      DIST      ELEV      DIST      ELEV
                    0        6         12        0         22         0
                    34       6
 OUTE MCUNGE        ID=30  HYD=40POND    INFLOW ID=23   DT=0HR  L=1010
                    NS=0  SLOPE=0.016    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=30     CODE=10


 S**** COMPUTE BASIN ST.8 ****
*S*
COMPUTE NM HYD      ID=22 HYD NO=ST.8 DA=0.234
                    PER A=0.71 PER B=27.14 PER C=27.14 PER D=45.01
                    TP=0.177 RAIN=-1
 RINT HYD           ID=22 CODE=1

*S* ADD ST.8 TO I40 CHANNEL**

 D HYD              ID=31   HYD=40ST.8RT
                    ID=22      ID=30
PRINT HYD           ID=31     CODE=1
*


 S  ROUTE FLOW FROM ST.8 THROUGH ST.10 DOWN I40 CHANNEL TO UNSER BLVD.
COMPUTE RATING CURVE CID=1    VS NO=1    NO SEGS=1
                    ELMIN=0  ELMAX=10
                    CH SLP=0.016  FP SLP=0.016
                    N=.013    STA=34
                    DIST     ELEV      DIST      ELEV      DIST      ELEV
                    0        6         12        0         22        0
                    34       6
ROUTE MCUNGE        ID=30  HYD=RTST.8    INFLOW ID=31   DT=0HR  L=2000
                    NS=0  SLOPE=0.016    MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=30     CODE=10

*S**** COMPUTE BASIN ST.9 ****
*S*
 OMPUTE NM HYD      ID=23 HYD NO=ST.9 DA=0.1024
                    PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                    TP=0.182 RAIN=-1
PRINT HYD           ID=23 CODE=1

 S**** ROUTE BASIN ST.9 ALONG 60"SD THROUGH ST.12 ALONG LADERA ****

 OMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1  SLP=0.015
                    DIA=60 IN  N=0.013
ROUTE MCUNGE        ID=24    HYD=RTST.9  INFLOW ID=23    DT=0 HR  L=1983.43
                    NS=0     SLOPE=0.015     MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=24 CODE=1

*S**** COMPUTE BASIN ST.12 ****
*S*
 OMPUTE NM HYD      ID=25 HYD NO=ST.12 DA=0.0483
                    PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                    TP=0.133 RAIN=-1
PRINT HYD           ID=25 CODE=1

 S* ADD ROUTED ST.9 AND BASIN ST.12**
 D HYD              ID=26    HYD=ST9&12
                    ID=24       ID=25
PRINT HYD           ID=26     CODE=1

 S* ADD ROUTED ST.9 AND ST.12 FLOW TO POND #12 SPILLWAY**

 D HYD              ID=24     HYD=INLADD
                    ID=26     ID=37
PRINT HYD           ID=24     CODE=1


 S  ROUTE FLOW THROUGH PARKWAY SD TO UNSER
*S* ROUTE THROUGH CHANNEL
COMPUTE RATING CURVE CID=1    VS NO=1    NO SEGS=1
                    ELMIN=0  ELMAX=10
                    CH SLP=0.016  FP SLP=0.016
                    N=.013    STA=50
                    DIST     ELEV      DIST      ELEV      DIST      ELEV
                    0        10        20        0         30        0
                    50       10
 OUTE MCUNGE        ID=9  HYD=RTSPILL    INFLOW ID=24    DT=0HR  L=1215
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                    NS=0  SLOPE=0.016   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=9    CODE=10


*S**** COMPUTE BASIN ST.10 ****
 ;* BASIN ST.10 WAS DIVIDED INTO THREE PARTS.  ST.10A IS COMBINED WITH THE LADERA DIVERSION AND COMBINED INTO THE PARKWAY
 ).
 ;* ST.10B IS DIVERTED TO THE HANOVER SD.  ST.10C IS ROUTED TO THE UNSER POND.
*S*
*S* COMPUTE BASIN ST.10C
 OMPUTE NM HYD      ID=29 HYD NO=ST.10 DA=0.2788
                    PER A=10.36 PER B=25 PER C=25 PER D=39.64
                    TP=0.133 RAIN=-1
PRINT HYD           ID=29 CODE=1


 ;*  COMPUTE ST.10B
 ;*
COMPUTE NM HYD      ID=67 HYD NO=ST.10B DA=0.0520
                    PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                    TP=0.133 RAIN=-1
 RINT HYD           ID=67 CODE=1


*S  DIVIDE BASIN ST.10B
 ;* PUT 82CFS INTO THE HANOVER SD.  REMAINDER GOES TO PARKWAY SD
 IVIDE HYD          ID=67     Q=82
                    ID=49     HYD=HANOVER
                    ID=37     HYD=PARKWAY
PRINT HYD           ID=67 CODE=10


 ;*  COMPUTE BASIN ST.10A
COMPUTE NM HYD      ID=1      HYD=ST.10A   DA=0.0485 SQ MI
                    PER A=0   PER B=23.4   PER C=23.4    PER D=53.2
                    TP=0.133    RAIN=-1
 RINT HYD           ID=1       CODE=10

*S* ADD PORTION OF ST.10B AND ST.10A**
*
 DD HYD             ID=67    HYD= INLADD
                    ID=1    ID=37
 RINT HYD           ID=67    CODE=1


 ;*  COMBINE ST.10 FLOW WITH PARKWAY FLOW
 D HYD              ID=39    HYD= INLADD
                    ID=9    ID=67
PRINT HYD           ID=39    CODE=1

 ;* ROUTE THROUGH 84" PIPE TO I40 CHANNEL EAST OF UNSER

OMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1  SLP=0.0135
                    DIA=84 IN  N=0.013
ROUTE MCUNGE        ID=24   HYD=RTLAD  INFLOW ID=39   DT=0 HR  L=1477.52
                    NS=0    SLOPE=0.0135    MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=24 CODE=1


 ;* ADD ST.10 TO I40 CHANNEL**
 ;**** UNSER POND INFLOW ****
 .D HYD             ID=31     HYD=UNSERTOT
                    ID=29      ID=30
PRINT HYD           ID=31    CODE=10


 ;   ROUTE THROUGH UNSER POND FOR 790 CFS WEST MESA DIVERSION
*S   REVISED POND TO SET SPILLWAY CREST AT 5175.5  CWH 6/15/00
*S   OUTLET WORKS = 2 - 4' X 6' CBC'S UNDER UNSER BLVD.
 ;**** COPIED FROM WILSON MODEL **********
 ;* POND REDUCED BY FACTOR OF 0.62 OF ORIGINAL VOLUME CWH 6/15/00

ROUTE RESERVOIR     ID=1  HYD=UNSERPOND
                    INFLOW ID=31   CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                    37.67              0               5169
                    84.55              2.92            5169.5
                   142.57              5.76            5170
                   113.7               8.67            5170.5
                   261.05             11.64            5171
                   368.19             14.67            5171.5
                   457.77             17.75            5172
                   553.7              20.89            5172.5
                   565.38             24.08            5173
                   576.82             27.33            5173.5
                   588.04             30.63            5174
                   599.05             33.99            5174.5
                   620.49             37.41            5175
*                        0.0                  0.10             5169
                       6.0            0.88             5170
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*                    37.0          5.29          5171
                     66.0          7.62          5172
                     85.0          10.16         5173
                     128.0         12.86         5174
*                    169.0         15.74         5175
*                    198.0         18.80         5176
                     259.0         22.36         5177
                     318.0         26.79         5178
                     362.0         31.78         5179
*                    435.0         36.95         5180
*                    474.0         42.32         5181
                     497.0         47.88         5182
                     519.0         53.64         5183
                     540.0         59.62         5184
*                    561.0         65.81         5185
*                     1632.0        72.85         5186
                      3572.0        80.65         5187
                      6065.0        88.45         5188
                      9011.0        96.25         5189
*                    12357.0       104.04         5190
*
                   0               0.1           5169
                   32.16           0.88          5170
                   64.32           5.29          5171
*                  212.3           7.62          5172
*                  274.08          10.16         5173
                   324.28          12.86         5174
                   367.7           15.74         5175
                   406.52          18.8          5176
*                  441.92          22.36         5177
*                  474.7           26.79         5178
                   458.62          31.78         5179
                   490.28          36.95         5180
                   520.02          42.32         5181
*                  548.14          47.88         5182
*                  574.9           53.64         5183
                   600.46          59.62         5184

:INT HYD          ID=1   CODE=10

*S  ROUTE FLOW THROUGH  6x4 CBC  2 BARRELS UNDER UNSER BLVD
*   SLOPE OF UNSER CBC'S FROM SCANLON PLANS FOR I40 INTERCEPTOR
)MPUTE RATING CURVE ID=1      VS NO=1     NO SEGS=1  MIN EL=0   MAX EL=4
                    CH SLP=0.017  FP SLOPE=0.017 N=0.015     DIST=12.01
                    DIST   ELEV   DIST   ELEV    DIST   ELEV
                    0      4      0.01   0       12.0   0
                   12.01   4

)UTE MCUNGE       ID=28  HYD=PUNSRT   INFLOW ID=1   DT=0HR  L=210
                  NS=0  SLOPE=.017   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=28    CODE=10

;
;*****************************************************
;*****************************************************
*S* SECTION IS COPIED FROM WILSON MODEL FINAL_PU.HMI**
*****************************************************
;*****************************************************
;
; ROUTE DAM DISCHARGE IN UNSER STORM DRAIN TO LAURELWOOD OUTLET
COMPUTE RATING CURVE ID=1   VS NO=1
                  CODE=-1   SLP=.010
                  DIA=72    N=.013
)UTE MCUNGE       ID=72  HYD=610_4   INFLOW ID=28   DT=0HR  L=3200
                  NS=0  SLOPE=.010   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=72   CODE=10

;  COMPUTE OLF ABOVE AP 611A  NORTH SIDE OF I40 AT SPLITTER POND
)MPUTE NM HYD     ID=1  HYDNO=611.1  DA=.0141SQ MI
                  PER A=0   PER B=18    PER C=24    PER D=58
                  TP=-0.134   RAIN=-1
PRINT HYD         ID=1   CODE=10
; PARKWAY STORM DRAIN
; ADD BASIN 611 TO PARKWAY SD DISCHARGE
)D HYD             ID=92 HYD=108
                   ID=24 ID=1
PRINT HYD          ID=92 CODE=10

; ROUTE PARKWAY SD THROUGH PROPOSED LOWER SURGE BASIN
; 10 BOTTOM WEIR ELEV 5150-5155

*S  ROUTE OLF FROM PARKWAY SD TO 611B USING CHANNEL SECTION
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                  ELMIN=0  ELMAX=5.0
                  CH SLP=.005   FP SLP=.005
                  N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                  DIST    ELEV   DIST    ELEV    DIST    ELEV
                  0       5.0    15.0    0       45      0
                  60      5.0

ROUTE MCUNGE      ID=93  HYD=193  INFLOW ID=92 DT=0HR  L=650
                  NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=93   CODE=10
;
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*S  COMPUTE HYD FOR BASIN 611B
 OMPUTE NM HYD       ID=3  HYDNO=611.2   DA=0.0258 SQ MI
                     PER A=0   PER B=18    PER C=24    PER D=58
                     TP=-0.1409   RAIN=-1
PRINT HYD            ID=3   CODE=10

;
   ADD BASIN 611B TO ROUTED CHANNEL FLOW
ADD HYD               ID=16 HYD=116
                      ID=93 ID=3
PRINT HYD             ID=16 CODE=10

;
;  ROUTE FLOW FROM 611B TO 611C
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                     ELMIN=0  ELMAX=5.0
                     CH SLP=.005   FP SLP=.005
                     N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                     DIST    ELEV   DIST    ELEV    DIST    ELEV
                     0       5.0    15.0     0       45       0
                     60      5.0
 OUTE MCUNGE         ID=93  HYD=193.1  INFLOW ID=16 DT=0HR  L=600
                     NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=93   CODE=10

*S
;  COMPUTE HYD FOR BASIN 611C
 OMPUTE NM HYD       ID=4  HYDNO=611.3   DA=0.0156 SQ MI
                     PER A=0   PER B=18    PER C=24    PER D=58
                     TP=-0.1385    RAIN=-1
PRINT HYD            ID=4   CODE=10

;
; ADD 611C TO ROUTED FLOW FROM 611B
ADD HYD               ID=17 HYDNO=117
                      ID=93 ID=4
RINT HYD              ID=17 CODE=10
;
;  ROUTE FLOW FROM 611C TO 611D
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                     ELMIN=0  ELMAX=5.0
                     CH SLP=.005   FP SLP=.005
                     N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                     DIST    ELEV   DIST    ELEV    DIST    ELEV
                     0       5.0    15.0     0       45       0
                     60      5.0
ROUTE MCUNGE         ID=93  HYD=193.2  INFLOW ID=17 DT=0HR  L=500
                     NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=93   CODE=10
;S
*S  COMPUTE HYD FOR BASIN 611D
COMPUTE NM HYD       ID=5 HYDNO=611.4   DA=0.0114SQ MI
                     PER A=0   PER B=18    PER C=24    PER D=58
                     TP=-0.1300    RAIN=-1
,RINT HYD            ID=5   CODE=10
*S
*S ADD 611D TO ROUTED FLOW FROM 611C
 D HYD               ID=18 HYDNO=118
                     ID=5  ID=93
,RINT HYD            ID=18 CODE=10
*S
*S  ROUTE FLOW FROM 611D TO 617
 OMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                     ELMIN=0  ELMAX=5.0
                     CH SLP=.005   FP SLP=.005
                     N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                     DIST    ELEV   DIST    ELEV    DIST    ELEV
                     0       5.0    15.0     0       45       0
                     60      5.0
 OUTE MCUNGE         ID=93  HYD=193.3  INFLOW ID=18 DT=0HR  L=550
                     NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=93   CODE=10

;  COMPUTE HYD FOR BASIN 617A
 MPUTE NM HYD        ID=4  HYD=617  DA=.0082 SQ MI
                     PER A=0  PER B=33  PER C=12  PER D=55
                     TP=-0.1340    RAIN=-1
RINT HYD             ID=4   CODE=10

;
*S ADD 617A TO ROUTED FLOW FROM 611D
ADD HYD               ID=19 HYDNO=119
                      ID=4  ID=93
 INT HYD              ID=19 CODE=10
;
*S  ROUTE FLOW FROM 617A TO 617B
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                     ELMIN=0  ELMAX=5.0
                     CH SLP=.005   FP SLP=.005
                     N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                     DIST    ELEV   DIST    ELEV    DIST    ELEV
                     0       5.0    15.0     0       45       0
                     60      5.0
 OUTE MCUNGE         ID=93  HYD=193.3  INFLOW ID=19 DT=0HR  L=650
```

```
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=93   CODE=10
 ;
*S  COMPUTE HYD FOR BASIN 617B
COMPUTE NM HYD      ID=14  HYD=617_2  DA=.0031 SQ MI
                    PER A=0  PER B=33  PER C=12  PER D=55
                    TP=-0.1340    RAIN=-1
 RINT HYD           ID=14   CODE=10
 ;
*S  COMPUTE HYD FOR BASIN 617C - 72ND STREET ROW
COMPUTE NM HYD      ID=24  HYD=617_3  DA=.0032 SQ MI
                    PER A=0  PER B=60  PER C=30  PER D=10
                    TP=-0.1340    RAIN=-1
 RINT HYD           ID=24   CODE=10
*S
*S ADD BASIN 617B TO ROUTED FLOW FROM 617A
 D HYD              ID=21 HYDNO=120
                    ID=14 ID=93
 RINT HYD           ID=21 CODE=10
*S
*S ADD BASIN 617C TO ROUTED FLOW FROM 617A
 D HYD              ID=21 HYDNO=121
                    ID=24 ID=21
 RINT HYD           ID=21 CODE=10
*S
*S  ROUTE FLOW FROM 617B TO 619A
 MPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45      0
                    60      5.0
 UTE MCUNGE         ID=93  HYD=193.4  INFLOW ID=21 DT=0HR  L=1150
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=93   CODE=10

 ;*************************************************************************
*S       CALCULATE RUNOFF FOR BASINS EAST OF UNSER, SOUTH OF LADERA
*S                FLOWING TO LAUREL WOOD DETENTION POND
*S                              REGION D
 ;*************************************************************************
 ;
*S  COMPUTE HYD ABOVE AP 613   HANOVER RD  825' WEST OF LAURELWOOD PARKWAY
COMPUTE NM HYD      ID=6   HYD=613   DA=.050
                    PER A=0   PER B=19    PER C=20    PER D=61
                    TP=-0.1477    RAIN=-1
 RINT HYD           ID=6   CODE=10

*S  COMPUTE OLF ABOVE AP 614  HANOVER ROAD AND CHERRYWOOD LANE
COMPUTE NM HYD      ID=5   HYD=614   DA=.0192 SQ MI
                    PER A=0  PER B=20   PER C=21   PER D=59
                    TP=-0.1740    RAIN=-1
 RINT HYD           ID=5    CODE=10
*
*S  SEPARATE BASIN 613 SS FROM OLF
 VIDE HYD           ID=6     Q=98
                    ID=7     HYD=614_1   SS GOING EAST IN HANOVER
                    ID=8     HYD=614_2  OLF GOING EAST IN HANOVER
PRINT HYD           ID=7 CODE=10
**************************************************************************************
 *************************************************************************************
 *************************************************************************************
 ; ADD ROUTED SS FLOW FROM BASIN ST.10B TO FLOW IN SS
ADD HYD             ID=7 HYD=614_1A
                    ID=7  ID=49
 RINT HYD           ID=7 CODE=10

 ;  ROUTE SS DOWN HANOVER
COMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.0127
                    DIA=42   N=.013
 UTE MCUNGE         ID=2  HYD=614_3   INFLOW ID=7   DT=0HR  L=451
                    NS=0  SLOPE=.0127   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2   CODE=10
*
*S  ROUTE OLF DOWN HANOVER  MAJOR LOCAL STREET  40' FL-FL  60' ROW
 MPUTE RATING CURVE ID=1  VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=1.5
                    CH SLP=.0127  FP SLP=.0127
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0.0
                    50      .67     60      1       60.01   1.5
ROUTE MCUNGE        ID=3  HYD=614_4  INFLOW ID=8   DT=0HR  L=451
                    NS=0  SLOPE=.0127  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=3   CODE=10

*S  ADD ROUTED HYDS
ADD HYD             ID=4  HYD=614_5
                    ID=2  ID=3
 RINT HYD           ID=4  CODE=10
```

```
*
S  ADD ROUTED HYDS TO FLOW ABOVE AP 614
DD HYD              ID=6  HYD=614_6
                    ID=4  ID=5
PRINT HYD           ID=6  CODE=10
*S
S  COMPUTE OLF ABOVE AP 615  HANOVER RD AT LAURELWOOD PARKWAY
OMPUTE NM HYD       ID=7  HYD=615  DA=0.0813
                    PER A=0  PER B=21  PER C=22  PER D=57
                    TP=-0.1903    RAIN=-1
PRINT HYD           ID=7  CODE=10

S  ROUTE SS AND OLF FROM AP 614 DOWN HANOVER RD TO AP 615
IVIDE HYD           ID=6  Q=100
                    ID=8  HYD=615_1  SS GOING EAST IN HANOVER RD
                    ID=9  HYD=615_2 OLF GOING EAST IN HANOVER RD

S  ROUTE SS DOWN HANOVER
OMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.0132
                    DIA=42    N=.013
OUTE MCUNGE         ID=2  HYD=615_3  INFLOW ID=8   DT=0HR  L=379
                    NS=0  SLOPE=.0132  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=2   CODE=10
*
*S  ROUTE OLF DOWN HANOVER RD
OMPUTE RATING CURVE ID=1    VS NO=1   NO SEGS=3
                    ELMIN=0   ELMAX=1.5
                    CH SLP=.0132  FP SLP=.0132
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0
                    50      .67     60      1       60.01   1.5
ROUTE MCUNGE        ID=3  HYD=615_4  INFLOW ID=9   DT=0HR  L=379
                    NS=0  SLOPE=.0132  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=3   CODE=10

S  ADD OLF & SS
ADD HYD             ID=6   HYD=615_5
                    ID=2   ID=3
PRINT HYD           ID=6   CODE=10

IVIDE HYD           ID=6   Q=139
                    ID=8   HYD=615_6  SS IN HANOVER
                    ID=9   HYD=615_7 OLF IN HANOVER
*S  ROUTE SS IN HANOVER
OMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.0124
                    DIA=48    N=.013
ROUTE MCUNGE        ID=2  HYD=615_8  INFLOW ID=8   DT=0HR  L=380
                    NS=0  SLOPE=.0124  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=2   CODE=10
S  ROUTE OLF DOWN HANOVER
OMPUTE RATING CURVE ID=1   VS NO=1   NO SEGS=3
                    ELMIN=0   ELMAX=1.5
                    CH SLP=.0124  FP SLP=.0124
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0
                    50      .67     60      1       60.01   1.5
OUTE MCUNGE         ID=3  HYD=615_9  INFLOW ID=9   DT=0HR  L=380
                    NS=0  SLOPE=.0124  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=3   CODE=10
*
ADD HYD             ID=6   HYD=615_10
                    ID=2   ID=3
RINT HYD            ID=6   CODE=10

DIVIDE HYD          ID=6   Q=124
                    ID=8   HYD=615_11   SS GOING E IN HANOVER RD
                    ID=9   HYD=615_12  OLF GOING E IN HANOVER RD
 ROUTE SS
MPUTE RATING CURVE ID=1   VS NO=1
                   CODE=-1  SLP=.0099
                   DIA=48   N=.013
OUTE MCUNGE        ID=2  HYD=615_13  INFLOW ID=8   DT=0HR  L=131
                   NS=0  SLOPE=.0099  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD           ID=2   CODE=10
*S  ROUTE OLF
COMPUTE RATING CURVE ID=1 VS NO=1  NO SEGS=3
                   ELMIN=0  ELMAX=1.5
                   CH SLP=.008   FP SLP=.008
                   N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                   DIST    ELEV    DIST    ELEV    DIST    ELEV
                   0       1.5     .01     1       10      .67
                   10.01   0       30      .4      49.99   0
                   50      .67     60      1       60.01   1.5
UTE MCUNGE         ID=3  HYD=615_14  INFLOW ID=9   DT=0HR  L=131
                   NS=0  SLOPE=.0099  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=3   CODE=10
*
D HYD              ID=4   HYD=615_15
```

```
                    ID=2    ID=3
 RINT HYD           ID=4    CODE=10

*S  ADD ROUTED SS OLF TO OLF ABOVE AP 615
*S  TOTAL HYD AT AP 615   HANOVER RD AND LAURELWOOD PARKWAY
ADD HYD             ID=6    HYD=615_16
                    ID=4    ID=7
 RINT HYD           ID=6    CODE=10

*S  COMPUTE OLF ABOVE AP 616   LAURELWOOD DETENTION AREA
COMPUTE NM HYD      ID=5  HYD=616   DA=.1068 SQ MI
                    PER A=0  PER B=21  PER C=22  PER D=57
                    TP=-0.2659    RAIN=-1
 RINT HYD           ID=5    CODE=10
*
*S  ROUTE SS AND OLF FROM AP 615 TO AP 616 DOWN HANOVER RD
 S  SEPARATE SS FROM OLF AT AP 615
 IVIDE HYD          ID=6    Q=152
                    ID=7    HYD=616_1    SS GOING E TO LAURELWOOD DETENTION
                    ID=8    HYD=616_2  OLF GOING E TO HANOVER RD
*
 S  ROUTE SS FROM LAURELWOOD PARKWAY TO DETENTION AREA
 OMPUTE RATING CURVE ID=1  VS NO=1
                    CODE=-1   SLP=.008
                    DIA=54    N=.013
ROUTE MCUNGE        ID=2  HYD=616_3  INFLOW ID=7   DT=0HR  L=299
                    NS=0  SLOPE=.008  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=2    CODE=10

*S  ROUTE OLF FROM AP 615 AT HANOVER AND 72ND STREET
COMPUTE RATING CURVE ID=1   VS NO=1   NO SEGS=3
                    ELMIN=0  ELMAX=1.5
                    CH SLP=.008   FP SLP=.008
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0
                    50      .67     60      1       60.01   1.5
 OUTE MCUNGE        ID=3  HYD=616_4  INFLOW ID=8   DT=0HR  L=1150
                    NS=0  SLOPE=.008  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=3   CODE=10
*****************************************************************
 S* FOR REV_2D.HYM, PUT FLOW THROUGH LAURLWOOD POND INSTEAD OF DIVERT
*****************************************************************
*S  ADD ROUTED SS TO OLF ABOVE AP 616
*S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
ADD HYD             ID=5  HYD=TO_LARLPOND
                    ID=2   ID=5
 RINT HYD           ID=5  CODE=10
*S  ADD COMBINED TO ROUTED OLF
*S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
ADD HYD             ID=16  HYD=TO_LARLPOND
                    ID=3   ID=5
 RINT HYD           ID=16  CODE=10

*S ROUTE INFLOW HYD THROUGH LAURELWOOD DETENTION AREA
*S USING THE THE STAGE STORAGE CONTAINED IN THE DMP WHICH
 S EDITED STORAGE FOR POND TO REFLECT LAURELWOOD POND REGRADING
 S CALCS DONE BY F. KALISH 8/94.
 S MODIFIED DISCHARGE TO REFLECT NEW OULET AND PREVENT OVERTOPPING
*S ROUTE THRU 1-30" CULVERT AT BOTTOM AND 20' WEIR SPILLWAY AT ELEVATION 5
ROUTE RESERVOIR     ID=41
                    HYD=LARLPOND_OUT
                    INFLOW ID=16   CODE=10
                    OUTFLOW(CFS)  STORAGE(AC-FT)  ELEV(FT)
                    0               0             0
                    104.34          0.38          1
                    123.00          1.18          2
                    138.63          2.7           3
                    152.67          5.1           4
                    165.31          8.7           5
                    171.21         11.30          5.5
                    220            13.9           6
                    240            16.5           6.5
                    250            20.8           7
                    350            24.1           7.5
                    483            28.2           8
                    790            32.5           8.5
                        0.00            0.00            0
                        7.50            0.38            1
*                       15.00           1.18            2
*                       22.50           2.70            3
                        29.50           5.10            4
                        37.50           8.70            5
                        100.0           13.9            6
*                      0                0          5118
*                      1.0              8.96       5120
*                      16.88            17.91      5122
                       29.24            26.87      5124
                       37.50            35.82      5126
        ORIGINAL MODEL STAGE STORAGE
PRINT HYD           ID=41      CODE=10
*PUNCH HYD           ID=41
```

```
*S  ADD OUTFLOW HYD TO OLF GOING DOWN HANOVER RD
ADD HYD              ID=41   HYD=616_7
                     ID=3    ID=40
PRINT HYD            ID=41  CODE=10
*S


;*************************************************************************
;      CALCULATE RUNOFF FOR BASINS SOUTH OF I-40 DRAINING TO WEST BLUFF       *
*S                              REGION E
*S*************************************************************************
; REMOVED BASINS 510-516 FROM MODEL PER LATEST WEST MESA DIV (AUG 1996)
;
;  COMPUTE OLF ABOVE AP 517 WMDC AND BLUEWATER RD
COMPUTE NM HYD       ID=3     HYD=517  DA=0.0046 SQ MI
                     PER A=0  PER B=12  PER C=13  PER D=75
                     TP=-0.2383    RAIN=-1
PRINT HYD            ID=3     CODE=10

*
*S  ROUTE FLOW AT AP 517 TO AP 518 DOWN WMDC
; COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
;                     ELMIN=0    ELMAX=10.0
;                     CH SLP=.0012      FP SLP=.0012
*S                    N=.015  STA=50
*S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
;                     0       10        20      0           30      0
;                     50      10
; ROUTE MCUNGE         ID=2  HYD=518_1  INFLOW ID=3   DT=0HR  L=1900
*S                    NS=0  SLOPE=.0012  MATCODE=0  REGCODE=0  CCODE=0
*S PRINT HYD           ID=2       CODE=10
*
;  ROUTE FLOW FROM AP 517 TO AP 518 VIA 24 INCH PIPE
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=24  N=0.013
ROUTE MCUNGE         ID=2  HYD=518_1   INFLOW ID=3   DT=0HR  L=1900
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2    CODE=10

;
*S  COMPUTE OLF ABOVE AP 518 WMDC AND LOS VOLCANES RD
COMPUTE NM HYD       ID=3     HYD=518  DA=0.1037 SQ MI
                     PER A=0  PER B=10  PER C=15 PER D=75
                     TP=-0.4208    RAIN=-1
PRINT HYD            ID=3     CODE=10
*
*  ADD ROUTED FLOW FROM AP 517 TO OLF ABOVE AP 518
ADD HYD              ID=10      HYD=518_2
                     ID=2       ID=3
PRINT HYD            ID=10      CODE=10

*S  ROUTE FLOW FROM AP 518 TO AP 522 DOWN WMDC
*S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
;                     ELMIN=0    ELMAX=7.6
;                     CH SLP=.0012      FP SLP=.0012
;                     N=.015  STA=50
*S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
*S                    0       10        20      0           30      0
;                     50      10
; ROUTE MCUNGE        ID=2  HYD=522_1  INFLOW ID=10   DT=0HR  L=1130
;                     NS=0  SLOPE=.0012  MATCODE=0  REGCODE=0  CCODE=0
*S PRINT HYD          ID=2       CODE=10
*
;  ROUTE FLOW FROM AP 518 TO AP 522 VIA 66 INCH PIPE
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=66  N=0.013
OUTE MCUNGE          ID=2  HYD=522_1   INFLOW ID=10   DT=0HR  L=1130
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2    CODE=10

;
;  COMPUTE HYD ABOVE AP 521
COMPUTE NM HYD       ID=6     HYD=521  DA=0.0260 SQ MI
                     PER A=0  PER B=7  PER C=9  PER D=84
                     TP=-0.1632    RAIN=-1
INT HYD              ID=6     CODE=10

*  ADD ROUTED OLF FROM AP 521 TO WMDC
*S  TOTAL FLOW AT AP 521
OD HYD               ID=10      HYD=521_1
                     ID=2       ID=6
INT HYD              ID=10      CODE=10
*S
*S  COMPUTE OLF ABOVE AP 522  64TH ST AND FORTUNA RD
OMPUTE NM HYD        ID=4     HYD=522  DA=0.1223 SQ MI
                     PER A=0  PER B=12  PER C=17  PER D=71
                     TP=-0.4569    RAIN=-1
PRINT HYD            ID=4     CODE=10
*
*  ADD ROUTED OLF FROM AP 522 TO WMDC
D HYD                ID=13       HYD=522_2
                     ID=10      ID=4
PRINT HYD            ID=13      CODE=10
*S
*S  COMPUTE OLF ABOVE AP 519 AIRPORT RD AND FORTUNA RD
MPUTE NM HYD         ID=3     HYD=519  DA=0.0642 SQ MI
```

```
                    PER A=0  PER B=10  PER C=15  PER D=75
                    TP=-0.1541    RAIN=-1
 RINT HYD           ID=3     CODE=10

*S  ROUTE OLF FROM AP 519 TO AP 520 DOWN FORTUNA RD  40 FT FL TO FL
OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.01      FP SLP=.01
                    N=.025  STA=10    N=.017  STA=50.01   N=.025  STA=60.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         30      .4          50      0
                    50.01   .67       60      1           60.01   1.5
 OUTE MCUNGE        ID=2  HYD=520_1  INFLOW ID=3   DT=0HR  L=1780
                    NS=0  SLOPE=.01  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2       CODE=10
 ;
 ;  COMPUTE OLF ABOVE AP 520 FORTUNA RD W OF HIGH SCHOOL
 OMPUTE NM HYD      ID=4     HYD=520  DA=0.0815 SQ MI
                    PER A=0  PER B=23  PER C=19  PER D=58
                    TP=-0.3318    RAIN=-1
 RINT HYD           ID=4     CODE=10

   ADD ROUTED OLF FROM AP 519 TO OLF ABOVE AP 520
*S  TOTAL FLOW AT AP 520
ADD HYD             ID=5       HYD=520_2
                    ID=2       ID=4
 RINT HYD           ID=5       CODE=10

*S  ROUTE OLF AT AP 520 TO AP 522 DOWN FORTUNA RD
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.003      FP SLP=.003
                    N=.025  STA=10    N=.017  STA=50.01   N=.025  STA=60.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         30      .4          50      0
                    50.01   .67       60      1           60.01   1.5
 OUTE MCUNGE        ID=2  HYD=522_3  INFLOW ID=5   DT=0HR  L=1510
                    NS=0  SLOPE=.003  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2       CODE=10
*
   ADD ROUTED OLF FROM AP 520 TO  WMDC AT AP522
 ;  TOTAL HYD AT AP 522
ADD HYD             ID=13       HYD=522_4
                    ID=2       ID=13
PRINT HYD           ID=13       CODE=10


 ;  ROUTE FLOW THROUGH PROPOSED DETENTION POND AT FORTUNA
**S   SMITH ENGINEERING STAGE-DISCHARGE DATA, 48" ORIFICE
*ROUTE RESERVOIR     ID=15      HYD=WMD_POND
                    INFLOW ID=13   CODE=10
                    OUTFLOW(CFS)          STORAGE(AC FT)      ELEV(FT)
                        0                      0                 0
*                      10                    1.87               1
*                      24                    3.8                2
                       46                    6.2                3
                       71                    9.04               4
                       85                   11.6                5
*                     115                   14.8                6
*                     130                   18.0                7
                      145                   21.41               8
 ;  REVISED SMITH ENGR'S POND TO PRODUCE 790 CFS IN WMD AT I40.
 ;   ORIFICE = 2-66" PIPES.  FACTORED POND STORAGE BY 0.35
ROUTE RESERVOIR     ID=15      HYD=WMD_POND
                    INFLOW ID=13   CODE=10
                    OUTFLOW(CFS)          STORAGE(AC FT)      ELEV(FT)
                       0                      0                 0
                      20                    0.78               1
                      60                    1.60               2
                     120                    2.60               3
                     200                    3.79               4
                     280                    4.87               5
                     360                    6.22               6
                     425                    7.56               7
                     490                    9.00               8
 RINT HYD           ID=15      CODE=10
 ;
 ;  COMPUTE OLF ABOVE AP 524  UNSER DETENTION AREA
COMPUTE NM HYD      ID=3     HYD=524  DA=0.1219 SQ MI
                    PER A=0  PER B=0  PER C=62  PER D=38
                    TP=-0.2322    RAIN=-1
 RINT HYD           ID=3     CODE=10

*S  ROUTE INFLOW THRU UNSER DETENTION AREA, 24" ORIFICE
ROUTE RESERVOIR     ID=20          HYD=UNSER_POND
                    INFLOW ID=3   CODE=10
                    OUTFLOW(CFS)          STORAGE(AC FT)      ELEV(FT)
                        0                      0                 0
                        5                    1.5                 1
                       15                   5.05                 2
                       21                   9.45                 3
                       88                   14.4                 4
```

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                205                    20.1                5
RINT HYD          ID=20      CODE=10
S
S  COMPUTE OLF ABOVE AP 525
COMPUTE NM HYD    ID=3     HYD=525  DA=0.0493 SQ MI
                  PER A=0  PER B=0  PER C=61  PER D=39
                  TP=-0.1410    RAIN=-1
RINT HYD          ID=3     CODE=10

*S  ROUTE OUTFLOW FROM AP 524 TO AP 525
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
                  ELMIN=0    ELMAX=4
                  CH SLP=.0076      FP SLP=.0076
                  N=.03   STA=44
                  DIST    ELEV      DIST    ELEV        DIST    ELEV
                  0       4         12      0           32      0
                  44      4
OUTE MCUNGE       ID=2  HYD=525_1  INFLOW ID=20  DT=0HR  L=2400
                  NS=0  SLOPE=.0076  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=2       CODE=10
*
  ADD ROUTED OLF FROM AP 524 TO OLF ABOVE AP 525
S  TOTAL OLF AT AP 525
OD HYD            ID=4       HYD=525_2
                  ID=2       ID=3
PRINT HYD         ID=4       CODE=10
S
S  COMPUTE OLF ABOVE AP 526 W OF HIGH SCHOOL ON GLENRIO RD
OMPUTE NM HYD     ID=3     HYD=526  DA=0.0465 SQ MI
                  PER A=0  PER B=12  PER C=17  PER D=71
                  TP=-0.1579    RAIN=-1
RINT HYD          ID=3     CODE=10

S  ROUTE OLF AT AP 525 TO AP 526 DOWN GLENRIO RD   40 FT FL TO FL 60 FT ROW
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                  ELMIN=0    ELMAX=1.5
                  CH SLP=.0131      FP SLP=.0131
                  N=.025  STA=10    N=.017  STA=50.01   N=.025  STA=60.01
                  DIST    ELEV      DIST    ELEV        DIST    ELEV
                  0       1.5       .01     1           10      .67
                  10.01   0         30      .4          50      0
                  50.01   .67       60      1           60.01   1.5
OUTE MCUNGE       ID=2  HYD=526_1  INFLOW ID=4   DT=0HR  L=1600
                  NS=0  SLOPE=.0131  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=2       CODE=10
*
*  ADD ROUTED OLF FROM AP 525 TO OLF ABOVE AP 526
OD HYD            ID=8       HYD=526_2
                  ID=2       ID=3
RINT HYD          ID=8       CODE=10
*
*S  ROUTE OLF FROM AP 526 TO AP 528 DOWN GLENRIO RD  40 FT FL TO FL 60 FT ROW
OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                  ELMIN=0    ELMAX=1.5
                  CH SLP=.003       FP SLP=.003
                  N=.025  STA=10    N=.017  STA=50.01   N=.025  STA=60.01
                  DIST    ELEV      DIST    ELEV        DIST    ELEV
                  0       1.5       .01     1           10      .67
                  10.01   0         30      .4          50      0
                  50.01   .67       60      1           60.01   1.5
ROUTE MCUNGE      ID=2  HYD=528_1  INFLOW ID=8   DT=0HR  L=1550
                  NS=0  SLOPE=.003  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD          ID=2       CODE=10
S
S  COMPUTE OLF ABOVE AP 528  64TH ST AND GLENRIO RD
COMPUTE NM HYD    ID=4     HYD=528  DA=0.0344 SQ MI
                  PER A=0  PER B=13  PER C=18  PER D=69
                  TP=-0.3578    RAIN=-1
RINT HYD          ID=4     CODE=10

*  ADD ROUTED OLF FROM AP 526 TO OLF ABOVE AP 528
ADD HYD           ID=6       HYD=528_2
                  ID=2       ID=4
RINT HYD          ID=6       CODE=10

*S  COMPUTE OLF ABOVE AP 527  WEST MESA HIGH SCHOOL AT 64TH AND GLENRIO
COMPUTE NM HYD    ID=1     HYD=527  DA=0.0531 SQ MI
                  PER A=0  PER B=21  PER C=29  PER D=50
                  TP=-0.6130    RAIN=-1
RINT HYD          ID=1     CODE=10
*
*  ADD OLF FROM AP 527 TO AP 528
*S  TOTAL FLOW AT AP 528 BEFORE ROUTING FLOW AT AP 522 TO AP 528
OD HYD            ID=7       HYD=528_3
                  ID=1       ID=6
PRINT HYD         ID=7       CODE=10
*
*S  ROUTE FLOW FROM WMD_POND TO AP 528  NORTH IN WMDC
S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
S                 ELMIN=0    ELMAX=11.4
*S                CH SLP=.0015      FP SLP=.0015
*S                N=.015   STA=14.02
*S                DIST    ELEV      DIST    ELEV        DIST    ELEV
S                 0       12        .01     0           14.01   0
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```
*S                    14.02   12
 S ROUTE MCUNGE       ID=2  HYD=528_4  INFLOW ID=15   DT=0HR  L=1100
 S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
 S PRINT HYD          ID=2       CODE=10
*
*S  ROUTE FLOW FROM WMD_POND TO AP 528 VIA 90 INCH PIPE
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=90  N=0.013
OUTE MCUNGE          ID=2  HYD=528_4   INFLOW ID=15   DT=0HR  L=1100
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2    CODE=10
*
 S  TOTAL HYD IN WMDC AT AP 528  WEST MESA DIVERSION AND GLENRIO RD
DD HYD               ID=10      HYD=528_5
                     ID=7       ID=2
PRINT HYD            ID=10      CODE=10
*S
 S  COMPUTE OLF ABOVE AP 529  YELLOW FREIGHT AT HANOVER RD
 S  REVISED AREA 7/30/96. OLD WAS .0175; NEW=.0264
OMPUTE NM HYD        ID=9     HYD=529  DA=0.0264 SQ MI
                     PER A=0  PER B=4  PER C=28  PER D=68
                     TP=-0.1830    RAIN=-1
RINT HYD             ID=9     CODE=10
 S
 S  COMPUTE HYD FOR BASIN 532  I40 BASIN
COMPUTE NM HYD       ID=4     HYD=532   DA=0.0328 SQ MI
                     PER A=0  PER B=0  PER C=77  PER D=23
                     TP=-0.363    RAIN=-1
RINT HYD             ID=4     CODE=10
 S
*S  COMPUTE OLF ABOVE AP 530  64TH ST AND HANOVER RD
COMPUTE NM HYD       ID=5     HYD=530  DA=0.0865 SQ MI
                     PER A=0  PER B=5  PER C=5  PER D=90
                     TP=-0.3947    RAIN=-1
RINT HYD             ID=5     CODE=10
*
*  ADD 532 & 530
ADD HYD              ID=5       HYD=530_1
                     ID=4       ID=5
RINT HYD             ID=5       CODE=10
*
*S  ROUTE OLF FROM AP 529 TO AP 530 W IN HANOVER RD ASSUME 42" SS
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                     SLP=.004  DIA=42   N=.013
OUTE MCUNGE          ID=2  HYD=530_2  INFLOW ID=9   DT=0HR  L=650
                     NS=0  SLOPE=.004  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2       CODE=10
*
 S  ROUTE OLF FROM AP 530 E IN HANOVER TO 64TH ST ASSUME 48" SS
OMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                     SLP=.006  DIA=48   N=.013
ROUTE MCUNGE         ID=3  HYD=530_3  INFLOW ID=5   DT=0HR  L=550
                     NS=0  SLOPE=.006  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=3       CODE=10

 S  ADD ROUTED FLOWS FROM AP 529 AND AP 530
ADD HYD              ID=4       HYD=530_4
                     ID=2       ID=3
RINT HYD             ID=4       CODE=10

 S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMDC  ASSUME VERT WALLS  12 FT BOTTOM
*S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
*S                    ELMIN=0    ELMAX=11.4
 S                    CH SLP=.0015      FP SLP=.0015
 S                    N=.015   STA=14.02
 S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
*S                    0       12        .01     0           14.01   0
*S                    14.02   12
 S ROUTE MCUNGE       ID=8  HYD=530_5  INFLOW ID=10   DT=0HR  L=1100
 S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
 S PRINT HYD          ID=8       CODE=10
*
*S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMD VIA 102 INCH PIPE
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=102  N=0.013
OUTE MCUNGE          ID=8  HYD=530_5   INFLOW ID=10   DT=0HR  L=1100
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=8    CODE=10
*
*  ADD ROUTED HYDS AT AP 530
 D HYD               ID=10      HYD=530_6
                     ID=8       ID=4
PRINT HYD            ID=10      CODE=10
*S
*S  COMPUTE OLF ABOVE AP 403 COORS BLVD AND HANOVER RD
 S  REVISED AREA 7/30/96. OLD WAS .0355; NEW=.0100
OMPUTE NM HYD        ID=5    HYD=403  DA=0.0100 SQ MI
                     PER A=0  PER B=13  PER C=3  PER D=84
                     TP=-0.1630    RAIN=-1
PRINT HYD            ID=5     CODE=10

 S  TOTAL FLOW IN WMDC AT AP 530  64TH ST AND HANOVER RD
ADD HYD              ID=10      HYD=530_7
                     ID=5       ID=10
PRINT HYD            ID=10      CODE=10
 S
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*S  COMPUTE OLF ABOVE AP 531  WMDC AT I-40 CULVERTS
 )MPUTE NM HYD       ID=3      HYD=531  DA=0.0181 SQ MI
                     PER A=0  PER B=0  PER C=77  PER D=23
                     TP=-0.1791    RAIN=-1
PRINT HYD            ID=3      CODE=10
*
 ;  ROUTE FLOW AT AP 530 TO AP 531  N IN WMDC
 ; COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
                     ELMIN=0    ELMAX=11.4
*S                   CH SLP=.0015       FP SLP=.0015
*S                   N=.015   STA=14.02
                     DIST    ELEV       DIST    ELEV         DIST    ELEV
                     0       12         .01     0            14.01   0
                     14.02   12
*S ROUTE MCUNGE      ID=2  HYD=531_1  INFLOW ID=10   DT=0HR  L=2080
*S                   NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
 ; PRINT HYD         ID=2       CODE=10

 ;  ROUTE FLOW AT AP 530 TO AP 531 N IN WMD VIA 120 INCH PIPE
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=120  N=0.013
ROUTE MCUNGE         ID=2  HYD=531_1   INFLOW ID=10   DT=0HR  L=2080
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
 :INT HYD            ID=2    CODE=10
 ;
*S  COMPUTE OLF ABOVE AP 404 ESTANCIA DR AND ILIFF RD
*S  REVISED AREA 7/30/96. OLD WAS .0538; NEW=.0274
 )MPUTE NM HYD       ID=5    HYD=404  DA=0.0274 SQ MI
                     PER A=0  PER B=13  PER C=3  PER D=84
                     TP=-0.5920    RAIN=-1
PRINT HYD            ID=5     CODE=10
*
*  ADD TO ROUTED FLOW
 )D HYD              ID=2      HYD=531_1.5
                     ID=5       ID=2
PRINT HYD            ID=2      CODE=10
*
*  ADD ROUTED FLOW FROM AP 530 TO OLF ABOVE AP 531
 ;  TOTAL FLOW AT AP 531 WMDC ENTERING I-40 CULVERTS
 )D HYD              ID=33      HYD=531_2
                     ID=2       ID=3
PRINT HYD            ID=33      CODE=10
PL.OT HYD            ID=33  ID=0   Q SCALE=3000  T SCALE=6


 ;  ROUTE FLOW THRU I-40 BOX CULVERTS  2-10 BY 12
*S  TOTAL ROUTED OLF FROM WMDC ENTERING I-40 INTERCEPTOR
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
                     ELMIN=0    ELMAX=12
                     CH SLP=.0028       FP SLP=.0028
                     N=.015   STA=20.02
                     DIST    ELEV       DIST    ELEV         DIST    ELEV
                     0       12         .01     0            20.01   0
                     20.02   12
 )UTE MCUNGE         ID=42  HYD=531_3  INFLOW ID=33   DT=0HR  L=400
                     NS=0  SLOPE=.0028  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=42      CODE=10
*S


 **********************************************************************
*    OMITTED REGION F  WITH BASINS 501 THROUGH 509 BECAUSE            *
* TOTAL FLOW AT 509 GOES TO AMOLE DOES NOT CONTRIBUTE TO WB OUTFALL *
 **********************************************************************
 **********************************************************************
    OMITTED REGION G  WITH BASINS 301 AND 302 BECAUSE                 *
*     THEIR TOTAL FLOW DOES NOT CONTRIBUTE TO WB OUTFALL              *
**********************************************************************
 **********************************************************************
         OMITTED REGION H BASINS 401 & 402 BECAUSE
      THEIR TOTAL FLOW DOES NOT CONTRIBUTE TO WB OUTFALL              *
**********************************************************************
*
*-
 ***************************************************************************
       CALCULATE RUNOFF FOR BASINS NORTHWEST OF PONDS 13 THROUGH 14          *
*S                          REGION I                                        *
*S*************************************************************************
* RAINFALL FOR LADERA BASINS NOT INCLUDING ABOVE DAM #12, SAME AS W BLUFF RAIN


*S  ROUTE DAM #12 OUTFLOW THRU CHANNEL TO UNSER BOX CULVERTS
COMPUTE RATING CURVE ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104
                     CH SLP=0.0016 FP SLP=0.0016  N=0.030 DIST=144 FT
                     DIST  ELEV     DIST  ELEV
                       0    106      12    100
                     132    100     144    106
 OUTE MCUNGE         ID=8  HYD=L13.1_1  INFLOW ID=38   DT=0HR  L=1300
                     NS=0  SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
  INT HYD            ID=8 CODE =10
 ;
*S  COMPUTE HYDROGRAPH FOR BASIN L13.1
COMPUTE NM HYD       ID=3      HYD=L13.1   DA=0.1313 SQ MI
                     PER A=0  PER B=26  PER C=30  PER D=44
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                    TP=-0.222     RAIN=-1
 RINT HYD           ID=3 CODE=10

 ;  ADD L13.1 FLOW TO CHANNEL BEFORE UNSER BOX CULVERTS -- TOTAL INTO DAM#13
ADD HYD             ID=13  HYD=TO_DAM13  ID=3 ID=8
PRINT HYD           ID=13 CODE=10

 ;  ROUTE FLOW THRU DAM #13
   OUTFLOW UPSIZED TO 7- 54" RCP'S
ROUTE RESERVOIR     ID=6 HYD=POND13
                    INFLOW ID=13    CODE=10
                    OUTFLOW (CFS)   STORAGE (AC FT)    ELEVATION (FT)
                          0              0                  5184
                         70.            3.15                5185
                         315.           9.76                5187
                         595           16.79                5189
                         825           24.22                5191
                         1020          32.08                5193
                         1070          34.16                5193.5
                         1340          36.23                5194
                         5272          51.45                5197.5
 RINT HYD           ID=6 CODE=10

 ;  ROUTE OUTFLOW THRU CHANNEL PART WAY TO DAM #14
*   CHANNEL W/GABION DROP STRUCTURES
COMPUTE RATING CURVE ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104
                    CH SLP=0.0016 FP SLP=0.0016  N=0.040  DIST=124
                    DIST   ELEV    DIST   ELEV
                     0     106      12     100
                    112    100     124     106
ROUTE MCUNGE        ID=4  HYD=L14.8_1  INFLOW ID=6   DT=0HR  L=2100
                    NS=0  SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=4  CODE=10
 ;
*S  COMPUTE HYDROGRAPH FOR BASIN L14.8
*   WAS BASIN 130 IN DAM15 STUDY
 OMPUTE NM HYD      ID=3 HYD=L14.8  DA=0.1906 SQ MI
                    PER A=0  PER B=7  PER C=37  PER D=56
                    TP=-0.208    RAIN=-1
RINT HYD            ID=3 CODE=10
*
*S  ADD BASIN L14.8 TO CHANNEL FLOW
 D HYD              ID=5 HYD=L14.8_2
                    ID=3   ID=4
RINT HYD            ID=5 CODE=10
*
*S  ROUTE TOTAL FLOW REST OF WAY THRU CHANNEL TO DAM 14
   CHANNEL W/GABION DROP STRUCTURES
 MPUTE RATING CURVE ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104.25
                    CH SLP=0.0016 FP SLP=0.0016  N=0.040  DIST=124
                    DIST   ELEV     DIST   ELEV
                     0      106      12     100
                    112     100     124     106
 UTE MCUNGE         ID=16  HYD=L14.8_3  INFLOW ID=5   DT=0HR  L=2100
                    NS=0  SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=16 CODE=10
*S
 ;  FROM ABOVE ESCARPMENT -- L14 BASINS

 SEDIMENT BULK        CODE=1   BULK FACTOR=1.08
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L14.1
 MPUTE NM HYD       ID=1      HYD=L14.1   DA=0.4984 SQ MI
                    PER A=91  PER B=4  PER C=5  PER D=0
                    TP=-0.380    RAIN=-1
PRINT HYD           ID=1       CODE=10
*S
 ;  COMPUTE HYDROGRAPH FOR BASIN L14.2
 MPUTE NM HYD       ID=2      HYD=L14.2   DA=0.3188 SQ MI
                    PER A=79  PER B=8  PER C=13  PER D=0
                    TP=-0.345    RAIN=-1
PRINT HYD           ID=2       CODE=10

 ;  ADD L14.1 TO L14.2
 D HYD              ID=3     HYD=L14.3_1
                    ID=1     ID=2
PRINT HYD           ID=3     CODE=10
*C
 ;  ROUTE L14.1 & L14.2 HYD THRU L14.3
   FIRST PART OF ROUTE IS IN PETROGLYPH NM.  ASSUME TYPICAL CROSS SECTION D
OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=5.0
                    CH SLP=0.0229 FP SLP=0.0229
                    N=0.030       DIST=400
                    DIST    ELEV    DIST    ELEV
                    0       5       130      2      140     0
                    260     0       270      2      400     5
OUTE MCUNGE         ID=20  HYD=L14.3_2  INFLOW ID=3  DT=0HR  L=3150
                    NS=0   SLOPE=.0229  MATCODE=0  REGCODE=0  CCODE=0
   LAST PART OF ROUTE IS IN EXISTING CONC CHANNEL.
OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=6
                    CH SLP=0.0229 FP SLP=0.0229
                    N=0.015       DIST=130
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                    DIST    ELEV    DIST    ELEV
                    0       6       50      5       60      0
                    70      0       80      5       130     6
ROUTE MCUNGE        ID=4  HYD=L14.3_2  INFLOW ID=20  DT=0HR  L=2050
                    NS=0   SLOPE=.0229  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=4 CODE=10

  SEDIMENT BULK       CODE=1   BULK FACTOR=1.058

*S  COMPUTE HYDROGRAPH FOR BASIN L14.3
*   WAS BASIN 131 IN DAM15 STUDY
COMPUTE NM HYD      ID=3 HYD=L14.3  DA=0.1813 SQ MI
                    PER A=27  PER B=25  PER C=29  PER D=19
                    TP=-0.199    RAIN=-1
PRINT HYD           ID=3 CODE=10
*
*  ADD L14.3 TO (L14.1,2)
ADD HYD             ID=5 HYD=L14.3_3  ID=3  ID=4
PRINT HYD           ID=5 CODE=10
*
* SEDIMENT BULK       CODE=1   BULK FACTOR=1.032

*  COMPUTE HYDROGRAPH FOR BASIN L14.4
   WAS BASIN 132.1 IN DAM15 STUDY
COMPUTE NM HYD      ID=3 HYD=L14.4  DA=0.0469 SQ MI
                    PER A=4  PER B=28  PER C=22  PER D=46
                    TP=-0.133    RAIN=-1
PRINT HYD           ID=3 CODE=10

*S  ADD L14.4 TO (L14.1-3)
ADD HYD             ID=7 HYD=L14.4_1   ID=3  ID=5
PRINT HYD           ID=7 CODE=10

*  ROUTE FLOW THRU 3-10'x4'x175'  CBC HW/D=1.5
COMPUTE RATING CURVE ID=1 VS NO=1 NO SEG=1 MIN EL=100 MAX EL=104
                    CH SLP=0.00214 FP SLP=0.00214  N=0.015  DIST= 30.06
                    DIST   ELEV     DIST   ELEV    DIST     ELEV
                    0.00    104     0.01    100    10.01     100
                    10.02   104    10.03    100    20.03     100
                    20.04   104    20.05    100    30.05     100
                    30.06   104
ROUTE MCUNGE        ID=8  HYD=L14.4_2   INFLOW ID=7  DT=0HR  L=175
                    NS=0   SLOPE=.00214  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=8 CODE=10

* SEDIMENT BULK       CODE=1   BULK FACTOR=1.028
*S
*  COMPUTE HYDROGRAPH FOR BASIN L14.5
    BASIN L14.5 = BASINS 130.2 + 130.3 FROM NW MESA DMP
COMPUTE NM HYD      ID=1      HYD=L14.5   DA=0.0828 SQ MI
                    PER A=6  PER B=29  PER C=31  PER D=34
                    TP=-0.133    RAIN=-1
PRINT HYD           ID=1       CODE=10

*  ROUTE L14.5 THRU BASIN L14.6 VIA 98TH STREET
*   USED LADERA DR STREET SECTION
COMPUTE RATING CURVE ID=1   VS NO=1   NO SEGS=3
                    ELMIN=0   EL MAX=1.5
                    CH SLP=.0121   FP SLP=.0121
                    N=.025   STA=10    N=.017   STA=96   N=.025   STA=106.01
                    DIST     ELEV      DIST      ELEV     DIST     ELEV
                    0        1.5       .01       1        10       .67
                    10.01    0         34        .48      34.01    .98
                    53       1.36      72        .98      72.01    .48
                    95.99    0         96        .67      106      1.5
                    106.01   1.5
ROUTE MCUNGE        ID=50  HYD=L14.6_1  INFLOW ID=1   DT=0HR  L=2250
                    NS=0  SLOPE=.0121  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=50   CODE=10

* SEDIMENT BULK       CODE=1   BULK FACTOR=1.025
*S
*  COMPUTE HYDROGRAPH FOR BASIN L14.6
   WAS BASIN 130.1 IN DAM15 STUDY
COMPUTE NM HYD      ID=6 HYD=L14.6  DA=0.0438 SQ MI
                    PER A=0  PER B=22  PER C=22  PER D=56
                    TP=-0.156    RAIN=-1
PRINT HYD           ID=6  CODE=10

*  ADD L14.6 & ROUTED L14.5
ADD HYD             ID=3       HYD=L12.6_2
                    ID=50      ID=6
PRINT HYD           ID=3       CODE=10

*  ROUTE FLOW THRU INLET TO  48" PIPE
ROUTE RESERVOIR     ID=2 HYD=L14.4_3  INFLOW ID=3 CODE=10
                    OUTFLOW(CFS)   STORAGE(AC FT)   DEPTH(FT)
                         0              0              0
                       127.8            0.1            0.1
                       127.9           14.9            5.9
                       128.0           15.0            6.0
*S  ROUTE THRU 900' OF 48" RCP PIPE
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.00686 DIA=48. N=0.013
ROUTE MCUNGE        ID=7  HYD=L14.4_4  INFLOW ID=2  DT=0HR  L=900
```

```
                    NS=0    SLOPE=.00686  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=7 CODE=10

 S  TOTAL FLOW FROM L14.1-4,6 INTO LADERA CHANNEL
ADD HYD             ID=4 HYD=L14.7_1   ID=7  ID=8
PRINT HYD           ID=4 CODE=10

 ;  ROUTE FLOW DOWN LADERA CHANNEL
    CHANNEL W/GABION DROP STRUCTURES
COMPUTE RATING CURVE ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104.25
                    CH SLP=0.0016 FP SLP=0.0016  N=0.040 DIST=100
                    DIST   ELEV      DIST   ELEV
                     0      110        20    100
                    80      100       100    110
ROUTE MCUNGE        ID=5  HYD=L14.7_2  INFLOW ID=4  DT=0HR  L=3000
                    NS=0   SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=5 CODE=10
 ;
 ;  COMPUTE HYDROGRAPH FOR BASIN L14.7
*  WAS BASIN 132 IN DAM15 STUDY
COMPUTE NM HYD      ID=3 HYD=L14.7  DA=0.0891 SQ MI
                    PER A=0  PER B=8  PER C=20  PER D=72
                    TP=-0.196    RAIN=-1
 RINT HYD           ID=3 CODE=10
*
*S  ADD TO FLOW IN LADERA CHANNEL
 D HYD              ID=4 HYD=L14.7_3   ID=3  ID=5
 RINT HYD           ID=4 CODE=10

 S  FLOW (FROM BASINS L14.1-4 AND L14.6,7) INTO DAM #14
ADD HYD             ID=20 HYD=L14.7_4    ID=4  ID=16
RINT HYD            ID=20 CODE=10
 ;
 ;*************************************************************************
*S    CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA PONDS 13 THROUGH 14     *
*S                              REGION J                                      *
*S*************************************************************************
  RAINFALL FOR LADERA BASINS NOT INCLUDING ABOVE DAM #12, SAME AS W BLUFF RAIN

 S
*S  COMPUTE HYD ABOVE AP 201 NORTH OF CL OF LADERA DR
COMPUTE NM HYD      ID=10  HYD=201.3  DA=0.0172 SQ MI
                    PER A=0   PER B=12  PER C=37  PER D=51
                    TP=-0.1333    RAIN=-1
RINT HYD            ID=10      CODE=10
*S
*S  COMPUTE HYD ABOVE AP 201 SOUTH OF CL OF LADERA DR
 MPUTE NM HYD       ID=11  HYD=201.4 DA=0.0032 SQ MI
                    PER A=0   PER B=4   PER C=1  PER D=95
                    TP=-0.1333    RAIN=-1
PRINT HYD           ID=11      CODE=10
*S
 ;  COMPUTE HYD ABOVE AP 202 NORTH OF CL OF LADERA DR
 MPUTE NM HYD       ID=8   HYD=202.3 DA=0.0257 SQ MI
                    PER A=0  PER B=17  C=29  PER D=54
                    TP=-0.1450    RAIN=-1
PRINT HYD           ID=8       CODE=10
 ;
 ;  COMPUTE HYD ABOVE AP 202 SOUTH OF CL OF LADERA DR
 MPUTE NM HYD       ID=9  HYD=202.4 DA=0.0031 SQ MI
                    PER A=0  PER B=4  PER C=1  PER D=95
                    TP=-0.1333    RAIN=-1
 INT HYD            ID=9       CODE=10

 ;  ROUTE SS AND OLF FROM AP 201 TO AP 202 (THRU 202.3-202.4)
*S  DIVIDE SS FROM HYD AT AP 201 NORTH OF CL OF LADERA DR
DIVIDE HYD          ID=10       Q=26
                    ID=5        HYD=202_6 SS GOING NORTH IN LADERA DR
                    ID=6        HYD=202_7 OLF GOING NORTH IN LADERA DR

*S  ROUTE SS NORTH IN LADERA DR
COMPUTE RATING CURVE ID=1     VS NO=1     CODE=-1
                    SLP=.0172    DIA=24   N=.013
 UTE MCUNGE         ID=2  HYD=202_8  INFLOW ID=5  DT=0HR  L=1560
                    NS=0   SLOPE=.0172  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2       CODE=10
*
*S  ROUTE OLF FROM AP 201 TO AP 202 NORTH SIDE OF LADERA DR
 MPUTE RATING CURVE ID=1    VS NO=1     NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0169        FP SLP=.0169
                    N=.025  STA=9     N=.017  STA=33.32   N=.025  STA=43.32
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           9       .67
                    9.01    0         33.31   .5          33.32   1.17
                    43.32   1.5
ROUTE MCUNGE        ID=3  HYD=202_9  INFLOW ID=6  DT=0HR  L=1300
                    NS=0   SLOPE=.0169  MATCODE=0  REGCODE=0  CCODE=0
 INT HYD            ID=3       CODE=10

 S  ADD OLF ABOVE AP 202 TO ROUTED HYD FROM AP 201 NORTH SIDE LADERA DR
ADD HYD             ID=5       HYD=202_1
                    ID=3       ID=8
 INT HYD            ID=5       CODE=10
```

```
*
S  ROUTE HYD FROM AP 201 (SOUTH SIDE) TO AP 202 SOUTH SIDE OF LADERA DR
OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0169        FP SLP=.0169
                    N=.025  STA=9     N=.017  STA=33.32   N=.025  STA=43.32
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           9       .67
                    9.01    0         33.31   .5          33.32   1.17
                    43.32   1.5
OUTE MCUNGE         ID=3  HYD=202_2  INFLOW ID=11  DT=0HR  L=1300
                    NS=0   SLOPE=.0169  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=3       CODE=10
*S
ADD HYD             ID=4       HYD=202_3
                    ID=3       ID=9
RINT HYD            ID=4       CODE=10
S  TOTAL HYD AT AP 202 NORTH SIDE OF LADERA DR
ADD HYD             ID=6       HYD=202_4
                    ID=2       ID=5
RINT HYD            ID=6       CODE=10
S
S  COMPUTE HYD ABOVE AP 203  72ND AT LADERA DR
COMPUTE NM HYD      ID=1    HYD=203   DA=0.0248 SQ MI
                    PER A=0  PER B=31  PER C=31  PER D=38
                    TP=-0.1333    RAIN=-1
RINT HYD            ID=1       CODE=10
S
*S  COMPUTE HYD ABOVE AP 204 LADERA DR AT 72ND NORTH SIDE
COMPUTE NM HYD      ID=3   HYD=204.3   DA=0.0152 SQ MI
                    PER A=0  PER B=16  PER C=30   PER D=54
                    TP=-0.1333    RAIN=-1
RINT HYD            ID=3       CODE=10
*S
*S  COMPUTE HYD ABOVE AP 204 SOUTH SIDE
OMPUTE NM HYD       ID=5   HYD=204.4   DA=0.0025 SQ MI
                    PER A=0  PER B=4  PER C=1  PER D=95
                    TP=-0.1333   RAIN=-1
RINT HYD            ID=5       CODE=10
*
*S  ROUTE HYDS FROM AP 202 TO AP 204 NORTH SIDE
 DIVIDE SS FROM OLF AT AP 202
VIDE HYD            ID=6       Q=30
                    ID=10      HYD=204_5 SS GOING NORTH IN LADERA DR
                    ID=11      HYD=204_6 OLF GOING NORTH IN LADERA DR N CL
*
S  ROUTE SS FROM AP 202 TO AP 204
MPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                    SLP=.0069    DIA=30   N=.013
ROUTE MCUNGE        ID=2  HYD=204_7  INFLOW ID=10  DT=0HR  L=1670
                    NS=0   SLOPE=.0069  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=2       CODE=10

S  ROUTE OLF FROM AP 202 TO AP 204 NORTH SIDE
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0115        FP SLP=.0115
                    N=.025  STA=9     N=.017  STA=33.32   N=.025  STA=43.32
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           9       .67
                    9.01    0         33.31   .5          33.32   1.17
                    43.32   1.5
OUTE MCUNGE         ID=6  HYD=204_8  INFLOW ID=11  DT=0HR  L=1300
                    NS=0   SLOPE=.0115  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=6       CODE=10
*
S  TOTAL ROUTED OLF ABOVE AP 204 NORTH SIDE
D HYD               ID=7       HYD=204_9
                    ID=3       ID=6
PRINT HYD           ID=7       CODE=10
*
S  ADD ROUTED SS FLOW TO TOTAL ROUTED OLF AT AP 204
D HYD               ID=8       HYD=204_1
                    ID=7       ID=2
PRINT HYD           ID=8       CODE=10
*
*S  ROUTE SOUTH SIDE OF LADERA FROM AP 202 TO AP 204
MPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0115        FP SLP=.0115
                    N=.025  STA=9     N=.017  STA=33.32   N=.025  STA=43.32
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           9       .67
                    9.01    0         33.31   .5          33.32   1.17
                    43.32   1.5
ROUTE MCUNGE        ID=2  HYD=204_2  INFLOW ID=4  DT=0HR  L=1300
                    NS=0   SLOPE=.0115  MATCODE=0 REGCODE=0  CCODE=0
INT HYD             ID=2       CODE=10

S  OLF IN SOUTH SIDE OF LADERA WEST OF 72ND STREET
ADD HYD             ID=6       HYD=204_3
                    ID=2       ID=5
RINT HYD            ID=6       CODE=10
```

```
*
  ADD HYD ABOVE AP 203 TO TOTAL FLOW AT AP 204
  OLF IN SOUTH SIDE OF LADERA AT 72ND STREET
DD HYD              ID=7        HYD=204_4
                    ID=1        ID=6
RINT HYD            ID=7        CODE=10

  ADD TOTAL FLOW AT AP 204 (204 N. SIDE AND 203) TO AP 204 S. SIDE
  TOTAL HYD AT AP 204 LADERA DR AT 72ND ST NORTH AND SOUTH SIDES
ADD HYD             ID=9        HYD=204_5
                    ID=7        ID=8
RINT HYD            ID=9        CODE=10

*S  SS DISCHARGES TO LADERA DAM NO 14;
*S  FLOW THAT CAN'T GET INTO SS GOES NORTH ON LADERA, LEAVES WBLUFF WATERSHED
VIDE HYD            ID=9        Q=64
                    ID=43       HYD=204_6 SS DISCHARGING TO DAM
                    ID=19       HYD=204_7 OLF GOING NORTH IN LADERA DR
PRINT HYD           ID=43       CODE=10
PRINT HYD           ID=19       CODE=10

  ADD FLOWS ABOVE POND #14
  TOTAL FLOW ENTERING POND #14
ADD HYD             ID=14       HYD=TO_DAM14
                    ID=20       ID=43
RINT HYD            ID=14       CODE=10

  ROUTE FLOW THRU DAM #14
*>>>>>
*>>>>>INCLUDE DIVERSION OF 200 CFS TO WEST BLUFF SYSTEM
 >>>>> USE 1 - 48" RCP FOR MODELING PURPOSES 100-YR = 10.5' APPROX.
 >>>>>
UTE RESERVOIR       ID=8 HYD=POND14
                     INFLOW ID=14 CODE=10
                    OUTFLOW(CFS)    STORAGE(AcFt)    ELEV(FT)
                       0               0              5114
                    144               17.05          5116
                    324               35.10          5118
                    432               53.90          5120
                    522               73.50          5122
                    594               93.65          5124
                    636              107.9           5125.3
                   1481              115.6           5126
                   5514              134.4           5127.5
PRINT HYD           ID=8       CODE=10
*S >>>>>
 >>>>> DIVIDE 0 CFS FROM LADERA POND #14 AND SEND TO WEST BLUFF
VIDE HYD            ID=8      Q=0.1
                    ID=44     HYD=TO_LADOURAY
                    ID=45     HYD=15INFLOW
*>>>>>
 >>>>> ROUTE 0 CFS DOWNSTREAM TO WEST BLUFF OUTFALL IN PROPOSED 60" RCP
 >>>>>
  ROUTE FLOW FROM POND #14 AT WEST BLUFF OUTFALL
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1
                    SLP=0.00686  DIA=60   N=0.013
UTE MCUNGE          ID=18   HYD=RTE_TO_WB   INFLOW ID=44  DT=0HR  L=3900
                    NS=0   SLOPE=.00686  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=18   CODE=10
*S
*S**************************************************************************
           CALCULATE RUNOFF FOR SINGLE BASIN JUST SOUTH OF POND 14            *
                              REGION K
**************************************************************************
*S
*S  COMPUTE HYD ABOVE AP 205 LADERA DR WEST OF OURAY DR
OMPUTE NM HYD       ID=3   HYD=205   DA=0.0077 SQ MI
                    PER A=0  PER B=0  PER C=75  PER D=25
                    TP=-0.1333    RAIN=-1
PRINT HYD           ID=3       CODE=10
*
  ROUTE OLF FROM AP 204 TO AP 205 NORTH IN LADERA DR
OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0131        FP SLP=.0131
                    N=.025  STA=10    N=.017  STA=96.01   N=.025  STA=100.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         25      .5          25.01   1
                    43      1.2       61      1           61.01   .5
                    96      0         96.01   .67         100     1
                    100.01  1.5
UTE MCUNGE          ID=2  HYD=205_1  INFLOW ID=19  DT=0HR  L=1300
                    NS=0   SLOPE=.0131  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=2       CODE=10
*
*S  TOTAL OLF AT AP 205
D HYD               ID=4       HYD=205_2
                    ID=2       ID=3
RINT HYD            ID=4       CODE=10
*S
*  SS DISCHARGE TO LADERA DETENTION AREA DAM NO 15
  SS IS AT A LOW PT; ID=46 IS 24" RCP & GOES TO DAM 15
```

```
DIVIDE HYD          ID=4      Q=32
                    ID=46     HYD=205_3 SS FLOW
                    ID=2      HYD=205_4 REMAINDER
*S
*S
*S*****************************************************************************
*S   CALCULATE RUNOFF FOR BASINS DRAINING TO WEST BLUFF OUTFALL AT COORS ROAD  *
*S                              REGION L
*S*****************************************************************************
*S

*S  ADD LAURELWOOD POND TO THE UNSER SPILLWAY STORMDRAIN
ADD HYD             ID=4   HYD=617_5
                    ID=72   ID=41
PRINT HYD           ID=4   CODE=10
*


*S ROUTE UNSER STORM DRAIN FROM LAURELWOOD TO 68TH STREET
COMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.005
                    DIA=96   N=.013
ROUTE MCUNGE        ID=74  HYD=610_4   INFLOW ID=4   DT=0HR  L=1300
                    NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=74   CODE=10
*S
*S*********************************************************************
*S*** CONTINUED ROUTING OF SD FROM 68TH STREET TO WB- LEM 1/2/06
*S*********************************************************************

*S ROUTE UNSER STORM DRAIN FROM 68TH STREET TO WB
COMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.005
                    DIA=96   N=.013
ROUTE MCUNGE        ID=73  HYD=610_4   INFLOW ID=74   DT=0HR  L=1300
                    NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=73   CODE=10

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

*S  COMPUTE OLF ABOVE AP 618A   TORATOLLA ACERS
COMPUTE NM HYD      ID=6   HYD=618_1   DA=.0520SQ MI
                    PER A=0  PER B=19  PER C=39  PER D=42
                    TP=-0.2418   RAIN=-1
PRINT HYD           ID=6   CODE=10
*S
*S  COMPUTE OLF ABOVE AP 618B  SCHOOL AND PART OF LA MESA DEL OESTE
COMPUTE NM HYD      ID=7   HYD=618_2   DA=.0461 SQ MI
                    PER A=0  PER B=19  PER C=39  PER D=42
                    TP=-0.1612   RAIN=-1
PRINT HYD           ID=7   CODE=10
*S
*S  ROUTE OLF FROM BASIN 618A THOUGH 618B  ASSUME 32'FL-FL STREET SECTION
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=1.5
                    CH SLP=.005   FP SLP=.005
                    N=.025  STA=9  N=.017  STA=41  N=.025  STA=50.01
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       1.5    .01     1       9       .67
                    9.01    0      25      .32     40.99   0
                    41      .67    50      1       50.01   1.5
ROUTE MCUNGE        ID=3  HYD=618_3  INFLOW ID=6  DT=0HR  L=1100
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=3   CODE=10
*S ADD ROUTED FLOW FROM 618A TO FLOW FROM 618B
ADD HYD             ID=5 HYD=618_4
                    ID=7  ID=3
PRINT HYD           ID=5 CODE=10
*S ROUTE COMBINED FLOW FROM BASINS 618A&B VIA SD TO 619B
COMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.010
                    DIA=48   N=.013
ROUTE MCUNGE        ID=86  HYD=618_5   INFLOW ID=5  DT=0HR  L=350
                    NS=0  SLOPE=.010   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=86   CODE=10
*********************************************************************
*  COMPUTE OLF ABOVE AP 619A CHAMISA
COMPUTE NM HYD      ID=7   HYD=619   DA=.0220 SQ MI
                    PER A=0  PER B=25  PER C=20  PER D=55
                    TP=-0.1340    RAIN=-1
PRINT HYD           ID=7 CODE=10


*S  ADD BASIN 619A TO ROUTED FLOW FROM 617B
ADD HYD             ID=22 HYD=122
                    ID=7 ID=93
PRINT HYD           ID=22 CODE=10

*S ROUTE 619A TO 619B
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
```

```
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
 ROUTE MCUNGE       ID=93  HYD=193.4  INFLOW ID=22 DT=0HR  L=350
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
  RINT HYD          ID=93   CODE=10
  ;
  ;  COMPUTE OLF ABOVE AP 619B CANDLEWOOD
 COMPUTE NM HYD     ID=5   HYD=620   DA=.0045SQ MI
                    PER A=0  PER B=25  PER C=20  PER D=55
                    TP=-0.1340    RAIN=-1
  RINT HYD          ID=5 CODE=10
  ;
 *S ADD BASIN 619B TO ROUTED FLOW FROM 619A
 ADD HYD            ID=10 HYD=619_6
                    ID=5  ID=93
  RINT HYD          ID=10 CODE=10

 *S ADD BASINS 618A&B TO ROUTED FLOW AT 619B
 ADD HYD            ID=23 HYD=123
                    ID=10 ID=86
  RINT HYD          ID=23 CODE=10
  ;
 *S ROUTE 619B TO 621A
 COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
  UTE MCUNGE        ID=93  HYD=193.4  INFLOW ID=23 DT=0HR  L=750
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 PRINT HYD          ID=93   CODE=10
 *S
 *S  COMPUTE OLF ABOVE AP 621A  EAST PART OF LA MESA DEL OESTE
  MPUTE NM HYD      ID=7   HYD=621_1   DA=.0235SQ MI
                    PER A=0  PER B=19  PER C=39  PER D=42
                    TP=-0.1340    RAIN=-1
 PRINT HYD          ID=7   CODE=10
 *S

  ; ADD BASINS 621A TO ROUTED FLOW FROM 619B
 ADD HYD            ID=24 HYD=124
                    ID=7 ID=93
 PRINT HYD          ID=24 CODE=10


  ; ASSUME BASIN 619C CONTRIBUTES NO RUNOFF TO THE CHANNEL
 *S ROUTE 621A TO 621B
 COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
  UTE MCUNGE        ID=93  HYD=193.4  INFLOW ID=24 DT=0HR  L=550
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 PRINT HYD          ID=93   CODE=10
 *S
  ;  COMPUTE OLF ABOVE AP 621B  JUNIPER RUN
  MPUTE NM HYD      ID=6   HYD=621_3   DA=.0143SQ MI
                    PER A=0  PER B=19  PER C=39  PER D=42
                    TP=-0.1340    RAIN=-1
 PRINT HYD          ID=6   CODE=10
  ;
  ; ADD BASIN 621B TO ROUTED FLOW FROM 621A
  D HYD             ID=25 HYD=125
                    ID=6 ID=93
 PRINT HYD          ID=25 CODE=10
 *S
  ;  COMPUTE OLF ABOVE AP 621C
  MPUTE NM HYD      ID=6   HYD=621_5   DA=.0320 MI
                    PER A=0  PER B=20  PER C=20  PER D=60
                    TP=-0.1448    RAIN=-1
 PRINT HYD          ID=6   CODE=10
  ;
  ; ROUTE FLOW FROM 621C IN STORM DRAIN TO 1-40 CHANNEL
 COMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.0090
                    DIA=30   N=.013
  UTE MCUNGE        ID=2  HYD=621_6   INFLOW ID=6   DT=0HR  L=700
                    NS=0  SLOPE=.0090   MATCODE=0  REGCODE=0  CCODE=0
 PRINT HYD          ID=2   CODE=10
 *S
 *S COMPUTE HYD FOR BASIN 621D - 64TH STREET FROM JUNIPER TO CHANNEL
  MPUTE NM HYD      ID=6 HYD=627 DA=0.0015
                    PER A=0  PER B=19  PER C=39  PER D=42
                    TP=-0.1448    RAIN=-1
 PRINT HYD          ID=6   CODE=10
 *S
  ; ADD BASIN 621D TO ROUTED FLOW FROM 621C
```

```
ADD HYD              ID=4 HYD=621_8
                     ID=6 ID=2
PRINT HYD            ID=4 CODE=10.0
*S
*S ADD BASIN 621C TO ROUTED FLOW AT 621B
ADD HYD              ID=26 HYD=126
                     ID=4 ID=25
PRINT HYD            ID=26 CODE=10
*S
*S  ROUTE  FLOW FROM 621B TO 622A
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                     ELMIN=0  ELMAX=5.0
                     CH SLP=.005   FP SLP=.005
                     N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                     DIST    ELEV   DIST    ELEV    DIST    ELEV
                     0       5.0    15.0     0       45      0
                     60      5.0
ROUTE MCUNGE         ID=93  HYD=193.4  INFLOW ID=26 DT=0HR  L=550
                     NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=93   CODE=10
*S*************************************************************************************
*S*              CHANGED WILSON MODEL TO INCLUDE FLOW FROM WMDC                       *
*S*************************************************************************************

*S  ADD ROUTED HYD FROM AP 531 TO ROUTED FLOW FROM 621B
*S  TOTAL HYD AT CONFLUENCE OF I40 CHANNEL AND WMDC
ADD HYD              ID=31  HYD=622_5
                     ID=42  ID=93
PRINT HYD            ID=31  CODE=0
*
*S  COMPUTE OLF ABOVE AP 622A
COMPUTE NM HYD       ID=6   HYD=622_1   DA=.009 MI
                     PER A=0  PER B=19  PER C=39  PER D=42
                     TP=-0.1340    RAIN=-1
PRINT HYD            ID=6 CODE=10
*S

*S ADD BASIN 622A TO ROUTED FLOW FROM 621B
ADD HYD              ID=27 HYD=127
                     ID=6 ID=31
PRINT HYD            ID=27 CODE=10

*S*************************************************************************************
*S*              END OF CHANGES TO INCLUDE WMDC                                       *
*S*************************************************************************************
*S
*S  COMPUTE OLF ABOVE AP 622B
COMPUTE NM HYD       ID=6   HYD=622_2   DA=.006643 MI
                     PER A=0  PER B=30 PER C=35  PER D=35
                     TP=-0.1340    RAIN=-1
PRINT HYD            ID=6 CODE=10
*S
*S ADD BASIN 622B TO ROUTED FLOW FROM 622A
ADD HYD              ID=28 HYD=128
                     ID=6 ID=27
PRINT HYD            ID=28 CODE=10
*S
*S ROUTE CHANNEL FLOW THROUGH THE WEST BLUFF OUTFALL DEBRIS BASIN
ROUTE RESERVOIR      ID=93 HYD=621_10
                     INFLOW ID=27 CODE=12.4
*                      OUTFLOW          STORAGE          ELEV
*                       (CFS)           (AC-FT)          (FT)
                          0                0              5087
                          6.0              1.75           5088
                          10.35            3.57           5089
*                         13.35            5.45           5090
*                         15.80            7.39           5091
                          485.94           9.40           5092
                          1394.25          11.47          5093

*                        0.0              0.00           5079
*                        0.20             0.01           5080
                         0.40             0.25           5081
                         0.60             0.54           5082
                         0.80             0.86           5083
                          1.0             1.22           5084
*                         1.3             1.63           5085
*                         1.6             2.36           5086
                          2.0             3.47           5087
                         40.0             4.63           5088
                        351.0             5.84           5089
*                       524.0             7.10           5090
*                       693.0             8.41           5091
                       1110.0             9.78           5092
                       1254.0            11.19           5093
*S??????????????????????????????????????????????????
*S ADD UNSER SD TO PARKWAY CHANNEL
ADD HYD              ID=99 HYD=610_16
                     ID=73 ID=28
PRINT HYD            ID=99 CODE=10
*S??????????????????????????????????????????????????
* ROUTE CHANNEL FLOW THROUGH THE WEST BLUFF OUTFALL DEBRIS BASIN
*ROUTE RESERVOIR      ID=93 HYD=621_10
                     INFLOW ID=99 CODE=12.4
```

```
*                    OUTFLOW          STORAGE          ELEV
                      (CFS)           (AC-FT)          (FT)
                        0                0              5087
                        6.0              1.75           5088
*                       10.35            3.57           5089
*                       13.35            5.45           5090
                        15.80            7.39           5091
                        485.94           9.40           5092
                        1394.25          11.47          5093


;*********************************************************************************
;*              END OF COPIED SECTION FROM WILSON FINAL_PU.HMI                   *
;*********************************************************************************
*

;  COMPUTE OLF ABOVE AP 623  68TH ST AND MIAMI RD
)MPUTE NM HYD       ID=7    HYD=623   DA=.0300 SQ MI
                    PER A=0  PER B=13  PER C=19  PER D=68
                    TP=-0.1504    RAIN=-1
PRINT HYD           ID=7    CODE=10
;
;  COMPUTE OLF ABOVE AP 624
)MPUTE NM HYD       ID=6    HYD=624   DA=.0465 SQ MI
                    PER A=0  PER B=9  PER C=18  PER D=73
                    TP=-0.2267    RAIN=-1
?INT HYD            ID=6   CODE=10
;
;  COMPUTE OLF ABOVE AP 625  64TH ST AND MIAMI RD
COMPUTE NM HYD      ID=5    HYD=625   DA=.0386 SQ MI
                    PER A=0   PER B=9  PER C=17  PER D=74
                    TP=-0.1374    RAIN=-1
?INT HYD            ID=5    CODE=10

*S  ROUTE OLF FROM AP 623 TO AP 625 DOWN MIAMI RD  40 FT FL TO FL  60 FT ROW
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0054      FP SLP=.0054
                    N=.025  STA=10    N=.017  STA=50      N=.025  STA=60.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         30      .4          49.99   0
                    50      .67       60      1           60.01   1.5
)UTE MCUNGE         ID=2  HYD=625_4  INFLOW ID=7  DT=0HR  L=1170
                    NS=0   SLOPE=.0054  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2       CODE=10
*
;  ADD ROUTED FLOW FROM AP 623 TO OLF ABOVE AP 625
)D HYD              ID=4       HYD=625_5
                    ID=2       ID=5
PRINT HYD           ID=4       CODE=10
*
;  ROUTE OLF FROM AP 624 TO AP 625 ASSUME 32 FT FL TO FL ST SECTION
)MPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.003      FP SLP=.003
                    N=.025  STA=9    N=.017  STA=41      N=.025  STA=50.01
                    DIST    ELEV     DIST    ELEV        DIST    ELEV
                    0       1.5      .01     1           9       .67
                    9.01    0        25      .32         40.99   0
                    41      .67      50      1           50.01   1.5
ROUTE MCUNGE        ID=3  HYD=625_6  INFLOW ID=6  DT=0HR  L=580
                    NS=0   SLOPE=.003  MATCODE=0  REGCODE=0  CCODE=0
?INT HYD            ID=3       CODE=10

*S  ADD ROUTED OLF FROM AP 624 TO AP 625
ADD HYD             ID=10      HYD=625_7
                    ID=3       ID=4
?INT HYD            ID=10      CODE=10
;
*S  COMPUTE OLF ABOVE AP 626  ESTANCIA DR AND MIAMI RD
COMPUTE NM HYD      ID=3   HYD=626   DA=.0744 SQ MI
                    PER A=0  PER B=11  PER C=20  PER D=69
                    TP=-0.1918    RAIN=-1
 INT HYD            ID=3   CODE=10
*
*S  ROUTE OLF AT AP 625 TO AP 626 ASSUME 40 FT FL TO FL STREET SECTION
?OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0108      FP SLP=.0108
                    N=.025  STA=10    N=.017  STA=50      N=.025  STA=60.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         30      .4          49.99   0
                    50      .67       60      1           60.01   1.5
ROUTE MCUNGE        ID=2  HYD=626_4  INFLOW ID=10  DT=0HR  L=1050
                    NS=0   SLOPE=.0108  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2       CODE=10

;  ADD ROUTED HYD FROM AP 625 TO OLF ABOVE AP 626
;  TOTAL OLF AT AP 626 ESTANCIA AVENUE
ADD HYD             ID=20      HYD=626_5
                    ID=2       ID=3
?INT HYD            ID=20      CODE=10
```

```
                    TP=-0.3364    RAIN=-1
 RINT HYD           ID=5    CODE=10

 S  ROUTE FLOW FROM AP 626 TO AP 630  DOWN MIAMI RD ASSUME 54" SS
*S  SEPARATE OLF FROM SS
DIVIDE HYD          ID=20     Q=175
                    ID=9      HYD=630_4  SS GOING N IN LADERA
                    ID=8      HYD=630_5  OLF GOING N IN LADERA

*S  ROUTE SS FROM AP 626 TO I-40 CHANNEL
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                    SLP=.0105 DIA=54   N=.013
 OUTE MCUNGE        ID=2  HYD=630_6  INFLOW ID=9  DT=0HR  L=950
                    NS=0   SLOPE=.0105  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2       CODE=10
*
 S  ROUTE OLF FROM AP 626 TO AP 630 DOWN MIAMI RD  AT I-40 CHANNEL
 OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0032      FP SLP=.0032
                    N=.025  STA=10    N=.017  STA=50      N=.025  STA=60.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         30      .4          49.99   0
                    50      .67       60      1           60.01   1.5
ROUTE MCUNGE        ID=3  HYD=630_7  INFLOW ID=8  DT=0HR  L=950
                    NS=0   SLOPE=.0032  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=3       CODE=10

*S  ADD ROUTED SS AND OLF FROM AP 626 AT I-40 CHANNEL
ADD HYD             ID=4       HYD=630_8
                    ID=2       ID=3
 RINT HYD           ID=4       CODE=10

*S  DIVIDE & ROUTE SS AND OLF FROM AP 629 DOWN OURAY TO COORS
DIVIDE HYD          ID=10     Q=88
                    ID=9      HYD=630_9 SS GOING E
                    ID=8      HYD=630_10 OLF GOING E
 OMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                    SLP=.005  DIA=48   N=.013
ROUTE MCUNGE        ID=2  HYD=630_2  INFLOW ID=9  DT=0HR  L=450
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=2       CODE=10

 S  ROUTE OLF FROM AP 629 TO COORS
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.006       FP SLP=.006
                    N=.025  STA=10    N=.017  STA=58      N=.025  STA=68.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         34      .48         57.99   0
                    58      .67       68      1           68.01   1.5
 OUTE MCUNGE        ID=3  HYD=630_3  INFLOW ID=8  DT=0HR  L=450
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=3       CODE=10
*
 S  ADD ROUTED SS AND OLF FROM AP 629 AT COORS
 D HYD              ID=7       HYD=630_4
                    ID=2       ID=3
PRINT HYD           ID=7       CODE=10
*
 S  ROUTE FLOW AT AP 622 TO  MIAMI RD AND I-40 CHANNEL
 OMPUTE RATING CURVE ID=1  VS NO=1   NO SEGS=1
                    ELMIN=0   ELMAX=14
                    CH SLP=.0058   FP SLP=.0058
                    N=.015   STA=210.02
                    DIST   ELEV   DIST   ELEV   DIST   ELEV
                    0      14      100    12   100.01    0
                    110.01  0    110.02   12   210.02   14
ROUTE MCUNGE        ID=2  HYD=630_5  INFLOW ID=99  DT=0HR  L=1500
                    NS=0   SLOPE=.0058  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=2       CODE=10

  ADD ROUTED SS AND OLF FROM AP 626 TO OLF ABOVE AP 630
ADD HYD             ID=3       HYD=630_6
                    ID=4       ID=5
 RINT HYD           ID=3       CODE=10

 S  ADD ROUTED FLOW FROM AP 622 TO HYD AT AP 630
*S  TOTAL AT MIAMI RD AND I-40 CHANNEL
ADD HYD             ID=5       HYD=630_7
                    ID=2       ID=3
 RINT HYD           ID=5       CODE=10

*S  ROUTE FLOW FROM MIAMI RD TO 57TH ST
*S  TOTAL FLOW AT AP 630 I-40 CHANNEL WEST OF COORS BLVD AND SOUTH OF OURAY
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
                    ELMIN=0    ELMAX=12
                    CH SLP=.0058      FP SLP=.0058
                    N=.015  STA=12.02
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       12        .01     0           12.01   0
                    12.02   12
```

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ROUTE MCUNGE          ID=10  HYD=630_8  INFLOW ID=5  DT=0HR  L=242
                      NS=0   SLOPE=.0058  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=10      CODE=10
 S
*S  COMPUTE OLF ABOVE AP 631
COMPUTE NM HYD        ID=3    HYD=631   DA=.0570 SQ MI
                      PER A=0  PER B=2  PER C=10  PER D=88
                      TP=-0.2507    RAIN=-1
 RINT HYD             ID=3    CODE=10
*
*S  ROUTE FLOW FROM AP 631 TO AP 630 ASSUME 84" SS
 OMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                      SLP=.004  DIA=84   N=.013
 OUTE MCUNGE          ID=2  HYD=631_4  INFLOW ID=3  DT=0HR  L=626
                      NS=0   SLOPE=.0034  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=2       CODE=10

 S  ADD ROUTED FLOW FROM AP 631 TO TOTAL FLOW AT AP 630
 OD HYD               ID=6      HYD=630_9
                      ID=2      ID=10
PRINT HYD             ID=6      CODE=10
 S
 S  COMPUTE OLF ABOVE AP 632
 OMPUTE NM HYD        ID=5    HYD=632   DA=.0329 SQ MI
                      PER A=0  PER B=10  PER C=14  PER D=76
                      TP=-0.1458    RAIN=-1
 RINT HYD             ID=5    CODE=10
 S
 S  COMPUTE HYD ABOVE AP 633  CORONA RD AND OURAY RD
COMPUTE NM HYD        ID=4    HYD=633   DA=.0910 SQ MI
                      PER A=0  PER B=8  PER C=12  PER D=80
                      TP=-0.2712    RAIN=-1
 RINT HYD             ID=4    CODE=10

*S  ROUTE OLF FROM AP 632 TO AP 633 SOUTH IN CORONA DR  ASSUME 54" SS
*  ASSUME ALL FLOW INTERCEPTED BY SS
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                      SLP=.0034 DIA=54   N=.013
 OUTE MCUNGE          ID=2  HYD=633_4  INFLOW ID=5  DT=0HR  L=1600
                      NS=0   SLOPE=.0034  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=2       CODE=10
*
 S  ADD ROUTED FLOW FROM AP 632 TO OLF AT AP 633
 S  TOTAL AT CORONA DR AND OURAY RD
ADD HYD               ID=5       HYD=633_5
                      ID=2       ID=4
PRINT HYD             ID=5       CODE=10

 S  ROUTE FLOW FROM CORONA DR AND OURAY RD TO COORS AND OURAY
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                      SLP=.00485 DIA=60   N=.013
ROUTE MCUNGE          ID=2  HYD=633_6  INFLOW ID=5  DT=0HR  L=1030
                      NS=0   SLOPE=.00485  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=2       CODE=10

*S  ADD ROUTED FLOW FROM OURAY/CORONA TO ROUTED FLOW FROM AP 629 AT COORS/OURAY
ADD HYD               ID=4       HYD=630_9
                      ID=2       ID=7

 S  ROUTE TOTAL FLOW AT COORS AND OURAY TO AP 630;  ASSUME ALL FLOW IN 72" SS
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                      SLP=.0168 DIA=72   N=.013
 OUTE MCUNGE          ID=3  HYD=633_4  INFLOW ID=4  DT=0HR  L=855
                      NS=0   SLOPE=.0168  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=3       CODE=10
*
*S  ADD ROUTED STORM SEWER FLOW FROM COORS AND OURAY TO TOTAL FLOW AT AP 630
 S  TOTAL FLOW FROM WEST BLUFF WATERSHED AT WEST BLUFF DRAINAGE FACILITY
   (DOES NOT INCLUDE FLOW TO BE ROUTED FROM LADERA PONDS - 200 CFS)
 OD HYD               ID=47      HYD=630_1
                      ID=3       ID=6
PRINT HYD             ID=47      CODE=10
 S
 S  ADD FLOW FROM WEST BLUFF WATERSHED TO FLOW FROM LADERA SYSTEM AT
 S  INLET OF WEST BLUFF FACILITY
ADD HYD               ID=49     HYD=TOWB
                      ID=18     ID=47
PRINT HYD             ID=49     CODE=10
 S
 S  COMPUTE OLF ABOVE AP 702  ALAMOGORDO DR AND BRIDGE AVENUE
COMPUTE NM HYD        ID=1    HYD=702   DA=.0200 SQ MI
                      PER A=0  PER B=41.50  PER C=10.37  PER D=48.13
                      TP=-0.1897    RAIN=-1
 RINT HYD             ID=1    CODE=10
 S
 S**************************
*S  TOTAL FLOW AT WB OUTFALL
 S**************************
 OD HYD               ID=49     HYD=TOTWB
                      ID=1      ID=49
PRINT HYD             ID=49     CODE=10
*S  PLOT12   HYD=TOTWB
PLOT HYD              ID=49  ID=0   Q SCALE=3000  T SCALE=6
```

```
*S
*S*************************************************************************
*S      CALCULATE RUNOFF FOR BASINS DRAINING TO LADERA GOLF COURSE POND #15
*S                              REGION M
*S*************************************************************************
* RAINFALL FOR LADERA BASINS NOT INCLUDING ABOVE DAM #12, SAME AS W BLUFF RAIN

  SEDIMENT BULK         CODE=1    BULK FACTOR=1.08
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L15.7
*  WAS BASIN 133.33 IN DAM15 STUDY
 OMPUTE NM HYD        ID=4       HYD=15.7    DA=0.0281 SQ MI
                      PER A=41   PER B=22   PER C=32   PER D=5
                      TP=-0.133     RAIN=-1
PRINT HYD             ID=4       CODE=10
*
****** ROUTE FLOW THRU INLET TO 36" PIPE
 OUTE RESERVOIR       ID=11      HYD=L15.7_1
                      INFLOW ID=4    CODE=10
                      OUTFLOW            STORAGE         ELEV
                      (CFS)              (AC-FT)         (FT)
                      0.0                 0.0            0.0
                      63.8                0.1            0.1
                      63.9                14.9           4.4
                      64.0                15.0           4.5
PRINT HYD             I=11      CODE=10

****** ROUTE FLOW THRU 450' OF 36" RCP PIPE
 OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=-1
                      SLP=0.00796
                      DIA=36 INCHES     N=0.013
OUTE MCUNGE           ID=5   HYD=L15.7_2    INFLOW ID=11   DT=0HR   L=450
                      NS=0    SLOPE=.00796   MATCODE=0   REGCODE=0   CCODE=0
RINT HYD              ID=5     CODE=10
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L15.6
*  WAS BASIN 133.4 IN DAM15 STUDY
 OMPUTE NM HYD        ID=3      HYD=L15.6    DA=0.3063 SQ MI
                      PER A=99   PER B=1   PER C=0   PER D=0
                      TP=-0.362     RAIN=-1
PRINT HYD             ID=3      CODE=10
*
****** ADD BASIN L15.6 TO PIPE FLOW
 OD HYD               ID=9      HYD=L15.6_1
                      ID=3      ID=5
PRINT HYD             ID=9      CODE=10
*
****** ROUTE FLOW THRU INLET TO 54" PIPE
 OUTE RESERVOIR       ID=11     HYD=L15.6_2
                      INFLOW ID=9   CODE=10
                      OUTFLOW(CFS)    STORAGE(AC FT)     DEPTH(FT)
                      0               0                  0
                      171.8           0.1                0.1
                      171.9           14.9               6.65
                      172.0           15.0               6.75
PRINT HYD             ID=11           CODE=10
*
****** ROUTE FLOW THRU 450' OF 54" RCP PIPE
 OMPUTE RATING CURVE ID=1   VS NO=1    NO SEG=-1
                      SLP=0.00661
                      DIA=54 INCHES    N=0.013
ROUTE MCUNGE          ID=4   HYD=L15.6_3    INFLOW ID=11    DT=0HR   L=450
                      NS=0    SLOPE=.00661   MATCODE=0   REGCODE=0   CCODE=0
RINT HYD              ID=4            CODE=10

* SEDIMENT BULK         CODE=1    BULK FACTOR=1.067
*S
*  COMPUTE HYDROGRAPH FOR BASIN L15.8
  WAS BASIN 133.5 IN DAM15 STUDY
 OMPUTE NM HYD        ID=3       HYD=L15.8     DA=0.1750 SQ MI
                      PER A=35   PER B=16   PER C=34   PER D=15
                      TP=-0.187     RAIN=-1
RINT HYD              ID=3       CODE=10

****** ADD L15.8 TO PIPE FLOW
ADD HYD               ID=5       HYD=L15.8_1
                      ID=3       ID=4
RINT HYD              ID=5       CODE=10

****** ROUTE FLOW THRU INLET TO 60" PIPE
ROUTE RESERVOIR       ID=11     HYD=L15.8_2
                      INFLOW ID=5   CODE=10
                      OUTFLOW(CFS)    STORAGE(AC FT)     DEPTH(FT)
                      0               0                  0
                      221.8           0.1                0.1
                      221.9           14.9               7.4
                      222.0           15.0               7.5
PRINT HYD             ID=11           CODE=10

****** ROUTE FLOW THRU 1200' OF 60" RCP PIPE
COMPUTE RATING CURVE ID=1   VS NO=1    NO SEG=-1
                      SLP=0.00628
                      DIA=60 INCHES    N=0.013
 OUTE MCUNGE          ID=4   HYD=L15.9_1    INFLOW ID=11   DT=0HR   L=1200
```

```
                    NS=0    SLOPE=.00628  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=4          CODE=10

 S***** ROUTE THRU NATURAL CHANNEL IN BASIN L15.9
COMPUTE RATING CURVE ID=1         VS NO=1        NO SEG=1
                    MIN ELE=100  MAX ELEV=102   CH SLP=0.023
                    FP SLP=0.023  N=0.04         DIST=200
                    DIST   ELEV      DIST   ELEV
                     0      102       100    100
                    200     102
ROUTE MCUNGE        ID=5  HYD=L15.9_2   INFLOW ID=4  DT=0HR  L=1000
                    NS=0   SLOPE=.023  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=5 CODE=10

* SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
*S
 S  COMPUTE HYDROGRAPH FOR BASIN L15.9
   WAS BASIN 133 IN DAM15 STUDY
OMPUTE NM HYD       ID=3      HYD=L15.9   DA=0.2750 SQ MI
                    PER A=0  PER B=14  PER C=17  PER D=69
                    TP=-0.223    RAIN=-1
 RINT HYD           ID=3       CODE=10

 S***** TOTAL OUTFLOW FROM AND THRU BASIN L15.9
ADD HYD             ID=6       HYD=L15.9_3
                    ID=3       ID=5
RINT HYD            ID=6       CODE=10


*S  ORO VIEJO CHANNEL
*
*S***** ROUTE FLOW THRU FIRST PART OF CHANNEL BETWEEN L15.10 & L15.11
 OMPUTE RATING CURVE ID=1         VS NO=1        NO SEG=1
                    MIN ELE=100  MAX ELEV=104.75   CH SLP=0.0054
                    FP SLP=0.0054    N=0.015       DIST=53.5
                    DIST   ELEV      DIST   ELEV
                     0      104.75   14.25   100
                    39.25   100      53.5    104.75
 OUTE MCUNGE        ID=7  HYD=L15.9_4   INFLOW ID=6  DT=0HR  L=600
                    NS=0   SLOPE=.0054  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=7          CODE=10
*
 S  COMPUTE HYDROGRAPH FOR BASIN L15.10
   WAS BASIN 133.1 IN DAM15 STUDY
COMPUTE NM HYD      ID=3      HYD=L15.10   DA=0.1219 SQ MI
                    PER A=0  PER B=25  PER C=26  PER D=49
                    TP=-0.249    RAIN=-1
 RINT HYD           ID=3       CODE=10

 S  COMPUTE HYDROGRAPH FOR BASIN L15.11
*  WAS BASIN 133.2 IN DAM15 STUDY
COMPUTE NM HYD      ID=6      HYD=L15.11   DA=0.0641 SQ MI
                    PER A=0  PER B=23  PER C=24  PER D=53
                    TP=-0.216    RAIN=-1
.RINT HYD           ID=6       CODE=10
*
*S  COMBINE FLOWS FROM L15.10 & L15.11 AND ADD TO FLOW IN CHANNEL

 OD HYD             ID=8       HYD=L15.9_5
                    ID=3       ID=6
ADD HYD             ID=6       HYD=L15.9_6
                    ID=7       ID=8
 RINT HYD           ID=6       CODE=10

 S  ROUTE FLOW THRU LAST PART OF CHAN INTO LADERA GOLF COURSE
COMPUTE RATING CURVE ID=1         VS NO=1        NO SEG=1
                    MIN ELE=100  MAX ELEV=104.75   CH SLP=0.0054
                    FP SLP=0.0054    N=0.015       DIST=53.5
                    DIST   ELEV      DIST   ELEV
                     0      104.75   14.25   100
                    39.25   100      53.5    104.75
ROUTE MCUNGE        ID=11  HYD=L15.9_7   INFLOW ID=6  DT=0HR  L=900
                    NS=0   SLOPE=.0054 MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=11         CODE=10
 S
*S***** COMPUTE HYDROGRAPHS FROM ESCARPMENT AREA L15
*
* SEDIMENT BULK        CODE=1   BULK FACTOR=1.08
 S
 S  COMPUTE HYDROGRAPH FOR BASIN L15.1
COMPUTE NM HYD      ID=1      HYD=L15.1   DA=0.6203 SQ MI
                    PER A=86  PER B=9  PER C=5  PER D=0
                    TP=-0.440    RAIN=-1
 RINT HYD           ID=1       CODE=10
 S
*S  COMPUTE HYDROGRAPH FOR BASIN L15.2
COMPUTE NM HYD      ID=2      HYD=L15.2   DA=0.7453 SQ MI
                    PER A=76  PER B=18  PER C=6  PER D=0
                    TP=-0.375    RAIN=-1
 RINT HYD           ID=2       CODE=10

*S  ADD L15.1 & L15.2  -- COMBINED NORTH & SOUTH RINCONADA ARROYOS
ADD HYD             ID=20      HYD=L15.2
                    ID=1       ID=2
```

```
PRINT HYD            ID=20       CODE=10

  ROUTE COMBINED THRU L15.3  --  RINCONADA ARROYO
COMPUTE RATING CURVE ID=1 VS NO=1 SEG=1
                     MIN EL=100.    MAX EL=109.
                     CH SL=0.024    FP SLOPE=0.024
                     N=0.030        DIST=42.
                     DIST    ELEV    DIST   ELEV
                     0       110     15     100
                     27      100     42     110
ROUTE MCUNGE         ID=7  HYD=L15.3_1   INFLOW ID=20  DT=0HR  L=6750
                     NS=0   SLOPE=.024  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=7   CODE=10
*S  COMPUTE HYDROGRAPH FOR BASIN L15.3
*   WAS BASIN 135 IN DAM15 STUDY
 OMPUTE NM HYD       ID=3      HYD=L15.3   DA=0.6297 SQ MI
                     PER A=61  PER B=25  PER C=13  PER D=1
                     TP=-0.280    RAIN=-1
PRINT HYD            ID=3       CODE=10
*
  ADD L15.1-2 AND L15.3
 DD HYD              ID=4       HYD=L15.3_2
                     ID=3       ID=7
PRINT HYD            ID=4       CODE=10
*
  ROUTE FLOW THRU 2-10'x5' CBC UNSER
 OMPUTE RATING CURVE ID=1      VS NO=1     NO SEGS=1
                     MIN EL=0   MAX EL=5
                     CH SLP=0.002    FP SLOPE=0.002
                     N=0.015        DIST=20.03
                     DIST   ELEV   DIST   ELEV    DIST   ELEV
                     0      5      0.01   0       10.01  0
                     10.02  5     10.03   0       20.02  0
                     20.03  5
ROUTE MCUNGE         ID=5  HYD=L15.3_3   INFLOW ID=4  DT=0HR  L=300
                     NS=0   SLOPE=.002  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=5       CODE=10

 S  ROUTE FLOW INTO RINCONADA CHANNEL
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEG=1
                     MIN EL=100       MAX EL=109
                     CH SLOPE=0.0136  FP SLOPE=0.0136
                     N=0.015          DIST=42
                     DIST   ELEV    DIST   ELEV
                     0      110     15     100
                     27     100     42     110
 UTE MCUNGE          ID=6  HYD=L15.4_1   INFLOW ID=5  DT=0HR  L=2200
                     NS=0   SLOPE=.0136  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=6      CODE=10
*
* SEDIMENT BULK        CODE=1   BULK FACTOR=1.025

  COMPUTE HYDROGRAPH FOR BASIN L15.5*  WAS BASIN 136 IN DAM15 STUDY
 OMPUTE NM HYD        ID=3     HYD=L15.5   DA=0.0703 SQ MI
                      PER A=0   PER B=23.4  PER C=23.4  PER D=53.2
                      TP=-0.283    RAIN=-1
 RINT HYD             ID=3      CODE=10

  ADD L15.5 TO FLOW IN RINCONADA CHANNEL
ADD HYD               ID=4      HYD=L15.4_2
                      ID=3      ID=6
 RINT HYD             ID=4      CODE=10

  ROUTE FLOW THRU RINCONADA CHANNEL TO LADERA GOLF COURSE
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=100    MAX EL=109
                      CH SLP=0.0136 FP SLP=0.0136
                      N=0.015       DIST=42
                      DIST    ELEV    DIST    ELEV
                      0       110     15      100
                      27      100     42      110
 OUTE MCUNGE          ID=7  HYD=L15.4_3   INFLOW ID=4  DT=0HR  L=1000
                      NS=0   SLOPE=.0136  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=7     CODE=10
*S
*S COMPUTE HYDROGRAPH FOR BASIN L15.4
*   WAS BASIN 137 IN DAM15 STUDY
 MPUTE NM HYD         ID=3      HYD=L15.4   DA=0.0766 SQ MI
                      PER A=0  PER B=21  PER C=27  PER D=52
                      TP=-0.199    RAIN=-1
PRINT HYD             ID=3     CODE=10
*S
  COMPUTE HYDROGRAPH FOR BASIN L15.12 -- LADERA GOLF COURSE
    WAS BASIN 134 IN DAM15 STUDY
COMPUTE NM HYD        ID=4      HYD=L15.12   DA=0.3609 SQ MI
                      PER A=0  PER B=72  PER C=18 PER D=10
                      TP=-1.3877    RAIN=-1
 RINT HYD             ID=4       CODE=10
**********************************************************************
* DELETED ADD HYD COMBINING 134 AND 137  C. HOOVER 1/29/91
**********************************************************************
```

```
*S  ADD FLOW FROM RINCONADA CHANNEL TO FLOW FROM BASIN L15.4
 S  TOTAL FLOW IN RINCONADA CHANNEL ENTERING LADERA GOLF COURSE DAM
 D HYD                ID=2        HYD=RINC_TODAM15
                      ID=3        ID=7
PRINT HYD             ID=2        CODE=10
PUNCH HYD             ID=2        CODE=1

**********************************************************************
  DELETED ADD HYD COMBINING FLOWS FROM 134, 137, RINCONDA CHANNEL AND
* FLOWS WEST OF LADERA GOLF COURSE     C. HOOVER 1/29/91
**********************************************************************

 S TOTAL FLOW FROM QUICK CHANNEL (AREA WEST OF LADERA GOLF COURSE)
 RINT HYD             ID=11       CODE=10
PUNCH HYD             ID=11       CODE=1
*
 S  TOTAL FLOW FROM WEST BLUFF WATERSHED AP 205 AND DAM NO 14
 D HYD                ID=47       HYD=DAM14_2DAM15
                      ID=45       ID=46
PRINT HYD             ID=47       CODE=10
PUNCH HYD             ID=47       CODE=1

**********************************************************************
  COMBINE FLOWS FROM RINCONDA CHANNEL, QUICK CHANNEL, DAM NO. 14
* AND LADERA GOLF COURSE (BASIN 134)
* TOTAL FLOW THROUGH LADERA GOLF COURSE DAM
* C. HOOVER 1/29/91
**********************************************************************

*S  ADD FLOW FROM QUICK CHANNEL TO FLOW FROM DAM NO 14
ADD HYD               ID=3        HYD=DAM14_QUICK
                      ID=11       ID=47
 RINT HYD             ID=3        CODE=10

*S  ADD FLOW FROM RINCONDA CHANNEL
ADD HYD               ID=5        HYD=DAM14_NRINC
                      ID=3        ID=2
 RINT HYD             ID=2        CODE=10
 S  ADD FLOW FROM BASIN 134
ADD HYD               ID=15       HYD=TO_DAM15
                      ID=5        ID=4
PRINT HYD             ID=15       CODE=10
 S
 S   ROUTE FLOW THROUGH LADERA DAM15
ROUTE RESERVOIR     ID=48  HYD=POND15
                    INFLOW ID=15       CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)            (AC-FT)          (FT)
                       0.0             0.0           5102.0
                     58.00             .07           5102.6
                     66.00             .22           5103.2
                     72.20            0.45           5103.8
                     75.70            1.53           5104.2
                     78.9             8.85           5104.6
                     81.6            23.3            5105.0
                     85.6            56.7            5105.6
                     89.6           102.90           5106.2
                     93.5           105.1            5106.8
                     97.4           230.2            5107.4
                     101.3          314.7            5108.0
                     105.2          412.7            5108.6
                     108.9          522.3            5109.2
                     112.5          644.5            5109.8
                     115.9          776.1            5110.4
                     119.2          906.0            5111.0
                     122.0         1037.0            5111.6
                     125.5         1174.6            5112.2
                    5128.0         1316.8            5112.8
 RINT HYD             ID=48     CODE=10
 NISH
```

AHYMO Summary – Option 4

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - - VERSION: 1997.02c RUN DATE (MON/DAY/YR)
11/02/2011
INPUT FILE = P:\20110349\WR\AHYMO\Workarea\OPTION~4\FINAL\OP2CD1~1.TXT USER NO.=
AHYMO-S-9702c1BohanHu-AH

COMMAND NOTATION	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

```
   *S   AHYMO FILE FOR WEST I-40 DMP REVISED
   *S   DEVELOPED CONDITIONS, 24HR, 100YR.
   *S   WITH SEDIMENT BULKING & WITHOUT SEDIMENT REDUCTION AT PONDS.
   *S
   *S  FILE: OPT4_FINAL_10_31_11.TXT
   *S  DATE REVISED: 10/31/11
   *S*************************************************************************
   *S  MODEL REVISED FROM ORIGINAL WI40 REVISED MODEL FOR DESIGN PURPOSES
   *S    CHANGES:
   *S      1.  ALLOWED PORTION OF LOCAL FLOW FROM OS.6 TO FLOW UNDER I40 THOUGH EXI
   *S                  UTED ST.6 TO FLOW UNDER I40 THROUGH EXISTING CULVERT  6/8/06
   *S                  W TO 98TH STREET BOXES OUTFALL EAST OF 98TH STREET IN CHANNE
   *S                  S ALONG I40 TO ACCOUNT FOR STUB-OUT PLACEMENTS  6/13/06 WI40
   *S                  5.  EASP RESIZED FOR SURGE POND CONDITIONS 6/13/06
   *S                  .  ROADWAY FLOW ADDED TO THE I-40 SD AT 8 LOCATIONS. 6/21/06
   *S                  ROM 98TH BOXES AND SD TOGETHER IN ST.8    6/28/06        W
   *S      8.  CHANGED I40 PIPE SIZES TO REFECT CURRENT DESIGN        6/28/06
   *S                  ESS PARK LAYOUT AT DEII TO ACOMODATE FRONTAGE ROAD. 10/13/06
   *S                  7 TO CONTINUE THROUGH EA BOXES FOR 404 REQUIREMENT. 10/13/06
   *S     11. UPDATED MODEL WITH CORRECTED STAGE STORAGE CURVES FOR DAM O, 2, AND
   *S                  ALONG DAM 5 ARRROYO NEAR THE STADUIM SITE THAT WILL CONVEY F
   *S                  ROYO DAM 250 ACRE FEET LARGER TO A TOTAL OF 376 ACRE FEET AN
   *S                      CHANGED THE OUTFLOW PIPE FROM 4.5' TO 3' IN DIAMETER
   *S                  RIFCE PLATE ON DAM5S TO MAXIMIZE STORAGE IN SOCCER FIELD DAM
   *S                  15. ADDED ORIFICE PLATE TO DAM #2
   *S                  16. ADDED ORIFICE PLATE TO DAM #1P
   *S                  17. CHANGED OUTLET PIPE IN PROPOSED DAM 5 ARROYO DAM
   *S                  18. REMOVED ORIFICE PLATES ON DAMS 8 AND 9
   *s                  19. added a diversion from dam 5s to stormcloud subdivision
   *S
   *S*************************************************************************
   *S
   *S///////////////////////////////////////////////////////////////
   *S
   *S                WEST I-40 DRAINAGE MANAGEMENT PLAN REVISION
   *S
   *S///////////////////////////////////////////////////////////////
   START                                                                    TIME=
.00
   RAINFALL  TYPE= 2                                                        RAIN24=
2.720
   SEDIMENT BULK                                                            PK BF =
1.02
   *S
   *S      SUB-BASIN WA.1
   COMPUTE NM HYD          WA.1   -     1       1.44625       896.00       57.428       .74454    1.700      .968 PER IMP=
1.33
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.1     1    1       1.08469       672.00       43.071       .74453    1.700      .968
                          SURGE   and   88        .36156       224.00       14.357       .74453    1.700      .968
   *S
   *S      SUB-BASIN WA.2
```


COMMAND NOTATION	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

```
   COMPUTE NM HYD          WA.2   -     2        .14350        97.28        7.605        .99372    1.750    1.059 PER IMP=
71.76
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.2     2    2        .10763        72.96        5.704        .99371    1.750    1.059
                          SURGE   and   88        .03587        24.32        1.901        .99371    1.750    1.059
   *S
   *S    COMBINED FLOW FROM WA.1 & WA.2 FLOW INTO SMALL PLAYA THEN ROUTE THROUGH
   *S    WA.3
   ADD HYD                WA.1.2  1& 2   3       1.19231       742.09       48.775       .76703    1.700      .972
   ROUTE RESERVOIR        WA.1.2    3    4       1.19231       139.53       21.176       .33300    2.450      .183 AC-FT=
33.630
   *S     ROUTE THRU SUB-BASIN WA.3
   ROUTE MCUNGE           417.20    4    5       1.19231       138.25       21.110       .33197    2.600      .181 CCODE =
.1
   *S
   *S      SUB-BASIN WA.3
   COMPUTE NM HYD          WA.3   -     1        .19028       149.50       10.036       .98891    1.700    1.228 PER IMP=
1.56
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.3     1    1        .14271       112.13        7.527       .98891    1.700    1.228
                          SURGE   and   88        .04757        37.38        2.509       .98891    1.700    1.228
   *S
```

```
   *S       SUB-BASIN WA.4
   COMPUTE NM HYD          WA.4    -      2        .20419        95.25        7.362        .67599     1.800      .729 PER IMP=
3.41
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.4     2     2        .15314        71.44        5.521        .67599     1.800      .729
                          SURGE   and    88        .05105        23.81        1.840        .67599     1.800      .729
   *S
   *S       ADD SUB-BASINS WA.3 & WA.4 PLUS ROUTED FLOW THRU WA.1
   ADD HYD               WA.3.4  1& 2    3        .29585       180.01       13.048        .82693     1.750      .951
   ADD HYD               420.10  3& 5    4       1.48817       180.01       34.158        .43037     1.750      .189
   *S       ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7
   ROUTE MCUNGE          420.20    4     5       1.48817       172.83       33.978        .42810     2.200      .181 CCODE =
.1
   *S
   *S       SUB-BASIN WA.5
   COMPUTE NM HYD          WA.5    -      1        .85401       906.51       68.122       1.49564     1.750     1.659 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.5     1     1        .64051       679.88       51.092       1.49564     1.750     1.659
                          SURGE   and    88        .21350       226.63       17.031       1.49564     1.750     1.659
   *S
   *S       ROUTE SUB-BASIN WA.5 THRU SUB-BASIN WA.7
   *S         ADD TO PREVIOUSLY ROUTED FLOWS
   ROUTE MCUNGE          416.10    1     2        .64051       679.97       51.101       1.49592     1.850     1.659 CCODE =
.2
   ADD HYD               416.20  2& 5    3       2.12867       684.03       85.079        .74940     1.850      .502
   *S
   *S       SUB-BASIN WA.6
   COMPUTE NM HYD          WA.6    -      1        .15907       207.35       12.689       1.49564     1.650     2.037 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.6     1     1        .11930       155.51        9.516       1.49564     1.650     2.037
                          SURGE   and    88        .03977        51.84        3.172       1.49564     1.650     2.037
   *S
   *S     WA.6 ROUTES THROUGH A PLAYA THAT DRAINS TO WA.8
   ROUTE RESERVOIR         WA.6     1     2        .11930          .01         .014        .00216    25.700      .000 AC-FT=
9.505
   *S
   *S
   *S       SUB-BASIN WA.8
```

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
										PAGE = 3
COMPUTE NM HYD	WA.8	-	1	.11164	120.81	8.905	1.49564	1.750	1.691	PER IMP= 2.30
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.8	1	1	.08373	90.60	6.679	1.49564	1.750	1.691	
	SURGE	and	88	.02791	30.20	2.226	1.49564	1.750	1.691	
*S										
*S ADD FLOW FROM SUB-BASIN WA.6 To WA.8 AND ROUTE THROUGH										
*S A PLAYA BEFORE ROUTING THROUGH WA.9										
ADD HYD	WA.8.1	2& 1	4	.20303	90.61	6.693	.61806	1.750	.697	
ROUTE RESERVOIR	WA.8.1	4	2	.20303	.42	.193	.01779	20.800	.003	AC-FT= .513
S ROUTE FLOW THROUGH 24" PIPE --LEM 2/13/06										
ROUTE MCUNGE	414.30	2	1	.20303	.42	.192	.01777	21.100	.003	CCODE = .2
*S										
*S SUB-BASIN WA.9										
COMPUTE NM HYD	WA.9	-	2	.20075	257.36	16.013	1.49564	1.650	2.003	PER IMP= 2.30
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.9	2	2	.15056	193.02	12.010	1.49564	1.650	2.003	
	SURGE	and	88	.05019	64.34	4.003	1.49564	1.650	2.003	
*S										
*S ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.7										
ADD HYD	WA9.1	1& 2	4	.35360	193.02	12.202	.64705	1.650	.853	
ROUTE MCUNGE	WA9.2	4	1	.35360	191.23	12.203	.64708	1.650	.845	CCODE = .2
*S										
*S SUB-BASIN WA.7										
COMPUTE NM HYD	WA.7	-	2	1.16328	1196.26	89.249	1.43854	1.750	1.607	PER IMP= 40.01
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.7	2	2	.87246	897.19	66.937	1.43854	1.750	1.607	
	SURGE	and	88	.29082	299.06	22.312	1.43854	1.750	1.607	
*S										
*S ADD SUB-BASIN WA.7 TO ROUTED FLOWS										
*S ROUTE THRU SUB-BASIN WA.16										
ADD HYD	WA.7.1	1& 2	4	1.22605	1075.41	79.140	1.21028	1.750	1.371	
ADD HYD	WA.7.2	4& 3	1	3.35473	1698.35	164.219	.91784	1.800	.791	
ROUTE MCUNGE	WA.7.3	1	5	3.35473	1695.42	164.195	.91771	1.900	.790	CCODE = .2
*S										
*S SUB-BASIN WA.10										
COMPUTE NM HYD	WA.10	-	1	.34125	398.42	27.221	1.49564	1.700	1.824	PER IMP= 42.30
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.10	1	1	.25594	298.81	20.415	1.49564	1.700	1.824	
	SURGE	and	88	.08531	99.60	6.805	1.49564	1.700	1.824	

```
   *S
   *S      WA.10 FLOWS INTO PLAYA BEFORE ROUTING TO WA.11
   ROUTE RESERVOIR        WA.10    1    2        .25594        49.74       19.379       1.41969     2.450      .304 AC-FT=
11.993
   *S
   *S
   *S      SUB-BASIN WA.11
   COMPUTE NM HYD         WA.11    -    1        .33875       396.28       27.021       1.49564     1.700     1.828 PER IMP=
 2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             WA.11    1    1        .25406       297.21       20.266       1.49564     1.700     1.828
                          SURGE  and   88        .08469        99.07        6.755       1.49564     1.700     1.828
   *S
   *S      ADD FLOWS FROM SUB-BASIN WA.10 AND ROUTE THRU SUB-BASIN WA.12
```


COMMAND NOTATION	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	
ADD HYD	WA11.1	1& 2	3	.51000	323.11	39.645	1.45752	1.700	.990	
ROUTE MCUNGE	WA11.2	3	1	.51000	321.37	39.642	1.45744	1.700	.985	CCODE =
.2										
*S										
*S SUB-BASIN WA.12										
COMPUTE NM HYD	WA.12	-	2	.13927	154.93	11.109	1.49564	1.700	1.738	PER IMP=
2.30										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.12	2	1	.10445	116.20	8.332	1.49564	1.700	1.738	
	SURGE	and	88	.03482	38.73	2.777	1.49564	1.700	1.738	
*S										
*S ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.14										
ADD HYD	WA12.1	1& 2	3	.24372	271.12	19.441	1.49564	1.700	1.738	
ROUTE MCUNGE	WA12.2	3	1	.24372	230.41	19.115	1.47055	1.750	1.477	CCODE =
.2										
*S										
*S SUB-BASIN WA.14										
COMPUTE NM HYD	WA.14	-	2	.05985	44.67	4.774	1.49564	2.000	1.166	PER IMP=
42.30										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.14	2	2	.04489	33.50	3.581	1.49562	2.000	1.166	
	SURGE	and	88	.01496	11.17	1.194	1.49562	2.000	1.166	
*S										
*S ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.13										
ADD HYD	WA.14.1	1& 2	3	.28861	256.76	22.696	1.47445	1.800	1.390	
ROUTE MCUNGE	WA14.2	3	1	.28861	255.41	22.702	1.47484	1.900	1.383	CCODE =
.2										
*S										
*S SUB-BASIN WA.13										
COMPUTE NM HYD	WA.13	-	2	.97385	1068.76	77.682	1.49564	1.700	1.715	PER IMP=
42.30										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.13	2	2	.73039	801.57	58.261	1.49564	1.700	1.715	
	SURGE	and	88	.24346	267.19	19.420	1.49564	1.700	1.715	
*S										
*S ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.16										
ADD HYD	WA13.1	1& 2	3	1.01900	977.54	80.963	1.48975	1.800	1.499	
ROUTE MCUNGE	WA13.2	3	1	1.01900	967.85	80.872	1.48808	1.850	1.484	CCODE =
.2										
*S										
*S SUB-BASIN WA.16										
COMPUTE NM HYD	WA.16	-	2	1.39121	1766.03	110.973	1.49564	1.650	1.983	PER IMP=
2.30										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.16	2	2	1.04341	1324.52	83.230	1.49564	1.650	1.983	
	SURGE	and	88	.34780	441.51	27.743	1.49564	1.650	1.983	
*S ADD ALL ROUTED FLOWS										
ADD HYD	WA.16.1	1& 2	3	2.06241	2049.33	164.102	1.49190	1.750	1.553	
ADD HYD	WA.16.2	3& 5	4	5.41713	3543.49	328.297	1.13631	1.850	1.022	
*S ROUTE THROUGH A PLAYA BEFORE WA.18 THEN										
*S ROUTE FLOW THRU SUB-BASIN WA.18										
*S MADE WEIR LARGER TO ACCOMONDATE LARGER FLOWS -LEM 1/25/06										
ROUTE RESERVOIR	WA.16.1	4	1	5.41713	3483.56	319.244	1.10498	1.900	1.005	AC-FT=
9.143										
ROUTE MCUNGE	WA.16.3	1	2	5.41713	3470.17	318.739	1.10323	2.000	1.001	CCODE =
.1										
*S										
*S SUB-BASIN WA.17										
COMPUTE NM HYD	WA.17	-	1	.31260	407.24	24.935	1.49564	1.650	2.036	PER IMP=
42.30										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	WA.17	1	1	.23445	305.43	18.701	1.49564	1.650	2.036	
	SURGE	and	88	.07815	101.81	6.234	1.49564	1.650	2.036	
*S										

COMMAND NOTATION	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	
*S ROUTE FLOW FROM SUB-BASIN WA.17 THRU SUB-BASIN WA.18										
ROUTE MCUNGE	WA.17.1	1	3	.23445	304.55	18.706	1.49596	1.800	2.030	CCODE =

```
   .2
    *S
    *S      SUB-BASIN WA.18
    COMPUTE NM HYD          WA.18   -     1       1.37385      1721.71      109.589      1.49564    1.650    1.958 PER IMP=
42.30
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD              WA.18    1    1       1.03039      1291.28       82.191      1.49564    1.650    1.958
                            SURGE  and   88        .34346       430.43       27.397      1.49564    1.650    1.958
    *S
    *S     ADD TO ALL ROUTED FLOWS
    ADD HYD               WA.18.1  1& 3   4       1.26484      1501.55      100.897      1.49570    1.700    1.855
    ADD HYD               WA.18.2  4& 2  68       6.68197      4284.95      419.636      1.17752    2.000    1.002
    *S
    *S
    *S      COMPUTE SUB-BASIN EA.5
    *S*   BASIN INCLUDES TEMPUR SITE AND CORDERO BUSINESS PARK
    COMPUTE NM HYD            EA.5   -     2        .88823      1066.81       70.852      1.49564    1.700    1.877 PER IMP=
2.30
    *S
    *S* DIVIDE REMINING EA.5 TO ACCOUNT FOR FLOW GOING INTO WEST AMOLE DAM
    DIVIDE HYD          WESTAMOLE     2    4        .44412       533.41       35.426      1.49564    1.700    1.877
                      SHAMRK/TEMP   and    3        .44412       533.41       35.426      1.49564    1.700    1.877
    *S* FLOW TO ADD TO WEST AMOLE DAM
    *S
    *S      DIVIDE REMAINING FLOW TO ACCOUNT FOR TEMPER SD
    DIVIDE HYD              TEMPER    3   63        .41249       387.23       32.903      1.49564    1.550    1.467
                           SHAMROCK  and   62        .03162       146.18        2.523      1.49564    1.700    7.222
    *S* FLOW TO TEMPER SD
    *S*
    *S* FLOW TO SHAMROCK CHANNEL
    *S
    *S
    *S* ADD WEST AMOLE WATERSHED FLOW TO PORTION OF EA.5
    *S* TOTAL FLOW INTO WEST AMOLE DAM
    ADD HYD               WAMOLEIN  4&68  24       7.12609      4584.17      455.062      1.19735    1.950    1.005
    *S*
    *S
    *S      SUB-BASIN EA.3
    COMPUTE NM HYD            EA.3   -     4        .05863        62.03        4.677      1.49564    1.750    1.653 PER IMP=
42.30
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD                EA.3    4    4        .04397        46.52        3.508      1.49563    1.750    1.653
                            SURGE   and   88        .01466        15.51        1.169      1.49563    1.750    1.653
    *S
    *S       ROUTE OVERFLOW THRU SUB-BASIN EA.2
    *S                    ROUTE WITH A 66 IN PIPE
    ROUTE MCUNGE            EA.3.3    4    1        .04397        46.29        3.507      1.49553    1.800    1.645 CCODE =
   .2
    *S
    *S      SUB-BASIN EA.1
    COMPUTE NM HYD            EA.1   -     2        .05853        88.65        4.669      1.49564    1.550    2.366 PER IMP=
42.30
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD                EA.1    2    2        .04390        66.48        3.502      1.49563    1.550    2.366
                            SURGE   and   88        .01463        22.16        1.167      1.49563    1.550    2.366
    *S
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    *S     ROUTE THROUGH PLAYA, AND THEN THROUGH EA.2
    ROUTE RESERVOIR         407.01    2    3        .04390        35.11        2.353     1.00504     1.800    1.250 AC-FT=
1.511
    ROUTE MCUNGE              EA.1.1  3    2        .04390        33.20        2.302      .98325     2.300    1.182 CCODE =
   .1
    *S
    *S      SUB-BASIN EA.2
    COMPUTE NM HYD            EA.2   -     3        .22414       222.59       17.879      1.49564    1.800    1.552 PER IMP=
42.30
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD                EA.2    3    3        .16811       166.94       13.409      1.49564    1.800    1.552
                            SURGE   and   88        .05603        55.65        4.470      1.49564    1.800    1.552
    *S
    *S      ADD TO PREVIOUSLY ROUTED FLOWS
    ADD HYD               EA.2.1   1& 2   4        .08787        50.55        5.809      1.23960    2.300     .899
    ADD HYD               EA.2.2   3& 4   7        .25598       213.23       19.219      1.40775    1.800    1.302
    *S commented out diversion under I-40 1/23/06 LEM
    *S
    *S      SUB-BASIN EA.4
    COMPUTE NM HYD            EA.4   -     2        .27562       301.01       21.986      1.49564    1.750    1.706 PER IMP=
2.30
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD                EA.4    2    2        .20672       225.76       16.489      1.49564    1.750    1.706
                            SURGE   and   88        .06890        75.25        5.496      1.49564    1.750    1.706
    *S
    *S* ADD ROUTED EA.2 AND BASIN EA.4
    ADD HYD               EA.4.1   2& 7   7        .46269       437.77       35.708      1.44701    1.750    1.478
    *S* ROUTE FLOW THROUGH PASEO DEL VOLCAN POND
    *S* ADDED TO DECREASE SIZE OF DOUBLE EAGLE II POND - AQC 7/11/06
    *S* 36" PIPE OUTFLOW WITH 24" ORIFICE OPENING
    ROUTE RESERVOIR   PASDVOLCAN    7    2        .46269        36.92       34.819      1.41099    3.150     .125 AC-FT=
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23.730
   *S      ROUTE THRU SUB-BASIN EA.6 TO WEST AMOLE DAM
   ROUTE MCUNGE          EA.6.1    2    3        .46269        36.92       34.766      1.40884     3.400      .125 CCODE =
  .2
   *S
   *S                  WEST AMOLE DAM
   *S                  36 INCH PIPE PRIMARY SPILLWAY
   ROUTE RESERVOIR    WESTAMOLE   24    4       7.12609       118.41      262.331       .69024     5.500      .026 AC-FT=
17.483
   *S ADD FLOW TO SHAMROCK FLOW
   ADD HYD           WASHAMROCK  4&62   60       7.15771       206.67      264.853       .69380     1.700      .045
   *S     ROUTE THRU PROPOSED SHAMROCK CHANNEL DETENTION POND
   *S                  48 INCH PIPE PRIMARY SPILLWAY w/ ORIFICE PLATE
   ROUTE RESERVOIR     shampond    60    4       7.15771       114.11      250.029       .65496    15.250      .025 AC-FT=
17.906
   *S      ROUTE THRU ALONG EA.16B TO PDV POND ADD-IN
   ROUTE MCUNGE          EA.6.1    4   60       7.15771       114.11      249.856       .65451    15.300      .025 CCODE =
  .2
   *S* ADD ROUTED PDV FLOW TO WEST AMOLE FLOW
   ADD HYD             WAMOLEIN 60& 3    4       7.62040       137.07      284.622       .70031     8.150      .028
   *S
   *S      SUB-BASIN EA.6
   *S                  N EA.6 IS ALLOWED TO CONTINUE UNDER I40 EXCEPT SECTION EA.6B
   *S      SUB-BASIN EA.6B
   COMPUTE NM HYD        EA.6B   -    2        .10340       205.59       12.107      2.19550     1.550    3.107 PER IMP=
80.00
   *S ADD COMBINED FLOW TO EA.6B
   ADD HYD           WASHAMROCK  2& 4   72       7.72380       217.00      296.730       .72033     1.600      .044
   *S      ROUTE TO CHANNEL
   *S*     ROUTE WITH A 60" PIPE

                                 FROM  TO                      PEAK         RUNOFF                TIME TO    CFS       PAGE =
 7
                    HYDROGRAPH    ID    ID        AREA      DISCHARGE      VOLUME      RUNOFF       PEAK      PER
   COMMAND        IDENTIFICATION  NO.   NO.     (SQ MI)      (CFS)       (AC-FT)   (INCHES)    (HOURS)    ACRE
NOTATION

   ROUTE MCUNGE        RTWASHAM   72    61       7.72380       213.90      296.379       .71948     1.650      .043 CCODE =
  .2
   *S      SUB-BASIN EA.18
   COMPUTE NM HYD        EA.18   -    5        .03494        26.72        2.787      1.49564     1.950    1.195 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD            EA.18    5    5       .02621        20.04        2.090      1.49561     1.950    1.195
                         SURGE   and   88       .00873         6.68         .697      1.49561     1.950    1.195
   *S
   *S      ASSUME EXISTING PLAYA REMOVED DUE TO DEVELOPMENT.
   *S      ROUTE THRU SUB-BASIN EA.7
   *S*     ROUTE THRU CONCRETE CHANNEL
   ROUTE MCUNGE          EA.7.1    5    4       .02621        19.55        2.075      1.48473     2.400    1.165 CCODE =
  .1
   *S
   *S      SUB-BASIN EA.7
   COMPUTE NM HYD          EA.7    -    5       .07607        44.37        6.068      1.49560     2.250     .911 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              EA.7    5    5       .05705        33.28        4.551      1.49560     2.250     .911
                         SURGE   and   88       .01902        11.09        1.517      1.49560     2.250     .911
   *S
   *S      ADD EA.7 TO ROUTED FLOWS
   ADD HYD               EA.7.1  4& 5   6       .08326        51.78        6.626      1.49217     2.350     .972
   *S                  cmp to account for increased developed flows - 1/23/06 -LEM
   ROUTE MCUNGE          EA.7.2    6    4       .08326        51.78        6.626      1.49217     2.350     .972 CCODE =
  .0
   *S     ROUTE THRU SUB-BASIN EA.11
   *S     ROUTE THRU A CONCRETE CHANNEL
   ROUTE MCUNGE          EA.7.3    4   15       .08326        51.69        6.627      1.49239     2.550     .970 CCODE =
  .2
   *S      SUB-BASIN EA.8
   COMPUTE NM HYD          EA.8    -    7       .42610       409.38       33.989      1.49564     1.800    1.501 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              EA.8    7    7       .31958       307.03       25.492      1.49564     1.800    1.501
                         SURGE   and   88       .10652       102.34        8.497      1.49564     1.800    1.501
   *S
   *S                  cmp to account for increased developed flows - 1/23/06 -LEM
   ROUTE MCUNGE          EA.8.1    7    5       .31958       307.03       25.492      1.49564     1.800    1.501 CCODE =
  .0
   *S      ROUTE THROUGH EA.11
   ROUTE MCUNGE          EA.8.2    5   16       .31958       306.55       25.495      1.49585     1.850    1.499 CCODE =
  .2
   *S      SUB-BASIN EA.9
   COMPUTE NM HYD          EA.9    -    6       .25599       253.56       20.420      1.49564     1.800    1.548 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              EA.9    6    6       .19199       190.17       15.315      1.49564     1.800    1.548
                         SURGE   and   88       .06400        63.39        5.105      1.49564     1.800    1.548
   *S
   *S
   *S                  cmp to account for increased developed flows - 1/23/06 -LEM
   ROUTE MCUNGE          EA.9.1    6    7       .19199       190.17       15.315      1.49564     1.800    1.548 CCODE =
  .0
   *S      CROSSES PASEO DEL VOLCAN ROUTE THROUGH EA.11
   ROUTE MCUNGE          EA.9.2    7   18       .19199       190.17       15.316      1.49576     1.800    1.548 CCODE =
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   .2
    *S      SUB-BASIN EA.11
    *S                EVISED DUE TO CHANGES IN PLANNED LAND DEVELOPMENT USE- 8/28/
    COMPUTE NM HYD         EA.11   -     9        .60500       658.29      56.285      1.74437    1.800    1.700 PER IMP=
53.20
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD             EA.11    9    9        .45375       493.72      42.214      1.74437    1.800    1.700
                           SURGE  and   88        .15125       164.57      14.071      1.74437    1.800    1.700
    *S
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COMMAND NOTATION	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	
*S	ADD EA.11 AND BASINS ROUTED THROUGH (EA.7, EA.8, & EA.9)									
ADD HYD	EA.11.1	9&15	6	.53701	494.05	48.840	1.70530	1.800	1.437	
ADD HYD	EA.11.2	6&16	9	.85658	797.17	74.336	1.62716	1.850	1.454	
ADD HYD	EA.11.3	9&18	10	1.04858	986.17	89.652	1.60310	1.850	1.470	
S ROUTE THROUGH RESERVOIR AT SOUTHERN PART OF EA.11										
S OUTFLOW WITH A 60" PIPE - LEM 1/25/06										
ROUTE RESERVOIR	EA.11.4	10	13	1.04858	72.82	81.424	1.45598	13.750	.109	AC-FT= 3.673
*S	ROUTE FLOW ALONG SD ON EAST SIDE OF EA.12									
S	ROUTE FLOW THROUGH CONCRETE CHANNEL - LEM 8/22/06									
ROUTE MCUNGE	1EA11RT	13	11	1.04858	72.48	81.313	1.45399	13.850	.108	CCODE = .2
*S**** COMPUTE BASIN EA.13 ****										
COMPUTE NM HYD	EA.13	-	14	.27470	411.97	25.556	1.74437	1.650	2.343	PER IMP= 53.20
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.13	14	14	.20603	308.98	19.167	1.74437	1.650	2.343	
	SURGE	and	88	.06867	102.99	6.389	1.74437	1.650	2.343	
*S										
S ADD ROUTED FLOW TO EA.13										
ADD HYD	EA.13TOT	14&11	16	1.25460	309.36	100.480	1.50167	1.650	.385	
*S	FLOW ROUTED TO DAM 0									
S	ROUTE FLOW THROUGH 72 IN PIPE TO EDGE OF ESCARPMENT									
ROUTE MCUNGE	2EA11RT	16	13	1.25460	307.76	100.385	1.50025	1.700	.383	CCODE = .2
S	ROUTE FLOW THROUGH ESCARPMENT TO POND 0									
S	ROUTE THROUGH 54 IN PIPE									
ROUTE MCUNGE	2EA11RT	13	11	1.25460	306.76	100.341	1.49960	1.750	.382	CCODE = .2
*S	SUB-BASIN EA.10									
COMPUTE NM HYD	EA.10	-	8	.30859	297.71	24.685	1.49985	1.800	1.507	PER IMP= 2.50
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.10	8	8	.23144	223.28	18.513	1.49984	1.800	1.507	
	SURGE	and	88	.07715	74.43	6.171	1.49984	1.800	1.507	
*S										
*S	ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD) VIA 24" CMP									
*S	cmp to account for increased developed flows - 1/23/06 -LEM									
ROUTE MCUNGE	EA.9.1	8	9	.23144	223.28	18.513	1.49984	1.800	1.507	CCODE = .0
*S	ROUTE ALONG EA.12 THROUGH CONCRETE CHANNEL									
ROUTE MCUNGE	RTEA10	9	10	.23144	222.82	18.512	1.49976	1.900	1.504	CCODE = .2
S CHANGED BASINS TO FIT REVISED MASTERPLAN DEVELOPMENT										
S BASINS/LAND PARCELS EAST OF PASEO DEL VOLCAN										
*S**** COMPUTE BASIN EA.12 ****										
S	BASIN EA.12 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT									
*S										
*S**** COMPUTE BASIN EA.12A										
COMPUTE NM HYD	EA.12A	-	1	.11200	105.88	10.420	1.74437	1.950	1.477	PER IMP= 53.20
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.12A	1	1	.08400	79.41	7.815	1.74436	1.950	1.477	
	SURGE	and	88	.02800	26.47	2.605	1.74436	1.950	1.477	
*S**** COMPUTE BASIN EA.12B										
COMPUTE NM HYD	EA.12B	-	13	.09260	78.85	8.615	1.74436	2.050	1.331	PER IMP= 53.20
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.12B	13	13	.06945	59.14	6.461	1.74436	2.050	1.331	
	SURGE	and	88	.02315	19.71	2.154	1.74436	2.050	1.331	
*S**** COMBINE EA.12A AND EA.12B ****										

COMMAND NOTATION	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
ADD HYD	EA.12TOT	1&13	9	.15345	137.22	14.276	1.74435	1.950	1.397
*S**** COMBINE ROUTED EA.10 AND EA.12 ****									
ADD HYD	EA.11&12	9&10	8	.38489	357.03	32.788	1.59727	1.900	1.449
S ROUTE BASIN EA.12 THROUGH BASIN EA.15									
S ROUTE THROUGH CHANNEL									
ROUTE MCUNGE	RTEA.12	8	17	.38489	356.31	32.786	1.59718	1.950	1.446 CCODE = .2
*S									
*S									
*S**** COMPUTE BASIN EA.15 ****									

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   *S*    BASIN EA.15 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT
   *S
   *S**** COMPUTE BASIN EA.15A
   COMPUTE NM HYD        EA.15A   -    16        .08260       106.99       8.189      1.85883    1.750    2.024 PER IMP=
60.00
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD            EA.15A   16   16        .06195        80.24       6.142      1.85882    1.750    2.024
                          SURGE   and  88        .02065        26.75       2.047      1.85882    1.750    2.024
   *S
   *S**** COMPUTE BASIN EA.15B
   COMPUTE NM HYD        EA.15B   -    13        .17370       286.33      21.899      2.36383    1.700    2.576 PER IMP=
).00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD            EA.15B   13   13        .13028       214.74      16.424      2.36383    1.700    2.576
                          SURGE   and  88        .04342        71.58       5.475      2.36383    1.700    2.576
   *S**** COMBINE ROUTED EA.12 WITH EA.15A ****
   ADD HYD            TOTEA.15A 16&17  20        .44684       415.75      38.928      1.63346    1.950    1.454
   *S*
   *S**** ADD TOTAL FLOW TO EA.15B ****
   ADD HYD             TOTEA.15 20&13  22        .57712       570.90      55.352      1.79832    1.900    1.546
   *S*
   *S
   *S
   *S**** ADD IN TEMPER FLOW ****
   ADD HYD               TEMPIN 22&63  21        .98961       956.85      88.255      1.67216    1.850    1.511
   *S**** COMPUTE BASIN EA.14 ****
   *S    LAND TREATMENTS CHANGED TO REFLECT CURRENT DEVELOPMENT SCENARIO- LEM 8/9/0
   COMPUTE NM HYD        EA.14    -    15        .21040       285.96      19.574      1.74437    1.700    2.124 PER IMP=
53.20
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD            EA.14    15   15        .15780       214.47      14.681      1.74436    1.700    2.124
                          SURGE   and  88        .05260        71.49       4.894      1.74436    1.700    2.124
   *S
   *S  ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17A ADD IN
   *S  USE 72" PIPE
   ROUTE MCUNGE         RTEA.14    15   16        .15780       207.74      14.616      1.73670    1.750    2.057 CCODE =
  .2
   *S**** COMPUTE BASIN EA.17 ****
   *S  BASIN EA.17 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
   *S  BASINS ALLOWED FREE DISCHARGE TO EXISTING EAST AMOLE BOXES
   *S*
   *S**** COMPUTE BASIN EA.17B
   COMPUTE NM HYD        EA.17B   -    65        .02160        34.83       2.043      1.77331    1.600    2.520 PER IMP=
53.44
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD            EA.17B   65   65        .01620        26.12       1.532      1.77329    1.600    2.520
                          SURGE   and  88        .00540         8.71        .511      1.77329    1.600    2.520
   *S
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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 10
OTATION										

```
   *S
   *S**** EA.17B TO EA.14 ****
   *S  ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17B ADD IN
   *S  USE 72" PIPE
   ROUTE MCUNGE         RTEA.17B   16   15        .15780       207.63      14.617      1.73684    1.750    2.056 CCODE =
  .2
   *S*  ROUTE TEMPER ETC FLOW THROUGH CHANNEL TO EA.17 ADD IN
   *S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
   ROUTE MCUNGE       TOEA.17BIN   21   22        .98961       952.50      88.255      1.67216    1.850    1.504 CCODE =
  .2
   *S**** COMPUTE BASIN EA.17A
   COMPUTE NM HYD        EA.17A   -    66        .07340        91.14       7.248      1.85140    1.750    1.940 PER IMP=
 .45
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD            EA.17A   66   66        .05505        68.36       5.436      1.85138    1.750    1.940
                          SURGE   and  88        .01835        22.79       1.812      1.85138    1.750    1.940
   *S
   *S**** EA.17A TO CHANNEL ****
   *S  BASIN EA.16 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
   *S*
   *S**** COMPUTE BASIN EA.16A
   *S*
   COMPUTE NM HYD        EA.16A   -    13        .05330        69.68       4.205      1.47929    1.600    2.043 PER IMP=
3.88
   *S*                COMBINE EA.16 INTO CHANNEL FLOW
   ADD HYD            EA.16ADD 13&22  16       1.04291       993.87      92.460      1.66231    1.850    1.489
   *S*                COMBINE PIPE FLOW INTO CHANNEL FLOW
   ADD HYD            EA.14ADD 16&15  21       1.20071      1186.12     107.077      1.67210    1.800    1.544
   *S*  ROUTE FLOW THROUGH CHANNEL TO EA.16B ADD IN
   *S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
   ROUTE MCUNGE       TOEA.16BIN   21   22       1.20071      1185.51     106.999      1.67088    1.850    1.543 CCODE =
  .1
   *S**** COMPUTE BASIN EA.16B ****
   *S*
   COMPUTE NM HYD        EA.16B   -    15        .05620        49.91       3.138      1.04685    1.650    1.388 PER IMP=
21.29
   *S*
   *S*                COMBINE EA.16B INTO CHANNEL FLOW
```

```
   ADD HYD             EA.16ADD 15&22  21       1.25691      1223.01      110.137      1.64297    1.850    1.520
   *S
   *S    ADD WEST AMOLE AND SHAMROCK FLOW TO CHANNEL FLOW
   ADD HYD              ADDWAIN 21&61  22       8.98071      1376.90      406.516       .84873    1.850     .240
   *S**** COMPUTE BASIN EA.16c ****
   *S*
   COMPUTE NM HYD        EA.16c   -    15        .02140        34.36       2.698      2.36383    1.700    2.509 PER IMP=
).00
   *S
   *S*                COMBINE EA.16C INTO CHANNEL FLOW
   ADD HYD            EA.16CADD 15&22  21       9.00211      1406.56      409.214       .85233    1.850     .244
   *S
   *S*  ROUTE FLOW THROUGH CHANNEL TO EA.17C ADD IN
   *S   ROUTE TO EXISTING EAST AMOLE BOXES
   *S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
   ROUTE MCUNGE      TOEA.17CIN   21   22       9.00211      1401.73      408.728       .85132    1.900     .243 CCODE =
.1
   *S
   *S**** COMPUTE BASIN EA.17C
   *S*
   COMPUTE NM HYD        EA.17C   -    67        .08300       167.86        9.719      2.19550    1.550    3.160 PER IMP=
00.00
   *S  DIVERT 25% FOR SURGE POND CONDITION

                                  FROM  TO                    PEAK         RUNOFF                 TIME TO    CFS       PAGE =
11
                      HYDROGRAPH   ID   ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND         IDENTIFICATION  NO.  NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE
)TATION

   DIVIDE HYD            EA.17C   67   67        .06225       125.90        7.289      2.19549    1.550    3.160
                          SURGE  and   88        .02075        41.97        2.430      2.19549    1.550    3.160
   *S**** ADD EA.17A TO EA.17B AND EA.17C
   *S
   *S FLOW LEAVES PROJECT AREA THROUGH EXISTING BOX CULVERTS
   ADD HYD              EA.17AB 66&65  68       .07125        88.16        6.968      1.83362    1.700    1.933
   ADD HYD             EA.17ABC 68&67  69       .13350       200.50       14.257      2.00236    1.600    2.347
   *S**** ROUTE FLOW TO EAST AMOLE SURGE POND
   *S  ROUTE TO NEW AMOLE DAM SITE THRU 90" SD
   ROUTE MCUNGE          90"PIPE   22   30       9.00211      1400.60      408.322       .85047    1.950     .243 CCODE =
.2
   *S
   *S*************************************************************************************
   *S     CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA DAMS 1 THROUGH 12,
   *S             NORTH OF I-40: (SOUTHERN TERRACE WATERSHED)
   *S
   *S*************************************************************************************
   RAINFALL  TYPE= 2                                                                                    RAIN24=
630
   *S
   SEDIMENT BULK                                                                                        PK BF =
1.08
   *S**** COMPUTE BASIN OS.6 - REVISED TO INCLUDED WEST PORTION OF ST.2 ****
   *S*
   COMPUTE NM HYD          OS.6   -     2        .32050       435.81       11.155       .65258    1.500    2.125 PER IMP=
.00
   *S  DIVIDE OS.6 TO ACCOUNT FOR FLOW ALLOWED TO CONTINUE UNDER THE FREEWAY -- LEM
   *S  FLOW LEAVES PROJECT AREA THROUGH EXISTING 36" AND 48" PIPE
   DIVIDE HYD            36"PIPE    2   27        .02147        29.20         .747       .65258    1.500    2.125
                       REMAINDER  and   95        .29903       406.61       10.407       .65258    1.500    2.125
   DIVIDE HYD            42"PIPE   95    1        .02631        35.78         .916       .65258    1.500    2.125
                           EASP  and    2        .27271       370.83        9.492       .65258    1.500    2.125
   *S FLOW LEAVING PROJECT AREA THROUGH EXISTING 36" PIPE
   *S FLOW LEAVING PROJECT AREA THROUGH EXISTING 42" PIPE
   *S REMAINING FLOW INTO EASP
   *S* ROUTE SECTION OF OS.6 THROUGH 36" PIPE
   *S* FLOW LEAVING PROJECT AREA
   ROUTE MCUNGE          36"CULV   27   88        .02147        29.20         .747       .65256    1.500    2.125 CCODE =
.0
   *S* ROUTE SECTION OF OS.6 THROUGH 42" PIPE
   *S* FLOW LEAVING PROJECT AREA
   ROUTE MCUNGE          42"CULV    1   88        .02631        35.78         .916       .65256    1.500    2.125 CCODE =
.0
   SEDIMENT BULK                                                                                        PK BF =
.02
   *S
   *S**** FLOW REACHING IN1 ****
   *S*
   COMPUTE NM HYD           IN1   -    27        .00141         3.18         .128      1.69989    1.500    3.524 PER IMP=
3.98
   *S* ADD FLOW FROM IN1 TO I-40 SD
   ADD HYD                EATO 30&27   1       9.00352      1401.28      408.450       .85061    1.950     .243
   *S
   *S
   *S  DIVIDE FLOW FROM 90" SD INTO 36" SD CAPACITY
   DIVIDE HYD       maxflow36"SD    1   30       4.34197        83.00      196.976       .85061    1.450     .030
                    36"SDoverflo  and   27       4.66155      1318.28      211.475       .85061    1.950     .442
   *S* ADD I40 FLOW TO OS.6
   *S* TOTAL FLOW INTO EAST AMOLE DAM

                                  FROM  TO                    PEAK         RUNOFF                 TIME TO    CFS       PAGE =
12
                      HYDROGRAPH   ID   ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND         IDENTIFICATION  NO.  NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE
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NOTATION
   ADD HYD                EAIN 27& 2   1       4.93427      1350.41      220.966       .83966    1.950      .428
   *S*
   *S* ROUTE I40 CHANNEL FLOW THROUGH EAST AMOLE DAM **
   *S* CHANGED DISCHARGE TO A 36" PIPE - AQC 6/13/06
   *S  SUBTRACTED CAPACITY OF THE PIPE (83 CFS) FROM OUTFLOW TO ACCOUNT FOR SURGE P
   *S* POND STAGE STORAGE CHANGED TO ACCOMODATE 180 AC-FT
   ROUTE RESERVOIR    EASTAMOLE    1   95       4.93427        22.82       45.649       .17346    29.950      .007 AC-FT=
175.314
   *S
   *S  ADD EASP OUTFLOW BACK TO SD FLOW
   ADD HYD             36INTOT 30&95   1       9.27623       105.82       242.625       .49042    29.950      .018
   *S
   *S**** FLOW REACHING IN2 ****
   *S*
   COMPUTE NM HYD           IN2   -    30        .00259         5.83         .235      1.69989    1.500    3.516 PER IMP=
3.98
   *S* ADD FLOW FROM IN2 TO I-40 SD
   ADD HYD                EATO 30& 1   95       9.27882       105.82       242.860       .49075    29.950      .018
   *S
   *S
   *S* ROUTE DAM FLOW IN WEST I40 DIVERSION TO 2a INTERSECTION
   *S* USE 36 INCH PIPE
   ROUTE MCUNGE        TOEAMOLE   95   31       9.27882       105.81       242.139       .48930    29.950      .018 CCODE =
.2
   *S**** COMPUTE BASIN ST.1 ****
   *S*
   COMPUTE NM HYD           ST.1   -     1        .08110       124.22         4.468      1.03302    1.500    2.393 PER IMP=
15.00
   *S*                 ROUTE ST.1 THROUGH OS.5
   ROUTE MCUNGE           RTST.1    1    5        .08110       123.62         4.458      1.03073    1.750    2.382 CCODE =
.1
   *S**** COMPUTE BASIN OS.5 ****
   SEDIMENT BULK                                                                                          PK BF =
1.08
   COMPUTE NM HYD           OS.5   -     3        .09410       119.82         3.275       .65258    1.500    1.990 PER IMP=
.00
   *S*  ADD ROUTED ST.1 TO OS.5
   ADD HYD              OS.5TOT  5& 3   6        .17520       158.05         7.733       .82762    1.750    1.410
   *S
   *S*  ROUTE FLOW THROUGH SURGE POND ON EDGE OF ESCARPMENT
   *S*  USED 12 IN PIPE OUTFLOW
   ROUTE RESERVOIR  ESCARP.POND    6   24        .17520         5.14         6.822       .73006    2.800      .046 AC-FT=
6.755
   SEDIMENT BULK                                                                                          PK BF =
1.02
   *S
   *S**** COMPUTE BASIN ST.2a ****
   COMPUTE NM HYD          ST.2a   -    71        .04580        95.61         4.182      1.71202    1.500    3.262 PER IMP=
55.28
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD               ST.2   71   71        .03435        71.71         3.136      1.71201    1.500    3.262
                           SURGE   and  88        .01145        23.90         1.045      1.71201    1.500    3.262
   *S
   *S**** COMPUTE BASIN ST.2b ****
   COMPUTE NM HYD          ST.2b   -     5        .12470       269.45        11.297      1.69867    1.500    3.376 PER IMP=
3.46
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD               ST.2    5    5        .09353       202.09         8.473      1.69867    1.500    3.376
                           SURGE   and   3        .03117        67.36         2.824      1.69867    1.500    3.376
   *S
   *S
   *S* ADD OPEN SPACE SURGE POND OUTFLOW TO ST.2b
   ADD HYD              ST2TOT  5&24   6        .26873       203.13        15.295      1.06717    1.500    1.181
   *S* ADD ST.2a TO I40 FLOW

                                  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

   ADD HYD              I40ST2a 31&71   76       9.31317       148.92       245.276       .49381    1.500      .025
   *S
   *S
   *S**** FLOW REACHING IN3 ****
   *S*
   COMPUTE NM HYD           IN3   -    31        .00395         8.88         .358      1.69989    1.500    3.513 PER IMP=
3.98
   *S* ADD FLOW FROM IN3 TO I-40 SD
   ADD HYD                EATO 31&76   71       9.31712       157.80       245.634       .49432    1.500      .026
   *S
   *S* ROUTE 2a FLOW IN WEST I40 DIVERSION TO 2b
   *S* USE 42 INCH PIPE
   ROUTE MCUNGE        TOEAMOLE   71   31       9.31712       157.65       245.203       .49345    1.550      .026 CCODE =
.1
   *S
   *S**** FLOW REACHING IN4 ****
   *S*
   COMPUTE NM HYD           IN4   -    24        .00813        18.26         .737      1.69989    1.500    3.510 PER IMP=
48.98
   *S* ADD FLOW FROM IN4 TO FLOW FROM ST.2B
   ADD HYD                EATO  6&24   76       .27686       221.39        16.032      1.08575    1.500    1.249
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   *S
   *S* ADD ST.2b TO I40 FLOW
   ADD HYD              I40ST2b 31&76  76       9.59398       361.69      261.234       .51054    1.500      .059
   *S
   *S************************************************************************
   *S*  CALCULATE BASINS CONTRIBUTING TO DAM 0
   *S*  START OF DAM 0 DIVERSION
   *S************************************************************************
   *S**** COMPUTE BASIN UD.1C ****
   *S*
   COMPUTE NM HYD         UD.1C   -    62        .08790       188.97       7.867      1.67815    1.500    3.359 PER IMP=
.20
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             UD.1C   62   62        .06593       141.72       5.900      1.67814    1.500    3.359
                          SURGE   and  88        .02197        47.24       1.967      1.67814    1.500    3.359
   *S
   *S****              ROUTE UD.1C THROUGH OS.1 *****
   ROUTE MCUNGE          RTUD.1C   62   61        .06593       138.18       5.912      1.68146    1.650    3.275 CCODE =
.2
   SEDIMENT BULK                                                                                              PK BF =
1.07
   *S**** COMPUTE BASIN OS.1 ****
   *S*
   COMPUTE NM HYD           OS.1   -    99        .34260       436.37      11.571       .63326    1.500    1.990 PER IMP=
.00
   *S*** ADD UD.1C AND OS.1 ****
   ADD HYD               OS.1TOT 99&61  99        .40853       521.71      17.483       .80241    1.550    1.995
   SEDIMENT BULK                                                                                              PK BF =
..23
   *S**** COMPUTE BASIN OS.4 ****
   *S*
   COMPUTE NM HYD           OS.4   -    70        .15900       248.54       6.690       .78892    1.500    2.442 PER IMP=
.00
   *S*                 ROUTE OS.1 AND UD.1C ALONG WEST SIDE OF UD.1B
   *S****  ROUTE CHANNEL
   ROUTE MCUNGE          RTUD.1A   99   13        .40853       515.93      17.474       .80201    1.600    1.973 CCODE =
.2
   *S**** ADD FLOW FROM OS.4 TO CHANNEL FLOW
   ADD HYD                DAM0IN 13&70  61        .56753       700.19      24.164       .79834    1.600    1.928
   *S**** ADD FLOW FROM DAM EA.11 TO TOTAL FLOW
   *S* DAM ADDED TO SEE HOW WOULD AFFECT FLOW IN DAM SYSTEM- LEM 2/7/06

                                  FROM  TO                      PEAK         RUNOFF                TIME TO    CFS       PAGE =
.4
                        HYDROGRAPH   ID   ID        AREA     DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND         IDENTIFICATION    NO.  NO.      (SQ MI)     (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE
NOTATION

   *S**** TOTAL INFLOW TO DAM #0
   ADD HYD                DAM0IN 11&61  13       1.82213       921.18      124.506      1.28119    1.600     .790
   *S  ROUTE FLOW THROUGH POND #0.
   *S  OUTFLOW THROUGH 3.25 IN PIPE
   ROUTE RESERVOIR       PONDZERO   13   87       1.82213        77.98      112.509      1.15774    3.400     .067 AC-FT=
.896
   *S**** ROUTE DAM 0 ALONG NORTH SIDE OF ST.2 ***
   *S************************************************************************
   *S************************** END OF DAM 0 DIVERSION **************************
   *S************************************************************************
   *S*  ADD ROUTED ST.1 TO DAM 0
   *S
   *S  ROUTE FLOW ALONG I40 TO ST.4 INTERCEPT IN 36" PIPE
   *S  ROUTE FLOW  FROM 118TH STREET TO ST.4a INTERCEPT IN I-40 SYSTEM
   *S  ROUTED THROUGH 54" PIPE
   ROUTE MCUNGE          40OS.6   76   30       9.59398       360.22      260.789       .50967    1.550     .059 CCODE =
.1
   *S
   SEDIMENT BULK                                                                                              PK BF =
..02
   *S**** COMPUTE BASIN ST.4a ****
   *S*
   COMPUTE NM HYD          ST.4a   -    12        .12210       237.46      14.831       2.27745    1.600    3.039 PER IMP=
90.00
   *S
   *S**** FLOW REACHING IN5 ****
   *S*
   COMPUTE NM HYD            IN5   -     6        .00476        10.70        .432       1.69989    1.500    3.512 PER IMP=
48.98
   *S
   *S**** FLOW REACHING IN6 ****
   *S*
   COMPUTE NM HYD            IN6   -    19        .00078         1.76        .071       1.69989    1.500    3.535 PER IMP=
48.98
   *S* ADD FLOW FROM IN5 AND IN6
   ADD HYD                  EATO  6&19  61        .00554        12.46        .502       1.69980    1.500    3.515
   *S
   *S* ADD FLOW FROM IN5 AND IN6 TO FLOW FROM ST.4A
   ADD HYD                  EATO 61&12  76        .12764       245.99      15.333       2.25237    1.600    3.011
   *S
   *S  ADD ST.4a AND ROUTED I-40 DIVERSION (48" PIPE)
   ADD HYD             ST.4&OS.6 76&30  31       9.72162       593.10      276.122       .53255    1.550     .095
   *S
   *S  ROUTE FLOW FROM ST.4a ALONG I40 TO ST.4b
   *S  ROUTED THROUGH 72" PIPE
   ROUTE MCUNGE          40ST.4   31   30       9.72162       592.88      275.661       .53166    1.600     .095 CCODE =
```

```
.1
 *S**** COMPUTE BASIN ST.4b ****
 *S*
 COMPUTE NM HYD          ST.4b   -    12        .05410      138.80      6.571      2.27745     1.500     4.009 PER IMP=
90.00
 *S**** FLOW REACHING IN7 ****
 *S*
 COMPUTE NM HYD           IN7    -    61        .00451       10.14       .409      1.69989     1.500     3.512 PER IMP=
3.98
 *S* ADD FLOW FROM IN7 AND ST.4B
 ADD HYD                 EATO 61&12  76        .05861      148.94      6.980      2.23300     1.500     3.971
 *S  ADD ST.4b AND ROUTED I-40 DIVERSION (48" PIPE)
 ADD HYD              ST.4&OS.6 76&30  31       9.78023      693.31    282.641       .54186     1.600      .111
 *S
 *S  ROUTE FLOW FROM ST.4ab ALONG I40 TO 98TH STREET

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

 *S  ROUTED THROUGH 72" PIPE
 ROUTE MCUNGE          40ST.4    31    30       9.78023      657.90      282.175       .54097     1.650      .105 CCODE =
.2
 *S**** COMPUTE BASIN ST.3 ****
 COMPUTE NM HYD          ST.3    -    15        .08900      198.64        9.264      1.95174     1.500     3.487 PER IMP=
.00
 *S*                ROUTE ST.3 ALONG STREET TO 98TH STREET STORM DRAIN
 *S*                ROUTE FLOW IN 48" SD PIPE
 ROUTE MCUNGE          RTST.3    15    19        .08900      196.24        9.261      1.95096     1.550     3.445 CCODE =
.2
 *S******* 98TH STREET **************
 *S*************************************************************************************
 *S*
 *S*                                  COMPUTE FLOW THROUGH LADERA DAMS 1-4                              *
 *S*************************************************************************************
 RAINFALL  TYPE= 2
630                                                                                                      RAIN24=
 *S* ROUTE FLOW FROM DAM 0 THROUGH AN EARTHEN CHANNEL
 *S* ROUTE THROUGH UD.1B
 ROUTE MCUNGE          L0.1_1    87    12       1.82213       77.98      112.395      1.15656     3.450      .067 CCODE =
.2
 *S**** COMPUTE BASIN UD.1B ****
 *S*
 COMPUTE NM HYD          UD.1B   -    15        .12660      256.50       10.169      1.50614     1.500     3.166 PER IMP=
42.93
 *S  DIVERT 25% FOR SURGE POND CONDITION
 *S
 *S*** ADD DAM 0 TO UD.1B *****
 ADD HYD                DAM1IN 15&12  22       1.94873      256.58      122.564      1.17927     1.500      .206
 *S  ROUTE FLOW TO DAM 1
 *S* ROUTE WITH 54" PIPE
 ROUTE MCUNGE           RTUD.1b   22    16       1.94873      255.88      122.541      1.17905     1.500      .205 CCODE =
.2
 *S**** COMPUTE BASIN UD.2 ****
 *S*
 COMPUTE NM HYD          UD.2    -     5        .23080      329.15       20.015      1.62603     1.650     2.228 PER IMP=
.00
 *S
 *S  DIVERT 25% FOR SURGE POND CONDITION
 *S
 *S* DIVIDE BASIN INTO PONDS 1, AND 2-3
 DIVIDE HYD              PD1     5    20        .07616      108.62        6.605      1.62603     1.650     2.228
                        PD2&3  and   21        .15464      220.53       13.410      1.62603     1.650     2.228
 *S*** ADD 33% OF UD.2 TO DAM 1 INLET FLOW ****
 *S*** TOTAL DAM 1 INFLOW *****
 ADD HYD                DAM1IN 20&16  22       2.02489      330.83      129.147      1.19587     1.550      .255
 *S  ROUTE FLOW THROUGH POND #1
 *S  OUTLET PIPE CHANGED TO 1 2.18' PIPE
 ROUTE RESERVOIR         POND1   22    27       2.02489       53.47      108.184      1.00175    16.900      .041 AC-FT=
43.250
 *S* DIVIDE UD.2 REMAINDER FLOW FOR PONDS #2,&3
 DIVIDE HYD              PD2    21    95        .07732      110.27        6.705      1.62603     1.650     2.228
                         PD3  and    24        .07732      110.27        6.705      1.62603     1.650     2.228
 *S*** ADD PART OF BASIN UD.2 TO DAM 1 OUTLET FLOW ****
 *S*** DAM 2 INLET FLOW ***
 ADD HYD                DAM2IN 95&27  26       2.10221      123.13      114.889      1.02471     1.650      .092
 *S  ROUTE FLOW THROUGH POND #2
 *S* POND CHANGED TO HAVE A 2-1.35' OUTLETS TO REDUCE FLOW TO #3
 ROUTE RESERVOIR         POND2   26    10       2.10221       46.39       90.467       .80689    24.450      .034 AC-FT=
6.529
 *S*** ADD UD.2 AND TO DAM 2 OUTLFLOW ****
 ADD HYD             UD.2&UD.2A 24&10  33       2.17953      117.14       97.172       .83595     1.650      .084
 *S**** COMPUTE BASIN UD.3 ****

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

 *S*
 COMPUTE NM HYD          UD.3    -    34        .03890       95.79        4.391      2.11668     1.500     3.848 PER IMP=
.60
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   *S*** ADD UD.3 AND ROUTED UD.2 UD.2A AND DAM 2 OUTFALL ****
   ADD HYD          UD.2&UD.2A 34&33  39       2.21843      182.98      101.564      .85841    1.550      .129
   *S DAM REMOVED TO SEE AFFECTS ON LADERA SYSTEM- LEM 2/9/06
   *S  ROUTE FLOW THROUGH POND #3
   *s POND OUTLET CHANGED TO 1- 1.9' OUTLET PIPE
   ROUTE RESERVOIR        POND3   39   10       2.21843       41.71       76.183      .64389   29.950      .029 AC-FT=
5.375
   *S**** COMPUTE BASIN UD.4B ****
   *S*
   COMPUTE NM HYD          UD.4b   -    35        .03400       79.46        3.510     1.93539    1.500    3.652 PER IMP=
68.50
   *S**** COMPUTE BASIN UD.4C ****
   *S*
   COMPUTE NM HYD          UD.3    -    34        .07970       85.70        2.580      .60686    1.500    1.680 PER IMP=
 4.50
   *S*** ADD BASIN UD.4B&C  ****
   ADD HYD              UD.4B&C 34&35  41        .11370      165.16        6.089     1.00413    1.500    2.270
   *S*** ADD BASIN UD.4B&C AND POND 3 OUTFLOW  ****
   *S*** TOTAL INFLOW TO POND #4 ****
   ADD HYD              UD.4B&C 41&10  42       2.33213      169.95       82.272      .66145    1.500      .114
   *S   ROUTE FLOW THROUGH POND #4
   *S   POND OUTLET 1-2' OUTLET PIPE
   ROUTE RESERVOIR        POND4   42   43       2.33213       38.44       67.087      .53937   29.950      .026 AC-FT=
5.178
   *S  SKIP FROM DAM 4 UP TO TOP OF LADERA WATERSHED
   *S*************************************************************************
   *S    CALCULATE RUNOFF BEGINNING AT THE TOP OF LADERA L12 WATERSHED.
   *S  UPPER LADERA BASINS START AT DOUBLE EAGLE II AIRPORT & DRAIN TO DAM12
   *S                          REGION B2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.1
   COMPUTE NM HYD          L12.1   -     1        .22190      253.41       17.717     1.49701    1.750    1.784 PER IMP=
5.00
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.2
   COMPUTE NM HYD          L12.2   -     2       1.13590     1698.16       60.795     1.00352    1.500    2.336 PER IMP=
79.00
   *S  COMBINED FLOW FROM BASINS L12.1 AND L12.2 IN DE II AIRPORT AREA.  THERE ARE
   *S  PONDS W/COMBINED VOLUME OF ALMOST 30 ACRE-FT IN THESE BASINS.  THESE
   *S  PONDS ULTIMATELY DISCHARGE TO A 70 ACRE-FT PLAYA THAT IS BISECTED BY
   *S  PASEO DEL VOLCAN.  IF PLAYA DOES NOT OVERFLOW, THEN THE BASINS CAN BE
   *S  CONSIDERED TO BE NON-CONTRIBUTING.  PONDS AND PLAYA NOT IN MODEL.
   ADD HYD              L12.2_1  1& 2   4       1.35780     1798.14       78.511     1.08417    1.500    2.069
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.3
   COMPUTE NM HYD          L12.3   -     1        .33130      424.06       32.410     1.83427    1.750    2.000 PER IMP=
59.00
   *S  ROUTE L12.3 THROUGH L12.6
   ROUTE MCUNGE         L12.3_1    1   49        .33130      385.38       32.488     1.83869    2.500    1.818 CCODE =
  .1
   ROUTE MCUNGE         L12.3_1   49   50        .33130      339.88       32.004     1.81125    2.650    1.603 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.5
   COMPUTE NM HYD          L12.5   -     1        .73130      577.33       37.883      .97130    1.750    1.234 PER IMP=
16.00
   *S  ROUTE L12.5 THROUGH L12.4
   ROUTE MCUNGE         L12.4_1    1   51        .73130      535.89       38.096      .97676    2.000    1.145 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.4
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   COMPUTE NM HYD          L12.4   -     1        .60160      753.98       51.040     1.59075    1.700    1.958 PER IMP=
5.00
   *S  ADD L12.4 AND L12.5
   ADD HYD              L12.4_2  1&51   2       1.33290     1030.26       89.136     1.25388    1.850    1.208
   *S  ROUTE COMBINED (L12.4 AND L12.5) THROUGH L12.6
   ROUTE MCUNGE         L12.6_1    2   51       1.33290     1013.76       89.209     1.25491    2.300    1.188 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.6
   COMPUTE NM HYD          L12.6   -     1        .94530     1104.20       95.926     1.90269    1.800    1.825 PER IMP=
.00
   *S  ADD (L12.4-5) & L12.6
   ADD HYD              L12.6_2  1&51   2       2.27820     1650.50      185.135     1.52369    2.100    1.132
   *S  ADD (L12.4-6) & L12.3
   ADD HYD              L12.6_3  2&50   4       2.60950     1677.99      217.138     1.56020    2.250    1.005
   *S  ROUTE COMBINED (L12.3, L12.4, L12.5, AND L12.6) THROUGH L12.7
   ROUTE MCUNGE         L12.7_1    4   49       2.60950     1536.09      216.600     1.55633    2.350     .920 CCODE =
  .2
   ROUTE MCUNGE         L12.7_1   49   50       2.60950     1535.34      216.571     1.55612    2.350     .919 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.7
   COMPUTE NM HYD          L12.7   -     1       1.05630      778.10       56.406     1.00123    1.750    1.151 PER IMP=
1.00
   *S  ADD (L12.3-6) & L12.7
   ADD HYD              L12.7_2  1&50   3       3.66580     1808.14      272.976     1.39623    2.150     .771
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    *S
    *S  COMPUTE HYDROGRAPH FOR BASIN L12.8
    COMPUTE NM HYD          L12.8    -      1        .42190       468.68      42.381      1.88347     1.850     1.736 PER IMP=
53.00
    *S  ROUTE L12.8 THROUGH L12.7
    ROUTE MCUNGE            L12.7_3    1   50        .42190       465.55      42.354      1.88230     1.900     1.724 CCODE =
  .1
    *S  ADD (L12.3-7) & L12.8
    ADD HYD                 L12.7_4  3&50    3       4.08770      2149.09     315.330      1.44640     2.150      .821
    *S ROUTE FLOW THROUGH PROPOSED POND AT PASEO DEL VULCAN (PDV)
    *S  INCREASE POND SIZE BY 1.5 TIMES.  PRINCIPAL SPILLWAY= 60" RCP
    ROUTE RESERVOIR         PDVPOND    3   50        4.08770       311.46     304.080      1.39479     3.700      .119 AC-FT=
10.088
    *S
    *S*************************************************************************
    *S    DIVERSION TO DAM 5 ARROYO BEGINS
    *S*************************************************************************
    *S* DIVERSION TO DAM 5 ARROYO NOT ROUTED TO WEST BLUFF.
    *S* ASSUME STAYS IN PETROGLYPH PARK - 1/31/06 LEM
    *S*************************************************************************
    *S  ROUTE PDV POND OUTFLOW SOUTH IN PROPOSED PETROGLYPH DIVERSION
    ROUTE MCUNGE              DIV1   50    5        4.08770       311.45     303.857      1.39377     3.750      .119 CCODE =
  .2
    *S
    *S  COMPUTE HYDROGRAPH FOR BASIN L12.9W
    COMPUTE NM HYD          L12.9W   -      2        .10160       157.18       5.686      1.04925     1.500     2.417 PER IMP=
 4.00
    *S  FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.9W
    ADD HYD                   DIV2  2& 5    4       4.18930       312.31     309.542      1.38542     3.750      .116
    *S  ROUTE IN PROPOSED PETROGLYPH DIVERSION
    ROUTE MCUNGE              DIV3    4    5        4.18930       312.31     309.400      1.38478     3.800      .116 CCODE =
  .2
    *S
    *S  COMPUTE HYDROGRAPH FOR BASIN L12.11
    COMPUTE NM HYD          L12.11   -      1        .27340       298.37      27.723      1.90128     1.850     1.705 PER IMP=
67.00
    *S  ROUTE L12.11 THROUGH L12.12W TO PROPOSED PETROGLYPH DIVERSION
    ROUTE MCUNGE            L12.12_1   1   49        .27340       297.59      27.702      1.89981     1.950     1.701 CCODE =
  .1
    *S
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L8 COMMAND NOTATION	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE =
*S COMPUTE HYDROGRAPH FOR BASIN L12.12W										
COMPUTE NM HYD	L12.12W	-	2	.14150	151.03	10.018	1.32748	1.650	1.668 PER IMP=	
3.00										
ADD HYD	DIV4	2& 5	3	4.33080	316.27	319.418	1.38290	3.650	.114	
*S FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.12W										
ADD HYD	DIV5	3&49	2	4.60420	497.85	347.120	1.41360	2.000	.169	
*S ROUTE FLOW THROUGH PROPOSED MIREHAVEN A2 DAM										
*S PRINCIPAL SPILLWAY 1-36" RCP										
*S for FINAL2D.HYM increase storage by 3.4x.										
*S PRINCIPAL SPILLWAY 1-54" RCP										
ROUTE RESERVOIR	MA2POND	2	72	4.60420	267.47	346.551	1.41128	7.350	.091 AC-FT=	
3.838										
*S ROUTE IN PROPOSED PETROGLYPH DIVERSION THRU BASIN L12.14W										
ROUTE MCUNGE	DIV6	72	5	4.60420	267.47	346.402	1.41068	7.400	.091 CCODE =	
.2										
*S										
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.14W										
COMPUTE NM HYD	L12.14W	-	2	.08690	81.22	5.062	1.09228	1.650	1.460 PER IMP=	
26.00										
*S FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.14W										
ADD HYD	DIV7	2& 5	3	4.69110	267.94	351.465	1.40478	7.350	.089	
*S ROUTE IN PROPOSED PETROGLYPH DIVERSION THRU L12.16NW										
ROUTE MCUNGE	DIV8	3	5	4.69110	267.94	351.315	1.40418	7.400	.089 CCODE =	
.2										
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.15										
COMPUTE NM HYD	L12.15	-	1	.43910	448.31	39.460	1.68497	1.850	1.595 PER IMP=	
54.00										
*S ROUTE L12.15 THRU L12.16W TO PROPOSED PETROGLYPH DIV VIA MIREHAVEN "C"										
ROUTE MCUNGE	L12.16_1	1	50	.43910	447.53	39.462	1.68505	1.850	1.593 CCODE =	
.2										
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.16W										
COMPUTE NM HYD	L12.16W	-	4	.44680	545.97	34.477	1.44682	1.650	1.909 PER IMP=	
13.00										
*S ADD L12.16W TO ROUTED L12.15										
ADD HYD	L12.16W_1	4&50	3	.88590	887.21	73.939	1.56490	1.750	1.565	
*S ADD L12.15 TO PROPOSED PETROGLYPH DIVERSION										
ADD HYD	DIV9	3& 5	2	5.57700	1052.43	425.253	1.42971	1.750	.295	
*s route flow through new cdam for option 2d_cdam.hym through 60" RCP										
ROUTE RESERVOIR	cdamPOND	2	4	5.57700	329.17	424.929	1.42862	2.850	.092 AC-FT=	
4.726										
*S ROUTE IN PROPOSED PETROGLYPH DIVERSION TO DAM 5 ARROYO IN BASIN UD.5E										
S PETROGLYPH DIVERSION ADDED BACK IN 2/1/06 TO MODEL GREATEST POSSIBLE FLOWS I										
ROUTE MCUNGE	DIV10	4	72	5.57700	329.17	424.674	1.42776	2.900	.092 CCODE =	
.2										

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   *S*************************************************************************
   *S*                        CALCULATED RUNOFF FOR BASINS LEADING INTO DAM 5
   *S*                        BASINS CHANGED TO REFLECT DEVELOPED AREA
   *S*************************************************************************
   *S**** COMPUTE BASIN UD.5d ****
   *S****THIS BASIN IS ADDED IN AS BASIN L12.16 W***********
   *S* ASSUME UD.5D FLOWS OUT OF STUDY AREA AND ONTO PETROGLYPHS****
   *S**** COMPUTE BASIN UD.5A ****
   *S*
   COMPUTE NM HYD          UD.5A   -     1        .15300       296.19       13.694       1.67815     1.500     3.025 PER IMP=
53.20
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S  ADD PETROGLYPH DIVERSION TO BASIN UD.5A
```

		FROM	TO		PEAK	RUNOFF		TIME TO	CFS	PAGE =
19										
COMMAND NOTATION	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	PEAK (HOURS)	PER ACRE	
ADD HYD	UD.5ATOT	72& 1	1	5.73000	379.25	438.368	1.43445	1.700	.103	
*S****	ROUTE UD.5A THROUGH OS.5A TO INLET OF DAM 5 ARROYO									
ROUTE MCUNGE .1	RTUD.5A	1	2	5.73000	378.40	438.190	1.43387	1.800	.103	CCODE =
*S**** COMPUTE BASIN UD.5E ****										
S										
COMPUTE NM HYD .00	UD.5E	-	90	.18710	183.60	6.053	.60662	1.550	1.533	PER IMP=
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	UD.5E	90	90	.14033	137.70	4.540	.60662	1.550	1.533	
	SURGE	and	88	.04677	45.90	1.513	.60662	1.550	1.533	
*S										
S ASSUME HALF OF BASIN UD.5E FLOWS ONTO OS.5A AND HALF ONTO OS.5B										
DIVIDE HYD	OS.5A	90	51	.07016	68.85	2.270	.60662	1.550	1.533	
	OS.5B	and	52	.07016	68.85	2.270	.60662	1.550	1.533	
S										
*S****	ROUTE HALF OF UD.5E THROUGH OS.5A TO INLET OF DAM 5 ARROYO									
ROUTE MCUNGE .2	ARTUD.5E	51	1	.07016	68.82	2.274	.60766	1.650	1.533	CCODE =
*S****	ROUTE HALF OF UD.5E THROUGH OS.5B TO INLET OF DAM 5 ARROYO									
ROUTE MCUNGE .1	BRTUD.5E	52	55	.07016	67.50	2.257	.60329	1.700	1.503	CCODE =
SEDIMENT BULK 1.12										PK BF =
*S**** COMPUTE BASIN OS.5A ****										
S										
COMPUTE NM HYD .00	OS.5A	-	3	.10620	121.34	3.754	.66285	1.550	1.785	PER IMP=
*S**** COMPUTE BASIN OS.5B ****										
S										
COMPUTE NM HYD .00	OS.5B	-	4	.15400	202.65	5.444	.66285	1.500	2.056	PER IMP=
SEDIMENT BULK 1.02										PK BF =
S ADD ROUTED UD.5E AND OS.5B**										
ADD HYD	OS.5BTOT	4&55	70	.22416	210.44	7.702	.64420	1.550	1.467	
S ADD ROUTED UD.5A AND OS.5A**										
ADD HYD	UD.5AOS.5A	2& 3	5	5.83620	454.55	441.945	1.41984	1.650	.122	
S ADD COMBINED FLOW TO ROUTED UD.5E**										
ADD HYD	OS.5ATOT	5& 1	75	5.90636	523.38	444.218	1.41019	1.650	.138	
S TOTAL INLET FLOW TO DAM 5 ARROYO DAM										
ADD HYD	DAM5INLET	70&75	6	6.13053	716.83	451.920	1.38218	1.600	.183	
*S**** ROUTE FLOW THROUGH PROPOSED DAM 5 ARROYO DAM										
*S OUTLET PIPE IS A 54" RCP										
ROUTE RESERVOIR 7.306	D5POND	6	7	6.13053	268.33	438.547	1.34128	12.900	.068	AC-FT=
*S ROUTE IN DAM 5 ARROYO TO END OF UD.5C										
*S FOR OPT 4 - DAM 5 ARROYO IS A 48 INCH STORM DRAIN										
ROUTE MCUNGE .2	D5ARROYO	7	8	6.13053	268.33	438.440	1.34095	12.950	.068	CCODE =
*S										
*S**** COMPUTE BASIN UD.5C ****										
S										
COMPUTE NM HYD 53.20	UD.5C	-	11	.08500	182.75	7.608	1.67815	1.500	3.359	PER IMP=
*S										
*S DIVERT 25% FOR SURGE POND CONDITION										
*S										
S ADD DAM 5 ARROYO AND UD.5C*										
ADD HYD	RTUD.5C	11& 8	99	6.21553	268.97	446.047	1.34556	12.850	.068	
*S ROUTE IN DAM 5 ARROYO TO END OF UD.5B										
*S FOR OPT 4 - DAM 5 ARROYO IS A 54 INCH STORM DRAIN										
ROUTE MCUNGE .2	D5ARROYO	99	8	6.21553	268.97	445.917	1.34517	12.900	.068	CCODE =
*S										

		FROM	TO		PEAK	RUNOFF		TIME TO	CFS	PAGE =
20										
COMMAND NOTATION	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	PEAK (HOURS)	PER ACRE	

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   *S**** COMPUTE BASIN UD.5B ****
   *S*
   COMPUTE NM HYD          UD.5B   -     9        .09160        144.76        5.948       1.21756     1.550     2.469 PER IMP=
3.54
   *S* ADD DAM 5 ARROYO AND UD.5B*
   ADD HYD               ARYDAM5  9& 8  10       6.30713        328.77      451.866       1.34332     1.550      .081
   *S ROUTE DAM 5 ARROYO AND UD.5B AND UD.5C IN A 54" STORM DRAIN***
   ROUTE MCUNGE          D5ARROYO   11   10       6.30713        322.63      451.715       1.34287     1.600      .080 CCODE =
  .1
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.1A*****
   *S  THIS BASIN WILL BE DIVERTED IN TO DAM 5 POND.
   COMPUTE NM HYD          L9.1A   -     9        .11040        167.25        8.527       1.44820     1.600     2.367 PER IMP=
9.08
   *S ROUTE BASIN L9.1A IN THE PROPOSED DIVERSION STRUCTURE TO DAM 5 POND
   ROUTE MCUNGE          D5ARROYO    9    8        .11040        165.36        8.512       1.44561     1.650     2.340 CCODE =
  .1
   *S* ADD DAM 5 ARROYO AND UD.5B*
   ADD HYD           ARYDAM5&L91. 10& 8    9       6.41753        466.26      460.227       1.34464     1.600      .114
   *S**** COMPUTE BASIN UD.2A ****
   *S*
   COMPUTE NM HYD          UD.2A   -    22        .03790         45.99        1.809        .89509     1.600     1.896 PER IMP=
 .00
   *S* ADD DAM 5 ARROYO AND UD.2A*
   ADD HYD           ARYDAM5&L91.  9&22   9       6.45543        512.26      462.036       1.34200     1.600      .124
   *S* ROUTE FLOW THROUGH DAM 5 POND ON SOCCER FIELDS ****
   *S* OUTLET MODELED AS A 5.5' PIPE
   ROUTE RESERVOIR         DAM5S    9   10       6.45543        259.35      456.473       1.32584    16.250      .063 AC-FT=
1.376
   *S  ROUTE COMBINED FLOW IN DAM 5 ARROYO TO end of BASIN UD.4A
   *S  ROUTE WITH 48 INCH PIPE - EDITED TO 48 INCH PIPE (10/31/11)
   ROUTE MCUNGE          D5ARROYO   10    8       6.45543        259.35      456.371       1.32555    16.300      .063 CCODE =
  .2
   *S
   *S**** COMPUTE BASIN UD.4A ****
   *S*
   COMPUTE NM HYD          UD.4A   -     9        .04550         89.04        3.544       1.46026     1.500     3.058 PER IMP=
2.10
   *S*** ADD FLOW FROM DAM 5 ARROYO UD.4A ***
   *S*** TOTAL DAM 5 INFLOW ***
   ADD HYD               PD&4D.4A  8& 9  45       6.50093        259.59      459.915       1.32649    16.250      .062
   *S*** PROPOSED DIVERSION TO STORM CLOUD SUBDIVISION TO LADERA DAM 9****
   *S*** DIVERT
   DIVIDE HYD            TOPOND5   45   45       5.75414        205.00      407.083       1.32649     5.450      .056
                          todam9  and   69        .74679         54.59       52.832       1.32649    16.250      .114
   *S ROUTE FLOW FROM DIVERSION TO LADERA DAM 5
   ROUTE MCUNGE          UD.4ADAM5   45    8       5.75414        205.00      406.936       1.32601     5.500      .056 CCODE =
  .1
   *S*** ADD FLOW FROM DAM 5 ARROYO TO ROUTED POND #4 OUTFLOW ***
   *S*** TOTAL DAM 5 INFLOW ***
   ADD HYD               PD5IN  8&43  44       8.08626        238.96      474.023       1.09914    22.500      .046
   *S* ROUTE FLOW THROUGH POND 5 ****
   ROUTE RESERVOIR         POND5   44    9       8.08626        237.71      463.667       1.07513    22.600      .046 AC-FT=
3.267
   *S  PROPOSED DAM5 DIVERSION
   *S  DIVIDE 125 CFS FROM DAM 5 TO DAM 6; REMAINING TO I-40
   DIVIDE HYD             dam5div    9   71       6.35695        170.00      364.508       1.07513     3.600      .042
                          todam6  and   9        1.72931         67.71       99.159       1.07513    22.600      .061
   *S  ROUTE DAM5 SPILLWAY FLOWS SOUTH IN PROPOSED DAM 5 DIVERSION
   *S  OPT 4 - FLOW ROUTED IN 48 INCH STORM DRAIN (10/7/11)
   ROUTE MCUNGE          D5DIV1   71   73       6.35695        170.00      363.876       1.07326     3.700      .042 CCODE =
  .1
   *S*************************************************************************
   *S*************************************************************************
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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
)TATION									


```
   *S*
   *S*                                CONTINUE ON LADERA DAM SYSTEM                                  *
   *S*                                        LADERA WATERSHED                                       *
   *S*************************************************************************                    *
   *S*
   *S*                              DAM SYSTEM FOR DAMS 6-12 TAKEN FROM STORMCLOUD MODEL             *
   *S*                               TO ACCOUNT FOR STORMCLOUD AND CROSSINGS DEVELOPMENT             *
   *S*************************************************************************                    *
   *S*************************************************************************
   RAINFALL  TYPE= 2
.710                                                                                                 RAIN24=
   *S  COMPUTE HYDROGRAPH FOR BASIN L7.1
   *S  COMPUTE HYDROGRAPH FOR BASIN L7.1A
   *S  BASIN L7.1A IS DIVERTED TO L9.2A
   COMPUTE NM HYD          L7.1A   -    99        .00940         20.47         .853       1.70054     1.500     3.403 PER IMP=
).00
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L7.2
   COMPUTE NM HYD          L7.2    -     2        .04060         71.62        2.908       1.34275     1.500     2.756 PER IMP=
8.00
   *S  DIVIDE ID=2 INTO 3 THIRDS FOR PONDS 6, 7 AND 8
   DIVIDE HYD            L7.2_4    2     1        .01352         23.85         .968       1.34274     1.500     2.756
                         L7.2_5  and     3        .02708         47.77        1.939       1.34274     1.500     2.756
   *S  ADD ONE THIRD BASIN L7.2 TO POND 5 OUTFLOW
   *S  ADD 1ST THIRD TO ROUTED FLOW
   ADD HYD               TO_DAM6  1& 9  10       1.74283         67.77      100.127       1.07720    22.600      .061
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   *S  ROUTE FLOW THROUGH POND #6
   ROUTE RESERVOIR          POND6    10     9        1.74283        66.38       99.785       1.07353   23.000      .060 AC-FT=
.601
   *S  ADD 2ND THIRD TO POND 6 OUTFLOW
   ADD HYD                TO_DAM7  1& 9  10        1.75635        66.44      100.754       1.07560   23.000      .059
   *S  ROUTE FLOW THROUGH POND #7
   ROUTE RESERVOIR          POND7    10     9        1.75635        65.56      100.274       1.07048   23.650      .058 AC-FT=
.563
   *S  ADD LAST THIRD TO POND 7 OUTFLOW
   ADD HYD                TO_DAM8  1& 9  11        1.76987        65.62      101.242       1.07256   23.650      .058
   *S  ROUTE FLOW THROUGH POND #8
   *S  ROUTE FLOW THROUGH POND #8
   *S   CREST=5276.0, TOP=5297.0,  2-24" PIPES WITH 8" ORIFICE PLATES
   ROUTE RESERVOIR          POND8    11    10        1.76987        44.82       66.990        .70969   26.000      .040 AC-FT=
41.888
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.1
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.1A
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.1B
   COMPUTE NM HYD           L9.1B    -      9         .06700        91.46        3.881       1.08604    1.550      2.133 PER IMP=
25.00
   *S  ROUTE L9.1B THRU "DAM 9.1" ARROYO, LOCATED IN L9.2B
   ROUTE MCUNGE     L9.1B_DAM9.1     9    50         .06700        90.85        3.878       1.08530    1.600      2.119 CCODE =
  .1
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.2A
   COMPUTE NM HYD           L9.2A    -      3         .11000       238.12       10.133       1.72722    1.500      3.382 PER IMP=
3.20
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.2B
   COMPUTE NM HYD           L9.2B    -      4         .01220        26.46        1.124       1.72722    1.500      3.389 PER IMP=
53.20
   *S  COMBINE ROUTED FLOW FROM DAM 9.1 ARROYO AND BASIN L9.2B
   ADD HYD          DAM9.1L9.2B 50& 4     5         .07920       113.69        5.002       1.18417    1.550      2.243
   *S  COMBINE L9.1A AND BASIN L9.2A
   *S  COMBINE FLOWS WITH BASIN L7.1A
   ADD HYD                  L7.1A  3&99   96         .11940       258.59       10.986       1.72511    1.500      3.384
   *S  COMBINE FLOW WITH L7.1A AND DAM5S DIVERSION TO STORM CLOUD*****
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COMMAND / STATION	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


```
   ADD HYD                  L7.1A 69&96   96         .86619       258.59       63.818       1.38144    1.500      .466
   *S
   *S  THIS PORTION OF THE .HYM INCORPORTES AND ACCOUNTS FOR THE FLOW
   *S  FROM BASIN I-2.  AND FLOW FROM STRUTURES 1 AND 2
   *S  COMPUTE HYDROGRAPH FOR BASIN I2.1
   COMPUTE NM HYD           I2.1     -     92         .09750       211.91        8.843       1.70054    1.500      3.396 PER IMP=
50.00
   *S  COMPUTE HYDROGRAPH FOR BASIN I2.4
   COMPUTE NM HYD           I2.4     -     93         .01700        18.18         .507        .55924    1.500      1.671 PER IMP=
 .00
   *S  ROUTE FLOW L7.1A THRU I2 VIA 66"RCP
   ROUTE MCUNGE          STR1SD1    96    53         .86619       256.79       63.819       1.38147    1.500      .463 CCODE =
  .2
   *S  ROUTE FLOW FROM L9.2B THRU I2 VIA 42"RCP
   ROUTE MCUNGE          STR2SD4     5    52         .07920       112.41        5.002       1.18424    1.550      2.218 CCODE =
  .2
   *S  COMBINE ROUTED FLOWS
   ADD HYD                  COMB 52&53   54         .94539       354.00       68.821       1.36495    1.550      .585
   *S  ROUTE COMBINED FLOW THRU I2 VIA 72"RCP
   ROUTE MCUNGE           THRUI2    54    55         .94539       354.00       68.821       1.36495    1.550      .585 CCODE =
  .0
   *S  COMBINE I2.1 AND ROUTED FLOW VIA 72"RCP
   ADD HYD             I2.2I2.1 55&92   60        1.04289       560.65       77.664       1.39632    1.500      .840
   *S  COMBINE ROUTED STR1 STR2 AND I2.4
   ADD HYD               SD1I2.4 93&60   56        1.05989       578.83       78.171       1.38290    1.500      .853
   *S  COMBINE I-2.1 AND I-2.4 AND OTHER UPSTREAM BASINS FLOWING INTO POND#9
   ADD HYD          I2OTHERS2D9 56&10   61        2.82976       579.54      145.161        .96184    1.500      .320
   *S  ROUTE FLOW THROUGH DAM #9
   *S   CREST=5276.0, TOP=5279.0,  2-24" PIPES WITH 8.75" ORIFICE PLATES
   ROUTE RESERVOIR          POND9    61    99        2.82976        72.34       127.110        .84223   21.350      .040 AC-FT=
).684
   *S  SKIP FROM DAM 9 UP TO TOP OF LADERA WATERSHED
   *S*************************************************************************
   *S   RETURN TO UPPER LADERA L12 WATERSHED BELOW PROPOSED PETROGLYPH DIVERSION.
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.9E
   COMPUTE NM HYD           L12.9E   -      1         .55780       413.93       26.310        .88438    1.700      1.159 PER IMP=
15.00
   *S
   *S  ROUTE L12.9E FLOW IN MIREHAVEN A ARROYO THROUGH BASIN L12.12E
   ROUTE MCUNGE          L12.12_3     1    50         .55780       413.73       26.321        .88474    1.750      1.159 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.12E
   COMPUTE NM HYD          L12.12E   -      1         .21160       236.59       10.438        .92489    1.550      1.747 PER IMP=
).00
   *S
   *S  ADD DIVIDED L12.12E & L12.9E
   ADD HYD                L12.12_4  1&50    3         .76940       559.23       36.758        .89578    1.700      1.136
   *S
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NOTATION

   ADD HYD          OFFSANDD17 10&55   2        .20180       408.32       17.691       1.64370    1.500     3.162
   ROUTE MCUNGE    STR3D17THRU6    2    1        .20180       408.32       17.691       1.64370    1.500     3.162 CCODE =
  .0
   *S  COMPUTE HYDROGRAPH FOR BASIN I2.2
   COMPUTE NM HYD          I2.2   -    95        .07200       156.65        6.530       1.70054    1.500     3.400 PER IMP=
 ).00
   *S  COMBINE ROUTED FLOW WITH BASIN I2.2 - THIS IS FLOW TO POND#11
   ADD HYD                 D17 95& 1   2        .27380       564.98       24.221       1.65865    1.500     3.224
   *S THIS WILL BE THE TOTAL FLOW RE-ROUTED TO POND#10
   *S  Note this flow has not been added to the flow from D17.4, and I2.3,
   *S  Routed through pipe to merely determine the flow at end of network to Dam#10
   ROUTE MCUNGE    TOTALRE-ROUT    2   97        .27380       522.19       23.923       1.63826    1.550     2.980 CCODE =
  .2
   *S THESE BASINS WILL GO TO POND#10 - via sheet flow
   *S  COMPUTE HYDROGRAPH FOR BASIN I2.3
   COMPUTE NM HYD          I2.3   -    94        .02900        47.86        1.459        .94305    1.500     2.578 PER IMP=
  .00
   *S BASIN D17.4 TAKEN FROM "THE CROSSINGS" DRAINAGE REPORT
   *S TAKEN AS AREA LEFT FROM BASIN L12.20 MINUS D17 & I-2
   *S  COMPUTE HYDROGRAPH FOR BASIN D17.4
   COMPUTE NM HYD         D17.4   -     8        .00180         3.81         .166       1.73258    1.500     3.306 PER IMP=
 '.00
   ADD HYD              D17I2.3 94& 8   9        .03080        51.66        1.625        .98917    1.500     2.621
   *S  ROUTE OUTFLOW FROM DAM 9 OVERLAND THROUGH SMALL PORTION OF BASIN L12.20
   ROUTE MCUNGE    TO_DAM10FROM   99   10       2.82976        72.34      127.006        .84155   21.350      .040 CCODE =
  .2
   *S  ADD ALL COMBINED FLOW INTO DAM#10
   *S  ADD HYD FOR D17.4, I2.3 AND OVERLAND FLOW
   ADD HYD         TO_DAM10_ALL 10& 9  11       2.86056        75.73      128.631        .84314    1.550      .041
   *S  ROUTE COMBINED THROUGH DAM #10
   *S  CHANGED DAM BACK TO AS-BUILT STAGE STORAGE JDE 10/03/11
   ROUTE RESERVOIR        POND10   11    9       2.86056        53.55       87.155        .57127   29.950      .029 AC-FT=
41.473
   *S  COMPUTE HYDROGRAPHS FOR BASINS IN THE CROSSINGS
   *S  COMPUTE HYDROGRAPHS FOR BASINS 1-5
   COMPUTE NM HYD          B1_5   -     2        .01600        34.55        1.442       1.68948    1.500     3.374 PER IMP=
 ).00
   *S  COMPUTE HYDROGRAPHS FOR BASIN D4
   COMPUTE NM HYD            D4   -     1        .00120         2.60         .108       1.68948    1.500     3.391 PER IMP=
50.00
   *S  ADD BASINS D4 AND 1-5
   ADD HYD                D41_5  2& 1   3        .01720        37.16        1.550       1.68945    1.500     3.375
   *S
   *S  COMPUTE HYDROGRAPHS FOR BASIN D9 AND D11
   COMPUTE NM HYD          D911   -     1        .00600         8.56         .262        .81738    1.500     2.230 PER IMP=
 '.00
   *S  ADD BASINS D911 AND UPSTREAM
   ADD HYD                D41_5  3& 1   1        .02320        45.72        1.811       1.46390    1.500     3.079
   *S
   *S  COMPUTE HYDROGRAPHS FOR BASIN D10 AND D12
   COMPUTE NM HYD          D1012   -     2        .00300         7.16         .325       2.02902    1.500     3.731 PER IMP=
 ).00
   *S  ADD BASINS D1012 AND UPSTREAM
   ADD HYD                D41_5  2& 1   2        .02620        52.88        2.136       1.52860    1.500     3.154
   *S
   *S  COMPUTE HYDROGRAPHS FOR BASIN D15
   COMPUTE NM HYD          D15   -     3        .00440         5.13         .142        .60550    1.500     1.820 PER IMP=
  .00
   *S  ADD BASINS D15 AND UPSTREAM
   ADD HYD              TO_DAM11  3& 2   1        .03060        58.01        2.278       1.39586    1.500     2.962
   *S
   *S  ADD ALL FLOW INTO POND#11 PLUS POND#10 FLOW
   ADD HYD              TO_DAM11  1& 9   1       2.89116        59.36       89.433        .58000    1.500      .032
   *S
   *S THIS FLOW SHOULD BE COMBINATION OF ALL ROUTED TO POND #11

                                 FROM  TO                      PEAK        RUNOFF                 TIME TO     CFS       PAGE =
'5
                      HYDROGRAPH   ID    ID        AREA      DISCHARGE     VOLUME      RUNOFF      PEAK       PER
   COMMAND        IDENTIFICATION   NO.   NO.     (SQ MI)      (CFS)      (AC-FT)    (INCHES)    (HOURS)    ACRE
'OTATION

   *S WITH THE INCLUSION OF TOTAL OF SD3 FLOW
   *S ADD ALL FLOW FROM POND#10, CROSSINGS, AND TIERRA O, WITH SD3
   ADD HYD          TOTAL_INTO_D  1&97   2       3.16496       576.00      113.356        .67155    1.550      .284
   *S
   *S  ROUTE TOTAL FLOW THROUGH DAM #11
   ROUTE RESERVOIR        POND11    2    9       3.16496        45.03       86.701        .51364   29.950      .022 AC-FT=
26.638
   *S  ROUTE OVERLAND FLOW FROM DAM #11 THROUGH  BASIN L12.20
   ROUTE MCUNGE         L12.20_6    9   10       3.16496        44.98       86.256        .51100   29.950      .022 CCODE =
  .2
   *S
   *S  ADD SECOND HALF OF FLOW FROM L12.20 TO MIREHAVEN CHAN
   *S  TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
   ADD HYD              L12.20_7  2&51   3       5.85696      2186.60      237.998        .76191    1.800      .583
   *S PLOT2  HYD=L12.20_7   TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
   *S
   *S  COMBINED MIREHAVEN AND DAM #11 OUTFLOW -- TOTAL FLOW INTO DAM #12
   ADD HYD              TO_DAM12  3&10   9       9.02191      2215.78      324.253        .67389    1.800      .384
   *S
   *S   ROUTE FLOW THROUGH POND #12
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   *S*** LADERA POND 12 - EXISTING CHARACTERISTICS
   *S***
   *S ADDED NUSIANCE FLOW DIVERSION FROM DAM 12 TO I-40 CHANNEL
   *S 36" CULVERT WITH INVERT 1' BELOW INVERT OF EXISTING PRINCIPAL SPILLWAY
   *S DISCHARGE CURVE UP TO ELEVATION 11.3 BASED ON 30" ALONE TO BEST MODEL
   *S PLOT  HYD=POND 12 OUTFLOW BEFORE DIVIDE HYD
   *S DIVERSION TO I-40 THUR 1 - 66" GROOVE EDGE PIPE
   *S POND STORAGE INCREASED 100% TO PREVENT POND FROM OVERTOPING
   *S LBS 10/19/06 - MODIFIED POND STORAGE AT SPILLWAY ELEVATION TO PREVENT SPILL
   ROUTE RESERVOIR       POND12    9   10       9.02191       293.39     302.737       .62917    2.850     .051 AC-FT=
100.057
   *S PLOT  HYD=POND 12 OUTFLOW BEFORE DIVIDE HYD
   *S
   *S THIS HAS BEEN REPLACED BY A RECALLED HYROGRAPH FROM MODEL 3C1 PER DMP
   *S SEE BELOW
   *S  REPLACED BLUFDIV DIVERSION TO THAT FOUND IN 2d_u.hym,FLOW RATE
   *S  CONDITION INSTEAD OF PERCENTAGE AS SHOWN ABOVE
   DIVIDE HYD          blufdiv   10   37       7.18712       120.00     241.169       .62917    1.800     .026
                        ladera  and   38       1.83479       173.39      61.568       .62917    2.850     .148
   *S  PLOT  HYD= BLUFDIV
   *S*************************************************************************
   *S*                CALCULATE TOTAL FLOW IN 98TH STREET STORMDRAIN
   *S*************************************************************************
   *S  ADD DAM 5 DIVERSION FLOW AND ROUTED ST.3
   ADD HYD             98STFLOW 73&19  98       6.44595       197.70     373.137      1.08538    1.550     .048
   *S*                 ROUTE  98TH STREET FLOW DOWN 98TH STREET TO 98TH STREET POND
   *S*                 ROUTE FLOW IN 72" SD PIPE
   ROUTE MCUNGE            98RT   98   50       6.44595       194.00     372.783      1.08435    1.600     .047 CCODE =
  .2
   *S**** COMPUTE BASIN ST.5 ****
   COMPUTE NM HYD          ST.5   -    16        .04760       122.86       5.971      2.35184    1.500    4.033 PER IMP=
00.00
   *S*                 ROUTE  ST.5 ALONG TOP OF BASIN ST.6 TO 98TH STREET BOXES
   *S*                 ROUTE FLOW IN 36" SD PIPE
   *S**** COMPUTE BASIN ST.6 ****
   *S*
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COMMAND NOTATION	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
COMPUTE NM HYD	ST.6	-	21	.05380	138.86	6.748	2.35184	1.500	4.033 PER IMP=
00.00									
*S ADD BASIN ST.5 BEFORE ROUTE THROUGH 98TH STREET SURGE POND									
ADD HYD	98STPONDIN 16&21	18		.10140	261.72	12.719	2.35183	1.500	4.033
S	UTE ST.6 THROUGH EXISTING CULVERT AT 98TH STREET INTERCHANGE								
S	FLOW CONNECTS INTO I40 SYSTEM								
*S ROUTE OUTFLOW THRU 1- 4x6 CBC									
ROUTE MCUNGE	ST.6OUT	18	88	.10140	261.72	12.719	2.35183	1.500	4.033 CCODE =
.0									
*S DIVIDE FLOW FROM 72" SD INTO 42" SD CAPACITY AND EXCESS TO SURGE POND									
DIVIDE HYD	maxflow42"SD	30	21	9.06033	129.00	261.405	.54097	1.400	.022
	42"SDoverflo and	16		.71990	528.90	20.770	.54097	1.650	1.148
*S ROUTE THROUGH DUMMY POND TO EXTEND OUTPUT TIME									
ROUTE RESERVOIR	TEMP	21	99	9.06033	129.00	261.050	.54023	2.400	.022 AC-FT=
.645									
*S ADD ST.6 AND I40 POND INFLOW									
ADD HYD	I40ST.6 16&88	30		.82130	687.12	33.489	.76454	1.550	1.307
S ROUTE FLOW THROUGH SURGE POND **									
*S SUBTRACTED CAPACITY OF THE PIPE (131CFS) FROM OUTFLOW TO ACCOUNT									
*S FOR SURGE POND CONDITIONS									
*S USED 42" PIPE									
ROUTE RESERVOIR	98SURGE	30	88	.82130	1.70	3.531	.08061	10.500	.003 AC-FT=
30.939									
*S									
*S ADD SURGE FLOW OUTFLOW BACK TO SD FLOW									
ADD HYD	48INTOT 99&88	30		9.88163	130.33	264.101	.50112	2.600	.021
*S**** FLOW REACHING IN8 ****									
S									
COMPUTE NM HYD	IN8	-	16	.00126	2.95	.126	1.87520	1.500	3.662 PER IMP=
57.47									
S ADD FLOW FROM IN8 AND FLOW LEAVING THE SURGE POND									
ADD HYD	EATO 16&30	88		9.88289	130.40	264.227	.50130	2.600	.021
*S									
S	ROUTE FLOW TO WHERE SD EMPTIES INTO CHANNEL								
S	ROUTE FLOW IN 48" SD PIPE								
ROUTE MCUNGE	RT98TH	88	30	9.88289	130.36	263.695	.50029	2.600	.021 CCODE =
.1									
*S**** COMPUTE BASIN ST.7 ****									
S									
COMPUTE NM HYD	ST.7	-	17	.12900	331.09	16.181	2.35184	1.500	4.010 PER IMP=
0.00									
*S ADD ST.7 AND 98TH STREET FLOW									
ADD HYD	ST.7TOT 17&50	20		6.57495	482.70	388.964	1.10922	1.500	.115
*S ADD COMBINED FLOW TO ROUTED ST.5									
*S TOTAL 98TH STREET BOXES INFLOW**									
ADD HYD	ST.6TOT 20&18	23		6.67635	744.42	401.682	1.12809	1.500	.174
*S ROUTE OUTFLOW THRU 2- 10x8 CBC UNDER 98TH ST									
ROUTE MCUNGE	98THSUM	23	2	6.67635	744.42	401.682	1.12809	1.500	.174 CCODE =
.0									
*S ROUTE FLOW FROM 98TH STREET BOXES THROUGH ST.8 TO I40 CHANNEL									
*S ROUTE FLOW THROUGH CONCRETE CHANNEL									

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   ROUTE MCUNGE          40BOX    2   20      6.67635       740.10      401.387      1.12726    1.550     .173 CCODE =
  .2
   *S*  ADD I-40 DIVERSION FLOW TO 98TH STREET BOXES OUTFLOW
   ADD HYD             14098TH 20&30  23      16.55924       850.03      665.081       .75307    1.550     .080
   *S
   *S  ROUTE FLOW FROM 98TH STREET POND THROUGH ST.8 THROUGH I40 CHANNEL
   *S  ROUTE FLOW THROUGH CONCRETE CHANNEL
   ROUTE MCUNGE          40POND   23   30      16.55924       827.39      664.358       .75225    1.600     .078 CCODE =
  .1
   *S**** COMPUTE BASIN ST.8 ****
   *S*
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COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 27
)TATION										
COMPUTE NM HYD	ST.8	-	22	.23400	414.40	19.777	1.58470	1.550	2.767 PER IMP=	
45.01										
S ADD ST.8 TO I40 CHANNEL**										
ADD HYD	40ST.8RT	22&30	31	16.79324	1237.89	684.136	.76385	1.550	.115	
*S ROUTE FLOW FROM ST.8 THROUGH ST.10 DOWN I40 CHANNEL TO UNSER BLVD.										
ROUTE MCUNGE	RTST.8	31	30	16.79324	1234.02	683.334	.76296	1.600	.115 CCODE =	
.1										
*S**** COMPUTE BASIN ST.9 ****										
S										
COMPUTE NM HYD	ST.9	-	23	.10240	188.98	9.433	1.72722	1.550	2.884 PER IMP=	
3.20										
*S**** ROUTE BASIN ST.9 ALONG 60"SD THROUGH ST.12 ALONG LADERA ****										
ROUTE MCUNGE	RTST.9	23	24	.10240	185.65	9.434	1.72738	1.550	2.833 CCODE =	
.2										
*S**** COMPUTE BASIN ST.12 ****										
S										
COMPUTE NM HYD	ST.12	-	25	.04830	104.73	4.449	1.72722	1.500	3.388 PER IMP=	
53.20										
S ADD ROUTED ST.9 AND BASIN ST.12**										
ADD HYD	ST9&12	24&25	26	.15070	278.15	13.883	1.72732	1.550	2.884	
S ADD ROUTED ST.9 AND ST.12 FLOW TO POND #12 SPILLWAY**										
ADD HYD	INLADD	26&37	24	7.33782	330.47	255.052	.65172	1.550	.070	
*S ROUTE FLOW THROUGH PARKWAY SD TO UNSER										
S ROUTE THROUGH CHANNEL										
ROUTE MCUNGE	RTSPILL	24	9	7.33782	327.44	254.828	.65115	1.600	.070 CCODE =	
.2										
*S**** COMPUTE BASIN ST.10 ****										
S BASIN ST.10 WAS DIVIDED INTO THREE PARTS. ST.10A IS COMBINED WITH THE LADER										
S ST.10B IS DIVERTED TO THE HANOVER SD. ST.10C IS ROUTED TO THE UNSER POND.										
S										
S COMPUTE BASIN ST.10C										
COMPUTE NM HYD	ST.10	-	29	.27880	542.04	21.559	1.44988	1.500	3.038 PER IMP=	
39.64										
S COMPUTE ST.10B										
S										
COMPUTE NM HYD	ST.10B	-	67	.05200	112.75	4.790	1.72722	1.500	3.388 PER IMP=	
53.20										
*S DIVIDE BASIN ST.10B										
S PUT 82CFS INTO THE HANOVER SD. REMAINDER GOES TO PARKWAY SD										
DIVIDE HYD	HANOVER	67	49	.04908	82.00	4.521	1.72721	1.450	2.611	
	PARKWAY	and	37	.00292	30.75	.269	1.72721	1.500	16.431	
S COMPUTE BASIN ST.10A										
COMPUTE NM HYD	ST.10A	-	1	.04850	105.16	4.468	1.72722	1.500	3.388 PER IMP=	
53.20										
S ADD PORTION OF ST.10B AND ST.10A**										
ADD HYD	INLADD	1&37	67	.05142	135.91	4.737	1.72721	1.500	4.130	
S COMBINE ST.10 FLOW WITH PARKWAY FLOW										
ADD HYD	INLADD	9&67	39	7.38925	437.46	259.565	.65864	1.550	.093	
S ROUTE THROUGH 84" PIPE TO I40 CHANNEL EAST OF UNSER										
ROUTE MCUNGE	RTLAD	39	24	7.38925	429.12	259.155	.65760	1.600	.091 CCODE =	
.1										
S ADD ST.10 TO I40 CHANNEL**										
*S**** UNSER POND INFLOW ****										
ADD HYD	UNSERTOT	29&30	31	17.07204	1614.17	704.893	.77417	1.600	.148	
*S ROUTE THROUGH UNSER POND FOR 790 CFS WEST MESA DIVERSION										
*S REVISED POND TO SET SPILLWAY CREST AT 5175.5 CWH 6/15/00										
*S OUTLET WORKS = 2 - 4' X 6' CBC'S UNDER UNSER BLVD.										
ROUTE RESERVOIR	UNSERPOND	31	1	17.07204	595.04	697.261	.76579	2.000	.054 AC-FT=	
32.765										
*S ROUTE FLOW THROUGH 6x4 CBC 2 BARRELS UNDER UNSER BLVD										
ROUTE MCUNGE	PUNSRT	1	28	17.07204	595.04	697.261	.76579	2.000	.054 CCODE =	
.0										
*S										
S SECTION IS COPIED FROM WILSON MODEL FINAL_PU.HMI**										
*S										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 28
)TATION										
ROUTE MCUNGE	610_4	28	72	17.07204	587.15	695.491	.76385	2.300	.054 CCODE =	
.2										
*S COMPUTE OLF ABOVE AP 611A NORTH SIDE OF I40 AT SPLITTER POND										
COMPUTE NM HYD	611.10	-	1	.01410	31.47	1.368	1.81862	1.500	3.487 PER IMP=	

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58.00
    *S PARKWAY STORM DRAIN
    *S ADD BASIN 611 TO PARKWAY SD DISCHARGE
    ADD HYD              108.00 24& 1  92       7.40335       450.90      260.523       .65981    1.600      .095
    *S ROUTE PARKWAY SD THROUGH PROPOSED LOWER SURGE BASIN
    *S 10 BOTTOM WEIR ELEV 5150-5155
    *S  ROUTE OLF FROM PARKWAY SD TO 611B USING CHANNEL SECTION
    ROUTE MCUNGE         193.00   92   93       7.40335       449.61      260.120       .65879    1.600      .095 CCODE =
   .1
    *S
    *S  COMPUTE HYD FOR BASIN 611B
    COMPUTE NM HYD       611.20   -     3        .02580        56.19        2.502      1.81862    1.500    3.403 PER IMP=
3.00
    *S
    ADD HYD              116.00 93& 3  16       7.42915       490.71      262.622       .66282    1.600      .103
    *S
    *S  ROUTE FLOW FROM 611B TO 611C
    ROUTE MCUNGE         193.10   16   93       7.42915       484.00      262.339       .66210    1.600      .102 CCODE =
   .2
    *S
    *S  COMPUTE HYD FOR BASIN 611C
    COMPUTE NM HYD       611.30   -     4        .01560        34.28        1.513      1.81862    1.500    3.434 PER IMP=
3.00
    *S
    *S ADD 611C TO ROUTED FLOW FROM 611B
    ADD HYD              117.00 93& 4  17       7.44475       508.59      263.852       .66453    1.600      .107
    *S
    *S  ROUTE FLOW FROM 611C TO 611D
    ROUTE MCUNGE         193.20   17   93       7.44475       504.38      263.470       .66356    1.650      .106 CCODE =
   .1
    *S
    *S  COMPUTE HYD FOR BASIN 611D
    COMPUTE NM HYD       611.40   -     5        .01140        25.76        1.106      1.81862    1.500    3.530 PER IMP=
3.00
    *S
    *S ADD 611D TO ROUTED FLOW FROM 611C
    ADD HYD              118.00  5&93  18       7.45615       517.88      264.576       .66533    1.650      .109
    *S
    *S  ROUTE FLOW FROM 611D TO 617
    ROUTE MCUNGE         193.30   18   93       7.45615       516.28      264.313       .66467    1.650      .108 CCODE =
   .2
    *S  COMPUTE HYD FOR BASIN 617A
    COMPUTE NM HYD       617.00   -     4        .00820        17.46         .755      1.72573    1.500    3.327 PER IMP=
3.00
    *S
    *S ADD 617A TO ROUTED FLOW FROM 611D
    ADD HYD              119.00  4&93  19       7.46435       525.78      265.068       .66583    1.650      .110
    *S
    *S  ROUTE FLOW FROM 617A TO 617B
    ROUTE MCUNGE         193.30   19   93       7.46435       520.24      264.764       .66507    1.700      .109 CCODE =
   .2
    *S
    *S  COMPUTE HYD FOR BASIN 617B
    COMPUTE NM HYD       617_2    -    14        .00310         6.61         .285      1.72573    1.500    3.332 PER IMP=
3.00
    *S
    *S  COMPUTE HYD FOR BASIN 617C - 72ND STREET ROW
    COMPUTE NM HYD       617_3    -    24        .00320         5.13         .162       .94785    1.500    2.504 PER IMP=
0.00
    *S
    *S ADD BASIN 617B TO ROUTED FLOW FROM 617A
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    ADD HYD              120.00 14&93  21       7.46745       523.15      265.050       .66551    1.700      .109
    *S
    *S ADD BASIN 617C TO ROUTED FLOW FROM 617A
    ADD HYD              121.00 24&21  21       7.47065       525.33      265.211       .66563    1.700      .110
    *S
    *S  ROUTE FLOW FROM 617B TO 619A
    ROUTE MCUNGE         193.40   21   93       7.47065       516.11      264.421       .66365    1.750      .108 CCODE =
   .1
    *S**************************************************************************
    *S       CALCULATE RUNOFF FOR BASINS EAST OF UNSER, SOUTH OF LADERA
    *S                 FLOWING TO LAURELWOOD DETENTION POND
    *S                          REGION D
    *S**************************************************************************
    *S
    *S  COMPUTE HYD ABOVE AP 613   HANOVER RD  825' WEST OF LAURELWOOD PARKWAY
    COMPUTE NM HYD       613.00   -     6        .05000       106.86        4.963      1.86126    1.500    3.339 PER IMP=
1.00
    *S  COMPUTE OLF ABOVE AP 614  HANOVER ROAD AND CHERRYWOOD LANE
    COMPUTE NM HYD       614.00   -     5        .01920        37.46        1.871      1.82731    1.550    3.049 PER IMP=
59.00
    *S  SEPARATE BASIN 613 SS FROM OLF
    DIVIDE HYD           614_1    6     7        .04950        98.00        4.914      1.86125    1.500     3.093
                         614_2  and     8        .00050         8.86         .049      1.86125    1.500    27.769
    *S ADD ROUTED SS FLOW FROM BASIN ST.10B TO FLOW IN SS
    ADD HYD              614_1A  7&49  7        .09858       180.00        9.435      1.79452    1.500     2.853
    *S  ROUTE SS DOWN HANOVER
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   ROUTE MCUNGE          614_3    7    2        .09858       180.00        9.435       1.79452    1.500    2.853 CCODE =
.0
   *S  ROUTE OLF DOWN HANOVER  MAJOR LOCAL STREET  40' FL-FL  60' ROW
   ROUTE MCUNGE          614_4    8    3        .00050         8.19         .049       1.82718    1.600   25.672 CCODE =
.1
   *S  ADD ROUTED HYDS
   ADD HYD               614_5  2& 3   4        .09908       180.64        9.483       1.79468    1.550    2.849
   *S  ADD ROUTED HYDS TO FLOW ABOVE AP 614
   ADD HYD               614_6  4& 5   6        .11828       218.10       11.354       1.79997    1.550    2.881
   *S
   *S  COMPUTE OLF ABOVE AP 615  HANOVER RD AT LAURELWOOD PARKWAY
   COMPUTE NM HYD        615.00   -    7        .08130       149.99        7.776       1.79336    1.550    2.883 PER IMP=
7.00
   *S  ROUTE SS AND OLF FROM AP 614 DOWN HANOVER RD TO AP 615
   DIVIDE HYD            615_1    6    8        .09407       100.00        9.030       1.79997    1.400    1.661
                         615_2  and    9        .02421       118.10        2.324       1.79997    1.550    7.623
   *S  ROUTE SS DOWN HANOVER
   ROUTE MCUNGE          615_3    8    2        .09407       100.00        9.030       1.79997    1.400    1.661 CCODE =
.0
   *S  ROUTE OLF DOWN HANOVER RD
   ROUTE MCUNGE          615_4    9    3        .02421       116.00        2.304       1.78467    1.550    7.487 CCODE =
.1
   *S  ADD OLF & SS
   ADD HYD               615_5  2& 3   6        .11828       216.00       11.335       1.79683    1.550    2.853
   DIVIDE HYD            615_6    6    8        .10559       139.00       10.119       1.79683    1.450    2.057
                         615_7  and    9        .01268        77.00        1.215       1.79683    1.550    9.486
   *S  ROUTE SS IN HANOVER
   ROUTE MCUNGE          615_8    8    2        .10559       139.00       10.119       1.79683    1.450    2.057 CCODE =
.0
   *S  ROUTE OLF DOWN HANOVER
   ROUTE MCUNGE          615_9    9    3        .01268        76.89        1.203       1.77784    1.600    9.474 CCODE =
.1
   ADD HYD              615_10  2& 3   6        .11828       215.89       11.322       1.79479    1.600    2.852
   DIVIDE HYD           615_11    6    8        .10185       124.00        9.749       1.79479    1.450    1.902
                        615_12  and    9        .01643        91.89        1.572       1.79479    1.600    8.741
   *S  ROUTE SS
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   ROUTE MCUNGE          615_13   8    2        .10185       124.00        9.749       1.79479    1.450    1.902 CCODE =
.0
   *S  ROUTE OLF
   ROUTE MCUNGE          615_14   9    3        .01643        91.89        1.572       1.79479    1.600    8.741 CCODE =
.0
   ADD HYD               615_15 2& 3   4        .11828       215.89       11.322       1.79479    1.600    2.852
   *S  ADD ROUTED SS OLF TO OLF ABOVE AP 615
   *S  TOTAL HYD AT AP 615   HANOVER RD AND LAURELWOOD PARKWAY
   ADD HYD               615_16 4& 7   6        .19958       357.50       19.098       1.79421    1.600    2.799
   *S  COMPUTE OLF ABOVE AP 616   LAURELWOOD DETENTION AREA
   COMPUTE NM HYD        616.00   -    5        .10680       161.32       10.215       1.79336    1.650    2.360 PER IMP=
7.00
   *S  ROUTE SS AND OLF FROM AP 615 TO AP 616 DOWN HANOVER RD
   *S  SEPARATE SS FROM OLF AT AP 615
   DIVIDE HYD            616_1    6    7        .15470       152.00       14.803       1.79421    1.400    1.535
                         616_2  and    8        .04488       205.50        4.295       1.79421    1.600    7.154
   *S  ROUTE SS FROM LAURELWOOD PARKWAY TO DETENTION AREA
   ROUTE MCUNGE          616_3    7    2        .15470       152.00       14.803       1.79421    1.400    1.535 CCODE =
.0
   *S  ROUTE OLF FROM AP 615 AT HANOVER AND 72ND STREET
   ROUTE MCUNGE          616_4    8    3        .04488       201.21        4.237       1.77027    1.650    7.005 CCODE =
.1
   *S* FOR REV_2D.HYM, PUT FLOW THROUGH LAURLWOOD POND INSTEAD OF DIVERT
   *S  ADD ROUTED SS TO OLF ABOVE AP 616
   *S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
   ADD HYD          TO_LARLPOND 2& 5   5        .26150       313.32       25.018       1.79386    1.650    1.872
   *S  ADD COMBINED TO ROUTED OLF
   *S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
   ADD HYD          TO_LARLPOND 3& 5  16        .30638       514.52       29.255       1.79040    1.650    2.624
   *S ROUTE INFLOW HYD THROUGH LAURELWOOD DETENTION AREA
   *S USING THE THE STAGE STORAGE CONTAINED IN THE DMP WHICH
   *S EDITED STORAGE FOR POND TO REFLECT LAURELWOOD POND REGRADING
   *S CALCS DONE BY F. KALISH 8/94.
   *S MODIFIED DISCHARGE TO REFLECT NEW OULET AND PREVENT OVERTOPPING
   *S ROUTE THRU 1-30" CULVERT AT BOTTOM AND 20' WEIR SPILLWAY AT ELEVATION 5
   ROUTE RESERVOIR LARLPOND_OUT  16   41        .30638       168.45       29.255       1.79040    2.000     .859 AC-FT=
.083
   *S  ADD OUTFLOW HYD TO OLF GOING DOWN HANOVER RD
   *S
   *S*************************************************************************
   *S      CALCULATE RUNOFF FOR BASINS SOUTH OF I-40 DRAINING TO WEST BLUFF      *
   *S                          REGION E
   *S*************************************************************************
   *S REMOVED BASINS 510-516 FROM MODEL PER LATEST WEST MESA DIV (AUG 1996)
   *S
   *S  COMPUTE OLF ABOVE AP 517 WMDC AND BLUEWATER RD
   COMPUTE NM HYD        517.00   -    3        .00460         8.35         .515       2.09889    1.600    2.838 PER IMP=
3.00
   *S  ROUTE FLOW AT AP 517 TO AP 518 DOWN WMDC
   *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
   *S                     ELMIN=0    ELMAX=10.0
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   *S
   *S  COMPUTE OLF ABOVE AP 526 W OF HIGH SCHOOL ON GLENRIO RD
   COMPUTE NM HYD        526.00   -     3        .04650       100.51       5.053      2.03762    1.500    3.377 PER IMP=
71.00
   *S  ROUTE OLF AT AP 525 TO AP 526 DOWN GLENRIO RD   40 FT FL TO FL 60 FT ROW
   ROUTE MCUNGE          526_1    4     2        .17120       102.37      14.422      1.57950    1.550     .934 CCODE =
  .2
   ADD HYD               526_2   2& 3   8        .21770       201.53      19.475      1.67735    1.550    1.446
   *S  ROUTE OLF FROM AP 526 TO AP 528 DOWN GLENRIO RD  40 FT FL TO FL 60 FT ROW
   ROUTE MCUNGE          528_1    8     2        .21770       199.14      19.470      1.67689    1.600    1.429 CCODE =
  .2
   *S
   *S  COMPUTE OLF ABOVE AP 528  64TH ST AND GLENRIO RD
   COMPUTE NM HYD        528.00   -     4        .03440        47.22       3.676      2.00368    1.750    2.145 PER IMP=
69.00
   ADD HYD               528_2   2& 4   6        .25210       237.96      23.146      1.72147    1.650    1.475
   *S
   *S  COMPUTE OLF ABOVE AP 527  WEST MESA HIGH SCHOOL AT 64TH AND GLENRIO
   COMPUTE NM HYD        527.00   -     1        .05310        44.07       4.775      1.68615    2.000    1.297 PER IMP=
50.00
   *S  TOTAL FLOW AT AP 528 BEFORE ROUTING FLOW AT AP 522 TO AP 528
   ADD HYD               528_3   1& 6   7        .30520       256.35      27.921      1.71532    1.650    1.312
   *S  ROUTE FLOW FROM WMD_POND TO AP 528  NORTH IN WMDC
   *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
   *S                    ELMIN=0    ELMAX=11.4
   *S                    CH SLP=.0015      FP SLP=.0015
   *S                    N=.015   STA=14.02
   *S                    DIST    ELEV      DIST    ELEV       DIST    ELEV
   *S                    0       12        .01     0          14.01   0
   *S                    14.02   12
   *S ROUTE MCUNGE       ID=2  HYD=528_4  INFLOW ID=15   DT=0HR  L=1100
   *S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
   *S PRINT HYD          ID=2       CODE=10
   *S  ROUTE FLOW FROM WMD_POND TO AP 528 VIA 90 INCH PIPE
   ROUTE MCUNGE          528_4   15     2        .40230       406.79      43.547      2.02959    2.000    1.580 CCODE =
  .2
   *S  TOTAL HYD IN WMDC AT AP 528  WEST MESA DIVERSION AND GLENRIO RD
   ADD HYD               528_5   7& 2  10        .70750       552.69      71.468      1.89403    1.900    1.221
   *S
   *S  COMPUTE OLF ABOVE AP 529  YELLOW FREIGHT AT HANOVER RD
   *S  REVISED AREA 7/30/96. OLD WAS .0175; NEW=.0264
   COMPUTE NM HYD        529.00   -     9        .02640        54.57       2.845      2.02048    1.550    3.230 PER IMP=
3.00
   *S
   *S  COMPUTE HYD FOR BASIN 532  I40 BASIN
   COMPUTE NM HYD        532.00   -     4        .03280        35.58       2.364      1.35133    1.750    1.695 PER IMP=
23.00
   *S
   *S  COMPUTE OLF ABOVE AP 530  64TH ST AND HANOVER RD
   COMPUTE NM HYD        530.00   -     5        .08650       125.71      10.850      2.35184    1.750    2.271 PER IMP=
90.00
   ADD HYD               530_1   4& 5   5        .11930       161.29      13.214      2.07675    1.750    2.112
   *S  ROUTE OLF FROM AP 529 TO AP 530 W IN HANOVER RD ASSUME 42" SS
   ROUTE MCUNGE          530_2    9     2        .02640        53.24       2.842      2.01836    1.550    3.151 CCODE =
  .2
   *S  ROUTE OLF FROM AP 530 E IN HANOVER TO 64TH ST ASSUME 48" SS

                                 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

   ROUTE MCUNGE          530_3    5     3        .11930       149.70      13.008      2.04446    1.800    1.961 CCODE =
  .2
   *S  ADD ROUTED FLOWS FROM AP 529 AND AP 530
   ADD HYD               530_4   2& 3   4        .14570       177.41      15.850      2.03972    1.750    1.903
   *S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMDC  ASSUME VERT WALLS  12 FT BOTTOM
   *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
   *S                    ELMIN=0    ELMAX=11.4
   *S                    CH SLP=.0015      FP SLP=.0015
   *S                    N=.015   STA=14.02
   *S                    DIST    ELEV      DIST    ELEV       DIST    ELEV
   *S                    0       12        .01     0          14.01   0
   *S                    14.02   12
   *S ROUTE MCUNGE       ID=8  HYD=530_5  INFLOW ID=10   DT=0HR  L=1100
   *S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
   *S PRINT HYD          ID=8       CODE=10
   *S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMD VIA 102 INCH PIPE
   ROUTE MCUNGE          530_5   10     8        .70750       551.24      71.405      1.89236    1.950    1.217 CCODE =
  .2
   ADD HYD               530_6   8& 4   10       .85320       712.90      87.255      1.91752    1.850    1.306
   *S
   *S  COMPUTE OLF ABOVE AP 403 COORS BLVD AND HANOVER RD
   *S  REVISED AREA 7/30/96. OLD WAS .0355; NEW=.0100
   COMPUTE NM HYD        403.00   -     5        .01000        22.29       1.192      2.23508    1.550    3.482 PER IMP=
84.00
   *S  TOTAL FLOW IN WMDC AT AP 530  64TH ST AND HANOVER RD
   ADD HYD               530_7   5&10   10       .86320       721.21      88.447      1.92120    1.850    1.305
   *S
   *S  COMPUTE OLF ABOVE AP 531  WMDC AT I-40 CULVERTS
   COMPUTE NM HYD        531.00   -     3        .01810        31.30       1.304      1.35133    1.550    2.702 PER IMP=
23.00
   *S  ROUTE FLOW AT AP 530 TO AP 531  N IN WMDC
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   *S COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
   *S                      ELMIN=0     ELMAX=11.4
   *S                      CH SLP=.0015       FP SLP=.0015
   *S                      N=.015    STA=14.02
   *S                      DIST     ELEV       DIST     ELEV        DIST     ELEV
   *S                      0        12         .01      0           14.01    0
   *S                      14.02    12
   *S ROUTE MCUNGE         ID=2  HYD=531_1  INFLOW ID=10   DT=0HR  L=2080
   *S                      NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
   *S PRINT HYD            ID=2       CODE=10
   *S  ROUTE FLOW AT AP 530 TO AP 531 N IN WMD VIA 120 INCH PIPE
   ROUTE MCUNGE             531_1   10    2         .86320        719.18       88.364       1.91940     1.900     1.302 CCODE =
  .2
   *S
   *S  COMPUTE OLF ABOVE AP 404 ESTANCIA DR AND ILIFF RD
   *S  REVISED AREA 7/30/96. OLD WAS .0538; NEW=.0274
   COMPUTE NM HYD          404.00    -     5         .02740         29.60        3.266       2.23507     2.000     1.688 PER IMP=
 1.00
   ADD HYD               531_1.5  5& 2    2         .89060        747.31       91.630       1.92912     1.900     1.311
   *S  TOTAL FLOW AT AP 531 WMDC ENTERING I-40 CULVERTS
   ADD HYD                 531_2  2& 3   33         .90870        756.56       92.935       1.91761     1.900     1.301
   *S  ROUTE FLOW THRU I-40 BOX CULVERTS  2-10 BY 12
   *S  TOTAL ROUTED OLF FROM WMDC ENTERING I-40 INTERCEPTOR
   ROUTE MCUNGE             531_3   33   42         .90870        756.04       92.927       1.91744     1.900     1.300 CCODE =
  .2
   *S
   *S
   *S
```

```
                                    FROM   TO                      PEAK          RUNOFF                  TIME TO     CFS        PAGE =
 34
                        HYDROGRAPH    ID    ID          AREA     DISCHARGE       VOLUME      RUNOFF        PEAK       PER
   COMMAND          IDENTIFICATION    NO.   NO.       (SQ MI)     (CFS)        (AC-FT)    (INCHES)     (HOURS)     ACRE
 )TATION

   *S**************************************************************************
   *S       CALCULATE RUNOFF FOR BASINS NORTHWEST OF PONDS 13 THROUGH 14          *
   *S                              REGION I                                      *
   *S**************************************************************************
   *S
   *S  ROUTE DAM #12 OUTFLOW THRU CHANNEL TO UNSER BOX CULVERTS
   ROUTE MCUNGE          L13.1_1   38    8        1.83479        173.26       61.479        .62826     3.000      .148 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L13.1
   COMPUTE NM HYD          L13.1    -     3         .13130        204.28       11.048       1.57767     1.600     2.431 PER IMP=
44.00
   *S  ADD L13.1 FLOW TO CHANNEL BEFORE UNSER BOX CULVERTS -- TOTAL INTO DAM#13
   ADD HYD               TO_DAM13  3& 8   13        1.96609        204.28       72.527        .69167     1.600      .162
   *S  ROUTE FLOW THRU DAM #13
   ROUTE RESERVOIR         POND13   13    6        1.96609        174.99       72.527        .69166     3.300      .139 AC-FT=
5.983
   *S  ROUTE OUTFLOW THRU CHANNEL PART WAY TO DAM #14
   ROUTE MCUNGE          L14.8_1    6    4        1.96609        174.71       72.406        .69051     3.550      .139 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.8
   COMPUTE NM HYD          L14.8    -     3         .19060        337.88       18.571       1.82686     1.550     2.770 PER IMP=
5.00
   *S  ADD BASIN L14.8 TO CHANNEL FLOW
   ADD HYD               L14.8_2  3& 4    5        2.15669        340.17       90.977        .79094     1.550      .246
   *S  ROUTE TOTAL FLOW REST OF WAY THRU CHANNEL TO DAM 14
   ROUTE MCUNGE          L14.8_3    5   16        2.15669        278.24       90.614        .78779     1.800      .202 CCODE =
  .2
   *S
   *S  FROM ABOVE ESCARPMENT -- L14 BASINS
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.1
   COMPUTE NM HYD          L14.1    -     1         .49840        199.53       12.843        .48315     1.750      .626 PER IMP=
 .00
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.2
   COMPUTE NM HYD          L14.2    -     2         .31880        153.42        8.901        .52351     1.700      .752 PER IMP=
 .00
   *S  ADD L14.1 TO L14.2
   ADD HYD               L14.3_1  1& 2    3        .81720        351.82       21.744        .49889     1.750      .673
   *S
   *S  ROUTE L14.1 & L14.2 HYD THRU L14.3
   ROUTE MCUNGE          L14.3_2    3   20        .81720        348.60       21.683        .49750     2.000      .667 CCODE =
  .1
   ROUTE MCUNGE          L14.3_2   20    4        .81720        347.90       21.649        .49673     2.100      .665 CCODE =
  .1
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.3
   COMPUTE NM HYD          L14.3    -     3         .18130        222.28       10.014       1.03564     1.550     1.916 PER IMP=
19.00
   *S  ADD L14.3 TO (L14.1,2)
   ADD HYD               L14.3_3  3& 4    5        .99850        386.45       31.663        .59458     2.100      .605
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.4
   COMPUTE NM HYD          L14.4    -     3         .04690         95.65        3.945       1.57734     1.500     3.187 PER IMP=
46.00
   *S  ADD L14.4 TO (L14.1-3)
   ADD HYD               L14.4_1  3& 5    7       1.04540        398.92       35.609        .63867     2.100      .596
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   *S                    CH SLP=.0012      FP SLP=.0012
   *S                    N=.015  STA=50
   *S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
   *S                    0       10        20      0           30      0
   *S                    50      10
   *S ROUTE MCUNGE        ID=2  HYD=518_1  INFLOW ID=3   DT=0HR  L=1900
   *S                    NS=0  SLOPE=.0012  MATCODE=0  REGCODE=0  CCODE=0
   *S PRINT HYD           ID=2       CODE=10
```

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	
										PAGE = 31
	*S ROUTE FLOW FROM AP 517 TO AP 518 VIA 24 INCH PIPE									
ROUTE MCUNGE	518_1	3	2	.00460	8.13	.514	2.09327	1.700	2.761	CCODE = .2
	*S									
	*S COMPUTE OLF ABOVE AP 518 WMDC AND LOS VOLCANES RD									
COMPUTE NM HYD	518.00	-	3	.10370	133.19	11.645	2.10552	1.800	2.007	PER IMP= 5.00
ADD HYD	518_2	2& 3	10	.10830	140.28	12.158	2.10499	1.800	2.024	
	*S ROUTE FLOW FROM AP 518 TO AP 522 DOWN WMDC									
	*S COMPUTE RATING CURVE ID=1 VS NO=1 NO SEGS=1									
	*S ELMIN=0 ELMAX=7.6									
	*S CH SLP=.0012 FP SLP=.0012									
	*S N=.015 STA=50									
	*S DIST ELEV DIST ELEV DIST ELEV									
	*S 0 10 20 0 30 0									
	*S 50 10									
	*S ROUTE MCUNGE ID=2 HYD=522_1 INFLOW ID=10 DT=0HR L=1130									
	*S NS=0 SLOPE=.0012 MATCODE=0 REGCODE=0 CCODE=0									
	*S PRINT HYD ID=2 CODE=10									
	*S ROUTE FLOW FROM AP 518 TO AP 522 VIA 66 INCH PIPE									
ROUTE MCUNGE	522_1	10	2	.10830	138.99	12.148	2.10324	1.850	2.005	CCODE = .2
	*S									
	*S COMPUTE HYD ABOVE AP 521									
COMPUTE NM HYD	521.00	-	6	.02600	58.63	3.125	2.25330	1.550	3.524	PER IMP= 84.00
	*S TOTAL FLOW AT AP 521									
ADD HYD	521_1	2& 6	10	.13430	162.84	15.273	2.13229	1.800	1.894	
	*S									
	*S COMPUTE OLF ABOVE AP 522 64TH ST AND FORTUNA RD									
COMPUTE NM HYD	522.00	-	4	.12230	144.69	13.291	2.03762	1.850	1.848	PER IMP= 71.00
ADD HYD	522_2	10& 4	13	.25660	305.55	28.564	2.08717	1.850	1.861	
	*S									
	*S COMPUTE OLF ABOVE AP 519 AIRPORT RD AND FORTUNA RD									
COMPUTE NM HYD	519.00	-	3	.06420	144.03	7.209	2.10553	1.500	3.505	PER IMP= 75.00
	*S ROUTE OLF FROM AP 519 TO AP 520 DOWN FORTUNA RD 40 FT FL TO FL									
ROUTE MCUNGE	520_1	3	2	.06420	143.07	7.214	2.10691	1.600	3.482	CCODE = .2
	*S									
	*S COMPUTE OLF ABOVE AP 520 FORTUNA RD W OF HIGH SCHOOL									
COMPUTE NM HYD	520.00	-	4	.08150	107.75	7.834	1.80234	1.700	2.066	PER IMP= 3.00
	*S TOTAL FLOW AT AP 520									
ADD HYD	520_2	2& 4	5	.14570	233.83	15.048	1.93653	1.600	2.508	
	*S ROUTE OLF AT AP 520 TO AP 522 DOWN FORTUNA RD									
ROUTE MCUNGE	522_3	5	2	.14570	229.98	15.040	1.93551	1.700	2.466	CCODE = .2
	*S TOTAL HYD AT AP 522									
ADD HYD	522_4	2&13	13	.40230	505.12	43.604	2.03224	1.750	1.962	
	*S ROUTE FLOW THROUGH PROPOSED DETENTION POND AT FORTUNA									
	*S REVISED SMITH ENGR'S POND TO PRODUCE 790 CFS IN WMD AT I40.									
	*S ORIFICE = 2-66" PIPES. FACTORED POND STORAGE BY 0.35									
ROUTE RESERVOIR	WMD_POND	13	15	.40230	408.86	43.604	2.03224	1.950	1.588	AC-FT= 7.227
	*S									
	*S COMPUTE OLF ABOVE AP 524 UNSER DETENTION AREA									
COMPUTE NM HYD	524.00	-	3	.12190	193.32	10.268	1.57930	1.600	2.478	PER IMP= .00
	*S ROUTE INFLOW THRU UNSER DETENTION AREA, 24" ORIFICE									
ROUTE RESERVOIR	UNSER_POND	3	20	.12190	17.60	10.226	1.57291	2.400	.226	AC-FT= 958
	*S									

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	
										PAGE = 32
	*S COMPUTE OLF ABOVE AP 525									
COMPUTE NM HYD	525.00	-	3	.04930	104.14	4.192	1.59450	1.500	3.301	PER IMP= .00
	*S ROUTE OUTFLOW FROM AP 524 TO AP 525									
ROUTE MCUNGE	525_1	20	2	.12190	17.60	10.221	1.57219	2.650	.226	CCODE = .2
	*S TOTAL OLF AT AP 525									
ADD HYD	525_2	2& 3	4	.17120	104.30	14.414	1.57861	1.500	.952	

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   *S  ROUTE FLOW THRU 3-10'x4'x175'  CBC HW/D=1.5
   ROUTE MCUNGE          L14.4_2    7    8        1.04540        398.92        35.609        .63867     2.100      .596 CCODE =
  .0
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.5

                                    FROM  TO                      PEAK          RUNOFF                TIME TO     CFS       PAGE =
35
                        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        L14.5    -     1         .08280        158.13         6.079       1.37656     1.500     2.984 PER IMP=
 1.00
   *S  ROUTE L14.5 THRU BASIN L14.6 VIA 98TH STREET
   ROUTE MCUNGE          L14.6_1    1   50        .08280        154.97         6.095       1.38027     1.550     2.924 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.6
   COMPUTE NM HYD        L14.6    -     6         .04380         87.59         4.146       1.77474     1.500     3.125 PER IMP=
56.00
   *S  ADD L14.6 & ROUTED L14.5
   ADD HYD               L12.6_2 50& 6    3        .12660        241.08        10.241       1.51674     1.550     2.975
   *S
   *S  ROUTE FLOW THRU INLET TO  48" PIPE
   ROUTE RESERVOIR       L14.4_3    3     2        .12660        127.81        10.241       1.51674     1.750     1.577 AC-FT=
 1.570
   *S  ROUTE THRU 900' OF 48" RCP PIPE
   ROUTE MCUNGE          L14.4_4    2     7        .12660        127.76        10.190       1.50925     2.050     1.577 CCODE =
  .2
   *S  TOTAL FLOW FROM L14.1-4,6 INTO LADERA CHANNEL
   ADD HYD               L14.7_1  7& 8    4       1.17200        524.30        45.799        .73271     2.050      .699
   *S  ROUTE FLOW DOWN LADERA CHANNEL
   ROUTE MCUNGE          L14.7_2    4     5       1.17200        453.64        44.997        .71988     2.250      .605 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.7
   COMPUTE NM HYD        L14.7    -     3         .08910        178.00         9.821       2.06662     1.550     3.122 PER IMP=
 2.00
   *S  ADD TO FLOW IN LADERA CHANNEL
   ADD HYD               L14.7_3  3& 5    4       1.26110        481.83        54.818        .81503     2.200      .597
   *S  FLOW (FROM BASINS L14.1-4 AND L14.6,7) INTO DAM #14
   ADD HYD               L14.7_4  4&16  20       3.41779        694.47       145.432        .79784     1.800      .317
   *S
   *S*************************************************************************
   *S    CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA PONDS 13 THROUGH 14     *
   *S                              REGION J                                       *
   *S*************************************************************************
   *S
   *S  COMPUTE HYD ABOVE AP 201 NORTH OF CL OF LADERA DR
   COMPUTE NM HYD        201.30   -    10        .01720         38.01         1.589       1.73262     1.500     3.453 PER IMP=
51.00
   *S
   *S  COMPUTE HYD ABOVE AP 201 SOUTH OF CL OF LADERA DR
   COMPUTE NM HYD        201.40   -    11        .00320          8.42          .415       2.43221     1.500     4.112 PER IMP=
95.00
   *S
   *S  COMPUTE HYD ABOVE AP 202 NORTH OF CL OF LADERA DR
   COMPUTE NM HYD        202.30   -     8        .02570         54.29         2.413       1.76073     1.500     3.300 PER IMP=
 4.00
   *S
   *S  COMPUTE HYD ABOVE AP 202 SOUTH OF CL OF LADERA DR
   COMPUTE NM HYD        202.40   -     9        .00310          8.16          .402       2.43221     1.500     4.113 PER IMP=
 5.00
   *S  ROUTE SS AND OLF FROM AP 201 TO AP 202 (THRU 202.3-202.4)
   *S  DIVIDE SS FROM HYD AT AP 201 NORTH OF CL OF LADERA DR
   DIVIDE HYD            202_6   10    5        .01599         26.00         1.477       1.73260     1.450     2.541
                         202_7   and   6        .00121         12.01          .112       1.73260     1.500    15.453
   *S  ROUTE SS NORTH IN LADERA DR
   ROUTE MCUNGE          202_8    5    2        .01599         26.00         1.473       1.72778     1.550     2.541 CCODE =
  .1
   *S  ROUTE OLF FROM AP 201 TO AP 202 NORTH SIDE OF LADERA DR
   ROUTE MCUNGE          202_9    6    3        .00121         11.05          .109       1.68883     1.700    14.227 CCODE =
  .1
   *S  ADD OLF ABOVE AP 202 TO ROUTED HYD FROM AP 201 NORTH SIDE LADERA DR
   ADD HYD               202_1  3& 8    5        .02691         54.29         2.523       1.75745     1.500     3.152
   *S  ROUTE HYD FROM AP 201 (SOUTH SIDE) TO AP 202 SOUTH SIDE OF LADERA DR

                                    FROM  TO                      PEAK          RUNOFF                TIME TO     CFS       PAGE =
36
                        HYDROGRAPH   ID    ID         AREA      DISCHARGE      VOLUME       RUNOFF      PEAK       PER
   COMMAND          IDENTIFICATION   NO.   NO.      (SQ MI)      (CFS)       (AC-FT)     (INCHES)    (HOURS)    ACRE
NOTATION

   ROUTE MCUNGE          202_2   11    3        .00320          8.37          .415       2.43376     1.600     4.088 CCODE =
  .2
   *S
   ADD HYD               202_3  3& 9    4        .00630         14.91          .817       2.43283     1.550     3.698
   *S  TOTAL HYD AT AP 202 NORTH SIDE OF LADERA DR
   ADD HYD               202_4  2& 5    6        .04290         77.85         3.996       1.74637     1.500     2.835
   *S
   *S  COMPUTE HYD ABOVE AP 203  72ND AT LADERA DR
   COMPUTE NM HYD        203.00   -     1        .02480         49.50         1.943       1.46922     1.500     3.119 PER IMP=
 3.00
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   *S
   *S  COMPUTE HYD ABOVE AP 204 LADERA DR AT 72ND NORTH SIDE
   COMPUTE NM HYD          204.30   -     3        .01520        33.64       1.430       1.76408     1.500     3.458 PER IMP=
4.00
   *S
   *S  COMPUTE HYD ABOVE AP 204 SOUTH SIDE
   COMPUTE NM HYD          204.40   -     5        .00250         6.58        .324       2.43221     1.500     4.114 PER IMP=
5.00
   *S  ROUTE HYDS FROM AP 202 TO AP 204 NORTH SIDE
   DIVIDE HYD              204_5    6    10        .03132        30.00       2.917       1.74637     1.400     1.496
                           204_6  and    11        .01158        47.85       1.078       1.74637     1.500     6.458
   *S  ROUTE SS FROM AP 202 TO AP 204
   ROUTE MCUNGE            204_7   10     2        .03132        30.00       2.911       1.74258     1.500     1.496 CCODE =
.1
   *S  ROUTE OLF FROM AP 202 TO AP 204 NORTH SIDE
   ROUTE MCUNGE            204_8   11     6        .01158        47.18       1.065       1.72419     1.650     6.367 CCODE =
.1
   *S  TOTAL ROUTED OLF ABOVE AP 204 NORTH SIDE
   ADD HYD                 204_9  3& 6    7        .02678        65.31       2.495       1.74680     1.650     3.811
   *S  ADD ROUTED SS FLOW TO TOTAL ROUTED OLF AT AP 204
   ADD HYD                 204_1  7& 2    8        .05810        95.31       5.406       1.74451     1.650     2.563
   *S  ROUTE SOUTH SIDE OF LADERA FROM AP 202 TO AP 204
   ROUTE MCUNGE            204_2    4     2        .00630        14.78        .818       2.43378     1.650     3.666 CCODE =
.2
   *S  OLF IN SOUTH SIDE OF LADERA WEST OF 72ND STREET
   ADD HYD                 204_3  2& 5    6        .00880        19.03       1.142       2.43322     1.600     3.378
   *S  ADD HYD ABOVE AP 203 TO TOTAL FLOW AT AP 204
   *S  OLF IN SOUTH SIDE OF LADERA AT 72ND STREET
   ADD HYD                 204_4  1& 6    7        .03360        62.57       3.085       1.72169     1.500     2.910
   *S  ADD TOTAL FLOW AT AP 204 (204 N. SIDE AND 203) TO AP 204 S. SIDE
   *S  TOTAL HYD AT AP 204 LADERA DR AT 72ND ST NORTH AND SOUTH SIDES
   ADD HYD                 204_5  7& 8    9        .09170       141.39       8.491       1.73615     1.600     2.409
   *S
   *S  SS DISCHARGES TO LADERA DAM NO 14;
   *S  FLOW THAT CAN'T GET INTO SS GOES NORTH ON LADERA, LEAVES WBLUFF WATERSHED
   DIVIDE HYD              204_6    9    43        .06896        64.00       6.385       1.73615     1.400     1.450
                           204_7  and    19        .02274        77.39       2.106       1.73615     1.600     5.317
   *S  ADD FLOWS ABOVE POND #14
   *S  TOTAL FLOW ENTERING POND #14
   ADD HYD              TO_DAM14 20&43   14       3.48675       758.47     151.817        .81640     1.800      .340
   *S
   *S  ROUTE FLOW THRU DAM #14
   ROUTE RESERVOIR        POND14   14     8       3.48675       344.47     151.804        .81633     2.750      .154 AC-FT=
3.663
   *S >>>>>
   *S >>>>> DIVIDE 0 CFS FROM LADERA POND #14 AND SEND TO WEST BLUFF
   DIVIDE HYD         TO_LADOURAY    8    44        .00554          .10        .241        .81633      .850      .028
                        15INFLOW   and    45       3.48121       344.37     151.563        .81633     2.750      .155
   ROUTE MCUNGE        RTE_TO_WB    44    18        .00554          .10        .235        .79558     1.600      .028 CCODE =
.1
   *S
   *S*************************************************************************
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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
OTATION									

```
   *S          CALCULATE RUNOFF FOR SINGLE BASIN JUST SOUTH OF POND 14          *
   *S                          REGION K
   *S*************************************************************************
   *S
   *S  COMPUTE HYD ABOVE AP 205 LADERA DR WEST OF OURAY DR
   COMPUTE NM HYD          205.00   -     3        .00770        15.82        .567       1.38173     1.500     3.211 PER IMP=
25.00
   *S  ROUTE OLF FROM AP 204 TO AP 205 NORTH IN LADERA DR
   ROUTE MCUNGE            205_1   19     2        .02274        76.84       2.091       1.72390     1.750     5.280 CCODE =
.1
   *S  TOTAL OLF AT AP 205
   ADD HYD                 205_2  2& 3    4        .03044        82.33       2.658       1.63732     1.750     4.226
   *S
   DIVIDE HYD              205_3    4    46        .01824        32.00       1.593       1.63732     1.600     2.741
                           205_4  and     2        .01220        50.33       1.066       1.63732     1.750     6.444
   *S
   *S
   *S*************************************************************************
   *S   CALCULATE RUNOFF FOR BASINS DRAINING TO WEST BLUFF OUTFALL AT COORS ROAD  *
   *S                          REGION L
   *S*************************************************************************
   *S
   *S  ADD LAURELWOOD POND TO THE UNSER SPILLWAY STORMDRAIN
   ADD HYD                 617_5 72&41    4      17.37842       752.46     724.746        .78195     2.250      .068
   *S ROUTE UNSER STORM DRAIN FROM LAURELWOOD TO 68TH STREET
   ROUTE MCUNGE            610_4    4    74       17.37842       741.98     723.642        .78076     2.350      .067 CCODE =
.2
   *S
   *S*****************************************************************
   *S*** CONTINUED ROUTING OF SD FROM 68TH STREET TO WB- LEM 1/2/06
   *S*****************************************************************
   *S ROUTE UNSER STORM DRAIN FROM 68TH STREET TO WB
   ROUTE MCUNGE            610_4   74    73       17.37842       734.09     722.612        .77964     2.450      .066 CCODE =
.2
   *S*****************************************************************
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    *S  COMPUTE OLF ABOVE AP 618A   TORATOLLA ACERS
    COMPUTE NM HYD         618_1   -     6        .05200        77.81        4.355       1.57044     1.600     2.338 PER IMP=
2.00
    *S
    *S  COMPUTE OLF ABOVE AP 618B  SCHOOL AND PART OF LA MESA DEL OESTE
    COMPUTE NM HYD         618_2   -     7        .04610        85.68        3.861       1.57044     1.550     2.904 PER IMP=
2.00
    *S
    *S  ROUTE OLF FROM BASIN 618A THOUGH 618B  ASSUME 32'FL-FL STREET SECTION
    ROUTE MCUNGE           618_3    6    3        .05200        77.53        4.359       1.57180     1.650     2.330 CCODE =
  .2
    *S
    *S ADD ROUTED FLOW FROM 618A TO FLOW FROM 618B
    ADD HYD                618_4  7& 3   5        .09810       145.56        8.220       1.57115     1.600     2.318
    *S
    *S ROUTE COMBINED FLOW FROM BASINS 618A&B VIA SD TO 619B
    ROUTE MCUNGE           618_5    5   86        .09810       145.56        8.220       1.57115     1.600     2.318 CCODE =
  .0
    *S  COMPUTE OLF ABOVE AP 619A CHAMISA
    COMPUTE NM HYD         619.00   -     7        .02200        47.71        2.053       1.74987     1.500     3.388 PER IMP=
55.00
    *S  ADD BASIN 619A TO ROUTED FLOW FROM 617B
    ADD HYD                122.00  7&93  22       7.49265       533.74      266.474        .66684     1.750      .111
    *S
    *S ROUTE 619A TO 619B

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

    ROUTE MCUNGE           193.40   22   93       7.49265       526.45      266.134        .66599     1.750      .110 CCODE =
  .1
    *S
    *S  COMPUTE OLF ABOVE AP 619B CANDLEWOOD
    COMPUTE NM HYD         620.00   -     5        .00450         9.77         .420       1.74987     1.500     3.392 PER IMP=
5.00
    *S
    *S ADD BASIN 619B TO ROUTED FLOW FROM 619A
    ADD HYD                 619_6  5&93  10       7.49715       530.06      266.554        .66664     1.750      .110
    *S ADD BASINS 618A&B TO ROUTED FLOW AT 619B
    ADD HYD                123.00 10&86  23       7.59525       637.42      274.775        .67832     1.750      .131
    *S
    *S ROUTE 619B TO 621A
    ROUTE MCUNGE           193.40   23   93       7.59525       633.66      274.438        .67749     1.750      .130 CCODE =
  .2
    *S
    *S  COMPUTE OLF ABOVE AP 621A  EAST PART OF LA MESA DEL OESTE
    COMPUTE NM HYD         621_1    -     7        .02350        49.09        1.968       1.57044     1.500     3.264 PER IMP=
42.00
    *S
    *S ADD BASINS 621A TO ROUTED FLOW FROM 619B
    ADD HYD                124.00  7&93  24       7.61875       651.34      276.407        .68025     1.750      .134
    *S
    *S ASSUME BASIN 619C CONTRIBUTES NO RUNOFF TO THE CHANNEL
    *S ROUTE 621A TO 621B
    ROUTE MCUNGE           193.40   24   93       7.61875       647.93      276.145        .67960     1.800      .133 CCODE =
  .2
    *S
    *S  COMPUTE OLF ABOVE AP 621B  JUNIPER RUN
    COMPUTE NM HYD         621_3    -     6        .01430        29.88        1.198       1.57044     1.500     3.265 PER IMP=
2.00
    *S
    *S ADD BASIN 621B TO ROUTED FLOW FROM 621A
    ADD HYD                125.00  6&93  25       7.63305       657.04      277.342        .68127     1.800      .134
    *S
    *S  COMPUTE OLF ABOVE AP 621C
    COMPUTE NM HYD         621_5    -     6        .03200        68.80        3.145       1.84263     1.500     3.359 PER IMP=
0.00
    *S
    *S ROUTE FLOW FROM 621C IN STORM DRAIN TO 1-40 CHANNEL
    ROUTE MCUNGE           621_6    6    2        .03200        55.69        3.034       1.77792     1.550     2.719 CCODE =
  .2
    *S
    *S COMPUTE HYD FOR BASIN 621D - 64TH STREET FROM JUNIPER TO CHANNEL
    COMPUTE NM HYD         627.00   -     6        .00150         3.02         .126       1.57044     1.500     3.141 PER IMP=
42.00
    *S
    *S ADD BASIN 621D TO ROUTED FLOW FROM 621C
    ADD HYD                621_8  6& 2   4        .03350        58.52        3.160       1.76860     1.550     2.730
    *S
    *S ADD BASIN 621C TO ROUTED FLOW AT 621B
    ADD HYD                126.00  4&25  26       7.66655       684.47      280.503        .68602     1.800      .140
    *S
    *S  ROUTE  FLOW FROM 621B TO 622A
    ROUTE MCUNGE           193.40   26   93       7.66655       682.91      280.108        .68506     1.800      .139 CCODE =
  .1
    *S*************************************************************************
    *S*                      CHANGED WILSON MODEL TO INCLUDE FLOW FROM WMDC                                    *
    *S*************************************************************************
    *S  ADD ROUTED HYD FROM AP 531 TO ROUTED FLOW FROM 621B
    *S  TOTAL HYD AT CONFLUENCE OF I40 CHANNEL AND WMDC
    ADD HYD                622_5 42&93  31       8.57525      1407.94      373.034        .81565     1.850      .257
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   *S  COMPUTE OLF ABOVE AP 622A

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

   COMPUTE NM HYD       622_1     -     6        .00900       18.81         .754       1.57044     1.500     3.266 PER IMP=
42.00
   *S
   *S ADD BASIN 622A TO ROUTED FLOW FROM 621B
   ADD HYD              127.00  6&31  27       8.58425      1412.87      373.788        .81644     1.850      .257
   *S*************************************************************************
   *S*                          END OF CHANGES TO INCLUDE WMDC                                        *
   *S*************************************************************************
   *S
   *S  COMPUTE OLF ABOVE AP 622B
   COMPUTE NM HYD       622_2     -     6        .00664       13.10         .505       1.42656     1.500     3.081 PER IMP=
35.00
   *S
   *S ADD BASIN 622B TO ROUTED FLOW FROM 622A
   ADD HYD              128.00  6&27  28       8.59089      1416.43      374.294        .81691     1.800      .258
   *S
   *S?????????????????????????????????????????????
   *S ADD UNSER SD TO PARKWAY CHANNEL
   ADD HYD              610_16 73&28  99      25.96931      2074.23     1096.906        .79197     1.850      .125
   *S?????????????????????????????????????????????
   *S*************************************************************************
   *S*                      END OF COPIED SECTION FROM WILSON FINAL_PU.HMI                            *
   *S*************************************************************************
   *S  COMPUTE OLF ABOVE AP 623  68TH ST AND MIAMI RD
   COMPUTE NM HYD       623.00    -     7        .03000       66.12         3.181      1.98836     1.500     3.444 PER IMP=
3.00
   *S
   *S  COMPUTE OLF ABOVE AP 624
   COMPUTE NM HYD       624.00    -     6        .04650       86.33         5.154      2.07828     1.600     2.901 PER IMP=
3.00
   *S
   *S  COMPUTE OLF ABOVE AP 625  64TH ST AND MIAMI RD
   COMPUTE NM HYD       625.00    -     5        .03860       92.32         4.310      2.09357     1.500     3.737 PER IMP=
74.00
   *S  ROUTE OLF FROM AP 623 TO AP 625 DOWN MIAMI RD  40 FT FL TO FL  60 FT ROW
   ROUTE MCUNGE         625_4     7     2        .03000       65.33         3.187      1.99162     1.600     3.403 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 623 TO OLF ABOVE AP 625
   ADD HYD              625_5   2& 5    4        .06860      146.78         7.497      2.04897     1.550     3.343
   *S  ROUTE OLF FROM AP 624 TO AP 625 ASSUME 32 FT FL TO FL ST SECTION
   ROUTE MCUNGE         625_6     6     3        .04650       85.04         5.154      2.07813     1.650     2.858 CCODE =
  .2
   *S  ADD ROUTED OLF FROM AP 624 TO AP 625
   ADD HYD              625_7   3& 4   10        .11510      219.82        12.650      2.06075     1.550     2.984
   *S
   *S  COMPUTE OLF ABOVE AP 626  ESTANCIA DR AND MIAMI RD
   COMPUTE NM HYD       626.00    -     3        .07440      147.79         7.977      2.01036     1.550     3.104 PER IMP=
69.00
   *S  ROUTE OLF AT AP 625 TO AP 626 ASSUME 40 FT FL TO FL STREET SECTION
   ROUTE MCUNGE         626_4    10     2        .11510      217.65        12.625      2.05667     1.650     2.955 CCODE =
  .1
   *S  ADD ROUTED HYD FROM AP 625 TO OLF ABOVE AP 626
   *S  TOTAL OLF AT AP 626 ESTANCIA AVENUE
   ADD HYD              626_5   2& 3   20        .18950      343.87        20.602      2.03848     1.600     2.835
   *S
   *S  COMPUTE OLF ABOVE AP 627 57TH ST AND QUAIL RD
   COMPUTE NM HYD       627.00    -     4        .08610      145.19         8.461      1.84264     1.600     2.635 PER IMP=
60.00
   *S
   *S  COMPUTE OLF ABOVE AP 628  OURAY RD EAST OF ESTANCIA RD
   COMPUTE NM HYD       628.00    -    10        .05590       52.79         5.291      1.77474     1.950     1.476 PER IMP=
3.00
   *S

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

   *S  COMPUTE OLF ABOVE AP 629  57TH ST AND OURAY RD
   COMPUTE NM HYD       629.00    -     5        .05810      118.43         6.756      2.18036     1.550     3.185 PER IMP=
79.00
   *S  ROUTE OLF FROM AP 627 TO AP 629 DOWN ATRISCO DR (COLLECTOR)  ASSUME 36" SS
   DIVIDE HYD           629_4     4     9        .05471       37.00         5.377      1.84263     1.400     1.057
                        629_5   and     8        .03139      108.19         3.085      1.84263     1.600     5.386
   *S  ROUTE SS FROM AP 627 TO AP 629 DOWN ATRISCO DR
   ROUTE MCUNGE         629_4     9     2        .05471       37.00         5.369      1.83996     1.500     1.057 CCODE =
  .1
   *S  ROUTE OLF FROM AP 627 TO AP 629  DOWN ATRISCO DR
   ROUTE MCUNGE         629_7     8     3        .03139      104.28         3.099      1.85112     1.700     5.191 CCODE =
  .2
   *S  ROUTE OLF FROM AP 628 TO AP 629  DOWN OURAY RD  ASSUME 24" SS
   DIVIDE HYD           629_8    10     9        .03246       12.00         3.072      1.77472     1.550      .578
                        629_9   and     8        .02344       40.79         2.219      1.77472     1.950     2.719
   *S  ROUTE SS FROM AP 628 TO AP 629 E IN OURAY RD
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   ROUTE MCUNGE          629_1    9    4        .03246        12.00        3.070       1.77364    1.650      .578 CCODE =
  .1
   *S  ROUTE OLF FROM AP 628 TO AP 629 IN OURAY. ASSUME ALL FLOW IN N HALF OF ST
   ROUTE MCUNGE          629_2    8    6        .02344        40.76        2.221       1.77598    2.000     2.716 CCODE =
  .2
   *S  ADD ROUTED OLF FROM AP 628 TO OLF ABOVE AP 629
   ADD HYD               629_3  5& 6    1        .08154       118.43        8.977       2.06408    1.550     2.269
   *S  TOTAL OLF HYDS AT AP 629
   ADD HYD               629_4  3& 1    7        .11293       213.53       12.076       2.00488    1.600     2.954
   *S  ADD ROUTED SS FROM AP 627 AND AP 628
   ADD HYD               629_5  2& 4    8        .08717        49.00        8.439       1.81525    1.650      .878
   *S  ADD SS TO OLF
   *S  TOTAL HYD AT AP 629  57TH ST AND OURAY RD
   ADD HYD               629_6  7& 8   10        .20010       261.59       20.515       1.92228    1.600     2.043
   *S
   *S  COMPUTE OLF ABOVE AP 630 57TH ST AND MIAMI RD
   COMPUTE NM HYD        630.00   -     5        .07730       121.38        9.332       2.26366    1.700     2.454 PER IMP=
1.00
   *S  ROUTE FLOW FROM AP 626 TO AP 630  DOWN MIAMI RD ASSUME 54" SS
   *S  SEPARATE OLF FROM SS
   DIVIDE HYD            630_4   20    9        .15904       175.00       17.290       2.03848    1.500     1.719
                         630_5  and    8        .03046       168.87        3.312       2.03848    1.600     8.662
   *S  ROUTE SS FROM AP 626 TO I-40 CHANNEL
   ROUTE MCUNGE          630_6    9    2        .15904       175.00       17.272       2.03638    1.550     1.719 CCODE =
  .1
   *S  ROUTE OLF FROM AP 626 TO AP 630 DOWN MIAMI RD  AT I-40 CHANNEL
   ROUTE MCUNGE          630_7    8    3        .03046       165.90        3.292       2.02637    1.650     8.509 CCODE =
  .2
   *S  ADD ROUTED SS AND OLF FROM AP 626 AT I-40 CHANNEL
   ADD HYD               630_8  2& 3    4        .18950       340.90       20.565       2.03476    1.650     2.811
   *S  DIVIDE & ROUTE SS AND OLF FROM AP 629 DOWN OURAY TO COORS
   DIVIDE HYD            630_9   10    9        .14053        88.00       14.407       1.92228    1.450      .978
                        630_10  and    8        .05957       173.59        6.108       1.92228    1.600     4.553
   ROUTE MCUNGE          630_2    9    2        .14053        88.00       14.400       1.92137    1.500      .978 CCODE =
  .1
   *S  ROUTE OLF FROM AP 629 TO COORS
   ROUTE MCUNGE          630_3    8    3        .05957       171.36        6.086       1.91543    1.650     4.495 CCODE =
  .1
   *S  ADD ROUTED SS AND OLF FROM AP 629 AT COORS
   ADD HYD               630_4  2& 3    7        .20010       259.36       20.486       1.91960    1.650     2.025
   *S  ROUTE FLOW AT AP 622 TO  MIAMI RD AND I-40 CHANNEL
   ROUTE MCUNGE          630_5   99    2      25.96931      2069.65     1098.076        .79282    1.900      .125 CCODE =
  .2
   *S  ADD ROUTED SS AND OLF FROM AP 626 TO OLF ABOVE AP 630
   ADD HYD               630_6  4& 5    3        .26680       457.93       29.897       2.10108    1.700     2.682
   *S  ADD ROUTED FLOW FROM AP 622 TO HYD AT AP 630
   *S  TOTAL AT MIAMI RD AND I-40 CHANNEL

41                                 FROM  TO                          PEAK          RUNOFF                    TIME TO     CFS        PAGE =

   COMMAND          HYDROGRAPH     ID    ID          AREA        DISCHARGE       VOLUME       RUNOFF      PEAK       PER
TATION              IDENTIFICATION NO.   NO.       (SQ MI)       (CFS)         (AC-FT)      (INCHES)    (HOURS)    ACRE

   ADD HYD               630_7  2& 3    5      26.23611      2414.11     1127.974        .80612    1.800      .144
   *S  ROUTE FLOW FROM MIAMI RD TO 57TH ST
   *S  TOTAL FLOW AT AP 630 I-40 CHANNEL WEST OF COORS BLVD AND SOUTH OF OURAY
   ROUTE MCUNGE          630_8    5   10      26.23611      2414.11     1127.974        .80612    1.800      .144 CCODE =
  .0
   *S
   *S  COMPUTE OLF ABOVE AP 631
   COMPUTE NM HYD        631.00   -     3        .05700       108.25        7.089       2.33177    1.600     2.967 PER IMP=
3.00
   *S  ROUTE FLOW FROM AP 631 TO AP 630 ASSUME 84" SS
   ROUTE MCUNGE          631_4    3    2        .05700       107.75        7.087       2.33139    1.650     2.954 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 631 TO TOTAL FLOW AT AP 630
   ADD HYD               630_9  2&10    6      26.29311      2489.98     1135.061        .80943    1.800      .148
   *S
   *S  COMPUTE OLF ABOVE AP 632
   COMPUTE NM HYD        632.00   -     5        .03290        76.72        3.721       2.12083    1.500     3.643 PER IMP=
76.00
   *S
   *S  COMPUTE HYD ABOVE AP 633  CORONA RD AND OURAY RD
   COMPUTE NM HYD        633.00   -     4        .09100       157.30       10.623       2.18874    1.650     2.701 PER IMP=
80.00
   *S  ROUTE OLF FROM AP 632 TO AP 633 SOUTH IN CORONA DR  ASSUME 54" SS
   ROUTE MCUNGE          633_4    5    2        .03290        74.53        3.714       2.11652    1.550     3.540 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 632 TO OLF AT AP 633
   *S  TOTAL AT CORONA DR AND OURAY RD
   ADD HYD               633_5  2& 4    5        .12390       223.31       14.336       2.16955    1.600     2.816
   *S  ROUTE FLOW FROM CORONA DR AND OURAY RD TO COORS AND OURAY
   ROUTE MCUNGE          633_6    5    2        .12390       195.14       14.043       2.12516    1.650     2.461 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM OURAY/CORONA TO ROUTED FLOW FROM AP 629 AT COORS/OURAY
   ADD HYD               630_9  2& 7    4        .32400       454.50       34.529       1.99820    1.650     2.192
   *S  ROUTE TOTAL FLOW AT COORS AND OURAY TO AP 630;  ASSUME ALL FLOW IN 72" SS
   ROUTE MCUNGE          633_4    4    3        .32400       454.26       34.529       1.99820    1.650     2.191 CCODE =
  .2
   *S  ADD ROUTED STORM SEWER FLOW FROM COORS AND OURAY TO TOTAL FLOW AT AP 630
   *S  TOTAL FLOW FROM WEST BLUFF WATERSHED AT WEST BLUFF DRAINAGE FACILITY
   ADD HYD               630_1  3& 6   47      26.61711      2887.09     1169.589        .82390    1.800      .169
   *S
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   *S  ADD FLOW FROM WEST BLUFF WATERSHED TO FLOW FROM LADERA SYSTEM AT
   *S  INLET OF WEST BLUFF FACILITY
   ADD HYD                TOWB 18&47  49       26.62264       2887.19     1169.824        .82389     1.800      .169
   *S
   *S  COMPUTE OLF ABOVE AP 702  ALAMOGORDO DR AND BRIDGE AVENUE
   COMPUTE NM HYD         702.00   -      1        .02000         33.64        1.701       1.59455     1.550     2.628 PER IMP=
3.13
   *S
   *S**************************
   *S  TOTAL FLOW AT WB OUTFALL
   *S**************************
   ADD HYD                TOTWB  1&49  49       26.64264       2902.89     1171.526        .82447     1.800      .170
   *S  PLOT12   HYD=TOTWB
   *S
   *S*************************************************************************
   *S      CALCULATE RUNOFF FOR BASINS DRAINING TO LADERA GOLF COURSE POND #15
   *S                              REGION M
   *S*************************************************************************
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L15.7
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COMMAND NOTATION	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
COMPUTE NM HYD	15.70	-	4	.02810	37.69	1.125	.75066	1.500	2.096 PER IMP=
5.00									
*S***** ROUTE FLOW THRU INLET TO 36" PIPE									
ROUTE RESERVOIR	L15.7_1	4	11	.02810	36.25	1.125	.75065	1.550	2.016 AC-FT=
057									
*S***** ROUTE FLOW THRU 450' OF 36" RCP PIPE									
ROUTE MCUNGE	L15.7_2	11	5	.02810	35.99	1.119	.74666	1.550	2.001 CCODE =
.1									
*S									
*S COMPUTE HYDROGRAPH FOR BASIN L15.6									
COMPUTE NM HYD	L15.6	-	3	.30630	119.99	7.486	.45824	1.750	.612 PER IMP=
.00									
*S***** ADD BASIN L15.6 TO PIPE FLOW									
ADD HYD	L15.6_1	3& 5	9	.33440	140.54	8.605	.48247	1.700	.657
*S***** ROUTE FLOW THRU INLET TO 54" PIPE									
ROUTE RESERVOIR	L15.6_2	9	11	.33440	140.72	8.605	.48247	1.700	.658 AC-FT=
.082									
*S***** ROUTE FLOW THRU 450' OF 54" RCP PIPE									
ROUTE MCUNGE	L15.6_3	11	4	.33440	140.72	8.604	.48246	1.700	.658 CCODE =
.2									
*S									
*S COMPUTE HYDROGRAPH FOR BASIN L15.8									
COMPUTE NM HYD	L15.8	-	3	.17500	214.72	8.905	.95408	1.550	1.917 PER IMP=
15.00									
*S***** ADD L15.8 TO PIPE FLOW									
ADD HYD	L15.8_1	3& 4	5	.50940	330.67	17.509	.64448	1.600	1.014
*S***** ROUTE FLOW THRU INLET TO 60" PIPE									
ROUTE RESERVOIR	L15.8_2	5	11	.50940	221.81	17.509	.64448	1.800	.680 AC-FT=
1.882									
*S***** ROUTE FLOW THRU 1200' OF 60" RCP PIPE									
ROUTE MCUNGE	L15.9_1	11	4	.50940	221.66	17.382	.63981	2.100	.680 CCODE =
.2									
*S***** ROUTE THRU NATURAL CHANNEL IN BASIN L15.9									
ROUTE MCUNGE	L15.9_2	4	5	.50940	221.50	17.335	.63806	2.100	.679 CCODE =
.1									
*S									
*S COMPUTE HYDROGRAPH FOR BASIN L15.9									
COMPUTE NM HYD	L15.9	-	3	.27500	490.28	29.339	2.00035	1.600	2.786 PER IMP=
69.00									
*S***** TOTAL OUTFLOW FROM AND THRU BASIN L15.9									
ADD HYD	L15.9_3	3& 5	6	.78440	651.38	46.673	1.11566	1.650	1.298
*S ORO VIEJO CHANNEL									
*S***** ROUTE FLOW THRU FIRST PART OF CHANNEL BETWEEN L15.10 & L15.11									
ROUTE MCUNGE	L15.9_4	6	7	.78440	650.37	46.671	1.11561	1.650	1.296 CCODE =
.2									
*S COMPUTE HYDROGRAPH FOR BASIN L15.10									
COMPUTE NM HYD	L15.10	-	3	.12190	181.40	10.776	1.65758	1.600	2.325 PER IMP=
).00									
*S COMPUTE HYDROGRAPH FOR BASIN L15.11									
COMPUTE NM HYD	L15.11	-	6	.06410	106.72	5.899	1.72547	1.600	2.601 PER IMP=
53.00									
*S COMBINE FLOWS FROM L15.10 & L15.11 AND ADD TO FLOW IN CHANNEL									
ADD HYD	L15.9_5	3& 6	8	.18600	288.11	16.675	1.68097	1.600	2.420
ADD HYD	L15.9_6	7& 8	6	.97040	926.58	63.346	1.22397	1.650	1.492
*S ROUTE FLOW THRU LAST PART OF CHAN INTO LADERA GOLF COURSE									
ROUTE MCUNGE	L15.9_7	6	11	.97040	923.60	63.344	1.22394	1.650	1.487 CCODE =
.2									
*S									
*S***** COMPUTE HYDROGRAPHS FROM ESCARPMENT AREA L15									
*S									
*S COMPUTE HYDROGRAPH FOR BASIN L15.1									
COMPUTE NM HYD	L15.1	-	1	.62030	220.39	16.305	.49286	1.800	.555 PER IMP=
.00									
*S									
*S COMPUTE HYDROGRAPH FOR BASIN L15.2									
COMPUTE NM HYD	L15.2	-	2	.74530	325.80	20.459	.51469	1.750	.683 PER IMP=
.00									

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   *S  ADD L15.1 & L15.2  -- COMBINED NORTH & SOUTH RINCONADA ARROYOS
   ADD HYD              L15.2  1& 2  20       1.36560       540.69       36.764       .50477      1.750      .619
   *S  ROUTE COMBINED THRU L15.3  --  RINCONADA ARROYO
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COMMAND ..OTATION	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 43
ROUTE MCUNGE .2	L15.3_1	20	7	1.36560	539.97	36.837	.50578	1.900	.618	CCODE =
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L15.3										
COMPUTE NM HYD 1.00	L15.3	-	3	.62970	408.13	19.555	.58226	1.650	1.013	PER IMP=
*S ADD L15.1-2 AND L15.3										
ADD HYD	L15.3_2	3& 7	4	1.99530	838.47	56.391	.52991	1.800	.657	
*S ROUTE FLOW THRU 2-10'x5' CBC UNDER UNSER										
ROUTE MCUNGE .0	L15.3_3	4	5	1.99530	838.47	56.391	.52991	1.800	.657	CCODE =
*S ROUTE FLOW INTO RINCONADA CHANNEL										
ROUTE MCUNGE .2	L15.4_1	5	6	1.99530	838.61	56.409	.53008	1.750	.657	CCODE =
*S										
S COMPUTE HYDROGRAPH FOR BASIN L15.5 WAS BASIN 136 IN DAM15 STUDY										
COMPUTE NM HYD 3.20	L15.5	-	3	.07030	100.15	6.476	1.72722	1.650	2.226	PER IMP=
*S ADD L15.5 TO FLOW IN RINCONADA CHANNEL										
ADD HYD	L15.4_2	3& 6	4	2.06560	927.22	62.885	.57082	1.750	.701	
*S ROUTE FLOW THRU RINCONADA CHANNEL TO LADERA GOLF COURSE										
ROUTE MCUNGE .2	L15.4_3	4	7	2.06560	915.74	62.896	.57092	1.750	.693	CCODE =
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L15.4										
COMPUTE NM HYD 52.00	L15.4	-	3	.07660	134.04	7.014	1.71677	1.550	2.734	PER IMP=
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L15.12 -- LADERA GOLF COURSE										
COMPUTE NM HYD 10.00	L15.12	-	4	.36090	83.02	17.572	.91290	2.800	.359	PER IMP=
*S ADD FLOW FROM RINCONADA CHANNEL TO FLOW FROM BASIN L15.4										
*S TOTAL FLOW IN RINCONADA CHANNEL ENTERING LADERA GOLF COURSE DAM										
ADD HYD	RINC_TODAM15	3& 7	2	2.14220	995.50	69.909	.61189	1.750	.726	
*S TOTAL FLOW FROM QUICK CHANNEL (AREA WEST OF LADERA GOLF COURSE)										
*S TOTAL FLOW FROM WEST BLUFF WATERSHED AP 205 AND DAM NO 14										
ADD HYD	DAM14_2DAM15	45&46	47	3.49945	344.57	153.156	.82060	2.750	.154	
*S ADD FLOW FROM QUICK CHANNEL TO FLOW FROM DAM NO 14										
ADD HYD	DAM14_QUICK	11&47	3	4.46985	1011.33	216.500	.90817	1.650	.354	
*S ADD FLOW FROM RINCONDA CHANNEL										
ADD HYD	DAM14_NRINC	3& 2	5	6.61205	1934.02	286.409	.81218	1.750	.457	
*S ADD FLOW FROM BASIN 134										
ADD HYD	TO_DAM15	5& 4	15	6.97295	1947.36	303.980	.81739	1.750	.436	
*S										
*S ROUTE FLOW THROUGH LADERA DAM15										
ROUTE RESERVOIR 210.695	POND15	15	48	6.97295	96.79	224.328	.60321	9.100	.022	AC-FT=

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   FINISH
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AHYMO Input – APS Projects

```
*S   AHYMO FILE FOR WEST I-40 DMP REVISED
     DEVELOPED CONDITIONS, 24HR, 100YR.
     WITH SEDIMENT BULKING & WITHOUT SEDIMENT REDUCTION AT PONDS.

*S  FILE: OPT4A_FINAL_10_31_11.TXT
*S  DATE REVISED: 10/14/11

    COPIED FROM FILES: WI40R10.TXT

*   EDITED AHYMO FILES FROM:
*       1.  WEST I40DMP REVISION BY BHI, DEVELOPED CONDITIONS 2006

 ***********************************************************************************************
    MODEL DEVELOPED TO REFLECT EXISTING AND PROPOSED CHANGES TO THE WEST I-40 DRAINAGE PLAN
*   BASINS FROM ORIGINAL BHI DMP, CHANGED EAST OF PASEO DEL VOLCAN TO REFLECT
*   DEVELOPED CONDITIONS.
    MODEL WAS REVISED TO SHOW EXISTING DEVELOPMENT BETWEEN UNSER AND THE RIO GRANDE RIVER
    PROPOSED LAYOUT FOR STORMCLOUD, SUNDURO, AND GRASSLANDS WERE USED
    ROUTING FOR THE WEST I-40 DIVERSION AT UNSER BLVD WAS TAKEN FROM WEST I40 SD BY WILSON
*   LAND USE FOR CURRENTLY UNDEVELOPED AREAS TAKEN FROM THE WESTLAND MASTER PLAN, BY BHI 2006
*

    ASSUMPTIONS:
    2. ALL VSC ROUTING MUSKINGUM-CUNGE ROUTING.
*   3. LAND TREATMENTS REFLECT PROPOSED LAND USAGES
*   5. DIVERT FLOWS FROM AMOLE WATERSHED NORTH OF I-40 INTO I-40 CHANNEL.
*   6. ROUTING DETERMINED FROM PROPOSED AND EXISTING DEVELOPMENT PLANS
    8. ESCARPMENT LAND DIRECTLY WEST OF DESIGNATED LAND GRANT IS ASSUMED TO NOT BE DEVELOPED
    9. ONSITE PONDING WITH SURGE PONDS WILL ACCOUNT FOR 25% OF RUNOFF IN RESIDENTIAL AREAS WEST OF 98TH STREET
*   10. FREE DISCHARGE FOR AREAS BELOW THE ESCARPMENT FOR AREAS EAST OF THE OPEN SPACE.
*
*************************************************************************************************
    MODEL REVISED FROM ORIGINAL WI40 REVISED MODEL FOR DESIGN PURPOSES
      CHANGES:
*S      1.  ALLOWED PORTION OF LOCAL FLOW FROM OS.6 TO FLOW UNDER I40 THOUGH EXISTING 42" AND 36" PIPE 6/8/06 WI40REV.TXT
*S      2.  REROUTED ST.6 TO FLOW UNDER I40 THROUGH EXISTING CULVERT  6/8/06
*S      3.  ADDED I40 FLOW TO 98TH STREET BOXES OUTFALL EAST OF 98TH STREET IN CHANNEL  6/8/06
        4.  DIVIDED BASINS ALONG I40 TO ACCOUNT FOR STUB-OUT PLACEMENTS  6/13/06        WI40R2.TXT
        5.  EASP RESIZED FOR SURGE POND CONDITIONS 6/13/06
        6.  ROADWAY FLOW ADDED TO THE I-40 SD AT 8 LOCATIONS. 6/21/06
*S      7.  ROUTED FLOW FROM 98TH BOXES AND SD TOGETHER IN ST.8    6/28/06          WI40R5.TXT
*S      8.  CHANGED I40 PIPE SIZES TO REFECT CURRENT DESIGN        6/28/06
        9.  CHANGED BUSINESS PARK LAYOUT AT DEII TO ACOMODATE FRONTAGE ROAD. 10/13/06
        10. ALLOWED EA.17 TO CONTINUE THROUGH EA BOXES FOR 404 REQUIREMENT. 10/13/06
        11. UPDATED MODEL WITH CORRECTED STAGE STORAGE CURVES FOR DAM O, 2, AND 4
*S      12. ADDED A POND ALONG DAM 5 ARRROYO NEAR THE STADUIM SITE THAT WILL CONVEY FLOW TO DAM 5
*S      13. MADE DAM 5 ARROYO DAM 250 ACRE FEET LARGER TO A TOTAL OF 376 ACRE FEET AND
            CHANGED THE OUTFLOW PIPE FROM 4.5' TO 3' IN DIAMETER
        14. CHANGED ORIFCE PLATE ON DAM5S TO MAXIMIZE STORAGE IN SOCCER FIELD DAM
        15. ADDED ORIFICE PLATE TO DAM #2
*S      16. ADDED ORIFICE PLATE TO DAM #1
*S      17. CHANGED OUTLET PIPE IN PROPOSED DAM 5 ARROYO DAM
        18. REMOVED ORIFICE PLATES ON DAMS 8 AND 9
 ************************************************************************************************************

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*   MODEL REVISED by BHI (SJG) - NOTES FOR JDE - 10/6/11
      CHANGES:
         1.  SEDIMENT BULK FOR MODEL IS 1.025 EVEN FOR FOR EA BASINS
             (PREVIOUS BASINS 506, 507, 508, AND 509)
*            THAT IN INTERIM CONDITIONS ARE REMAINING AS EXISTING
*            (EA.18, EA.7, EA.8, EA.9, EA.11, AND EA.13)
             EA BASINS SED BULK FROM WIin18.txt INTERMIM FILE
             WHICH USED 1.025. ALL OTHER SEDIMENT BULK
             COMMANDS COMMENTED OUT OF MODEL TO AVOID CONFUSION
*            AND MISCALCULATION.
       2.  CORRECTED LAND TREATMENT TYPES SO SUM=100 FOR BASINS
           IN1, IN2, IN3, IN4, IN5, IN6, & IN7.
       3.  CORRECTED LAND TREATMENT TYPES SO SUM=100 FOR BASINS
           ST.2A and ST.2B.
*      4.  UPDATED UNSER POND STAGE-STORAGE-DISCHARGE USING UPDATED OPT 4 MODEL.
*      5.  UPDATED 98TH SURGE POND STAGE-STORAGE-DISCHARGE USING UPDATED OPT 4 MODEL.
       6.  ADDED SURGE POND CONDITIONS BACK IN FOR BASINS ST.2A AND ST.2B.
       7.  ADDED RAINFALL DATA FOR LADERA DAMS 1-4 USING UPDATED OPT 4 MODEL.
       8.  REMOVED COMMENT FOR RAINFALL FOR BASINS "ABOVE DAM 12 AND BELOW
           LADERA WEST DAM USING UPDATED OPT 4 MODEL.
*      9.  ADDED IN MISSING HYD ID=69 FLOW FROM STORM CLOUD SUBDIVISION TO POND 9.
*     10.  EDITED HYD=BLUFDIV - DIVERT 120 CFS FROM DAM 12 TO I-40 - WAS SET AT 300 CFS.
      11.  UPDATED 100-YEAR RAINFALL - 10/14/11
      12.  UPDATED LAND TREAMENT TYPES FOR BASINS WITHOUT ROUNDING - BASINS EA.12A,
           EA.12B, EA.14, UD.5D, UD.5C, ST.9, ST.10A,
           ST.10B, ST.12, L15.5


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*S//////////////////////////////////////////////////////////////
*S
                WEST I-40 DRAINAGE MANAGEMENT PLAN REVISION

*S//////////////////////////////////////////////////////////////
*

  2 YEAR RAINFALL TABLE
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```
*RAINFALL              TYPE=2  RAIN QUARTER=0.0
                       RAIN ONE=0.73 IN  RAIN=0.95 IN
                       RAIN DAY=1.15 IN  DT=0.05 HRS
   10 YEAR RAINFALL TABLE
*RAINFALL              TYPE=2  RAIN QUARTER=0.0
*                      RAIN ONE=1.24 IN  RAIN=1.47 IN
                       RAIN DAY=1.77 IN  DT=0.05 HRS
   100 YEAR RAINFALL TABLE
 AINFALL               TYPE=2  RAIN QUARTER=0.0
                       RAIN ONE=1.81 IN  RAIN=2.31 IN
                       RAIN DAY=2.72 IN  DT=0.05 HRS

 EDIMENT BULK          CODE=1   BULK FACTOR=1.025
*S      SUB-BASIN WA.1
*
 OMPUTE NM HYD         ID=1  HYD NO=WA.1  AREA=1.44625 SQ MI
                       PER A=73.04  PER B=11.97  PER C=3.66  PER D=11.33
                       TP=0.337 HR  MASS RAIN=-1
PRINT HYD              ID=1     CODE=1
*S
*S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD             ID=1 PER=-75  ID I=1 HYD=WA.1
                       ID II=88 HYD=SURGE
PRINT HYD              ID=1  CODE=1
PRINT HYD              ID=88 CODE=1
*S
*       SUB-BASIN WA.2

COMPUTE NM HYD         ID=2  HYD NO=WA.2  AREA=0.14350 SQ MI
                       PER A=53.32  PER B=15.21  PER C=9.71  PER D=21.76
                       TP=0.390 HR  MASS RAIN=-1
 INT HYD               ID=2     CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=2 PER=-75  ID I=2 HYD=WA.2
                       ID II=88 HYD=SURGE
 INT HYD               ID=2  CODE=1
 INT HYD               ID=88 CODE=1
*S
*S    COMBINED FLOW FROM WA.1 & WA.2 FLOW INTO SMALL PLAYA THEN ROUTE THROUGH
*S    WA.3
   PLAYA EXPANDED TO ACT AS A WEIR.  EXISTING STAGE STORAGE CURVE USED IN DESIGN- LEM 1/28/06

 DD HYD                ID=3     HYD=WA.1.2   ID I=1  ID II=2
PRINT HYD              ID=3     CODE=10
*
 UTE RESERVOIR         ID=4   HYD=WA.1.2   INFLOW ID=3  CODE=1
                       OUTFLOW (CFS)     STORAGE (AC-FT)  ELEV (FT)
                         0                 0                5924.4
                         0.005             7.44             5926.0
                         0.006             20.0             5927.0
                         0.007             26.3             5927.5
                         0.008             27.6             5927.6
                         17.9              28.9             5927.65
                         50.6              29.6             5927.7
                         95.2              32.5             5928.2
                         275.6             37.1             5928.7
                         517.9             41.8             5929.2
                         815.3             46.4             5929.7
                         1164.3            51.1             5930.2

 INT HYD               ID=4      CODE=1


*S     ROUTE THRU SUB-BASIN WA.3
*
 MPUTE RATING CURVE    RC=1      VS NO=1     NSEGS=1
                       ELMIN=18.         MAX ELEV=30.
                       CH SLP=.0071          FP SLOPE=.0071
                       N =.022   DIST=34.
                       DIST    ELEV    DIST     ELEV    DIST    ELEV
                       0.      30.0     12.    18.0     22.    18.0
                       34.     30.0
 UTE MCUNGE            ID=5   HYD=417.2  INFLOW ID=4   DT=0HR  L=3180
                       NS=0  SLOPE=.0071   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=5  CODE=1
*S
       SUB-BASIN WA.3

COMPUTE NM HYD         ID=1  HYD NO=WA.3  AREA=0.19028 SQ MI
                       PER A=53.7  PER B=15.15  PER C=9.59  PER D=21.56
                       TP=0.325 HR  MASS RAIN=-1
 INT HYD               ID=1     CODE=1

 S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=1 PER=-75  ID I=1 HYD=WA.3
                       ID II=88 HYD=SURGE
 INT HYD               ID=1  CODE=1
 INT HYD               ID=88 CODE=1
*S
*S      SUB-BASIN WA.4
*
 MPUTE NM HYD          ID=2  HYD NO=WA.4  AREA=0.20419 SQ MI
```

```
                    PER A=78.56  PER B=11.06  PER C=1.97  PER D=8.41
                    TP=0.406 HR  MASS RAIN=-1
 RINT HYD           ID=2     CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=2 PER=-75  ID I=2 HYD=WA.4
                    ID II=88 HYD=SURGE
 RINT HYD           ID=2  CODE=1
 RINT HYD           ID=88 CODE=1
*S
*S      ADD SUB-BASINS WA.3 & WA.4 PLUS ROUTED FLOW THRU WA.1

 DD HYD             ID=3  HYD=WA.3.4   ID I=1  ID II=2
 RINT HYD           ID=3  CODE=1
ADD HYD             ID=4  HYD=420.1   ID I=3  ID II=5
PRINT HYD           ID=4  CODE=1

 S      ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7

COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                    ELMIN=94          MAX ELEV=100
                    CH SLP=.0069          FP SLOPE=.0069
                    N =.022   DIST=34
                    DIST    ELEV    DIST     ELEV    DIST    ELEV
                    0.      100.0     12.    94.0     22.    94.0
                    34.     100.0
 OUTE MCUNGE        ID=5   HYD=420.2  INFLOW ID=4   DT=0HR  L=9725
                    NS=0  SLOPE=.0069   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=5  CODE=1
*S
*S      SUB-BASIN WA.5
*
 OMPUTE NM HYD      ID=1  HYD NO=WA.5  AREA=0.85401 SQ MI
                    PER A=14.5  PER B=21.6 PER C=21.6  PER D=42.3
                    TP=0.366 HR  MASS RAIN=-1
PRINT HYD           ID=1     CODE=1
*
 S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD          ID=1 PER=-75  ID I=1 HYD=WA.5
                    ID II=88 HYD=SURGE
PRINT HYD           ID=1  CODE=1
PRINT HYD           ID=88 CODE=1
 S
 S      ROUTE SUB-BASIN WA.5 THRU SUB-BASIN WA.7
 S        ADD TO PREVIOUSLY ROUTED FLOWS
*
COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                    ELMIN=94          MAX ELEV=100.
                    CH SLP=.0126          FP SLOPE=.0126
                    N =.022   DIST=34
                    DIST    ELEV    DIST     ELEV    DIST    ELEV
                    0.      100.0     12.    94.0     22.    94.0
                    34.     100.0
 OUTE MCUNGE        ID=2   HYD=416.1  INFLOW ID=1   DT=0HR  L=6325
                    NS=0  SLOPE=.0126   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2  CODE=1
ADD HYD             ID=3  HYD=416.2   ID I=2  ID II=5
 S
 S      SUB-BASIN WA.6

COMPUTE NM HYD      ID=1  HYD NO=WA.6  AREA=0.15907 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.269 HR  MASS RAIN=-1
 INT HYD            ID=1     CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=1 PER=-75  ID I=1 HYD=WA.6
                    ID II=88 HYD=SURGE
 INT HYD            ID=1  CODE=1
 INT HYD            ID=88 CODE=1
*S
*S     WA.6 ROUTES THROUGH A PLAYA THAT DRAINS TO WA.8
*
 UTE RESERVOIR      ID=2  HYD=WA.6 INFLOW ID=1  CODE=20
                    OUTFLOW (cfs)     STORAGE (AC-FT)        ELEV (FT)
                      0.              0.                  5849.4
                      0.005           0.75                5850.0
                      0.006           10.8                5852.0
                      25.3            11.6                5852.1
                      71.5            12.5                5852.2
-RINT HYD           ID=2  CODE=1
*S
*S
 S      SUB-BASIN WA.8

 OMPUTE NM HYD      ID=1  HYD NO=WA.8  AREA=0.11164 SQ MI
                    PER A=14.5 PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.353 HR  MASS RAIN=-1
 INT HYD            ID=1     CODE=1

 S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD          ID=1 PER=-75  ID I=1 HYD=WA.8
                    ID II=88 HYD=SURGE
 INT HYD            ID=1  CODE=1
```

```
PRINT HYD              ID=88 CODE=1
*
*       ADD FLOW FROM SUB-BASIN WA.6 TO WA.8 AND ROUTE THROUGH
*       A PLAYA BEFORE ROUTING THROUGH WA.9
*
ADD HYD                ID=4  HYD=WA.8.1  ID I=2  ID II=1
PRINT HYD              ID=4  CODE=1
ROUTE RESERVOIR        ID=2  HYD=WA.8.1  INFLOW ID=4  CODE=20
                       OUTFLOW (cfs)    STORAGE (AC-FT)  ELEV (FT)
                         0.               0.              5847.9
                         0.005            0.5             5848.0
                         0.006            6.5             5850.0
                         25.3             7.3             5850.1
                         71.5             8.1             5850.2
PRINT HYD              ID=2  CODE=1
*
*S*  ROUTE WA.6/WA.8 THROUGH WA.9
COMPUTE RATING CURVE   RC=1  VS NO=1 NSEGS=1
*                      ELMIN=94         MAX ELEV=100
*                      CH SLP=.0196           FP SLOPE=.0196
*                      N =.022   DIST=34.
                       DIST    ELEV    DIST    ELEV    DIST    ELEV
                       0.      100.0    12.    94.0     22.    94.0
                       34.     100.0
*S*  ROUTE FLOW THROUGH 24" PIPE --LEM 2/13/06
COMPUTE RATING CURVE   RC=1  VS NO=1 CODE=-1  SLP=0.0196
                       DIA=24   N=0.013
ROUTE MCUNGE           ID=1   HYD=414.3  INFLOW ID=2   DT=0HR  L=5250
                       NS=0  SLOPE=.0196   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=1  CODE=1
*S
*
*       SUB-BASIN WA.9
*
COMPUTE NM HYD         ID=2  HYD NO=WA.9  AREA=0.20075 SQ MI
                       PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                       TP=0.277 HR  MASS RAIN=-1
PRINT HYD              ID=2  CODE=1
*
*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=2 PER=-75  ID I=2 HYD=WA.9
                       ID II=88 HYD=SURGE
PRINT HYD              ID=2  CODE=1
PRINT HYD              ID=88 CODE=1
*
*S       ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.7
*
ADD HYD                ID=4  HYD=WA9.1  ID I=1 ID II=2
PRINT HYD              ID=4  CODE=1
COMPUTE RATING CURVE   RC=1    VS NO=1   NSEGS=1
                       ELMIN=94         MAX ELEV=100.
                       CH SLP=.0090           FP SLOPE=.0090
                       N =.022   DIST=34
                       DIST    ELEV    DIST    ELEV    DIST    ELEV
                       0.      100.0    12.    94.0     22.    94.0
                       34.     100.0
ROUTE MCUNGE           ID=1   HYD=WA9.2  INFLOW ID=4   DT=0HR  L=1000
                       NS=0  SLOPE=.0090   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=1  CODE=1
*
*S       SUB-BASIN WA.7
*
COMPUTE NM HYD         ID=2  HYD NO=WA.7  AREA=1.16328 SQ MI
                       PER A=18.82  PER B=20.89  PER C=20.28 PER D=40.01
PRINT HYD              ID=2  CODE=1
*
*  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=2 PER=-75  ID I=2 HYD=WA.7
                       ID II=88 HYD=SURGE
PRINT HYD              ID=2  CODE=1
PRINT HYD              ID=88 CODE=1
*S
*       ADD SUB-BASIN WA.7 TO ROUTED FLOWS
*         ROUTE THRU SUB-BASIN WA.16
*
ADD HYD                ID=4  HYD=WA.7.1  ID I=1  ID II=2
ADD HYD                ID=1  HYD=WA.7.2  ID I=4  ID II=3
PRINT HYD              ID=1  CODE=1
COMPUTE RATING CURVE   RC=1      VS NO=1     NSEGS=1
                       ELMIN=94         MAX ELEV=102
                       CH SLP=.0078           FP SLOPE=.0078
                       N =.022   DIST=34
                       DIST    ELEV    DIST    ELEV    DIST    ELEV
                       0.      102.0    18.    94.0     28.    94.0
                       46.     102.0
ROUTE MCUNGE           ID=5   HYD=WA.7.3  INFLOW ID=1   DT=0HR  L=7125
                       NS=0  SLOPE=.0078   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=5  CODE=1
*
*       SUB-BASIN WA.10
*
COMPUTE NM HYD         ID=1  HYD NO=WA.10  AREA=0.34125 SQ MI
                       PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
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                    TP=0.319 HR  MASS RAIN=-1
 RINT HYD           ID=1  CODE=1

 S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=1 PER=-75  ID I=1 HYD=WA.10
                    ID II=88 HYD=SURGE
 RINT HYD           ID=1  CODE=1
 RINT HYD           ID=88 CODE=1
*S      WA.10 FLOWS INTO PLAYA BEFORE ROUTING TO WA.11
*
 UTE RESERVOIR      ID=2  HYD=WA.10   INFLOW ID=1  CODE=20
                    OUTFLOW (CFS)    STORAGE (AC-FT)  ELEV (FT)
                      0.              0.              5819.
                      0.005           1.              5820.
                      8.9             3               5820.05
                      25.3            5              5820.1
                      95.2            25              5820.6
                      275.61          45              5821.1
PRINT HYD           ID=2  CODE=1
*S
*S
      SUB-BASIN WA.11

COMPUTE NM HYD      ID=1  HYD NO=WA.11  AREA=0.33875 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.318 HR  MASS RAIN=-1
 RINT HYD           ID=1  CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=1 PER=-75  ID I=1 HYD=WA.11
                    ID II=88 HYD=SURGE
 RINT HYD           ID=1  CODE=1
 RINT HYD           ID=88 CODE=1
*S
*S      ADD FLOWS FROM SUB-BASIN WA.10 AND ROUTE THRU SUB-BASIN WA.12
*
 D HYD              ID=3  HYD=WA11.1   ID I=1 ID II=2
 INT HYD            ID=3  CODE=1
OMPUTE RATING CURVE RC=1      VS NO=1     NSEGS=1
                    ELMIN=94        MAX ELEV=100
                    CH SLP=.0007          FP SLOPE=.005
                    N =.022   DIST=34
                    DIST    ELEV    DIST     ELEV    DIST    ELEV
                    0.      100.0     12.    94.0     22.    94.0
                    34.     100.0
ROUTE MCUNGE        ID=1   HYD=WA11.2  INFLOW ID=3   DT=0HR  L=410
                    NS=0  SLOPE=.0007   MATCODE=0  REGCODE=0  CCODE=0
 INT HYD            ID=1  CODE=1
*S      SUB-BASIN WA.12
*
 MPUTE NM HYD       ID=2  HYD NO=WA.12  AREA=0.13927 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
PRINT HYD           TP=0.340 HR  MASS RAIN=-1
                    ID=2  CODE=1
*
  DIVERT 25% FOR SURGE POND CONDITION
 VIDE HYD           ID=2 PER=-75  ID I=1 HYD=WA.12
                    ID II=88 HYD=SURGE
PRINT HYD           ID=2  CODE=1
PRINT HYD           ID=88 CODE=1

      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.14

ADD HYD             ID=3  HYD=WA12.1    ID I=1  ID II=2
PRINT HYD           ID=3  CODE=1
OMPUTE RATING CURVE RC=1      VS NO=1     NSEGS=1
                    ELMIN=94        MAX ELEV=101.
                    CH SLP=.0005          FP SLOPE=.0005
                    N =.022   DIST=34
                    DIST    ELEV    DIST     ELEV    DIST    ELEV
                    0.      101.0     15.    94.0     25.    94.0
                    40.     101.0
 UTE MCUNGE         ID=1   HYD=WA12.2  INFLOW ID=3   DT=0HR  L=1025
                    NS=0  SLOPE=.0005   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=1  CODE=1
*S
      SUB-BASIN WA.14

OMPUTE NM HYD       ID=2  HYD NO=WA.14 AREA=0.05985 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.596 HR  MASS RAIN=-1
 INT HYD            ID=2  CODE=1

  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD           ID=2 PER=-75  ID I=2 HYD=WA.14
                    ID II=88 HYD=SURGE
 INT HYD            ID=2  CODE=1
 INT HYD            ID=88 CODE=1
S
S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.13

D HYD               ID=3  HYD=WA.14.1  ID I=1  ID II=2
```

```
PRINT HYD              ID=3  CODE=1
OMPUTE RATING CURVE    RC=1      VS NO=1     NSEGS=1
                       ELMIN=94          MAX ELEV=100
                       CH SLP=.0067          FP SLOPE=.0067
                       N =.022   DIST=34
                       DIST    ELEV    DIST     ELEV    DIST     ELEV
                       0.      100.0     12.    94.0     22.     94.0
                       34.     100.0
ROUTE MCUNGE           ID=1   HYD=WA14.2  INFLOW ID=3   DT=0HR  L=5250
                       NS=0  SLOPE=.0067   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=1  CODE=1
*
*       SUB-BASIN WA.13

COMPUTE NM HYD         ID=2  HYD NO=WA.13  AREA=0.97385 SQ MI
                       PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                       TP=0.346 HR  MASS RAIN=-1
RINT HYD               ID=2  CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=2 PER=-75  ID I=2 HYD=WA.13
                       ID II=88 HYD=SURGE
RINT HYD               ID=2  CODE=1
RINT HYD               ID=88 CODE=1
*S
*S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.16

D HYD                  ID=3  HYD=WA13.1    ID I=1  ID II=2
RINT HYD               ID=3  CODE=1
COMPUTE RATING CURVE   RC=1      VS NO=1     NSEGS=1
                       ELMIN=94          MAX ELEV=102
                       CH SLP=.0027          FP SLOPE=.0027
                       N =.022   DIST=34
                       DIST    ELEV    DIST     ELEV    DIST     ELEV
                       0.      102.0     18.    94.0     28.     94.0
                       46.     102.0
UTE MCUNGE             ID=1   HYD=WA13.2  INFLOW ID=3   DT=0HR  L=2050
                       NS=0  SLOPE=.0027   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD               ID=1  CODE=1
*S
*S      SUB-BASIN WA.16
*
OMPUTE NM HYD          ID=2  HYD NO=WA.16  AREA=1.39121 SQ MI
                       PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                       TP=0.282 HR  MASS RAIN=-1
PRINT HYD              ID=2  CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
VIDE HYD               ID=2 PER=-75  ID I=2 HYD=WA.16
                       ID II=88 HYD=SURGE
RINT HYD               ID=2  CODE=1
PRINT HYD              ID=88 CODE=1
*
       ADD ALL ROUTED FLOWS

D HYD                  ID=3  HYD=WA.16.1   ID I=1  ID II=2
ADD HYD                ID=4  HYD=WA.16.2   ID I=3  ID II=5
PRINT HYD              ID=4  CODE=1

       ROUTE THROUGH A PLAYA BEFORE WA.18  THEN
       ROUTE FLOW THRU SUB-BASIN WA.18
*S     MADE WEIR LARGER TO ACCOMONDATE LARGER FLOWS -LEM 1/25/06
*
UTE RESERVOIR          ID=1  HYD=WA.16.1   INFLOW ID=4  CODE=20
                       OUTFLOW          STORAGE          ELEV
                        (CFS)           (AC-FT)          (FT)
                        0.              0.               5874.6
                        0.005           3                5876.0
                        0.006           6                5877.0
                        0.007           9                5877.6
                        8.9             10               5877.65
                        25.3            11               5877.7
                        71.6            13               5877.8
                        95.2            13.02            5878.3
                        275.6           14.87            5878.8
                        517.9           16.72            5879.3
                        815.3           18.57            5879.8
                        1164.3          20.4             5880.3
                        1563.4          22.3             5880.8
                        2011.4          24.1             5881.3
                        2507.9          25.96            5881.8
                        3052.8          27.8             5882.3
                        3646.1          29.65            5882.8
                        4187.9          31.5             5883.3
                        4978.47         33.3             5883.8
                        5718.2          35.2             5884.3

RINT HYD               ID=1  CODE=1
OMPUTE RATING CURVE    RC=1     VS NO=1     NSEGS=1
                       ELMIN=94          MAX ELEV=103.
                       CH SLP=.0202          FP SLOPE=.0202
                       N =.022   DIST=34
                       DIST    ELEV    DIST     ELEV    DIST     ELEV
                       0.      103.0     21.    94.0     31.     94.0
                       52.     103.0
```

```
ROUTE MCUNGE          ID=2   HYD=WA.16.3  INFLOW ID=1   DT=0HR  L=6225
                      NS=0  SLOPE=.0202   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=2  CODE=1
S
*S      SUB-BASIN WA.17
*
OMPUTE NM HYD         ID=1  HYD NO=WA.17  AREA=0.3126 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.271 HR  MASS RAIN=-1
PRINT HYD             ID=1  CODE=1
*
S  DIVERT 25% FOR SURGE POND CONDITION
VIDE HYD              ID=1 PER=-75  ID I=1 HYD=WA.17
                      ID II=88 HYD=SURGE
PRINT HYD             ID=1  CODE=1
PRINT HYD             ID=88 CODE=1
S
S      ROUTE FLOW FROM SUB-BASIN WA.17 THRU SUB-BASIN WA.18

COMPUTE RATING CURVE  RC=1      VS NO=1     NSEGS=1
                      ELMIN=94        MAX ELEV=100.
                      CH SLP=.0068          FP SLOPE=.0068
                      N =.022   DIST=34
                      DIST    ELEV    DIST     ELEV    DIST     ELEV
                      0.      100.0     12.    94.0     22.     94.0
                      34.     100.0
OUTE MCUNGE           ID=3   HYD=WA.17.1 INFLOW ID=1   DT=0HR  L=6300
                      NS=0  SLOPE=.0068   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=3  CODE=1
*S
*S      SUB-BASIN WA.18
*
OMPUTE NM HYD         ID=1  HYD NO=WA.18  AREA=1.37385 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                      TP=0.287 HR  MASS RAIN=-1
PRINT HYD             ID=1  CODE=1
S  DIVERT 25% FOR SURGE POND CONDITION
VIDE HYD              ID=1 PER=-75  ID I=1 HYD=WA.18
                      ID II=88 HYD=SURGE
PRINT HYD             ID=1  CODE=1
PRINT HYD             ID=88 CODE=1
*S

      ADD TO ALL ROUTED FLOWS

ADD HYD               ID=4  HYD=WA.18.1  ID I=1  ID II=3
ADD HYD               ID=68  HYD=WA.18.2  ID I=4  ID II=2
INT HYD               ID=68  CODE=1


*S
*S      COMPUTE SUB-BASIN EA.5
*   BASIN INCLUDES TEMPUR SITE AND CORDERO BUSINESS PARK
OMPUTE NM HYD         ID=2  HYD NO=EA.5  AREA=0.88823 SQ MI
                      PER A=14.5  PER B=21.6  PER C=21.6 PER D=42.3
                      TP=0.303 HR  MASS RAIN=-1
PRINT HYD             ID=2  CODE=1

* DIVIDE REMINING EA.5 TO ACCOUNT FOR FLOW GOING INTO WEST AMOLE DAM
VIDE HYD              ID=2 P=-0.5
                      ID I=4 HYD=WESTAMOLE
                      ID II=3 HYD=SHAMRK/TEMP
* FLOW TO ADD TO WEST AMOLE DAM
INT HYD               ID=4 CODE=1

*S      DIVIDE REMAINING FLOW TO ACCOUNT FOR TEMPER SD
DIVIDE HYD            ID=3 Q=387.23
                      ID I=63 HYD=TEMPER SD
                      ID II=62 HYD=SHAMROCK
* FLOW TO TEMPER SD
PRINT HYD             ID=63 CODE=1
*S*
* FLOW TO SHAMROCK CHANNEL
INT HYD               ID=62 CODE=1


ROUTE SHAMROCK FLOW TO ADD IN WITH WEST AMOLE OUTFALL
ROUTE THROUGH 60" PIPE

OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.02 DIA=60  N=0.013
ROUTE MCUNGE          ID=62   HYD=SHAMROCK  INFLOW ID=72   DT=0HR  L=1000
                      NS=0  SLOPE=.02   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=62  CODE=1


S* ADD WEST AMOLE WATERSHED FLOW TO PORTION OF EA.5
S* TOTAL FLOW INTO WEST AMOLE DAM
DD HYD                ID=24  HYD=WAMOLEIN  ID I=4  ID II=68
INT HYD               ID=24  CODE=1
*
S
S      SUB-BASIN EA.3

MPUTE NM HYD          ID=4  HYD NO=EA.3  AREA=0.05863 SQ MI
```

```
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.367 HR  MASS RAIN=-1
 RINT HYD           ID=4  CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=4 PER=-75  ID I=4 HYD=EA.3
                    ID II=88 HYD=SURGE
 RINT HYD           ID=4  CODE=1
 RINT HYD           ID=88 CODE=1
*S
*
*       ROUTE OVERFLOW THRU SUB-BASIN EA.2
*       ROUTE WITH A 66 IN PIPE

COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.005 DIA=66  N=0.013
ROUTE MCUNGE        ID=1   HYD=EA.3.3  INFLOW ID=4   DT=0HR  L=1320
                    NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=1  CODE=1
*
*S      SUB-BASIN EA.1
*
 MPUTE NM HYD       ID=2  HYD NO=EA.1  AREA=0.05853 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.207 HR  MASS RAIN=-1
PRINT HYD           ID=2  CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
 VIDE HYD           ID=2 PER=-75  ID I=2 HYD=EA.1
                    ID II=88 HYD=SURGE
 RINT HYD           ID=2  CODE=1
PRINT HYD           ID=88 CODE=1
*S
*
*       ROUTE THROUGH PLAYA, AND THEN THROUGH EA.2
  weir enlarged to account for increased flows -LEM 1/25/06
*
 OUTE RESERVOIR     ID=3  HYD=407.01   INFLOW ID=2  CODE=20
                    OUTFLOW            STORAGE          ELEV
                     (CFS)             (AC-FT)          (FT)
                      0.               0.               5803.2
                      0.005            1.1505           5804.0
                      8.9              1.25             5804.1
                      25.3             1.4              5804.2
                      95.2             2.19175          5804.7
                      275.61           2.893            5805.2

 RINT HYD           ID=3  CODE=1

 OMPUTE RATING CURVE  RC=1      VS NO=1      NSEGS=1
                    ELMIN=94           MAX ELEV=100
                    CH SLP=.0070           FP SLOPE=.0070
                    N =.022   DIST=34.0
                    DIST    ELEV    DIST     ELEV    DIST    ELEV
                    0.      100.0    12.     94.0     22.    94.0
                    34.     100.0
ROUTE MCUNGE        ID=2   HYD=EA.1.1  INFLOW ID=3   DT=0HR  L=5610
                    NS=0  SLOPE=.0070   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=2  CODE=1
*S      SUB-BASIN EA.2
*
 MPUTE NM HYD       ID=3  HYD NO=EA.2  AREA=0.22414 SQ MI
                    PER A=14.5  PER B=21.6 PER C=21.6 PER D=42.3
PRINT HYD           ID=3  CODE=1
*
 DIVERT 25% FOR SURGE POND CONDITION
 VIDE HYD           ID=3 PER=-75  ID I=3 HYD=EA.2
                    ID II=88 HYD=SURGE
PRINT HYD           ID=3  CODE=1
PRINT HYD           ID=88 CODE=1

      ADD TO PREVIOUSLY ROUTED FLOWS

DD HYD              ID=4 HYD=EA.2.1 ID I=1 ID II=2
DD HYD              ID=7 HYD=EA.2.2 ID I=3 ID II=4
RINT HYD            ID=7 CODE=1

 commented out diversion under I-40 1/23/06 LEM

*S      ROUTE FLOW FROM SUB-BASIN EA.2 INTO 2-24" XING
*S      UNDER WESTBOUND I-40 (ASSUME 50% FLOW INTO EACH PIPE).

IVIDE HYD           ID=7 Q=46 ID I=2 HYD=EA.2.1 ID II=3 HYD=EA.2.2
PRINT HYD           ID=2 CODE=1
*S      FLOW WHICH CANNOT CROSS I-40 FLOWS TO SUB-BASIN EA.6
*S              (route thru sub-basin EA.6)

      SUB-BASIN EA.4

OMPUTE NM HYD       ID=2  HYD NO=EA.4  AREA=0.27562 SQ MI
                    PER A=14.5  PER B=21.6  PER C=21.6  PER D=42.3
                    TP=0.348 HR  MASS RAIN=-1
```

```
PRINT HYD              ID=2  CODE=1
 ;  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD             ID=2 PER=-75  ID I=2 HYD=EA.4
                       ID II=88 HYD=SURGE
PRINT HYD              ID=2  CODE=1
PRINT HYD              ID=88 CODE=1
 ;
 ;* ADD ROUTED EA.2 AND BASIN EA.4
 .DD HYD               ID=7  HYD=EA.4.1  ID I=2  ID II=7
PRINT HYD              ID=7  CODE=1


 ;* ROUTE FLOW THROUGH PASEO DEL VOLCAN POND
*S* ADDED TO DECREASE SIZE OF DOUBLE EAGLE II POND - AQC 7/11/06
*S* 36" PIPE OUTFLOW WITH 24" ORIFICE OPENING
 OUTE RESERVOIR        ID=2  HYD=PASDVOLCAN   INFLOW ID=7  CODE=20
                       OUTFLOW          STORAGE          ELEV
                        (CFS)           (AC-FT)          (FT)
                         0              0                5773.0
                         1.98           1.45             5773.5
                         8.42           2.94             5774.0
                         10.70          4.47             5774.5
                         15.13          6.04             5775.0
                         18.53          7.64             5775.5
                         21.39          9.29             5776.0
                         23.92          10.97            5776.5
                         26.20          12.69            5777.0
                         28.30          14.46            5777.5
                         30.25          16.26            5778.0
                         32.09          18.11            5778.5
                         33.82          19.99            5779.0
                         35.48          21.92            5779.5
                         37.05          23.89            5780.0
 RINT HYD              ID=2  CODE=10

 ;       ROUTE THRU SUB-BASIN EA.6 TO WEST AMOLE DAM

 OMPUTE RATING CURVE   RC=1  VS NO=1 CODE=-1  SLP=0.0089
                       DIA=36   N=0.013
ROUTE MCUNGE           ID=3   HYD=EA.6.1  INFLOW ID=2   DT=0HR  L=10500
                       NS=0  SLOPE=.0089   MATCODE=0  REGCODE=0  CCODE=0
 :INT HYD              ID=3  CODE=1


*S       WEST AMOLE DAM
*S       36 INCH PIPE PRIMARY SPILLWAY
 UTE RESERVOIR         ID=4  HYD=WESTAMOLE  INFLOW ID=24  CODE=20
                       OUTFLOW          STORAGE          ELEV
                        (CFS)           (AC-FT)          (FT)
                         0              0.00             5752
                         53.81          20.38            5756
                         86.77          97.29            5760
                         110.29         255.42           5764
                         120.33         369.23           5766
                         138.25         679.23           5770
PRINT HYD              ID=4  CODE=0


*S ADD FLOW TO SHAMROCK FLOW

 )D HYD                ID=60  HYD=WASHAMROCK  ID I=4  ID II=62
 :INT HYD              ID=60  CODE=1
 ;      ROUTE THRU PROPOSED SHAMROCK CHANNEL DETENTION POND
*S       48 INCH PIPE PRIMARY SPILLWAY w/ ORIFICE PLATE
ROUTE RESERVOIR        ID=4  HYD=shampond   INFLOW ID=60  CODE=20
                       OUTFLOW          STORAGE          ELEV
                        (CFS)           (AC-FT)          (FT)
                         0              0                5717.0
                         2.64           0.06             5717.5
                         10.84          0.41             5718.0
*                        25.15          0.97             5718.5
                         20.05          1.76             5719.0
                         41.74          2.8              5719.5
                         55.52          4.1              5720.0
                         66.50          5.6              5720.5
                         75.91          7.21             5721.0
                         84.28          8.94             5721.5
                         91.88          10.77            5722.0
                         98.91          12.72            5722.5
                         105.47         14.78            5723.0
                         111.64         16.94            5723.5
                         117.49         19.23            5724.0
 :INT HYD              ID=4  CODE=0
 ;       ROUTE THRU ALONG EA.16B TO PDV POND ADD-IN

 OMPUTE RATING CURVE   RC=1  VS NO=1 CODE=-1  SLP=0.0065
                       DIA=48   N=0.013
 )UTE MCUNGE           ID=60   HYD=EA.6.1  INFLOW ID=4   DT=0HR  L=740
                       NS=0  SLOPE=.0065   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=60  CODE=1

 ;* ADD ROUTED PDV FLOW TO WEST AMOLE FLOW
```

```
ADD HYD                ID=4  HYD=WAMOLEIN  ID I=60  ID II=3
RINT HYD               ID=4  CODE=1

       ROUTE THRU SUB-BASIN EA.6 TO DOUBLE EAGLE II

*COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.037
                       DIA=60   N=0.013
ROUTE MCUNGE           ID=3   HYD=EA.6.1  INFLOW ID=4   DT=0HR  L=2250
                       NS=0  SLOPE=.037   MATCODE=0  REGCODE=0  CCODE=0
*PRINT HYD             ID=3  CODE=1
*S

S       SUB-BASIN EA.6
S       SUB-BASIN EA.6 IS ALLOWED TO CONTINUE UNDER I40 EXCEPT SECTION EA.6B

*S      SUB-BASIN EA.6B

OMPUTE NM HYD          ID=2  HYD NO=EA.6B  AREA=0.1034 SQ MI
                       PER A=0 PER B=10 PER C=10 PER D=80
                       TP=0.210 HR  MASS RAIN=-1
PRINT HYD              ID=2  CODE=1

S ADD COMBINED FLOW TO EA.6B

ADD HYD                ID=72  HYD=WASHAMROCK  ID I=2  ID II=4
PRINT HYD              ID=72  CODE=1


S       ROUTE TO CHANNEL
S*      ROUTE WITH A 60" PIPE

OMPUTE RATING CURVE    RC=1  VS NO=1 CODE=-1  SLP=0.007
                       DIA=60   N=0.013
OUTE MCUNGE            ID=61   HYD=RTWASHAM  INFLOW ID=72   DT=0HR  L=1540
                       NS=0  SLOPE=.007  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=61  CODE=1


**********************************************************************************************
**********************************************************************************************
*
S       SUB-BASIN EA.18

OMPUTE NM HYD          ID=5  HYD NO=EA.18  AREA=0.03494 SQ MI
                       PER A=100  PER B=0.0  PER C=0.0 PER D=0.0
                       TP=0.575 HR  MASS RAIN=-1
INT HYD                ID=5   CODE=1


*S  DIVERT 25% FOR SURGE POND CONDITION
*DIVIDE HYD             ID=5 PER=-75  ID I=5 HYD=EA.18
                       ID II=88 HYD=SURGE
RINT HYD               ID=5  CODE=1
PRINT HYD              ID=88 CODE=1
*S
*S      ASSUME EXISTING PLAYA REMOVED DUE TO DEVELOPMENT.

S       ROUTE THRU SUB-BASIN EA.7
S*      ROUTE THRU CONCRETE CHANNEL
*
COMPUTE RATING CURVE   RC=1  VS NO=1  NSEGS=1
                       ELMIN=94          MAX ELEV=100
                       CH SLP=.0039          FP SLOPE=.0039
                       N =.022   DIST=34
                       DIST    ELEV      DIST   ELEV    DIST  ELEV
                       0.      100.0     12.    94.0     22.    94.0
                       34.     100.0
OUTE MCUNGE            ID=4   HYD=EA.7.1  INFLOW ID=5   DT=0HR  L=4140
                       NS=0  SLOPE=.0039   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=4  CODE=1
*S
S       SUB-BASIN EA.7

OMPUTE NM HYD          ID=5  HYD NO=EA.7  AREA=0.07607 SQ MI
                       PER A=100  PER B=0.0  PER C=0.0  PER D=0.0
                       TP=0.826 HR  MASS RAIN=-1
RINT HYD               ID=5  CODE=1

  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=5 PER=-75  ID I=5 HYD=EA.7
*                      ID II=88 HYD=SURGE
*RINT HYD              ID=5  CODE=1
PRINT HYD              ID=88 CODE=1


*S      ADD EA.7 TO ROUTED FLOWS
*
D HYD                  ID=6  HYD=EA.7.1  ID I=4  ID II=5
INT HYD                ID=6  CODE=1


*      ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD.) VIA 18" CMP
S      routed with 54" cmp to account for increased developed flows - 1/23/06 -LEM
```

```
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.005
                      DIA=54   N=0.024
 )UTE MCUNGE          ID=4   HYD=EA.7.2  INFLOW ID=6   DT=0HR  L=74
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
*COMPUTE TRAVEL TIME  ID=4  REACHNO=1  NO VS=1  L=74  SLP=.005
*ROUTE                ID=4  HYD=EA.7.2  INFLOW ID=6  DT=0HR  L=74
 RINT HYD             ID=4 CODE=1

 S     ROUTE THRU SUB-BASIN EA.11
*S     ROUTE THRU A CONCRETE CHANNEL
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1
                      ELMIN=94          MAX ELEV=100
                      CH SLP=.0105          FP SLOPE=.0105
                      N =.022   DIST=34
                        DIST    ELEV      DIST   ELEV    DIST  ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
 )UTE MCUNGE          ID=15   HYD=EA.7.3  INFLOW ID=4   DT=0HR  L=5700
                      NS=0  SLOPE=.0105   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=15 CODE=1
*
 **********************************************************************
 **********************************************************************

**SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
**S
*

 S      SUB-BASIN EA.8

*
OMPUTE NM HYD         ID=7  HYD NO=EA.8  AREA=0.42610 SQ MI
                      PER A=100.0  PER B=0.0  PER C=0.0  PER D=0.0
                      TP=0.421 HR  MASS RAIN=-1
PRINT HYD             ID=7  CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD            ID=7 PER=-75  ID I=7 HYD=EA.8
                      ID II=88 HYD=SURGE
. RINT HYD            ID=7  CODE=1
PRINT HYD             ID=88 CODE=1
*S


      ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD.) VIA 24" CMP
*S     routed with 66" cmp to account for increased developed flows - 1/23/06 -LEM
*
 MPUTE RATING CURVE   RC=1  VS NO=1 CODE=-1  SLP=0.0531
                      DIA=66   N=0.024

ROUTE MCUNGE          ID=5   HYD NO=EA.8.1  INFLOW ID=7   DT=0HR  L=74
                      NS=0  SLOPE=0.0531   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=5 CODE=1

 >      ROUTE THROUGH EA.11
*
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1
                      ELMIN=94          MAX ELEV=100
                      CH SLP=.0169          FP SLOPE=.0169
                      N =.022   DIST=34
                      DIST    ELEV      DIST   ELEV    DIST  ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
 )UTE MCUNGE          ID=16   HYD=EA.8.2  INFLOW ID=5   DT=0HR  L=3550
                      NS=0  SLOPE=.0169   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=16 CODE=1
*

 S      SUB-BASIN EA.9

COMPUTE NM HYD        ID=6  HYD NO=EA.9  AREA=0.25599 SQ MI
                      PER A=100.0  PER B=0.0  PER C=0.0  PER D=0.0
                      TP=0.402 HR  MASS RAIN=-1
 RINT HYD             ID=6  CODE=1

 S  DIVERT 25% FOR SURGE POND CONDITION
*DIVIDE HYD           ID=6 PER=-75  ID I=6 HYD=EA.9
*                     ID II=88 HYD=SURGE
 PRINT HYD            ID=6  CODE=1
 PRINT HYD            ID=88 CODE=1
 S
*S
*      ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD) VIA 24" CMP
 S     routed with 54" cmp to account for increased developed flows - 1/23/06 -LEM

OMPUTE RATING CURVE   RC=1  VS NO=1 CODE=-1  SLP=0.0531
                      DIA=54   N=0.024

 )UTE MCUNGE          ID=7   HYD=EA.9.1  INFLOW ID=6  DT=0HR  L=74
                      NS=0  SLOPE=0.0531   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=7 CODE=1
*
*S     CROSSES PASEO DEL VOLCAN ROUTE THROUGH EA.11
```

```
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1
                      ELMIN=94          MAX ELEV=100
                      CH SLP=.0169          FP SLOPE=.0169
                      N =.022   DIST=34
                      DIST    ELEV      DIST   ELEV    DIST  ELEV
                      0.      100.0     12.    94.0     22.    94.0
                      34.     100.0
OUTE MCUNGE           ID=18   HYD=EA.9.2  INFLOW ID=7  DT=0HR  L=1700
                      NS=0  SLOPE=.0025   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=18 CODE=1
*
S       SUB-BASIN EA.11
S       LAND TREATMENTS REVISED DUE TO CHANGES IN PLANNED LAND DEVELOPMENT USE- 8/28/06  LEM
OMPUTE NM HYD         ID=9  HYD NO=EA.11  AREA=0.605 SQ MI
                      PER A=100.0  PER B=0.0  PER C=0.0 PER D=0.0
                      TP=0.428 HR  MASS RAIN=-1
RINT HYD              ID=9  CODE=1
S  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD              ID=9 PER=-75  ID I=9 HYD=EA.11
*                     ID II=88 HYD=SURGE
*PRINT HYD             ID=9  CODE=1
PRINT HYD              ID=88 CODE=1
S

*S      ADD EA.11 AND BASINS ROUTED THROUGH (EA.7, EA.8, & EA.9)
*
OD HYD                ID=6  HYD=EA.11.1  ID I=9  ID II=15
D HYD                 ID=9  HYD=EA.11.2  ID I=6  ID II=16
D HYD                 ID=10 HYD=EA.11.3  ID I=9  ID II=18
PRINT HYD             ID=10  CODE=1

*S* ROUTE THROUGH RESERVOIR AT SOUTHERN PART OF EA.11
S* OUTFLOW WITH A 60" PIPE - LEM 1/25/06
 STORAGE INCREASED TO ALLOW FOR INCREASED FLOWS - LEM 1/25/06
ROUTE RESERVOIR       ID=13 HYD=EA.11.4  INFLOW ID=10 CODE=10
                        OUTFLOW    STORAGE    ELEV
                         (CFS)     (AC-FT)    (FT)
                        0              0.00          5260
                        2.39           5.65          5260.5
                        9.9            11.35         5261
                        23.2           17.09         5261.5
                        43.45          22.89         5262
                        73.11          28.73         5262.5
                        41.68          34.62         5263
                        48.13          40.56         5263.5
                        53.81          46.56         5264
                        58.95          52.60         5264.5
                        63.67          58.69         5265
                        68.07          64.83         5265.5
                        72.2           71.02         5266
                        76.1           77.27         5266.5
                        79.82          83.56         5267
                        83.37          89.91         5267.5
                        86.77          96.30         5268
                        90.05          102.75        5268.5
                        93.21          109.25        5269
                        96.27          115.80        5269.5
                        99.23          122.41        5270

RINT HYD              ID=13    CODE=1
*
*S      ROUTE FLOW ALONG SD ON EAST SIDE OF EA.12
S*      ROUTE FLOW THROUGH CONCRETE CHANNEL - LEM 8/22/06

OMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=6
                          CH SLP=0.005 FP SLP=0.005 N=0.017 DIST=36
                          DIST ELEV
                          0          6
                          12         0
                          24         0
                          36         6
ROUTE MCUNGE          ID=11   HYD=1EA11RT  INFLOW ID=13  DT=0HR  L=2801.25
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=11 CODE=1

*S**** COMPUTE BASIN EA.13 ****

OMPUTE NM HYD         ID=14 HYD NO=EA.13 DA=0.2747
                      PER A=100.0 PER B=0 PER C=0 PER D=0
                      TP=0.262 RAIN=-1
PRINT HYD             ID=14 CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
*IVIDE HYD             ID=14 PER=-75  ID I=14 HYD=EA.13
                      ID II=88 HYD=SURGE
PRINT HYD              ID=14  CODE=1
PRINT HYD              ID=88 CODE=1
*S

S* ADD ROUTED FLOW TO EA.13
D HYD                 ID=16 HYD=EA.13TOT
                      ID I=14  ID II=11
PRINT HYD             ID=16  CODE=1

S       FLOW ROUTED TO DAM 0
```

```
*S*     ROUTE FLOW THROUGH 72 IN PIPE TO EDGE OF ESCARPMENT

 )MPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0068
                      DIA=72   N=0.013
ROUTE MCUNGE          ID=13   HYD=2EA11RT  INFLOW ID=16  DT=0HR  L=3348.49
                      NS=0  SLOPE=.0068   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=13 CODE=1


*S*     ROUTE FLOW THROUGH ESCARPMENT TO POND 0
*S*     ROUTE THROUGH 54 IN PIPE

 )MPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.028
                      DIA=54   N=0.013
ROUTE MCUNGE          ID=11   HYD=2EA11RT  INFLOW ID=13  DT=0HR  L=3245.41
                      NS=0  SLOPE=.028   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=11 CODE=1


*S      SUB-BASIN EA.10
*
 )MPUTE NM HYD        ID=8  HYD NO=EA.10  AREA=0.30859 SQ MI
                      PER A=14.3  PER B=21.6  PER C=21.6  PER D=42.5
                      TP=0.420 HR  MASS RAIN=-1
PRINT HYD             ID=8  CODE=1
*
*S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD            ID=8 PER=-75  ID I=8 HYD=EA.10
                      ID II=88 HYD=SURGE
PRINT HYD             ID=8  CODE=1
PRINT HYD             ID=88 CODE=1
*S
 ;      ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD) VIA 24" CMP
 ;      routed with 60" cmp to account for increased developed flows - 1/23/06 -LEM
*
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0531
                      DIA=60   N=0.024

 )UTE MCUNGE          ID=9   HYD=EA.9.1  INFLOW ID=8  DT=0HR  L=74
                      NS=0  SLOPE=.0531   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=9 CODE=1


       ROUTE ALONG EA.12 THROUGH CONCRETE CHANNEL

COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=4
                           CH SLP=0.005 FP SLP=0.005 N=0.017 DIST=50
                           DIST ELEV
                           0            4
                           8            0
                          42            0
                          50            4
 )UTE MCUNGE          ID=10   HYD=RTEA10  INFLOW ID=9  DT=0HR  L=2836
                      NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=10 CODE=1
*****************************************************************************************************************************************
****************************************
 ;*  CHANGED BASINS TO FIT REVISED MASTERPLAN DEVELOPMENT
 ;*  BASINS/LAND PARCELS EAST OF PASEO DEL VOLCAN
 ***************************************************************************************************************************************
****************************************


 **** COMPUTE BASIN EA.12 ****
*S*     BASIN EA.12 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT
*S
 ;**** COMPUTE BASIN EA.12A

 )MPUTE NM HYD        ID=1 HYD NO=EA.12A DA=0.1120
                      PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                      TP=0.533 RAIN=-1
PRINT HYD             ID=1 CODE=1
 ;  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD            ID=1 PER=-75  ID I=1 HYD=EA.12A
                      ID II=88 HYD=SURGE
PRINT HYD             ID=1  CODE=1
PRINT HYD             ID=88 CODE=1

 **** COMPUTE BASIN EA.12B

COMPUTE NM HYD        ID=13 HYD NO=EA.12B DA=0.0926
                      PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                      TP=0.618 RAIN=-1
 RINT HYD             ID=13 CODE=1
 ;  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD            ID=13 PER=-75  ID I=13 HYD=EA.12B
                      ID II=88 HYD=SURGE
 RINT HYD             ID=13  CODE=1
 RINT HYD             ID=88 CODE=1

*S**** COMBINE EA.12A AND EA.12B ****

 )D HYD               ID=9  HYD=EA.12TOT
```

```
                    ID=1  ID=13
 RINT HYD           ID=9  CODE=1


 *S**** COMBINE ROUTED EA.10 AND EA.12 ****

 )D HYD             ID=8  HYD=EA.11&12
                    ID=9  ID=10
PRINT HYD           ID=8  CODE=1

 ;*  ROUTE BASIN EA.12 THROUGH BASIN EA.15
 ;*  ROUTE THROUGH CHANNEL
 OMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1  ELMIN=0    MAX ELEV=4
                    CH SLP=.005     FP SLOPE=.005  N =.015   DIST=34
                    DIST    ELEV
                    0         4
                    16        0
                    26        0
                    34        4
ROUTE MCUNGE        ID=17   HYD=RTEA.12  INFLOW ID=8   DT=0HR  L=2306.24
                    NS=0  SLOPE=0.005   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=17 CODE=0
 ;
*S

*S**** COMPUTE BASIN EA.15 ****
 ;*     BASIN EA.15 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT
 ;
*S**** COMPUTE BASIN EA.15A
COMPUTE NM HYD      ID=16 HYD NO=EA.15A DA=0.0826
                    PER A=0 PER B=20 PER C=20 PER D=60
                    TP=0.363 RAIN=-1
 RINT HYD           ID=16 CODE=1
*S
*S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD          ID=16 PER=-75  ID I=16 HYD=EA.15A
                    ID II=88 HYD=SURGE
 RINT HYD           ID=16  CODE=1
PRINT HYD           ID=88 CODE=1
*S
*S**** COMPUTE BASIN EA.15B
 OMPUTE NM HYD      ID=13 HYD NO=EA.15B DA=0.1737
                    PER A=0 PER B=5 PER C=5 PER D=90
                    TP=0.327 RAIN=-1
PRINT HYD           ID=13 CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
 VIDE HYD           ID=13 PER=-75  ID I=13 HYD=EA.15B
                    ID II=88 HYD=SURGE
 RINT HYD           ID=13  CODE=1
PRINT HYD           ID=88 CODE=1
*
 ;**** COMBINE ROUTED EA.12 WITH EA.15A ****

 )D HYD             ID=20  HYD=TOTEA.15A
                    ID=16  ID=17
PRINT HYD           ID=20  CODE=1
 ;*

 ;**** ADD TOTAL FLOW TO EA.15B ****

ADD HYD             ID=22  HYD=TOTEA.15
                    ID=20  ID=13
 RINT HYD           ID=22  CODE=1
 ;*
*S
*S
 ;**** ADD IN TEMPER FLOW ****

 )D HYD             ID=21  HYD=TEMPIN
                    ID=22  ID=63
PRINT HYD           ID=21  CODE=1

 ;**** COMPUTE BASIN EA.14 ****
 ;     LAND TREATMENTS CHANGED TO REFLECT CURRENT DEVELOPMENT SCENARIO- LEM 8/9/06

COMPUTE NM HYD      ID=15 HYD NO=EA.14 DA=0.2104
                    PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                    TP=0.308 RAIN=-1
 INT HYD            ID=15 CODE=1

S  DIVERT 25% FOR SURGE POND CONDITION
 VIDE HYD           ID=15 PER=-75  ID I=15 HYD=EA.14
                    ID II=88 HYD=SURGE
 RINT HYD           ID=15  CODE=1
RINT HYD            ID=88 CODE=1
S
S  ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17A ADD IN
 ;  USE 72" PIPE
 OMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.00775
                    DIA=72   N=0.024
OUTE MCUNGE         ID=16   HYD=RTEA.14  INFLOW ID=15  DT=0HR  L=1290
                    NS=0  SLOPE=.00775   MATCODE=0  REGCODE=0  CCODE=0
 INT HYD            ID=16 CODE=1
```

```
;**** COMPUTE BASIN EA.17 ****
;  BASIN EA.17 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
;  BASINS ALLOWED FREE DISCHARGE TO EXISTING EAST AMOLE BOXES
*S*
*S**** COMPUTE BASIN EA.17B
OMPUTE NM HYD       ID=65 HYD NO=EA.17B DA=0.0216
                    PER A=13.48 PER B=14.04 PER C=14.04 PER D=58.44
                    TP=0.232 RAIN=-1
PRINT HYD           ID=65 CODE=1
*S  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD            ID=65 PER=-75  ID I=65 HYD=EA.17B
                     ID II=88 HYD=SURGE
RINT HYD             ID=65  CODE=1
PRINT HYD            ID=88 CODE=1
*S
;
;**** EA.17B TO EA.14 ****
ADD HYD               ID=14  HYD=ADDEA.17B
                     ID=13  ID=16
*PRINT HYD            ID=14  CODE=1

;  ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17B ADD IN
;  USE 72" PIPE
COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=0.0562
                      DIA=72   N=0.024
OUTE MCUNGE           ID=15   HYD=RTEA.17B  INFLOW ID=16  DT=0HR  L=1245
                      NS=0  SLOPE=.0562   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=15 CODE=1

*S*  ROUTE TEMPER ETC FLOW THROUGH CHANNEL TO EA.17 ADD IN
*S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
OMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1  ELMIN=0     MAX ELEV=10
                     CH SLP=.0094      FP SLOPE=.0094  N =.015   DIST=34
                     DIST    ELEV
                     0         10
                     20         0
                     30         0
                     50         10
ROUTE MCUNGE         ID=22   HYD=TOEA.17BIN INFLOW ID=21   DT=0HR  L=1275
PRINT HYD            NS=0  SLOPE=0.0094   MATCODE=0  REGCODE=0  CCODE=0
                     ID=22 CODE=0


;**** COMPUTE BASIN EA.17A
COMPUTE NM HYD       ID=66 HYD NO=EA.17A DA=0.0734
                     PER A=10.97 PER B=13.29 PER C=13.29 PER D=62.45
RINT HYD             TP=0.374 RAIN=-1
                     ID=66 CODE=1
;  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD           ID=66 PER=-75  ID I=66 HYD=EA.17A
                     ID II=88 HYD=SURGE
INT HYD              ID=13  CODE=1
INT HYD              ID=66 CODE=1
;
*S**** EA.17A TO CHANNEL ****
*ADD HYD              ID=14  HYD=ADDEA.17A
                     ID=13  ID=22
PRINT HYD            ID=14  CODE=1


;  BASIN EA.16 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
;*
;**** COMPUTE BASIN EA.16A
*S*
COMPUTE NM HYD       ID=13 HYD NO=EA.16A DA=0.0533
                     PER A=25.62 PER B=15.25 PER C=15.25 PER D=43.88
                     TP=0.252 RAIN=-1
RINT HYD             ID=13 CODE=1
*

*S*      COMBINE EA.16 INTO CHANNEL FLOW
D HYD                ID=16  HYD=EA.16ADD
                     ID=13  ID=22
PRINT HYD            ID=16  CODE=1

*S*      COMBINE PIPE FLOW INTO CHANNEL FLOW
D HYD                ID=21  HYD=EA.14ADD
                     ID=16  ID=15
RINT HYD             ID=21  CODE=1

;*  ROUTE FLOW THROUGH CHANNEL TO EA.16B ADD IN
;*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
OMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1  ELMIN=0     MAX ELEV=10
                     CH SLP=.005      FP SLOPE=.005  N =.015   DIST=34
                     DIST    ELEV
                     0         10
                     20         0
                     30         0
                     50         10
OUTE MCUNGE          ID=22   HYD=TOEA.16BIN INFLOW ID=21   DT=0HR  L=1040
INT HYD              NS=0  SLOPE=0.005   MATCODE=0  REGCODE=0  CCODE=0
                     ID=22 CODE=0
```

```
 S**** COMPUTE BASIN EA.16B ****
*S*
COMPUTE NM HYD        ID=15 HYD NO=EA.16B DA=0.0562
                      PER A=38.17 PER B=20.27 PER C=20.27 PER D=21.29
                      TP=0.299 RAIN=-1
 RINT HYD             ID=15 CODE=1

*S*
 S*      COMBINE EA.16B INTO CHANNEL FLOW
 DD HYD                ID=21  HYD=EA.16ADD
                       ID=15  ID=22
PRINT HYD              ID=21  CODE=1
*S
 S    ADD WEST AMOLE AND SHAMROCK FLOW TO CHANNEL FLOW
 DD HYD                ID=22  HYD=ADDWAIN
                       ID=21  ID=61
PRINT HYD              ID=22  CODE=1


 S**** COMPUTE BASIN EA.16C ****
 S*
COMPUTE NM HYD        ID=15 HYD NO=EA.16C DA=0.0214
                      PER A=0 PER B=5 PER C=5 PER D=90
                      TP=0.347 RAIN=-1
 RINT HYD             ID=15 CODE=1
 S
*S*      COMBINE EA.16C INTO CHANNEL FLOW
ADD HYD                ID=21  HYD=EA.16CADD
                       ID=15  ID=22
 RINT HYD              ID=21  CODE=1


*S
*S*  ROUTE FLOW THROUGH CHANNEL TO EA.17C ADD IN
 S   ROUTE TO EXISTING EAST AMOLE BOXES
 S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
COMPUTE RATING CURVE  RC=1  VS NO=1  NSEGS=1  ELMIN=0     MAX ELEV=10
                      CH SLP=.0212      FP SLOPE=.0212  N =.015   DIST=34
                      DIST     ELEV
                      0          10
                      20          0
                      30          0
                      50         10
ROUTE MCUNGE          ID=22   HYD=TOEA.17CIN INFLOW ID=21   DT=0HR  L=1700
                      NS=0  SLOPE=0.0212   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=22 CODE=0
 S
*S**** COMPUTE BASIN EA.17C
*S*
 OMPUTE NM HYD        ID=67 HYD NO=EA.17C DA=0.0830
                      PER A=0 PER B=10 PER C=10 PER D=80
PRINT HYD             TP=0.206 RAIN=-1
*S  DIVERT 25% FOR SURGE POND CONDITION
 IVIDE HYD            ID=67 PER=-75  ID I=67 HYD=EA.17C
                      ID II=88 HYD=SURGE
 RINT HYD             ID=67  CODE=1
PRINT HYD             ID=88 CODE=1


 S**** ADD EA.17A TO EA.17B AND EA.17C
 S
*S FLOW LEAVES PROJECT AREA THROUGH EXISTING BOX CULVERTS
ADD HYD               ID=68  HYD=EA.17AB
                      ID=66  ID=65
 RINT HYD             ID=68  CODE=1

ADD HYD               ID=69  HYD=EA.17ABC
                      ID=68  ID=67



**** ADD EAST AMOLE FLOW AND 90"SD FLOW

ADD HYD                ID=27  HYD=EA.17AB
                      ID=22  ID=69
PRINT HYD              ID=27  CODE=1
 DIVIDE FLOW TO ACCOUNT FOR FLOW ALLOWED TO CONTINUE UNDER THE FREEWAY
 FLOW LEAVES PROJECT AREA THROUGH EXISTING BOX CULVERTS
DIVIDE HYD             ID=27 PER=-1.235  ID I=69 HYD=EABOXES
                      ID II=22 HYD=REMAINDER
PRINT HYD              ID=69  CODE=1
S**** ROUTE FLOW TO EAST AMOLE SURGE POND
S  ROUTE TO NEW AMOLE DAM SITE THRU 90" SD
COMPUTE RATING CURVE  RC=1  VS NO=1   NSEGS=1  ELMIN=97  MAX ELEV=100
                      CH SLP=.0464          FP SLOPE=.0464   N =.03   DIST=22
                      DIST     ELEV     DIST     ELEV     DIST     ELEV
                      0.       100.0     6.       97      16.     97.0
                      22.      100.0
ROUTE MCUNGE           ID=30   HYD=RTEAFLOW  INFLOW ID=22   DT=0HR  L=3586.00
                      NS=0  SLOPE=0.0464   MATCODE=0  REGCODE=0  CCODE=0
```

```
*PRINT HYD              ID=30  CODE=0


**** ROUTE FLOW VIA 90" PIPE

* ROUTE FLOW DOWN ESCARPMENT IN 90" PIPE

COMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.034
                      DIA=90   N=0.015
OUTE MCUNGE           ID=30   HYD=90"PIPE INFLOW ID=22  DT=0HR  L=3230
                      NS=0  SLOPE=.034     MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=30 CODE=1


*****************************************************************************************
*S     CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA DAMS 1 THROUGH 12,
*S           NORTH OF I-40: (SOUTHERN TERRACE WATERSHED)
*****************************************************************************************

* RAINFALL FOR BASINS BELOW LADERA DAMS, SAME RAIN AS WEST BLUFF
* 2YR
*RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=0.736
                      RAIN SIX=0.955  RAIN DAY=1.150  DT=.05
 10YR
RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.250
*                     RAIN SIX=1.467  RAIN DAY=1.768  DT=.05
* 100YR
AINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.77
                     RAIN SIX=2.26  RAIN DAY=2.63 DT=.05
*****************************************************************************************
*


 SEDIMENT BULK         CODE=1   BULK FACTOR=1.042

EDIMENT BULK         CODE=1   BULK FACTOR=1.08
*S**** COMPUTE BASIN OS.6 - REVISED TO INCLUDED WEST PORTION OF ST.2 ****
*S*
OMPUTE NM HYD        ID=2 HYD NO=OS.6 DA=0.3205
                     PER A=45 PER B=30 PER C=25 PER D=0
                     TP=0.133 RAIN=-1
PRINT HYD            ID=2 CODE=1

 DIVIDE OS.6 TO ACCOUNT FOR FLOW ALLOWED TO CONTINUE UNDER THE FREEWAY -- LEM 6/8/06
 FLOW LEAVES PROJECT AREA THROUGH EXISTING 36" AND 48" PIPE
IVIDE HYD             ID=2 PER=-6.7  ID I=27 HYD=36"PIPE
                      ID II=95 HYD=REMAINDER
DIVIDE HYD            ID=95 PER=-8.8  ID I=1 HYD=42"PIPE
                      ID II=2 HYD=EASP
   FLOW LEAVING PROJECT AREA THROUGH EXISTING 36" PIPE
RINT HYD              ID=27  CODE=1
*S FLOW LEAVING PROJECT AREA THROUGH EXISTING 42" PIPE
PRINT HYD             ID=1 CODE=1
 REMAINING FLOW INTO EASP
RINT HYD              ID=2 CODE=1

*S* ROUTE SECTION OF OS.6 THROUGH 36" PIPE
*S* FLOW LEAVING PROJECT AREA

OMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.082
                     DIA=36   N=0.015
ROUTE MCUNGE         ID=88   HYD=36"CULV  INFLOW ID=27  DT=0HR  L=490
                     NS=0  SLOPE=.082     MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=88 CODE=1


*S* ROUTE SECTION OF OS.6 THROUGH 42" PIPE
*S* FLOW LEAVING PROJECT AREA

OMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.059
                     DIA=42   N=0.015
OUTE MCUNGE          ID=88   HYD=42"CULV  INFLOW ID=1  DT=0HR  L=280
                     NS=0  SLOPE=.059     MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=88 CODE=1
EDIMENT BULK         CODE=1   BULK FACTOR=1.025

S**** FLOW REACHING IN1 ****
S*
OMPUTE NM HYD        ID=27 HYD NO=IN1 DA=0.00141
                     PER A=0 PER B=0 PER C=51.02 PER D=48.98
                     TP=0.133 RAIN=-1
RINT HYD             ID=27 CODE=1

S* ADD FLOW FROM IN1 TO I-40 SD
D HYD                ID=1  HYD=EATO
                     ID=30  ID=27
RINT HYD             ID=1  CODE=1
```

```
*S  DIVIDE FLOW FROM 90" SD INTO 36" SD CAPACITY
VIDE HYD          ID=1       Q=83        ID=30      HYD=maxflow36"SD
                                         ID=27      HYD=36"SDoverflow
RINT HYD          ID=30      CODE=0
PRINT HYD         ID=27      CODE=0

;* ADD I40 FLOW TO OS.6
;* TOTAL FLOW INTO EAST AMOLE DAM
DD HYD              ID=1  HYD=EAIN
                    ID=27  ID=2
PRINT HYD           ID=1  CODE=0
;*


*S* ROUTE I40 CHANNEL FLOW THROUGH EAST AMOLE DAM **
;* CHANGED DISCHARGE TO A 36" PIPE - AQC 6/13/06
;  SUBTRACTED CAPACITY OF THE PIPE (83 CFS) FROM OUTFLOW TO ACCOUNT FOR SURGE POND CONDITIONS
;* POND STAGE STORAGE CHANGED TO ACCOMODATE 180 AC-FT
*
ROUTE RESERVOIR       ID=95   HYD=EASTAMOLE INFLOW ID=1 CODE=1
        0             0                5495
        0.1           0.2464           5496
        0.2           1.1718           5497
        0.3           2.7731           5498
        0.4           7.6897           5499
        0.5           12.7974          5500
        0.6           18.1583          5501
        0.7           23.7624          5502
        0.8           29.6008          5503
        0.9           35.6677          5504
        1             41.9563          5505
        3.9           48.4606          5506
        6.3           55.1782          5507
        7.5           62.1091          5508
        8.8           69.2535          5509
        10            76.6138          5510
        11.2          84.1942          5511
        12.4          91.9975          5512
        13.6          100.0275         5513
        14.7          108.2823         5514
        15.9          116.7617         5515
        17            125.4688         5516
        18.1          134.4038         5517
        19.2          143.5669         5518
        20.3          152.9578         5519
        21.4          162.5771         5520
        22.5          172.4265         5521
        23.6          182.5086         5522
        24.68         192.8284         5523
        25.64         203.4341         5524
        26.68         214.10301        5525
        99.47         224.29           5526
        312.461       224.30           5527
        682.239       224.31           5528
        1167.181      224.32           5529

RINT HYD            ID=95  CODE=0
;
;  ADD EASP OUTFLOW BACK TO SD FLOW
*
ADD HYD             ID=1 HYD=36INTOT ID I=30 ID II=95
RINT HYD            ID=1  CODE=0


*S
*S**** FLOW REACHING IN2 ****
;*
OMPUTE NM HYD       ID=30 HYD NO=IN2 DA=0.00259
                    PER A=0 PER B=0 PER C=51.02 PER D=48.98
                    TP=0.133 RAIN=-1
PRINT HYD           ID=30 CODE=1

;* ADD FLOW FROM IN2 TO I-40 SD
OD HYD              ID=95  HYD=EATO
                    ID=30  ID=1
PRINT HYD           ID=95  CODE=1

;
;
*S* ROUTE DAM FLOW IN WEST I40 DIVERSION TO 2a INTERSECTION
*S* USE 36 INCH PIPE
*
OMPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.016
                    DIA=36   N=0.015
OUTE MCUNGE         ID=31   HYD=TOEAMOLE  INFLOW ID=95  DT=0HR  L=1760
                    NS=0  SLOPE=.016     MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=31 CODE=1

;**** COMPUTE BASIN ST.1 ****
;*
OMPUTE NM HYD       ID=1 HYD NO=ST.1 DA=0.0811
                    PER A=5 PER B=40 PER C=40 PER D=15
                    TP=0.151 RAIN=-1
```

```
PRINT HYD              ID=1 CODE=1

;*      ROUTE ST.1 THROUGH OS.5
*
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=15
                           CH SLP=0.0683 FP SLP=0.0683 N=0.045 DIST=550
                           DIST ELEV
                           0            15
                           100          5
                           345          0
                           440          5
                           550          15
..OUTE MCUNGE          ID=5   HYD=RTST.1  INFLOW ID=1   DT=0 HR  L=1887.76
                       NS=0    SLOPE=0.0683    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=5 CODE=1

EDIMENT BULK           CODE=1   BULK FACTOR=1.08
;**** COMPUTE BASIN OS.5 ****

COMPUTE NM HYD         ID=3 HYD NO=OS.5 DA=0.0941
                       PER A=45 PER B=30 PER C=25 PER D=0
                       TP=.133 RAIN=-1
:INT HYD               ID=3 CODE=1

*
*;*  ADD ROUTED ST.1 TO OS.5
)D HYD                 ID=6   HYD=OS.5TOT
                       ID=5      ID=3
PRINT HYD              ID=6    CODE=1
*S

;*  ROUTE FLOW THROUGH SURGE POND ON EDGE OF ESCARPMENT
;*  USED 12 IN PIPE OUTFLOW
*
ROUTE RESERVOIR         ID=24   HYD=ESCARP.POND ID=6 CODE = 10
                       OUTFLOW (CFS)       STORAGE (AC-FT)   ELEV (FT)
                        0                  0.00              5260
                        1.49               1.39              5260.5
                        2.67               2.80              5261
                        3.78               4.24              5261.5
                        4.63               5.70              5262
                        5.35               7.19              5262.5
                        5.98               8.71              5263
                        6.55               10.24             5263.5
                        7.07               11.81             5264
                        7.56               13.40             5264.5
                        8.02               15.01             5265
                        8.46               16.66             5265.5
                        8.87               18.32             5266
                        9.26               20.02             5266.5
                        9.64               21.74             5267
                        10.01              23.49             5267.5
                        10.36              25.27             5268
                        10.7               27.07             5268.5
                        11.03              28.90             5269
                        11.35              30.76             5269.5
                        11.66              32.64             5270
:INT HYD               ID=24  CODE=1
EDIMENT BULK           CODE=1   BULK FACTOR=1.025
*S
*S**** COMPUTE BASIN ST.2a ****

MPUTE NM HYD           ID=71 HYD NO=ST.2a DA=0.0458
                       PER A=0 PER B=22.36 PER C=22.36 PER D=55.28
PRINT HYD              TP=.133 RAIN=-1
                       ID=71 CODE=1
;  DIVERT 25% FOR SURGE POND CONDITION
:VIDE HYD               ID=71 PER=-75  ID I=71 HYD=ST.2
                        ID II=88 HYD=SURGE
PRINT HYD              ID=71  CODE=1
PRINT HYD              ID=88 CODE=1

,**** COMPUTE BASIN ST.2b ****

OMPUTE NM HYD          ID=5 HYD NO=ST.2b DA=0.1247
                       PER A=0 PER B=22.77 PER C=22.77 PER D=54.46
RINT HYD               TP=.133 RAIN=-1
                       ID=5 CODE=1
  DIVERT 25% FOR SURGE POND CONDITION
IVIDE HYD               ID=5 PER=-75  ID I=5 HYD=ST.2
                        ID II=3 HYD=SURGE
RINT HYD               ID=5  CODE=1
:INT HYD               ID=3 CODE=1

5
5* ADD OPEN SPACE SURGE POND OUTFLOW TO ST.2b
)D HYD                 ID=6  HYD=ST2TOT
                       ID=5  ID=24
:INT HYD               ID=6  CODE=1

;* ADD ST.2a TO I40 FLOW
)D HYD                 ID=76  HYD=I40ST2a
                       ID=31  ID=71
```

```
PRINT HYD             ID=76  CODE=1
 ;

 ;
*S**** FLOW REACHING IN3 ****
*S*
)MPUTE NM HYD        ID=31 HYD NO=IN3 DA=0.00395
                     PER A=0 PER B=0 PER C=51.02 PER D=48.98
                     TP=0.133 RAIN=-1
PRINT HYD            ID=31 CODE=1

;* ADD FLOW FROM IN3 TO I-40 SD
)D HYD               ID=71  HYD=EATO
                     ID=31  ID=76
PRINT HYD            ID=71  CODE=1

 ;

;* ROUTE 2a FLOW IN WEST I40 DIVERSION TO 2b
*S* USE 42 INCH PIPE
*
)MPUTE RATING CURVE  RC=1  VS NO=1 CODE=-1  SLP=.035
                     DIA=42   N=0.015
)UTE MCUNGE          ID=31   HYD=TOEAMOLE  INFLOW ID=71  DT=0HR  L=1960
                     NS=0  SLOPE=.035     MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=31 CODE=1

 ;
;**** FLOW REACHING IN4 ****
*S*
COMPUTE NM HYD       ID=24 HYD NO=IN4 DA=0.00813
                     PER A=0 PER B=0 PER C=51.02 PER D=48.98
                     TP=0.133 RAIN=-1
RINT HYD             ID=24 CODE=1

*S* ADD FLOW FROM IN4 TO FLOW FROM ST.2B
ADD HYD              ID=76  HYD=EATO
                     ID=6  ID=24
RINT HYD             ID=76  CODE=1

*S


* ADD ST.2b TO I40 FLOW
ADD HYD              ID=76  HYD=I40ST2b
                     ID=31  ID=76
PRINT HYD            ID=76  CODE=1
 ;



;*************************************************************************************
;*  CALCULATE BASINS CONTRIBUTING TO DAM 0
;*  START OF DAM 0 DIVERSION
*S*************************************************************************************

;**** COMPUTE BASIN UD.1C ****
;*
)MPUTE NM HYD        ID=62 HYD NO=UD.1C DA=0.0879
                     PER A=100.0 PER B=0 PER C=0 PER D=0
                     TP=0.133 RAIN=-1
RINT HYD             ID=62 CODE=1

;  DIVERT 25% FOR SURGE POND CONDITION
*DIVIDE HYD           ID=62 PER=-75  ID I=62 HYD=UD.1C
*                    ID II=88 HYD=SURGE
PRINT HYD            ID=62  CODE=1
PRINT HYD            ID=88 CODE=1
;
*S****  ROUTE UD.1C THROUGH OS.1 *****
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=20
                           CH SLP=.05 FP SLP=.05 N=0.045 DIST=302
                           DIST ELEV
                           0            20
                           48           10
                           95           0
                           228          10
                           302          20

ROUTE MCUNGE         ID=61   HYD=RTUD.1C  INFLOW ID=62   DT=0 HR  L= 3289.09
                     NS=0    SLOPE=0.05    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=61 CODE=1
DIMENT BULK          CODE=1   BULK FACTOR=1.07
;**** COMPUTE BASIN OS.1 ****
*S*
COMPUTE NM HYD       ID=99 HYD NO=OS.1 DA=0.3426
                     PER A=50 PER B=25 PER C=25 PER D=0
                     TP=0.139 RAIN=-1
RINT HYD             ID=99 CODE=1

*S*** ADD UD.1C AND OS.1 ****
ADD HYD              ID=99   HYD=OS.1TOT
                     ID=99      ID=61
```

```
PRINT HYD            ID=99    CODE=1
EDIMENT BULK         CODE=1   BULK FACTOR=1.23
S**** COMPUTE BASIN OS.4 ****
S*
COMPUTE NM HYD       ID=70 HYD NO=OS.4 DA=0.1590
                     PER A=15 PER B=75 PER C=10 PER D=0
                     TP=0.134 RAIN=-1
RINT HYD             ID=70 CODE=1
EDIMENT BULK         CODE=1   BULK FACTOR=1.025

*S*      ROUTE OS.1 AND UD.1C ALONG WEST SIDE OF UD.1B
S****  ROUTE CHANNEL
*** ASSUME FLOW COLLECTS IN CHANNEL ON WEST SIDE OF STREET *

COMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1  ELMIN=0  ELMAX=10
                     CH SLP=0.005  FP SLP=0.005   N=.022   STA=50

                     DIST    ELEV     DIST     ELEV      DIST     ELEV
                     0       10       20       0         30       0
                     50      10
ROUTE MCUNGE         ID=13   HYD=RTUD.1A  INFLOW ID=99   DT=0 HR  L=2360.84
                     NS=0    SLOPE=0.005    MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=13 CODE=1

*S**** ADD FLOW FROM OS.4 TO CHANNEL FLOW

DD HYD               ID=61   HYD=DAM0IN
                     ID=13      ID=70
RINT HYD             ID=61    CODE=1

*S**** ADD FLOW FROM DAM EA.11 TO TOTAL FLOW
S* DAM ADDED TO SEE HOW WOULD AFFECT FLOW IN DAM SYSTEM- LEM 2/7/06
S**** TOTAL INFLOW TO DAM #0
ADD HYD              ID=13   HYD=DAM0IN
*                    ID=11      ID=61
*PRINT HYD           ID=13    CODE=1


S  ROUTE FLOW THROUGH POND #0.
   DAM ZERO WAS NOT IN THE DAM15 AHYMO MODEL;
*  DAM WAS RESIZED TO  ATTINUATE DIVERETED FLOW FROM EA.11
*S  OUTFLOW THROUGH 42 IN PIPE
OUTE RESERVOIR       ID=87  HYD=PONDZERO
                     INFLOW ID=61   CODE=10
                     OUTFLOW          STORAGE          ELEV
                     (CFS)             (AC-FT)         (FT)
                      0                 0              5516.5
                      128               0.6            5519
                      222               0.96           5520
                      340               1.92           5522
                      425               3.23           5524
                     1497               4.91           5526
                     3809               7.13           5528
                     8350              10.08           5530
RINT HYD             ID=87     CODE=10
*

S**** ROUTE DAM 0 ALONG NORTH SIDE OF ST.2 ***
COMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1  ELMIN=0  ELMAX=10
*                    CH SLP=0.015  FP SLP=0.015   N=0.022  STA=50
*                    DIST    ELEV     DIST     ELEV      DIST     ELEV
                     0       10       20       0         30       0
                     50      10
ROUTE MCUNGE           ID=19  HYD=RTDAM0  INFLOW ID=87  DT=0HR  L=1303.98
                       NS=0   SLOPE=0.015   MATCODE=0  REGCODE=0  CCODE=0
*PRINT HYD             ID=19     CODE=10
*
S*************************************************************************
S************************** END OF DAM 0 DIVERSION **************************
S*************************************************************************

*S*  ADD ROUTED ST.1 TO DAM 0
ADD HYD              ID=5   HYD=118SD
                     ID=6      ID=19
PRINT HYD            ID=5    CODE=1
*S
*S  ROUTE FLOW ALONG I40 TO ST.4 INTERCEPT IN 36" PIPE

S  ROUTE FLOW  FROM 118TH STREET TO ST.4a INTERCEPT IN I-40 SYSTEM
S  ROUTED THROUGH 54" PIPE

COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.036
                     DIA=54 IN   N=.013
OUTE MCUNGE          ID=30 HYD=40OS.6 INFLOW ID=76 DT=0HR L=1150
                     NS=0  SLOPE=0.036   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=30 CODE=0
S
S**** COMPUTE BASIN ST.4a ****
S*
OMPUTE NM HYD        ID=12 HYD NO=ST.4a DA=0.1221
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=0.237 RAIN=-1
PRINT HYD            ID=12 CODE=1
```

```
;
;**** FLOW REACHING IN5 ****
;*
COMPUTE NM HYD        ID=6 HYD NO=IN5 DA=0.00476
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
PRINT HYD             ID=6 CODE=1
;
*S**** FLOW REACHING IN6 ****
*S*
COMPUTE NM HYD        ID=19 HYD NO=IN6 DA=0.00078
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
PRINT HYD             ID=19 CODE=1

;* ADD FLOW FROM IN5 AND IN6
ADD HYD               ID=61  HYD=EATO
                      ID=6   ID=19
PRINT HYD             ID=61  CODE=1

;

;* ADD FLOW FROM IN5 AND IN6 TO FLOW FROM ST.4A
ADD HYD               ID=76  HYD=EATO
                      ID=61  ID=12
PRINT HYD             ID=76  CODE=1

;

*S  ADD ST.4a AND ROUTED I-40 DIVERSION (48" PIPE)
ADD HYD               ID=31   HYD=ST.4&OS.6
                      ID=76      ID=30
PRINT HYD             ID=31    CODE=10
*S
*S  ROUTE FLOW FROM ST.4a ALONG I40 TO ST.4b
*S  ROUTED THROUGH 72" PIPE

COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.023
                      DIA=72 IN    N=.013
ROUTE MCUNGE          ID=30 HYD=40ST.4 INFLOW ID=31 DT=0HR L=2180
                      NS=0  SLOPE=0.023   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=30 CODE=0

*S**** COMPUTE BASIN ST.4b ****
*S*
COMPUTE NM HYD        ID=12 HYD NO=ST.4b DA=0.0541
                      PER A=0 PER B=5 PER C=5 PER D=90
                      TP=0.133 RAIN=-1
PRINT HYD             ID=12 CODE=1


;**** FLOW REACHING IN7 ****
;*
COMPUTE NM HYD        ID=61 HYD NO=IN7 DA=0.00451
                      PER A=0 PER B=0 PER C=51.02 PER D=48.98
                      TP=0.133 RAIN=-1
PRINT HYD             ID=61 CODE=1

;* ADD FLOW FROM IN7 AND ST.4B
ADD HYD               ID=76  HYD=EATO
                      ID=61  ID=12
PRINT HYD             ID=76  CODE=1

;  ADD ST.4b AND ROUTED I-40 DIVERSION (48" PIPE)
ADD HYD               ID=31   HYD=ST.4&OS.6
                      ID=76      ID=30
PRINT HYD             ID=31    CODE=10
;

*S  ROUTE FLOW FROM ST.4ab ALONG I40 TO 98TH STREET
*S  ROUTED THROUGH 72" PIPE

COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.018
                      DIA=72 IN    N=.013
ROUTE MCUNGE          ID=76 HYD=40ST.4 INFLOW ID=31 DT=0HR L=1410
                      NS=0  SLOPE=0.018   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=76 CODE=0

;**** COMPUTE BASIN ST.3 ****
COMPUTE NM HYD        ID=15 HYD NO=ST.3 DA=.089
                      PER A=0 PER B=15 PER C=15 PER D=70
                      TP=0.252 RAIN=-1
PRINT HYD             ID=15 CODE=1

*S*     ROUTE ST.3 ALONG STREET TO 98TH STREET STORM DRAIN
*S*     ROUTE FLOW IN 48" SD PIPE
COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.018
                      DIA=48 IN    N=.013
ROUTE MCUNGE          ID=19 HYD=RTST.3 INFLOW ID=15 DT=0HR L= 2002.26
                      NS=0  SLOPE=0.018   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=19 CODE=0
```

```
*S******* 98TH STREET **************
S***************************************************************************************
S*                    COMPUTE FLOW THROUGH LADERA DAMS 1-4                              *
S***************************************************************************************
* 2YR
*RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=0.683
                       RAIN SIX=0.930  RAIN DAY=1.129  DT=.05
 10YR
 RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.160
*                      RAIN SIX=1.429  RAIN DAY=1.736  DT=.05
* 100YR
 AINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.77
                      RAIN SIX=2.26  RAIN DAY=2.63  DT=.05

*S* ROUTE FLOW FROM DAM 0 THROUGH AN EARTHEN CHANNEL
*S* ROUTE THROUGH UD.1B
 OMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                     MIN ELEV=0     MAX ELEV=5
                     CH SLP=.04     FP SLP=.04
                     N=.030         DIST=50
                     DIST     ELEV     DIST     ELEV     DIST     ELEV
                      0        5        15       0        35       0
                      50       5
 OUTE MCUNGE         ID=12  HYD=L0.1_1  INFLOW ID=87  DT=0HR  L=1533.98
                     NS=0   SLOPE=0.04   MATCODE=0  REGCODE=0  CCODE=0
 PRINT HYD           ID=12     CODE=10


*S**** COMPUTE BASIN UD.1B ****
*S*
 OMPUTE NM HYD       ID=15 HYD NO=UD.1B DA=0.1266
                     PER A=1.01 PER B=28.03 PER C=28.03 PER D=42.93
                     TP=0.133 RAIN=-1
 PRINT HYD           ID=15 CODE=1

*S  DIVERT 25% FOR SURGE POND CONDITION
 DIVIDE HYD           ID=15 PER=-75  ID I=15 HYD=UD.1B
                     ID II=88 HYD=SURGE
 PRINT HYD            ID=15  CODE=1
*PRINT HYD            ID=88 CODE=1
*S

 ***** ADD DAM 0 TO UD.1B *****
ADD HYD              ID=22   HYD=DAM1IN
                     ID=15      ID=12
PRINT HYD            ID=22    CODE=1


*S  ROUTE FLOW TO DAM 1
*S* ROUTE WITH 54" PIPE

 OMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1  SLP=0.053
                     DIA=54 IN  N=0.013
ROUTE MCUNGE         ID=16   HYD=RTUD.1b  INFLOW ID=22   DT=0 HR  L=1133
                     NS=0    SLOPE=0.053    MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=16 CODE=1


*S**** COMPUTE BASIN UD.2 ****
*S*
 OMPUTE NM HYD       ID=5 HYD NO=UD.2 DA=.2308
                     PER A=0 PER B=25 PER C=52 PER D=50
                     TP=.133 RAIN=-1
PRINT HYD            ID=5 CODE=1
*S
 S  DIVERT 25% FOR SURGE POND CONDITION
 DIVIDE HYD           ID=5 PER=-75  ID I=5 HYD=UD.2
                     ID II=88 HYD=SURGE
*PRINT HYD            ID=5  CODE=1
*PRINT HYD            ID=88 CODE=1
*S
 * DIVIDE BASIN INTO PONDS 1, AND 2-3
 VIDE HYD           ID=5 RATIO=-0.33   ID I=20  HYD = PD1
                                        ID II=21 HYD= PD2&3
RINT HYD            ID=20 CODE=1

 *** ADD 25% OF UD.2 TO DAM 1 INLET FLOW ****
 *** TOTAL DAM 1 INFLOW *****
DD HYD              ID=22   HYD=DAM1IN
                    ID=20      ID=16
RINT HYD            ID=22    CODE=1



S  ROUTE FLOW THROUGH POND #1
 OUTLET PIPE CHANGED TO 1 2.5' PIPE
OUTE RESERVOIR      ID=27  HYD=POND1
                    INFLOW ID=22   CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                    0                 0               5418.0
```

```
                    63                  5.66            5420.0
                    120                 11.77           5422.0
                    156                 18.47           5424.0
                    186                 25.90           5426.0
                    198                 29.92           5427.0
PRINT HYD           ID=27     CODE=10

S* DIVIDE UD.2 REMAINDER FLOW FOR PONDS #2,&3

DIVIDE HYD          ID=21 RATIO=-0.5  ID I=95  HYD = PD2
                                      ID II=24 HYD= PD3
RINT HYD            ID=95 CODE=1
RINT HYD            ID=24 CODE=1


S*** ADD PART OF BASIN UD.2 TO DAM 1 OUTLET FLOW ****
S*** DAM 2 INLET FLOW ***
D HYD               ID=26   HYD=DAM2IN
                    ID=95     ID=27
PRINT HYD           ID=26    CODE=1


  ROUTE FLOW THROUGH POND #2
*S* POND CHANGED TO HAVE A 2-1.5' OUTLETS TO REDUCE FLOW TO #3
ROUTE RESERVOIR     ID=10   HYD=POND2
                    INFLOW ID=26  CODE=10
                    OUTFLOW           STORAGE          ELEV
                    (CFS)              (AC-FT)         (FT)
                     0                   0            5402.0
                     27.                 5.26         5404.
                     55.                 10.85        5406.0
                     75.                 16.79        5408.0
                     90.                 23.10        5410.0
                     105.                29.77        5412.0
                     535                 40.52        5415


RINT HYD            ID=10     CODE=10


*S
S**** COMPUTE BASIN UD.2A ****
S*
OMPUTE NM HYD       ID=22 HYD NO=UD.2A DA=0.0383
                    PER A=0 PER B=25.6 PER C=74.4 PER D=0
                    TP=0.133 RAIN=-1
RINT HYD            ID=22 CODE=1

S*** ADD PORTION OF BASIN UD.2a TO UD.2  ****
ADD HYD             ID=32   HYD=UD.2&UD2.A
                    ID=22      ID=24
RINT HYD            ID=32    CODE=1

S*** ADD UD.2 AND UD.2A TO DAM 2 OUTLFLOW ****
ADD HYD             ID=33   HYD=UD.2&UD.2A
                    ID=32      ID=10
RINT HYD            ID=33    CODE=1

S**** COMPUTE BASIN UD.3 ****
*S*
COMPUTE NM HYD      ID=34 HYD NO=UD.3 DA=0.0389
                    PER A=0.00 PER B=7.6 PER C=12.8 PER D=79.6
RINT HYD            ID=34 CODE=1

*S*** ADD UD.3 AND ROUTED UD.2 UD.2A AND DAM 2 OUTFALL ****
D HYD               ID=39   HYD=UD.2&UD.2A
                    ID=34      ID=33
RINT HYD            ID=39    CODE=1


 DAM REMOVED TO SEE AFFECTS ON LADERA SYSTEM- LEM 2/9/06
  ROUTE FLOW THROUGH POND #3
ROUTE RESERVOIR     ID=10   HYD=POND3
                    INFLOW ID=39  CODE=10
                    OUTFLOW           STORAGE          ELEV
                    (CFS)              (AC-FT)         (FT)
                    0                   0.             5374.0
                    11                  4.15           5375.5
                    24                  9.99           5377.5
                    32                  16.19          5379.5
                    39                  22.76          5381.5
                    44                  29.71          5383.5
                    70                  33.5           5384
                   863                  44.78          5387.5
                  1064                  55.83          5388

PRINT HYD           ID=10    CODE=10

S**** COMPUTE BASIN UD.4B ****
S*
OMPUTE NM HYD       ID=35 HYD NO=UD.4b DA=0.034
```

```
                    PER A=0.00 PER B=13.3 PER C=18.2 PER D=68.5
                    TP=0.133 RAIN=-1
 ?INT HYD           ID=35 CODE=1

 *S**** COMPUTE BASIN UD.4c ****
 *S*
 )MPUTE NM HYD      ID=34 HYD NO=UD.3 DA=0.0797
                    PER A=63.4 PER B=28.4 PER C=3.7 PER D=4.5
                    TP=0.133 RAIN=-1
PRINT HYD           ID=34 CODE=1

 ;*** ADD BASIN UD.4B&C  ****
 )D HYD             ID=41   HYD=UD.4B&C
                    ID=34      ID=35
PRINT HYD           ID=41    CODE=1


 ;*** ADD BASIN UD.4B&C AND POND 3 OUTFLOW  ****
 ;*** TOTAL INFLOW TO POND #4 ****
ADD HYD             ID=42   HYD=UD.4B&C
                    ID=41      ID=10
 ?INT HYD           ID=42    CODE=1


*S   ROUTE FLOW THROUGH POND #4
ROUTE RESERVOIR     ID=43  HYD=POND4
                    INFLOW ID=42  CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                     0.               0.              5349.
                     10.              2.47            5350.
                     23.              7.65            5352.
                     35.              13.16           5354.0
                     45.              19.03           5356.0
                    1450.             25.25           5358.0
                    3040              31.81           5360
PRINT HYD            ID=43    CODE=10

 ;**** COMPUTE BASIN UD.5d ****
 S* ASSUME UD.5D FLOWS OUT OF STUDY AREA AND ONTO PETROGLYPHS****
*COMPUTE NM HYD     ID=79 HYD NO=UD.5d DA=.2681
*                   PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                    TP=.615 RAIN=-1
 'RINT HYD          ID=79 CODE=1


*S**** COMPUTE BASIN UD.5A ****
 ;*
 )MPUTE NM HYD      ID=1 HYD NO=UD.5A DA=.153
                    PER A=50 PER B=25 PER C=25 PER D=0
                    TP=.157 RAIN=-1
PRINT HYD           ID=1 CODE=1
 ;
 ;  DIVERT 25% FOR SURGE POND CONDITION
 )IVIDE HYD          ID=1 PER=-75  ID I=1 HYD=UD.5A
*                   ID II=88 HYD=SURGE
*PRINT HYD           ID=1  CODE=1
 'RINT HYD          ID=88 CODE=1
 ;
 ;****  ROUTE UD.5A THROUGH OS.5A TO INLET OF DAM 5 ARROYO
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=27
                         CH SLP=.0497 FP SLP=.0497 N=0.045 DIST=356
                         DIST ELEV
                         0          27
                         75         17
                        110         7
                        216         0
                        287         7
                        356         17
 )UTE MCUNGE       ID=2   HYD=RTUD.5A  INFLOW ID=1   DT=0 HR  L=1676
                   NS=0    SLOPE=0.0497    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=2 CODE=1

 .**** COMPUTE BASIN UD.5E ****
 .*
COMPUTE NM HYD      ID=90 HYD NO=UD.5E DA=0.1871
                    PER A=50 PER B=25 PER C=25 PER D=0
                    TP=0.176 RAIN=-1
 .INT HYD           ID=90 CODE=1


S  DIVERT 25% FOR SURGE POND CONDITION
)IVIDE HYD          ID=90 PER=-75  ID I=90 HYD=UD.5E
                   ID II=88 HYD=SURGE
 'RINT HYD          ID=90  CODE=1
PRINT HYD           ID=88 CODE=1
S
S* ASSUME HALF OF BASIN UD.5E FLOWS ONTO OS.5A AND HALF ONTO OS.5B
 VIDE HYD          ID=90 RATIO=-0.5   ID I=51  HYD = OS.5A
                                      ID II=52 HYD= OS.5B

5*
S****  ROUTE HALF OF UD.5E THROUGH OS.5A TO INLET OF DAM 5 ARROYO
 MPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=12
```

```
                        CH SLP=.032 FP SLP=.032 N=0.045 DIST=504
                        DIST ELEV
                        0           10
                        253         0
                        378         10
                        504         12

 )UTE MCUNGE          ID=1   HYD=ARTUD.5E  INFLOW ID=51   DT=0 HR  L= 1235.63
                      NS=0    SLOPE=0.032    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=1 CODE=1


 5****  ROUTE HALF OF UD.5E THROUGH OS.5B TO INLET OF DAM 5 ARROYO
COMPUTE RATING CURVE CID=1 VS NO=1 SEG=1 MIN EL=0 MAX EL=30
                        CH SLP=.03 FP SLP=.03 N=0.045 DIST=591
                        DIST ELEV
                        0           30
                        90          20
                        256         10
                        292         0
                        591         10

 )UTE MCUNGE          ID=55   HYD=BRTUD.5E  INFLOW ID=52   DT=0 HR  L= 1078.59
                      NS=0    SLOPE=0.03    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=55 CODE=1


 EDIMENT BULK         CODE=1   BULK FACTOR=1.12
 5**** COMPUTE BASIN OS.5A ****
*S*
COMPUTE NM HYD        ID=3 HYD NO=OS.5A DA=0.1062
                      PER A=50 PER B=25 PER C=25 PER D=0
                      TP=0.154 RAIN=-1
 RINT HYD             ID=3 CODE=1

*S**** COMPUTE BASIN OS.5B ****
*S*
 )MPUTE NM HYD        ID=4 HYD NO=OS.5B DA=0.1540
                      PER A=50 PER B=25 PER C=25 PER D=0
                      TP=0.133 RAIN=-1
PRINT HYD             ID=4 CODE=1
EDIMENT BULK          CODE=1   BULK FACTOR=1.025
 5* ADD ROUTED UD.5E AND OS.5B**
 )D HYD             ID=70   HYD=OS.5BTOT
                    ID=4      ID=55
PRINT HYD           ID=70    CODE=1


 5* ADD ROUTED UD.5A AND OS.5A**
ADD HYD             ID=5   HYD=UD.5AOS.5A
                    ID=2      ID=3
 RINT HYD           ID=5    CODE=1

 5* ADD COMBINED FLOW TO ROUTED UD.5E**
ADD HYD             ID=75   HYD=OS.5ATOT
                    ID=5      ID=1
 RINT HYD           ID=75    CODE=1

 5* TOTAL INLET FLOW TO DAM 5 ARROYO DAM
ADD HYD             ID=6   HYD=DAM5INLET
                    ID=70      ID=75
 RINT HYD           ID=6    CODE=1

 5  ROUTE IN DAM 5 ARROYO TO END OF UD.5C

*
 )MPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=10
                      CH SLP=0.02  FP SLP=0.02
                      N=0.015       DIST=50
                      DIST    ELEV    DIST    ELEV    DIST    ELEV    DIST    ELEV
                      0         10      20       0      30       0      50      10
 )UTE MCUNGE          ID=8  HYD=D5ARROYO  INFLOW ID=6  DT=0HR  L=2421.12
                      NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=8  CODE=10
*S

 5**** COMPUTE BASIN UD.5C ****
 5*
COMPUTE NM HYD        ID=11 HYD NO=UD.5C DA=0.085
                      PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                      TP=0.133 RAIN=-1
 RINT HYD             ID=11 CODE=1
 5
S  DIVERT 25% FOR SURGE POND CONDITION
DIVIDE HYD             ID=11 PER=-75  ID I=11 HYD=UD.5C
                      ID II=88 HYD=SURGE
 PRINT HYD             ID=11  CODE=1
 PRINT HYD             ID=88 CODE=1
S

S* ADD DAM 5 ARROYO AND UD.5C*
```

```
ADD HYD              ID=99   HYD=RTUD.5C
                     ID=11   ID=8
RINT HYD             ID=99   CODE=1

*S  ROUTE IN DAM 5 ARROYO TO END OF UD.5B

OMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1  MIN EL=0     MAX EL=10
                     CH SLP=0.02  FP SLP=0.02    N=0.015       DIST=50
                     DIST    ELEV    DIST    ELEV    DIST   ELEV   DIST   ELEV
                     0        10      20       0      30      0      50     10
OUTE MCUNGE          ID=8  HYD=D5ARROYO  INFLOW ID=99  DT=0HR  L=2421.12
                     NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=8  CODE=10
*S
*S**** COMPUTE BASIN UD.5B ****
*
OMPUTE NM HYD        ID=9 HYD NO=UD.5B DA=0.0916
                     PER A=5.76 PER B=33.85 PER C=33.85 PER D=26.54
PRINT HYD            TP=0.133 RAIN=-1
                     ID=9 CODE=1

* ADD DAM 5 ARROYO AND UD.5B*
*
ADD HYD              ID=10   HYD=ARYDAM5
                     ID=9      ID=8
RINT HYD             ID=10    CODE=1
* TEMPORARY POND LOCATED AT THE INTERSECTION OF UD.5C AND UD.5B ****
*S* OUTLET MODELED AS A 6' PIPE
*ROUTE RESERVOIR     ID=9   HYD=POND5
                     INFLOW ID=10  CODE=10
                     OUTFLOW          STORAGE          ELEV
*                    (CFS)            (AC-FT)          (FT)
*                       0               0             0.0
*                       6.56            1.1           1.0
*                       27.16           3.2           2.0
                        63.66           5.6           3.0
                        102.86          8.1           4.0
*                       181.84          10            5.0
*                       267.24          13            6.0
                        308.58          17            7.0

PRINT HYD            ID=10   CODE=1

*S ROUTE DAM 5 ARROYO AND UD.5B AND UD.5C IN A 48" STORM DRAIN***
*COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.033
                     DIA=54 IN  N=0.013
ROUTE MCUNGE          ID=10  HYD=D5ARROYO  INFLOW ID=9  DT=0HR  L=1460
*PRINT HYD            NS=0   SLOPE=0.033   MATCODE=0  REGCODE=0  CCODE=0
                      ID=10  CODE=10
COMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1  MIN EL=0     MAX EL=10
                      CH SLP=0.02  FP SLP=0.02    N=0.033       DIST=50
                      DIST    ELEV    DIST    ELEV    DIST   ELEV   DIST   ELEV
                      0        10      20       0      30      0      50     10
ROUTE MCUNGE          ID=10  HYD=D5ARROYO  INFLOW ID=10  DT=0HR  L=1460
                      NS=0   SLOPE=0.033   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=10  CODE=10

  COMPUTE HYDROGRAPH FOR BASIN L9.1A*****
*S  THIS BASIN WILL BE DIVERTED IN TO DAM 5 POND.
COMPUTE NM HYD        ID=9       HYD=L9.1A    DA=0.1104 SQ MI
                      PER A=0  PER B=30.46  PER C=30.46  PER D=39.08
                      TP=-.212     RAIN=-1
RINT HYD              ID=9       CODE=10

*S ROUTE BASIN L9.1A IN THE PROPOSED DIVERSION STRUCTURE TO DAM 5 POND
OMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1  MIN EL=0     MAX EL=10
                     CH SLP=0.02  FP SLP=0.02    N=0.015       DIST=50
                     DIST    ELEV    DIST    ELEV    DIST   ELEV   DIST   ELEV
                     0        10      20       0      30      0      50     10
ROUTE MCUNGE         ID=8  HYD=D5ARROYO  INFLOW ID=9  DT=0HR  L=1800.0
                     NS=0   SLOPE=0.02   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=8  CODE=10

S* ADD DAM 5 ARROYO BASIN L9.1A*

OD HYD               ID=9   HYD=ARYDAM5&L91.A
                     ID=10     ID=8
RINT HYD             ID=9    CODE=1


* ROUTE FLOW THROUGH DAM 5 POND ON SOCCER FIELDS ****
* OUTLET MODELED AS A 5.5' PIPE
OUTE RESERVOIR       ID=10   HYD=POND5
                     INFLOW ID=9  CODE=10
                     OUTFLOW          STORAGE          ELEV
                     (CFS)            (AC-FT)          (FT)
                        0               0             0.0
                        6.30            1.1           1.0
                        26.18           3.2           2.0
                        35.36           5.6           3.0
                        105.42          8.1           4.0
```

```
                    176.79          12.8            5.0
                    233.73          21.6            6.0
                    267.28          34.4            7.0
                    297.06          51.3            8.0

PRINT HYD           ID=10  CODE=10


 S  ROUTE COMBINED FLOW IN DAM 5 ARROYO TO end of BASIN UD.4A
*S  ROUTE WITH 48 INCH PIPE
*COMPUTE RATING CURVE  CID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=10
                    CH SLP=0.02  FP SLP=0.02
                    N=0.015       DIST=50
*                   DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
*                   0       10      20      0      30     0      50     10
 OMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.034
                    DIA=48 IN  N=0.013
 OUTE MCUNGE        ID=8  HYD=D5ARROYO  INFLOW ID=10  DT=0HR  L=2006
                    NS=0   SLOPE=0.034   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=8  CODE=10
 S
 S**** COMPUTE BASIN UD.4A ****
 S*
COMPUTE NM HYD      ID=9 HYD NO=UD.4A DA=0.0455
                    PER A=29.9 PER B=0.0 PER C=28.0 PER D=42.1
                    TP=0.133 RAIN=-1
 RINT HYD           ID=9 CODE=1

*S*** ADD FLOW FROM DAM 5 ARROYO UD.4A ***
*S*** TOTAL DAM 5 INFLOW ***
 DD HYD             ID=45   HYD=PD&4D.4A
                    ID=8      ID=9
 RINT HYD           ID=45    CODE=1

*S*** PROPOSED DIVERSION TO STORM CLOUD SUBDIVISION TO LADERA DAM 9****
*S*** DIVERT
 IVIDE HYD          ID=45      Q=205
                    ID=45      HYD=TOPOND5
                    ID=69     HYD=todam9
PRINT HYD           ID=69     CODE=10
PRINT HYD           ID=45      CODE=10

 S ROUTE FLOW FROM DIVERSION TO LADERA DAM 5
COMPUTE RATING CURVE  CID=1 VS NO=1 CODE=-1  SLP=0.034
                    DIA=48 IN  N=0.013
ROUTE MCUNGE        ID=8  HYD=UD.4ADAM5  INFLOW ID=45  DT=0HR  L=2006
                    NS=0   SLOPE=0.034   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=8  CODE=10

*S*** ADD FLOW FROM DAM 5 ARROYO TO ROUTED POND #4 OUTFLOW ***
*S*** TOTAL DAM 5 INFLOW ***
 D HYD              ID=44   HYD=PD5IN
                    ID=8      ID=43
 RINT HYD           ID=44    CODE=1

*S* ROUTE FLOW THROUGH POND 5 ****
 OUTE RESERVOIR     ID=9   HYD=POND5
                    INFLOW ID=44  CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)            (AC-FT)          (FT)
                    0.                 0.            5330.8
                    25.                4.2           5331.8
                    125.              12.9           5333.8
                    200.              22.1           5335.8
                    222               31.5           5337.0
                    455               31.9           5337.8
                   3833               52.7           5341.8
 RINT HYD           ID=9     CODE=10
 S  ROUTE OVERLAND FLOW FROM BASINS L0.1-L5.1 THROUGH  BASIN L7.2
*  THIS ACCOUNTS FOR THE TIME IT TAKES FLOW TO GET THROUGH DAMS IN BASIN L7.2
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                    MIN ELEV=0     MAX ELEV=5
                    CH SLP=.017    FP SLP=.029
                    N=.03         DIST=50
                    DIST     ELEV     DIST     ELEV     DIST     ELEV
                     0        5        15       0        35       0
                    50        5
 OUTE MCUNGE        ID=10  HYD=L7.2_1  INFLOW ID=9  DT=0HR  L=2400
                    NS=0   SLOPE=0.017   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=10    CODE=10
*
* SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
 S
 S  COMPUTE HYDROGRAPH FOR BASIN L7.1
COMPUTE NM HYD      ID=1      HYD=L7.1   DA=0.0078 SQ MI
                    PER A=0  PER B=30  PER C=31  PER D=39
                    TP=-0.133    RAIN=-1
 RINT HYD           ID=1       CODE=10

 S  ROUTE OVERLAND FLOW FROM BASIN L7.1 THROUGH  BASIN L7.2
* TYPICAL CROSS SECTION A
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=3.0
```

```
                    CH SLP=0.0028 FP SLP=0.0028
                    N=0.030       DIST=400
                    DIST    ELEV    DIST    ELEV
                    0       3       180      2
                    200     0       220      2
                    400     3
 OUTE MCUNGE        ID=50  HYD=L7.2_2  INFLOW ID=1  DT=0HR  L=2100
                    NS=0   SLOPE=0.0028   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=50     CODE=10
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L7.2
 OMPUTE NM HYD      ID=2      HYD=L7.2   DA=0.0688 SQ MI
                    PER A=33  PER B=11  PER C=18  PER D=38
                    TP=-0.133   RAIN=-1
PRINT HYD           ID=2       CODE=10
*
 S  COMBINED FLOW (BASINS L7.1 & L7.2)
 DD HYD              ID=27     HYD=L7.2_3
                     ID=50      ID=2
PRINT HYD           ID=27     CODE=10
*
 S  DIVIDE ID=27 INTO 3 THIRDS FOR PONDS 6, 7 AND 8
 IVIDE HYD          ID=27      Q=-.333
                    ID=1      HYD=L7.2_4
                    ID=3      HYD=L7.2_5
PRINT HYD           ID=1      CODE=10
*
 S  ADD 1ST THIRD TO ROUTED FLOW
 DD HYD             ID=10     HYD=TO_DAM6
                    ID=1      ID=10
PRINT HYD           ID=10     CODE=10
*
 S  ROUTE FLOW THROUGH POND #6
 OUTE RESERVOIR     ID=9   HYD=POND6
                    INFLOW ID=10  CODE=10
                    OUTFLOW           STORAGE          ELEV
                    (CFS)              (AC-FT)         (FT)
                    0.                 0.              5321.0
                    63                 7.24            5323.0
                    120                14.92           5325.0
                    156                23.04           5327.0
                    162                25.07           5327.5
                   2035                40.72           5331
 RINT HYD           ID=9     CODE=10

*S  ADD 2ND THIRD TO POND OUTFLOW
ADD HYD             ID=10     HYD=TO_DAM7
                    ID=1      ID=9
 RINT HYD           ID=10     CODE=10

*S  ROUTE FLOW THROUGH POND #7
ROUTE RESERVOIR     ID=9   HYD=POND7
                    INFLOW ID=10  CODE=10
                    OUTFLOW           STORAGE          ELEV
                    (CFS)              (AC-FT)         (FT)
                     0.                0.              5300.0
                     60.               5.25            5302.3
                     130.              10.85           5304.3
                     180.              16.82           5306.3
                    3424               29.78           5310
PRINT HYD           ID=9      CODE=10
*
 S  ADD LAST THIRD TO POND OUTFLOW
 D HYD              ID=10     HYD=TO_DAM8
                    ID=1      ID=9
PRINT HYD           ID=10     CODE=10
*
 S  ROUTE FLOW THROUGH POND #8
 UTE RESERVOIR      ID=9   HYD=POND8
                    INFLOW ID=10  CODE=10
                    OUTFLOW           STORAGE          ELEV
                    (CFS)              (AC-FT)         (FT)
                        0.00           0               5288
                        8.16           2.6             5289
                        34.28          7.9             5290
                        48.48          13.4            5291
                        59.38          19              5292
                        68.58          24.7            5293
                        76.66          30.7            5294
                        83.98          36.8            5295
                        90.72          43              5296
                        96.98          49.4            5297
                        102.86         55.9            5298
                        108.42         62.4            5299
                        113.72         68.9            5300

*
*S  ROUTE OVERLAND FLOW FROM BASINS L0.1-L7.2 THROUGH  BASIN L9.2
   THIS ACCOUNTS FOR THE TIME IT TAKES FLOW TO GET THROUGH DAM(S) IN BASIN L9.2
 OMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                    MIN ELEV=0     MAX ELEV=5
                    CH SLP=.035    FP SLP=.044
                    N=.03          DIST=50
                    DIST     ELEV     DIST     ELEV     DIST     ELEV
```

```
                    0        5        15        0        35       0
                   50        5
 )UTE MCUNGE       ID=10  HYD=L9.2_1  INFLOW ID=9  DT=0HR  L=1150
                   NS=0   SLOPE=0.035   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=10      CODE=10
*
  SEDIMENT BULK      CODE=1   BULK FACTOR=1.043
 5
 5  COMPUTE HYDROGRAPH FOR BASIN L9.1
COMPUTE NM HYD     ID=1       HYD=L9.1   DA=0.2656 SQ MI
                   PER A=34  PER B=18  PER C=24  PER D=24
                   TP=-0.160    RAIN=-1
 RINT HYD          ID=1       CODE=10

*S  ROUTE 9.1 THRU 9.2 IN "DAM 9" ARROYO
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                   MIN ELEV=0     MAX ELEV=5
                   CH SLP=.035    FP SLP=.035
                   N=.015         DIST=30
                   DIST     ELEV   DIST   ELEV   DIST   ELEV   DIST   ELEV
                    0        5     10     0      20     0      30     5
 )UTE MCUNGE       ID=50  HYD=L9.2_2  INFLOW ID=1  DT=0HR  L=2600
                   NS=0   SLOPE=0.035   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD          ID=50      CODE=10
*
* SEDIMENT BULK      CODE=1   BULK FACTOR=1.025
 5
 5  COMPUTE HYDROGRAPH FOR BASIN L9.2
 OMPUTE NM HYD     ID=2       HYD=L9.2   DA=0.1313 SQ MI
                   PER A=12  PER B=19  PER C=21  PER D=48
                   TP=-0.194    RAIN=-1
RINT HYD           ID=2       CODE=10

 5  COMBINED FLOW L9.1 AND L9.2
ADD HYD            ID=21     HYD=L9.2_3
                   ID=50       ID=2
RINT HYD           ID=21      CODE=10

 5  COMBINED FLOW (BASINS L0.1-L7.2) AND L9.1-L9.2
ADD HYD            ID=10      HYD=TO_DAM9
                   ID=21       ID=10
PRINT HYD          ID=10      CODE=10

 5  COMBINED FLOW (BASINS L0.1-L7.2) AND L9.1-L9.2 AND
 S  DIVERSION FROM STORM CLOUD SUBDIVISION
ADD HYD            ID=10      HYD=TO_DAM9
                   ID=69       ID=10
 RINT HYD          ID=10      CODE=10

 5  ROUTE FLOW THROUGH POND #9
ROUTE RESERVOIR    ID=9  HYD=POND9
                   INFLOW ID=10  CODE=10
                   OUTFLOW          STORAGE          ELEV
                   (CFS)             (AC-FT)         (FT)
                       0.00          0               5267
                       8.16          3.5             5268
                       34.28         7.1             5269
                       48.48         10.9            5270
                       59.38         14.8            5271
                       68.58         18.9            5272
                       76.66         23.2            5273
                       83.98         27.5            5274
                       90.72         32.1            5275
                       96.98         36.8            5276
                       102.86        41.5            5277
                       108.42        46.2            5278
                       113.72        51              5279

 RINT HYD          ID=9       CODE=10

*S  ROUTE OUTFLOW OVERLAND THROUGH BASIN L12.20
*   THIS ACCOUNTS FOR THE TIME IT TAKES FLOW TO GET THRU DAM(S) IN BASIN L12.20
 OMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                   MIN ELEV=0     MAX ELEV=5
                   CHSLP=.021    FP SLP=.027
                   N=.030         DIST=50
                   DIST     ELEV     DIST     ELEV     DIST     ELEV
                    0        5        15       0        35       0
                   50        5
 )UTE MCUNGE       ID=10  HYD=TO_DAM10  INFLOW ID=9  DT=0HR  L=2000
                   NS=0   SLOPE=0.021   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=10      CODE=10
*
 5  ROUTE COMBINED THROUGH DAM #10
   THIS DAM WAS OMITTED IN DAM #15 ANALYSIS
ROUTE RESERVOIR    ID=9       HYD=POND10
                   INFLOW ID=10      CODE=10
                          OUTFLOW       STORAGE          ELEVATION
                           (CFS)        (AC/FT)            (FT)
                             0             0               5244
                             14          6.77              5246
                             30          13.95             5248
                             38          21.54             5250
                             47          29.56             5252
```

```
                                54          38.01              5254
                                63          51.55              5257
                               960          66.04              5260
PRINT HYD           ID=9       CODE=10
*S
*S
*S*************************************************************************
*S    CALCULATE RUNOFF BEGINNING AT THE TOP OF LADERA L12 WATERSHED.
*S  UPPER LADERA BASINS START AT DOUBLE EAGLE II AIRPORT & DRAIN TO DAM12
*S                        REGION B2
*S*************************************************************************
*   RAINFALL FOR LADERA BASINS ABOVE DAM #12
*  2YR
RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=0.683
*                     RAIN SIX=0.930  RAIN DAY=1.129  DT=.05
* 10YR
RAINFALL              TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.160
                      RAIN SIX=1.429  RAIN DAY=1.736  DT=.05
*  100YR
RAINFALL             TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.78
                     RAIN SIX=2.28  RAIN DAY=2.71  DT=.05
*************************************************************************
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.1
COMPUTE NM HYD       ID=1       HYD=L12.1   DA=0.2219 SQ MI
                     PER A=0  PER B=0  PER C=65  PER D=35
                     TP=-0.363    RAIN=-1
PRINT HYD            ID=1       CODE=10

* SEDIMENT BULK         CODE=1   BULK FACTOR=1.040
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.2
COMPUTE NM HYD       ID=2       HYD=L12.2   DA=1.1359 SQ MI
                     PER A=39  PER B=4  PER C=38  PER D=19
                     TP=-0.147    RAIN=-1
PRINT HYD            ID=2       CODE=10
*
*  COMBINED FLOW FROM BASINS L12.1 AND L12.2 IN DE II AIRPORT AREA.  THERE ARE
*  PONDS W/COMBINED VOLUME OF ALMOST 30 ACRE-FT IN THESE BASINS.  THESE
*S  PONDS ULTIMATELY DISCHARGE TO A 70 ACRE-FT PLAYA THAT IS BISECTED BY
*S  PASEO DEL VOLCAN.  IF PLAYA DOES NOT OVERFLOW, THEN THE BASINS CAN BE
*S  CONSIDERED TO BE NON-CONTRIBUTING.  PONDS AND PLAYA NOT IN MODEL.
ADD HYD              ID=4       HYD=L12.2_1
                     ID=1       ID=2
PRINT HYD            ID=4       CODE=10
*
* SEDIMENT BULK         CODE=1   BULK FACTOR=1.025
*
*  COMPUTE HYDROGRAPH FOR BASIN L12.3
COMPUTE NM HYD       ID=1       HYD=L12.3   DA=0.3313 SQ MI
                     PER A=0  PER B=3  PER C=38  PER D=59
                     TP=-0.364    RAIN=-1
PRINT HYD            ID=1       CODE=10

*  ROUTE L12.3 THROUGH L12.6
* TYPICAL CROSS SECTION A TRANSITIONS TO E
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=3.0
                      CH SLP=0.006 FP SLP=0.006
                      N=0.030       DIST=400
                      DIST    ELEV    DIST    ELEV   DIST    ELEV
                      0       3       180      2      200     0
                      220     2       400      3
ROUTE MCUNGE          ID=49  HYD=L12.3_1  INFLOW ID=1  DT=0HR  L=5400
                      NS=0   SLOPE=0.006   MATCODE=0  REGCODE=0  CCODE=0
COMPUTE RATING CURVE  ID=2    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=4.0
                      CH SLP=0.0013 FP SLP=0.0013
                      N=0.030       DIST=48
                      DIST    ELEV    DIST    ELEV   DIST    ELEV
                      0       4       10       3      19      0
                      29      0       38       3      48      4
ROUTE MCUNGE          ID=50  HYD=L12.3_1  INFLOW ID=49  DT=0HR  L=1600
                      NS=0   SLOPE=0.0013   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=50     CODE=10
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.5
COMPUTE NM HYD       ID=1       HYD=L12.5   DA=0.7313 SQ MI
                     PER A=36  PER B=5  PER C=43  PER D=16
                     TP=-0.357    RAIN=-1
PRINT HYD            ID=1       CODE=10
*
*S  ROUTE L12.5 THROUGH L12.4
*  TYPICAL CROSS SECTION A
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=3.0
                      CH SLP=0.0022 FP SLP=0.0022
                      N=0.030       DIST=400
                      DIST    ELEV    DIST    ELEV
                      0       3       180      2     200     0
                      220      2       400     3
ROUTE MCUNGE          ID=51  HYD=L12.4_1  INFLOW ID=1  DT=0HR  L=1850
                      NS=0   SLOPE=0.0022   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=51     CODE=10
```

```
*S
 S  COMPUTE HYDROGRAPH FOR BASIN L12.4
 OMPUTE NM HYD       ID=1       HYD=L12.4    DA=0.6016 SQ MI
                     PER A=8   PER B=2   PER C=44   PER D=46
                     TP=-0.319     RAIN=-1
PRINT HYD            ID=1        CODE=10

 S  ADD L12.4 AND L12.5
,DD HYD              ID=2        HYD=L12.4_2
                     ID=1        ID=51
PRINT HYD            ID=2        CODE=10

 S  ROUTE COMBINED (L12.4 AND L12.5) THROUGH L12.6
  TYPICAL CROSS SECTION A
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=3.0
                     CH SLP=0.0059 FP SLP=0.0059
                     N=0.030        DIST=400
                     DIST     ELEV     DIST     ELEV
                     0        3        180       2       200      0
                     220      2        400       3
 OUTE MCUNGE         ID=51  HYD=L12.6_1  INFLOW ID=2  DT=0HR   L=5250
                     NS=0    SLOPE=0.0059    MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=51      CODE=10
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.6
 OMPUTE NM HYD       ID=1       HYD=L12.6    DA=0.9453 SQ MI
                     PER A=2   PER B=4   PER C=29   PER D=65
                     TP=-0.429     RAIN=-1
PRINT HYD            ID=1        CODE=10
*
*S  ADD (L12.4-5) & L12.6
 DD HYD              ID=2        HYD=L12.6_2
                     ID=1        ID=51
PRINT HYD            ID=2        CODE=10
*
*S  ADD (L12.4-6) & L12.3
 DD HYD              ID=4        HYD=L12.6_3
                     ID=2        ID=50
PRINT HYD            ID=4        CODE=10
*
*S  ROUTE COMBINED (L12.3, L12.4, L12.5, AND L12.6) THROUGH L12.7
  TYPICAL CROSS SECTION E, 2 SLOPES
 OMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=4.0
                     CH SLP=0.0006 FP SLP=0.0006
                     N=0.030        DIST=48
                     DIST     ELEV     DIST     ELEV
                     0        4        10        3       19       0
                     29        0       38        3       48        4
ROUTE MCUNGE         ID=49  HYD=L12.7_1  INFLOW ID=4  DT=0HR   L=1000
                     NS=0    SLOPE=0.0006    MATCODE=0  REGCODE=0  CCODE=0
 OMPUTE RATING CURVE  ID=2     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=4.0
                     CH SLP=0.0097 FP SLP=0.0097
                     N=0.030        DIST=48
                     DIST     ELEV     DIST     ELEV
                     0        4        10        3       19       0
                     29        0       38        3       48        4
 OUTE MCUNGE         ID=50  HYD=L12.7_1  INFLOW ID=49  DT=0HR   L=1350
                     NS=0    SLOPE=0.0097    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=50      CODE=10
 S
 S  COMPUTE HYDROGRAPH FOR BASIN L12.7
 OMPUTE NM HYD       ID=1       HYD=L12.7    DA=1.0563 SQ MI
                     PER A=44   PER B=7   PER C=28   PER D=21
                     TP=-0.383     RAIN=-1
 RINT HYD            ID=1        CODE=10

 S  ADD (L12.3-6) & L12.7
ADD HYD              ID=3        HYD=L12.7_2
                     ID=1        ID=50
 RINT HYD            ID=3        CODE=10
 S
 S  COMPUTE HYDROGRAPH FOR BASIN L12.8
COMPUTE NM HYD       ID=1       HYD=L12.8    DA=0.4219 SQ MI
                     PER A=2   PER B=14   PER C=18   PER D=66
                     TP=-0.451     RAIN=-1
 RINT HYD            ID=1        CODE=10

 S  ROUTE L12.8 THROUGH L12.7
*  TYPICAL CROSS SECTION E
 OMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=4.0
                     CH SLP=0.0139 FP SLP=0.0139
                     N=0.030        DIST=48
                     DIST     ELEV     DIST     ELEV
                     0        4        10        3       19       0
                     29        0       38        3       48        4
 OUTE MCUNGE         ID=50  HYD=L12.7_3  INFLOW ID=1  DT=0HR   L=575
                     NS=0    SLOPE=0.0139    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=50      CODE=10
*
 S  ADD (L12.3-7) & L12.8
```

```
ADD HYD             ID=3       HYD=L12.7_4
                    ID=3       ID=50
RINT HYD            ID=3       CODE=10

*S ROUTE FLOW THROUGH PROPOSED POND AT PASEO DEL VULCAN (PDV)
** PRINCIPAL SPILLWAY 2 - 60" RCP
ROUTE RESERVOIR     ID=50  HYD=PDVPOND
                    INFLOW ID=3   CODE=10
                    OUTFLOW          STORAGE          ELEV
*                   (CFS)             (AC-FT)         (FT)
*                    0                 0              5780.0
                     60.               18.7           5782.0
                     194.              38.2           5784.0
                     350.              58.4           5786.0
*                    472.0             79.3           5788.0
*                    564.0             101.1          5790.0
                     624.0             123.6          5792.0
                     712.0             146.9          5794.0
                     766.0             171.0          5796.0
*PRINT HYD           ID=50     CODE=10
*
S  INCREASE POND SIZE BY 1.5 TIMES.  PRINCIPAL SPILLWAY= 60" RCP
UTE RESERVOIR       ID=50  HYD=PDVPOND
                    INFLOW ID=3   CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                     0                 0              5780.0
                     45                28.1           5782.0
                     116               57.3           5784.0
                     177               87.6           5786.0
                     222               119.0          5788.0
                     259               151.7          5790.0
                     291               185.4          5792.0
                     320               220.4          5794.0
PRINT HYD           ID=50     CODE=10
*
*S
*****************************************************************************
    DIVERSION TO DAM 5 ARROYO BEGINS
*****************************************************************************
*
*S  ROUTE PDV POND OUTFLOW SOUTH IN PROPOSED PETROGLYPH DIVERSION
OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                     MIN EL=0    MAX EL=5
                     CH SLP=0.004  FP SLP=0.004
                     N=0.015       DIST=30
                     DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                     0       5       10      0      20     0      30     5
UTE MCUNGE           ID=5  HYD=DIV1  INFLOW ID=50  DT=0HR  L=2500
                     NS=0   SLOPE=0.004   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=5  CODE=10
*
 SEDIMENT BULK        CODE=1   BULK FACTOR=1.025

  COMPUTE HYDROGRAPH FOR BASIN L12.9W
COMPUTE NM HYD       ID=2       HYD=L12.9W   DA=0.1016 SQ MI
                     PER A=0  PER B=23  PER C=24  PER D=53
                     TP=-0.133    RAIN=-1
INT HYD              ID=2       CODE=10

*S  FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.9W
ADD HYD              ID=4     HYD=DIV2
                     ID=2      ID=5
INT HYD              ID=4     CODE=10

*S  ROUTE IN PROPOSED PETROGLYPH DIVERSION
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                     MIN EL=0    MAX EL=5
                     CH SLP=0.004  FP SLP=0.004
                     N=0.015       DIST=30
                     DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                     0       5       10      0      20     0      30     5
OUTE MCUNGE          ID=5  HYD=DIV3  INFLOW ID=4  DT=0HR  L=1500
                     NS=0   SLOPE=0.004   MATCODE=0  REGCODE=0  CCODE=0
 INT HYD             ID=5  CODE=10
*
* SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
*S
   COMPUTE HYDROGRAPH FOR BASIN L12.11
MPUTE NM HYD         ID=1       HYD=L12.11   DA=0.2734 SQ MI
                     PER A=2  PER B=13  PER C=18  PER D=67
                     TP=-0.471    RAIN=-1
PRINT HYD            ID=1       CODE=10

   ROUTE L12.11 THROUGH L12.12W TO PROPOSED PETROGLYPH DIVERSION
OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                     MIN EL=0    MAX EL=5
                     CH SLP=0.0189 FP SLP=0.0189
                     N=0.015       DIST=30
                     DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                     0       5       10      0      20     0      30     5
ROUTE MCUNGE         ID=49  HYD=L12.12_1  INFLOW ID=1  DT=0HR  L=1900
                     NS=0   SLOPE=0.0189   MATCODE=0  REGCODE=0  CCODE=0
 INT HYD             ID=49   CODE=10
```

```
*
 SEDIMENT BULK         CODE=1    BULK FACTOR=1.025
;
;  COMPUTE HYDROGRAPH FOR BASIN L12.12W
COMPUTE NM HYD       ID=2       HYD=L12.12W   DA=0.1415 SQ MI
                     PER A=4   PER B=21   PER C=23   PER D=52
                     TP=-0.301     RAIN=-1
 RINT HYD            ID=2        CODE=10

ADD HYD               ID=3      HYD=DIV4
                      ID=2       ID=5
 RINT HYD             ID=3      CODE=10


*S  FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.12W
ADD HYD               ID=2      HYD=DIV5
                      ID=3       ID=49
 RINT HYD             ID=2      CODE=10

*S ROUTE FLOW THROUGH PROPOSED MIREHAVEN A2 DAM
*S   PRINCIPAL SPILLWAY 1-36" RCP
 ROUTE RESERVOIR      ID=30  HYD=MA2POND
                     INFLOW ID=2    CODE=10
                     OUTFLOW            STORAGE          ELEV
*                    (CFS)               (AC-FT)         (FT)
*                     0                   0              5718
*                     18                  0.24           5720
                      80                  3.65           5725
                      110                13.37           5730
*                     170                35.50           5735
*PRINT HYD             ID=30    CODE=10
*S for FINAL2D.HYM increase storage by 3.4x.
;   PRINCIPAL SPILLWAY 1-54" RCP
 )UTE RESERVOIR      ID=30  HYD=MA2POND
                     INFLOW ID=2    CODE=10
                     OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                      0                   0              5718
                      28                  .82            5720
                      177                12.41           5725
                      265                45.46           5730
                      320               120.70           5735
 RINT HYD             ID=30    CODE=10


*S  ROUTE IN PROPOSED PETROGLYPH DIVERSION THRU BASIN L12.14 to dike (3c.1)
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                      MIN EL=0     MAX EL=5
                      CH SLP=0.0344   FP SLP=0.0344
                      N=0.015        DIST=30
                      DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
                      0        5        10       0       20      0       30      5
 )UTE MCUNGE          ID=5   HYD=DIV6   INFLOW ID=30   DT=0HR   L=8000
                      NS=0    SLOPE=0.0344    MATCODE=0   REGCODE=0   CCODE=0
 RINT HYD             ID=5   CODE=10
*S
*  SEDIMENT BULK        CODE=1    BULK FACTOR=1.025
;
;  COMPUTE HYDROGRAPH FOR BASIN L12.14
          MIREHAVEN "B" ARROYO
COMPUTE NM HYD       ID=2       HYD=L12.14    DA=0.4016 SQ MI
                     PER A=27   PER B=28   PER C=17   PER D=28
                     TP=-0.294     RAIN=-1
 RINT HYD            ID=2        CODE=10

*S  FLOW IN PROPOSED PETROGLYPH DIVERSION AT confluence of B and C
ADD HYD               ID=19      HYD=Bconf_C
                      ID=2       ID=5
 RINT HYD             ID=19      CODE=10

*S  COMPUTE HYDROGRAPH FOR BASIN L12.15
COMPUTE NM HYD       ID=1       HYD=L12.15    DA=0.4391 SQ MI
                     PER A=2   PER B=21   PER C=23   PER D=54
                     TP=-0.449    RAIN=-1
 RINT HYD            ID=1        CODE=10
*
*S  ROUTE L12.15 THRU L12.16W TO PROPOSED PETROGLYPH DIV VIA MIREHAVEN "C"
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                      MIN EL=0     MAX EL=5
                      CH SLP=0.0123 FP SLP=0.0123
                      N=0.015        DIST=30
                      DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
                      0         5       10       0       20      0       30      5
 )UTE MCUNGE          ID=50  HYD=L12.16_1  INFLOW ID=1    DT=0HR   L=2400
                      NS=0    SLOPE=0.0123    MATCODE=0   REGCODE=0   CCODE=0
 COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
*                      MIN EL=0     MAX EL=10
*                      CH SLP=0.0346   FP SLP=0.0346
                      N=0.015        DIST=50
                      DIST     ELEV     DIST     ELEV    DIST    ELEV    DIST    ELEV
                      0         10       20       10      30      0       50      10
*ROUTE MCUNGE         ID=1   HYD=L12.16_1   INFLOW ID=50   DT=0HR   L=2000
*                     NS=0    SLOPE=0.0346    MATCODE=0   REGCODE=0   CCODE=0
 RINT HYD            ID=50   CODE=10
```

```
*
 SEDIMENT BULK         CODE=1    BULK FACTOR=1.025
S
S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.16
COMPUTE NM HYD       ID=2       HYD=L12.16    DA=0.8547 SQ MI
                     PER A=15   PER B=21   PER C=21   PER D=43
                     TP=-0.326     RAIN=-1
RINT HYD             ID=2        CODE=10
*
*S  NEXT COMPUTE HYDE FOR COMPUTATIONAL ONLY
OMPUTE NM HYD        ID=47       HYD=L12.16ER    DA=0.096 SQ MI
                     PER A=94   PER B=1   PER C=5   PER D=0
                     TP=-0.075     RAIN=-1
PRINT HYD            ID=47        CODE=10


S  ADD L12.16 TO ROUTED L12.15
DD HYD                ID=4   HYD=L12.16W_1
                      ID=2   ID=50
PRINT HYD             ID=4   CODE=1

S ROUTE FLOW THROUGH PROPOSED C DAM
S   PRINCIPAL SPILLWAY 54" RCP (ORIGINALLY 42" IN OPTION 2C;
* INCREASED STORAGE BY 1.1 TIMES
ROUTE RESERVOIR      ID=3  HYD=CPOND
                     INFLOW ID=4    CODE=10
                     OUTFLOW            STORAGE          ELEV
                     (CFS)               (AC-FT)         (FT)
                      0                   0              5625
                      24                  5.9            5627
                      120                 15.0           5630
                      240                 40.2           5635
                      280                 73.9           5640
                       198                117.8           5645
*                      246                229.2           5655
PRINT HYD            ID=3      CODE=10

S  ROUTE OUTFLOW IN MIREHAVEN C THRU NAT MON TO CONFLUENCE OF MIREHAVEN B & C.
OMPUTE RATING CURVE  ID=3     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=7.0
                     CH SLP=0.0345 FP SLP=0.0345
                     N=0.030        DIST=300
                     DIST     ELEV     DIST     ELEV
                     0        7        110       2       120      0
                     180       0       190       2       300       7
ROUTE MCUNGE         ID=2  HYD=L12.16E_1.5  INFLOW ID=3  DT=0HR  L=4100
                     NS=0   SLOPE=0.0345  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=2      CODE=10

* SEDIMENT BULK         CODE=1    BULK FACTOR=1.045
*S  COMPUTE HYDROGRAPH FOR BASIN L12.9E
OMPUTE NM HYD        ID=89       HYD=L12.9E    DA=0.5578 SQ MI
                     PER A=45   PER B=19   PER C=11   PER D=25
                     TP=-0.332     RAIN=-1
PRINT HYD            ID=89        CODE=10
*
S  ROUTE L12.9E THROUGH L12.12E
OMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=0     MAX EL=7.0
                     CH SLP=0.0133 FP SLP=0.0133
                     N=0.030        DIST=300
                     DIST     ELEV     DIST     ELEV
                     0        7        110       2       120      0
                     180       0       190       2       300       7
ROUTE MCUNGE         ID=49  HYD=L12.12_3  INFLOW ID=89  DT=0HR  L=1125
                     NS=0   SLOPE=0.0133   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=49    CODE=10

SEDIMENT BULK         CODE=1    BULK FACTOR=1.05
*S  COMPUTE HYDROGRAPH FOR BASIN L12.12E
COMPUTE NM HYD       ID=92       HYD=L12.12E    DA=0.2116 SQ MI
                     PER A=62    PER B=8    PER C=10   PER D=20
                     TP=-0.183     RAIN=-1
INT HYD              ID=92        CODE=10

*S  ADD L12.12E TO ROUTED L12.9E
ADD HYD               ID=93  HYD=L12.12_4
                      ID=49  ID=92
INT HYD               ID=93  CODE=1

*S  COMPUTE HYDROGRAPH FOR BASIN L12.10
COMPUTE NM HYD       ID=4       HYD=L12.10    DA=0.2219 SQ MI
                     PER A=83   PER B=11   PER C=6   PER D=0
                     TP=-0.242     RAIN=-1
RINT HYD             ID=4        CODE=10
*
*
 ADD L12.10 TO mirehaven
D HYD                 ID=96  HYD=L12.10_1
                      ID=93  ID=4
PRINT HYD             ID=96  CODE=1
*
 ROUTE THROUGH L12.13 --
```

```
COMPUTE RATING CURVE  ID=97    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=7.0
                      CH SLP=0.0211 FP SLP=0.0211
                      N=0.030       DIST=300
                      DIST    ELEV    DIST    ELEV
                      0       7       110      2      120     0
                      180      0      190      2      300      7
 OUTE MCUNGE          ID=49  HYD=L12.13_1  INFLOW ID=96  DT=0HR  L=3525
                      NS=0   SLOPE=0.0211   MATCODE=0  REGCODE=0  CCODE=0
COMPUTE RATING CURVE  ID=2    VS NO=2   SEG NO=1
                      MIN EL=0    MAX EL=7.0
                      CH SLP=0.5231 FP SLP=0.5231
                      N=0.030       DIST=300
                      DIST    ELEV    DIST    ELEV
                      0       7       110      2       120     0
                      180      0       190     2       300      7
 OUTE MCUNGE          ID=4  HYD=L12.13_1  INFLOW ID=49  DT=0HR  L=350
                      NS=0   SLOPE=0.5231   MATCODE=0  REGCODE=0  CCODE=0
 OMPUTE RATING CURVE  ID=3    VS NO=3   SEG NO=1
                      MIN EL=0    MAX EL=7.0
                      CH SLP=0.0600 FP SLP=0.0600
                      N=0.030       DIST=300
                      DIST    ELEV    DIST    ELEV
                      0       7       110      2        120     0
                      180     0       190      2       300      7
ROUTE MCUNGE          ID=50  HYD=L12.13_1  INFLOW ID=4  DT=0HR  L=250
                      NS=0   SLOPE=0.0600   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD             ID=50     CODE=10
 S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.13
COMPUTE NM HYD        ID=1      HYD=L12.13   DA=0.2609 SQ MI
                      PER A=94  PER B=1  PER C=5  PER D=0
                      TP=-0.234    RAIN=-1
 RINT HYD             ID=1       CODE=10

*S  ADD ROUTED L12.10 & L12.13
*S  TOTAL MIREHAVEN "A" ARROYO FLOW AT BASE OF ESCARPMENT
 D HYD                ID=4       HYD=L12.13_2
                         ID=1       ID=50
 RINT HYD             ID=4       CODE=10
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L12.17
 OMPUTE NM HYD        ID=1      HYD=L12.17   DA=0.2031 SQ MI
                      PER A=32  PER B=41  PER C=16  PER D=11
                      TP=-0.196    RAIN=-1
PRINT HYD             ID=1       CODE=10
*
 S  ADD  L12.14-16 & L12.17  --  FLOW AT LADERA TRAINING DIKE
 D HYD                ID=60       HYD=DIKE0
                         ID=19       ID=2
*
ADD HYD               ID=2       HYD=DIKE
                         ID=60       ID=1

 UNCH HYD             ID=2       CODE=1
PRINT HYD             ID=2       CODE=10
*
 S  ROUTE COMBINED (L12.14-L12.17) IN MIREHAVEN ARROYO DNSTREAM FROM TRNG DIKE
 S    TO CONFLUENCE WITH MIREHAVEN "A" ARROYO BELOW ESCARPMENT
  TYPICAL CROSS SECTION D
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=5.0
                      CH SLP=0.0332 FP SLP=0.0332
                      N=0.030       DIST=400
                      DIST    ELEV    DIST    ELEV
                      0       5       130      2      140     0
                      260     0       270      2      400     5
 OUTE MCUNGE          ID=50  HYD=L12.18_1   INFLOW ID=2  DT=0HR  L=2950
                      NS=0   SLOPE=0.0332   MATCODE=0  REGCODE=0  CCODE=0
 INT HYD              ID=50     CODE=10
*
*S  ADD  L12.14-17 & L12.10-13
*S  TOTAL FLOW MIREHAVEN A, B, C ARROYOS BELOW ESCARPMT, DNSTRM FROM TR DIKE
 D HYD                ID=3       HYD=L12.18_2
                      ID=4       ID=50
RINT HYD              ID=3       CODE=10
*
*S  ROUTE L12.3-17 THROUGH MIREHAVEN ARROYO TO INTERSECTN W/FUTURE 98TH ST
 S  LTOT=4625 FT.  1ST 1300' IN PETROG NM, NAT CHAN.  LAST PART IS CONC CHAN.
  NATURAL PART IS TYPICAL CROSS SECTION D
OMPUTE RATING CURVE   ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=5.0
                      CH SLP=0.0221 FP SLP=0.0221
                      N=0.030       DIST=400
                      DIST    ELEV    DIST    ELEV
                      0       5       130      2      140     0
                      260     0       270      2      400     5
ROUTE MCUNGE          ID=4  HYD=L12.18_3  INFLOW ID=3  DT=0HR  L=1300
                      NS=0   SLOPE=0.0221   MATCODE=0  REGCODE=0  CCODE=0
 OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                      MIN EL=0    MAX EL=5.0
                      CH SLP=0.0221 FP SLP=0.0221
                      N=0.015       DIST=30
                      DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
```

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                    0       5       10      0       20      0       30      5
 )UTE MCUNGE        ID=50  HYD=L12.18_3  INFLOW ID=4  DT=0HR  L=3325
                    NS=0   SLOPE=0.0221   MATCODE=0  REGCODE=0  CCODE=0
 .RINT HYD          ID=50     CODE=10
*
* SEDIMENT BULK       CODE=1   BULK FACTOR=1.050
;
;  COMPUTE HYDROGRAPH FOR BASIN L12.18
 OMPUTE NM HYD      ID=1      HYD=L12.18   DA=0.5141 SQ MI
                    PER A=42  PER B=21  PER C=21  PER D=16
                    TP=-0.239    RAIN=-1
 RINT HYD           ID=1       CODE=10
;
;  ADD  L12.3-17 & L12.18 --  TOTAL FLOW IN MIREHAVEN AT FUTURE 98TH STREET
*   POSSIBLE LADERA WEST DAM SITE
ADD HYD             ID=2       HYD=L12.18_4
                    ID=1       ID=50
 RINT HYD           ID=2       CODE=10
;
**********************************************************************************
* RAINFALL FOR BASINS ABOVE DAM 12 AND BELOW "LADERA WEST DAM"
 AINFALL            TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.78
                    RAIN SIX=2.28  RAIN DAY=2.71 DT=.05
**********************************************************************************
*
* SEDIMENT BULK       CODE=1   BULK FACTOR=1.028
*S
;  COMPUTE HYDROGRAPH FOR BASIN L12.19
 OMPUTE NM HYD      ID=1      HYD=L12.19   DA=0.1844 SQ MI
                    PER A=2   PER B=31  PER C=33  PER D=34
                    TP=-0.141    RAIN=-1
PRINT HYD           ID=1       CODE=10

;  ROUTE L12.19 TO MIREHAVEN ARROYO
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=5
                    CH SLP=0.0083 FP SLP=0.0083
                    N=0.015       DIST=30
                    DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                    0       5       10      0      20     0      30     5
ROUTE MCUNGE        ID=50  HYD=L12.19_2  INFLOW ID=1  DT=0HR  L=1200
                    NS=0   SLOPE=0.0083   MATCODE=0  REGCODE=0  CCODE=0
 INT HYD            ID=50      CODE=10

;  ADD  L12.3-18 & L12.19 --  TOTAL FLOW IN MIREHAVEN AT FUTURE 98TH STREET
ADD HYD             ID=2       HYD=L12.18_5
                    ID=2       ID=50
 INT HYD            ID=2       CODE=10

**********************************************************************************
* RAINFALL FOR BASINS ABOVE DAM 12 AND BELOW "LADERA WEST DAM"
*RAINFALL             TYPE=2  RAIN QUARTER=0.0  RAIN ONE=1.90
                     RAIN SIX=2.20  RAIN DAY=2.65 DT=.05
**********************************************************************************
;  ROUTE COMBINED (L12.13-L12.19) IN MIREHAVEN THRU L12.20 TO DAM#12
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=5.0
                    CH SLP=0.0289 FP SLP=0.0289
                    N=0.015       DIST=30
                    DIST    ELEV    DIST    ELEV   DIST   ELEV   DIST   ELEV
                    0       5       10      0      20     0      30     5
ROUTE MCUNGE        ID=51  HYD=L12.20_1  INFLOW ID=2  DT=0HR  L=3500
                    NS=0   SLOPE=0.0289   MATCODE=0  REGCODE=0  CCODE=0
 INT HYD            ID=51      CODE=10

* SEDIMENT BULK       CODE=1   BULK FACTOR=1.025
*S
;  COMPUTE HYDROGRAPH FOR BASIN L12.20
 MPUTE NM HYD       ID=1      HYD=L12.20   DA=0.3422 SQ MI
                    PER A=13  PER B=18  PER C=23  PER D=46
                    TP=-0.165    RAIN=-1
PRINT HYD           ID=1       CODE=10
*
;  DIVIDE L12.20 HYD
 VIDE HYD           ID=1       Q=-.5
                    ID=4       HYD=L12.20_3
                    ID=2       HYD=L12.20_4
*

;  ADD TO FLOW FROM DAM #10
ADD HYD             ID=10      HYD=TO_DAM11
                    ID=4       ID=9
PRINT HYD           ID=10      CODE=10

;  ROUTE FLOW THROUGH DAM #11
 OUTE RESERVOIR     ID=9       HYD=POND11
*                   INFLOW ID=10      CODE=10
*                   OUTFLOW       STORAGE          ELEVATION
                     (CFS)        (AC/FT)            (FT)
                       0            0                5225
                       8            4                5228
*                     37           17                5232
*                     47           29                5234.7
                     282           33                5236
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*                    503          36.17          5236.5
S  ENLARGE POND STORAGE 1.6 TIMES FOR I-40 DMP OPTIONS   (NM 6/03/96)
OUTE RESERVOIR      ID=9       HYD=POND11
                    INFLOW ID=10      CODE=10
                    OUTFLOW       STORAGE          ELEVATION
                     (CFS)        (AC/FT)            (FT)
                       0             0               5225
                       8             6.4             5228
                      37            27.2             5232
                      47            46.4             5234.7
                     282            52.8             5236
                     503            57.9             5236.5
RINT HYD            ID=9       CODE=10

*S  ROUTE OVERLAND FLOW FROM DAM #11 THROUGH  BASIN L12.20
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                    MIN ELEV=0     MAX ELEV=5
                    CH SLP=.021    FP SLP=.027
                    N=.030         DIST=50
                    DIST     ELEV     DIST     ELEV     DIST     ELEV
                     0        5        15       0        35       0
                    50        5
OUTE MCUNGE         ID=10  HYD=L12.20_6  INFLOW ID=9  DT=0HR  L=2150
                    NS=0   SLOPE=0.021   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=10     CODE=10
**S PLOT1
*PLOT HYD           ID=10  ID=0   Q SCALE=3000   T SCALE=6
S
S  ADD SECOND HALF OF FLOW FROM L12.20 TO MIREHAVEN CHAN
*S  TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
ADD HYD             ID=3     HYD=L12.20_7
                    ID=2       ID=51
RINT HYD            ID=3     CODE=10
S PLOT2  HYD=L12.20_7   TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
PLOT HYD            ID=3   ID=0   Q SCALE=3000   T SCALE=6
*S
*S  COMBINED MIREHAVEN AND DAM #11 OUTFLOW -- TOTAL FLOW INTO DAM #12
D HYD               ID=9     HYD=TO_DAM12
                    ID=3     ID=10
PRINT HYD           ID=9     CODE=10
*S PLOT3
PLOT HYD            ID=9  ID=0   Q SCALE=3000   T SCALE=6

S
S   ROUTE FLOW THROUGH POND #12
*
*S*** LADERA POND 12 - EXISTING CHARACTERISTICS
S***
S**
S**FLOW DATA FROM CAPACITY CHARTS: US DEPARTMENT OF COMMERCE
****2-36" PIPES AND 6-42" PIPES
****
S**
S**
S**                      .....DISCHARGE.....      STORAGE
****                    PIPE   SPILLWAY   TOTAL      AC-FT      ELEV
****
S**   OUTLET CONDUIT      0                 0          0       5202
S**                      71                71         2.0     5203
S**                     198               198         6.65    5204
****                    360               360        11.3     5205
****                    512               512        17.82    5206
S**   WEIR              670               670        24.34    5207
S**                     718         1     719        27.6     5207.5
S**                     776        22     798        30.86    5208
****                    826        65     891        34.12    5208.5
****                    880       125    1005        36.73    5209
S**                     960       293    1253        43.9     5210
S**                     992       335    1327        45.85    5210.2
S**                    1038       527    1565        52.74    5211
****  SPILLWAY         1058       610    1668        55.4     5211.3
****                   1140      2893    4033        66.79    5212.5
****                   1248      8016    9264        75.74    5214
S**                    1360     17404   18764        91.48    5216
S**   TOP OF DAM       1420     23000   24420        99.65    5217
*  CALCULATED NEW STORAGE BASED ON AREAS OBTAINED BY DIGITIZING NEW CONTOURS
*     FOR ELEVATIONS 02, 03, 05, 09, 10, AND 11.3 IN DIGIMAP (1/96)
*  PLOT HYD            ID=10

S************** Data from RP Weir (Weir 2)  *************
*
********************* BIG FOOT POND (NEW STORAGE DATA)*********
*
OUTE RESERVOIR      ID=10  HYD=POND12
                    INFLOW ID=9  CODE=10
                    OUTFLOW           STORAGE          ELEV
*                   (CFS)              (AC-FT)         (FT)
*                      0                 0            5202
                      71                29.0         5203
                     360                87.0         5205
                     512               115.9         5206
*                    671               144.9         5207
*                    798               173.9         5208
                    1005               202.9         5209
```

```
*                    1327              237.6          5210.2
                     1565              260.8          5211
                     1668              269.5          5211.3
                     4033              308.8          5212.5
*                    9264              357.9          5214
*                   18764              423.3          5216
                    24420              456.1          5217
**************************************************************************
  NEW OUTFLOW DATA PER JASON W/ BIGFOOT STORAGE
*  MODIFIED WEIR TO DIVERT 1354 CFS TO I-40
*  JTN 7/9/96
***PIPE FLOW DATA FROM CAPACITY CHARTS: US DEPARTMENT OF COMMERCE
***2-36" PIPES AND 6-42" PIPES
***
****
****
***                        .....DISCHARGE.....      STORAGE
***                       PIPE   SPILLWAY   TOTAL      AC-FT      ELEV
***
****   OUTLET CONDUIT       0                 0          0       5202
****                       71                71          2.0     5203
***                       198               198          6.65    5204
***                       360               360         11.3     5205
***                       512               512         17.82    5206
****   WEIR               670         1      671         24.34    5207
****                      718        45      763         27.6     5207.5
***                       776       131      907         30.86    5208
***                       826       246     1072         34.12    5208.5
***                       880       388     1268         36.73    5209
****                      960       746     1706         43.9     5210
****                      992       829     1821         45.85    5210.2
***                      1038      1200     2238         52.74    5211
**    SPILLWAY           1058      1354     2412         55.4     5211.3
***   TOP OF DAM         1420     23000    24420         99.65    5217

******                STORAGE = EXSITING X 1.0        *******
*S MODIFIED TO REMOVE PROPOSED DIVERSION TO I-40
  66" PIPE
  OUTFLOW           ELEVATION
  (CFS)               (FT)
*   0                 5201
*  15                 5202
   35                 5203
  100                 5205
  180                 5207
* 215                 5208
* 248                 5209
  280                 5210.2
  310                 5211.3
S DIVERSION TO I-40 THUR 1 - 66" GROOVE EDGE PIPE
ROUTE RESERVOIR     ID=10  HYD=POND12
                    INFLOW ID=9  CODE=10
                    OUTFLOW          STORAGE          ELEV
                    (CFS)             (AC-FT)         (FT)
                         0               0.0         5201
                        15               0.1         5202
                        35               2.0         5203
                       100              11.3         5205
                       180              28.8         5207
                       215              32.5         5208
                       248              36.2         5209
                       280              45.7         5210.2
                       310              55.4         5211.3
                      4033              67.5         5212.5
                      9264              75.7         5214
                     18764              91.48        5216
                     24420              99.65        5217
PRINT HYD           ID=10    CODE=10

; PLOT4
PLOT HYD          ID=10  ID=0   Q SCALE=3000   T SCALE=6
*
*** 100-YEAR SPILLWAY ELEVATION 5211.3

*** DIVERT 120 CFS FROM DAM 12 TO I-40; REST OF DAM 12 OUTFLOW GOES TO DAM 13
****
DIVIDE HYD          ID=10    MAX=120
                    ID=37    HYD=blufdiv
                    ID=38    HYD=ladera
PRINT HYD           ID=38    CODE=10
PRINT HYD           ID=37    CODE=10
*S PLOT6 LADERA CHANNEL
PLOT HYD            ID=38  ID=0   Q SCALE=3000   T SCALE=6


**************************************************************************
*S*     CALCULATE TOTAL FLOW IN 98TH STREET STORMDRAIN
**************************************************************************

  ADD DAM 5 DIVERSION FLOW AND ROUTED ST.3
ADD HYD             ID=98   HYD=98STFLOW
*                   ID=73      ID=19
*PRINT HYD          ID=98    CODE=1
```

```
*S*     ROUTE  98TH STREET FLOW DOWN 98TH STREET TO 98TH STREET POND
*S*     ROUTE FLOW IN 72" SD PIPE
OMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.005
                     DIA=72 IN   N=.013
ROUTE MCUNGE         ID=50 HYD=98RT INFLOW ID=19 DT=0HR L= 1702.71
                     NS=0  SLOPE=0.005   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=50 CODE=0


*S**** COMPUTE BASIN ST.5 ****
*
OMPUTE NM HYD        ID=16 HYD NO=ST.5 DA=0.0476
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=0.133 RAIN=-1
PRINT HYD            ID=16 CODE=1


*S*     ROUTE  ST.5 ALONG TOP OF BASIN ST.6 TO 98TH STREET BOXES
*S*     ROUTE FLOW IN 36" SD PIPE
*COMPUTE RATING CURVE  CID=1  VS NO=1   CODE=-1  SLOPE=0.043
*                     DIA=36 IN   N=.013
ROUTE MCUNGE         ID=18 HYD=RTST.3 INFLOW ID=16 DT=0HR L= 1159.37
                     NS=0  SLOPE=0.043   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=18 CODE=0

*S**** COMPUTE BASIN ST.6 ****
*S*
OMPUTE NM HYD        ID=21 HYD NO=ST.6 DA=0.0538
                     PER A=0 PER B=5 PER C=5 PER D=90
                     TP=0.133 RAIN=-1
PRINT HYD            ID=21 CODE=1

S ADD BASIN ST.5 BEFORE ROUTE THROUGH 98TH STREET SURGE POND
DD HYD               ID=18   HYD=98STPONDIN
                     ID=16      ID=21
PRINT HYD            ID=18    CODE=1

*S*     ROUTE ST.6 THROUGH EXISTING CULVERT AT 98TH STREET INTERCHANGE
*S*     FLOW CONNECTS INTO I40 SYSTEM
S       ROUTE OUTFLOW THRU 1- 4x6 CBC
COMPUTE RATING CURVE ID=1      VS NO=1     NO SEGS=1
                     MIN EL=0   MAX EL=4
                     CH SLP=0.023    FP SLOPE=0.023
                     N=0.015       DIST=6.02
                     DIST   ELEV   DIST   ELEV    DIST   ELEV
                     0      4      0.01   0       6.01   0
                    6.02    4
OUTE MCUNGE          ID=88  HYD=ST.6OUT   INFLOW ID=18   DT=0HR  L=60
                     NS=0  SLOPE=.023   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=88       CODE=10


S  DIVIDE FLOW FROM 72" SD INTO 42" SD CAPACITY AND EXCESS TO SURGE POND
IVIDE HYD            ID=76       Q=129        ID=21      HYD=maxflow42"SD
                                              ID=16      HYD=42"SDoverflow
PRINT HYD            ID=21      CODE=1


S ROUTE THROUGH DUMMY POND TO EXTEND OUTPUT TIME
OUTE RESERVOIR        ID=99   HYD=TEMP INFLOW ID=21 CODE=4.4
                     OUTFLOW (CFS)       STORAGE (AC-FT)   ELEV (FT)
                      0                  0                 5284
                      200                1                 5285
                      201                1.5               5286
                      202                1.6               5287
                      203                1.7               5288
                      204                1.8               5289
                      205                1.9               5290
                      206                2                 5291

PRINT HYD            ID=99  CODE=1



PRINT HYD            ID=16      CODE=5


   ADD ST.6 AND I40 POND INFLOW
ADD HYD              ID=30   HYD=I40ST.6
                     ID=16      ID=88
PRINT HYD            ID=30    CODE=10


S* ROUTE FLOW THROUGH SURGE POND **
*S  SUBTRACTED CAPACITY OF THE PIPE (131CFS) FROM OUTFLOW TO ACCOUNT
*S  FOR SURGE POND CONDITIONS
S   USED 42" PIPE
OUTE RESERVOIR        ID=88   HYD=98SURGE INFLOW ID=30 CODE=1
                     OUTFLOW (CFS)       STORAGE (AC-FT)   ELEV (FT)
                      0                  0                 5280
                      0.01               1.78              5281
                      0.02               3.67              5282
```

```
                                0.03            5.69            5283
                                0.04            7.83            5284
                                0.05            10.1            5285
                                0.06            12.5            5286
                                0.07            15.02           5287
                                0.08            17.68           5288
                                0.09            20.49           5289
                                0.1             23.44           5290
                                0.2             26.54           5291
                                1.0             29.79           5292
                                2.0             31.44           5292.5
                0               0               5280
                0.01            1.6             5281
                0.02            3.55            5282
*               0.03            5.63            5283
*               0.04            7.83            5284
                0.05            10.16           5285
                0.06            12.62           5286
                0.07            15.21           5287
*               0.08            17.94           5288
*               0.09            20.81           5289
                0.1             23.81           5290
                0.11            26.96           5291
                0.8             30.26           5292
*               2.28            33.7            5293
*               3.75            37.29           5294
PRINT HYD               ID=88  CODE=10
*
*  ADD SURGE FLOW OUTFLOW BACK TO SD FLOW
*
ADD HYD                 ID=30 HYD=48INTOT ID I=99 ID II=88
PRINT HYD               ID=30  CODE=10

***** FLOW REACHING IN8 ****
*S*
COMPUTE NM HYD          ID=16 HYD NO=IN8 DA=0.00126
                        PER A=0 PER B=0 PER C=42.53 PER D=57.47
                        TP=0.133 RAIN=-1
PRINT HYD               ID=16 CODE=1

*S* ADD FLOW FROM IN8 AND FLOW LEAVING THE SURGE POND
ADD HYD                 ID=88  HYD=EATO
                        ID=16  ID=30
PRINT HYD               ID=88  CODE=1
*
*S*     ROUTE FLOW TO WHERE SD EMPTIES INTO CHANNEL
*S*     ROUTE FLOW IN 48" SD PIPE
COMPUTE RATING CURVE    CID=1  VS NO=1   CODE=-1  SLOPE=0.0158
                        DIA=48 IN   N=.013
ROUTE MCUNGE            ID=30 HYD=RT98TH INFLOW ID=88 DT=0HR L= 2245
                        NS=0  SLOPE=0.0158   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=30 CODE=0



*
*S**** COMPUTE BASIN ST.7 ****
*S*
COMPUTE NM HYD          ID=17 HYD NO=ST.7 DA=0.129
                        PER A=0 PER B=5 PER C=5 PER D=90
                        TP=0.133 RAIN=-1
PRINT HYD               ID=17 CODE=1


*  ADD ST.7 AND 98TH STREET FLOW
ADD HYD                 ID=20   HYD=ST.7TOT
                        ID=17      ID=50
PRINT HYD               ID=20    CODE=1


*S  ADD COMBINED FLOW TO ROUTED ST.5
*S  TOTAL 98TH STREET BOXES INFLOW**
ADD HYD                 ID=23   HYD=ST.6TOT
                        ID=20      ID=18
PRINT HYD               ID=23    CODE=1



*S  ROUTE OUTFLOW THRU 2- 10x8 CBC UNDER 98TH ST
*   SLOPE OF 98TH ST CBC'S FROM SCANLON PLANS FOR I40 INTERCEPTOR
COMPUTE RATING CURVE ID=1       VS NO=1      NO SEGS=1
                        MIN EL=0   MAX EL=8
                        CH SLP=0.022    FP SLOPE=0.022
                        N=0.015        DIST=20.03
                        DIST   ELEV   DIST   ELEV    DIST   ELEV
                        0      8      0.01   0       10.01  0
                        10.02  8      10.03  0       20.02  0
                        20.03  8
ROUTE MCUNGE            ID=2  HYD=98THSUM   INFLOW ID=23   DT=0HR  L=210
                        NS=0  SLOPE=.022   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD               ID=2       CODE=10
```

```
S  ROUTE FLOW FROM 98TH STREET BOXES THROUGH ST.8 TO I40 CHANNEL
S  ROUTE FLOW THROUGH CONCRETE CHANNEL

COMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1  ELMIN=0  ELMAX=6
                     CH SLP=0.016  FP SLP=0.016   N=0.013   STA=34
                     DIST     ELEV      DIST      ELEV       DIST      ELEV
                     0        6         12        0          22         0
                     34       6
ROUTE MCUNGE         ID=20  HYD=40BOX   INFLOW ID=2   DT=0HR  L=2000
                     NS=0  SLOPE=0.016   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=20    CODE=10

S*  ADD I-40 DIVERSION FLOW TO 98TH STREET BOXES OUTFLOW
ADD HYD              ID=23   HYD=14098TH
                     ID=20     ID=30
RINT HYD             ID=23    CODE=1
S
S  ROUTE FLOW FROM 98TH STREET POND THROUGH ST.8 THROUGH I40 CHANNEL
*S  ROUTE FLOW THROUGH CONCRETE CHANNEL

OMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1  ELMIN=0  ELMAX=6
                     CH SLP=0.016  FP SLP=0.016   N=0.013   STA=34
                     DIST     ELEV      DIST      ELEV       DIST      ELEV
                     0        6         12        0          22         0
                     34       6
OUTE MCUNGE          ID=30  HYD=40POND   INFLOW ID=23   DT=0HR  L=1010
                     NS=0  SLOPE=0.016   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=30    CODE=10


S**** COMPUTE BASIN ST.8 ****
S*
OMPUTE NM HYD        ID=22 HYD NO=ST.8 DA=0.234
                     PER A=0.71 PER B=27.14 PER C=27.14 PER D=45.01
                     TP=0.133 RAIN=-1
RINT HYD             ID=22 CODE=1

S* ADD ST.8 TO I40 CHANNEL**

ADD HYD              ID=31   HYD=40ST.8RT
                     ID=22     ID=30
RINT HYD             ID=31    CODE=1


*S  ROUTE FLOW FROM ST.8 THROUGH ST.10 DOWN I40 CHANNEL TO UNSER BLVD.
OMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1
                     ELMIN=0  ELMAX=10
                     CH SLP=0.016  FP SLP=0.016
                     N=.013   STA=34
                     DIST     ELEV      DIST      ELEV       DIST      ELEV
                     0        6         12        0          22         0
                     34       6
OUTE MCUNGE          ID=30  HYD=RTST.8   INFLOW ID=31   DT=0HR  L=2000
                     NS=0  SLOPE=0.016   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=30    CODE=10

S**** COMPUTE BASIN ST.9 ****
S*
COMPUTE NM HYD       ID=23 HYD NO=ST.9 DA=0.1024
                     PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                     TP=0.133 RAIN=-1
RINT HYD             ID=23 CODE=1

*S**** ROUTE BASIN ST.9 ALONG 60"SD THROUGH ST.12 ALONG LADERA ****

OMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1  SLP=0.015
                     DIA=60 IN  N=0.013
OUTE MCUNGE          ID=24   HYD=RTST.9  INFLOW ID=23   DT=0 HR  L=1983.43
                     NS=0    SLOPE=0.015    MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=24 CODE=1

S**** COMPUTE BASIN ST.12 ****
S*
COMPUTE NM HYD       ID=25 HYD NO=ST.12 DA=0.0483
                     PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                     TP=0.133 RAIN=-1
RINT HYD             ID=25 CODE=1

*S* ADD ROUTED ST.9 AND BASIN ST.12**
ADD HYD              ID=26   HYD=ST9&12
                     ID=24     ID=25
RINT HYD             ID=26    CODE=1

S* ADD ROUTED ST.9 AND ST.12 FLOW TO POND #12 SPILLWAY**
*
ADD HYD              ID=24    HYD=INLADD
                     ID=26    ID=37
RINT HYD             ID=24    CODE=1


*S  ROUTE FLOW THROUGH PARKWAY SD TO UNSER
S* ROUTE THROUGH CHANNEL
```

```
COMPUTE RATING CURVE CID=1   VS NO=1   NO SEGS=1
                     ELMIN=0  ELMAX=10
                     CH SLP=0.016  FP SLP=0.016
                     N=.013   STA=50
                     DIST     ELEV      DIST      ELEV      DIST      ELEV
                     0        10        20        0         30        0
                     50       10
)UTE MCUNGE          ID=9  HYD=RTSPILL   INFLOW ID=24   DT=0HR  L=1215
PRINT HYD            ID=9    CODE=10


;**** COMPUTE BASIN ST.10 ****
*S* BASIN ST.10 WAS DIVIDED INTO THREE PARTS.  ST.10A IS COMBINED WITH THE LADERA DIVERSION AND COMBINED INTO THE PARKWAY
SD.
;* ST.10B IS DIVERTED TO THE HANOVER SD.  ST.10C IS ROUTED TO THE UNSER POND.
;*
;* COMPUTE BASIN ST.10C
COMPUTE NM HYD       ID=29 HYD NO=ST.10 DA=0.2788
                     PER A=10.36 PER B=25 PER C=25 PER D=39.64
                     TP=0.133 RAIN=-1
?INT HYD             ID=29 CODE=1


*S*  COMPUTE ST.10B
*;*
)MPUTE NM HYD        ID=67 HYD NO=ST.10B DA=0.0520
                     PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                     TP=0.133 RAIN=-1
PRINT HYD            ID=67 CODE=1


;  DIVIDE BASIN ST.10B
*S* PUT 82CFS INTO THE HANOVER SD.  REMAINDER GOES TO PARKWAY SD
DIVIDE HYD           ID=67     Q=82
                     ID=49     HYD=HANOVER
                     ID=37     HYD=PARKWAY
?INT HYD             ID=67 CODE=10


*S*  COMPUTE BASIN ST.10A
)MPUTE NM HYD        ID=1      HYD=ST.10A   DA=0.0485 SQ MI
                     PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                     TP=0.133    RAIN=-1
PRINT HYD            ID=1       CODE=10

;* ADD PORTION OF ST.10B AND ST.10A**

-DD HYD              ID=67    HYD= INLADD
                     ID=1    ID=37
PRINT HYD            ID=67    CODE=1


*S*  COMBINE ST.10 FLOW WITH PARKWAY FLOW
ADD HYD              ID=39    HYD= INLADD
                     ID=9    ID=67
?INT HYD             ID=39    CODE=1

*S* ROUTE THROUGH 84" PIPE TO I40 CHANNEL EAST OF UNSER

)MPUTE RATING CURVE CID=1 VS NO=1 CODE=-1  SLP=0.0135
                     DIA=84 IN  N=0.013
)UTE MCUNGE          ID=24   HYD=RTLAD  INFLOW ID=39   DT=0 HR  L=1477.52
PRINT HYD            ID=24 CODE=1


*S* ADD ST.10 TO I40 CHANNEL**
*S**** UNSER POND INFLOW ****
'DD HYD              ID=31     HYD=UNSERTOT
                     ID=29      ID=30
?INT HYD             ID=31    CODE=10


*;   ROUTE THROUGH UNSER POND FOR 790 CFS WEST MESA DIVERSION
     REVISED POND TO SET SPILLWAY CREST AT 5175.5  CWH 6/15/00
     OUTLET WORKS = 2 - 4' X 6' CBC'S UNDER UNSER BLVD.
*****   COPIED FROM WILSON MODEL **********
*** POND REDUCED BY FACTOR OF 0.62 OF ORIGINAL VOLUME CWH 6/15/00

)UTE RESERVOIR       ID=1  HYD=UNSERPOND
                     INFLOW ID=31   CODE=10
                     OUTFLOW          STORAGE          ELEV
                     (CFS)             (AC-FT)         (FT)

                          37.67        0               5169
                          84.55        2.92            5169.5
                         142.57        5.76            5170
                         113.7         8.67            5170.5
                         261.05       11.64            5171
                         368.19       14.67            5171.5
```

```
                    457.77          17.75           5172
                    553.7           20.89           5172.5
                    565.38          24.08           5173
                    576.82          27.33           5173.5
                    588.04          30.63           5174
                    599.05          33.99           5174.5
                    620.49          37.41           5175
                      0.0                   0.10            5169
                     6.0            0.88            5170
*                    37.0           5.29            5171
*                    66.0           7.62            5172
                     85.0           10.16           5173
                     128.0          12.86           5174
                     169.0          15.74           5175
*                    198.0          18.80           5176
*                    259.0          22.36           5177
                     318.0          26.79           5178
                     362.0          31.78           5179
                     435.0          36.95           5180
*                    474.0          42.32           5181
*                    497.0          47.88           5182
                     519.0          53.64           5183
                     540.0          59.62           5184
                     561.0          65.81           5185
*                     1632.0         72.85           5186
*                     3572.0         80.65           5187
                      6065.0         88.45           5188
                      9011.0         96.25           5189
                     12357.0        104.04           5190
*
*                   0               0.1             5169
                    32.16           0.88            5170
                    64.32           5.29            5171
                    212.3           7.62            5172
*                   274.08          10.16           5173
*                   324.28          12.86           5174
*                   367.7           15.74           5175
                    406.52          18.8            5176
                    441.92          22.36           5177
*                   474.7           26.79           5178
*                   458.62          31.78           5179
                    490.28          36.95           5180
                    520.02          42.32           5181
                    548.14          47.88           5182
                    574.9           53.64           5183
*                   600.46          59.62           5184

:INT HYD            ID=1    CODE=10

G  ROUTE FLOW THROUGH  6x4 CBC  2 BARRELS UNDER UNSER BLVD
*    SLOPE OF UNSER CBC'S FROM SCANLON PLANS FOR I40 INTERCEPTOR
COMPUTE RATING CURVE ID=1       VS NO=1      NO SEGS=1  MIN EL=0    MAX EL=4
                     CH SLP=0.017   FP SLOPE=0.017 N=0.015      DIST=12.01
                     DIST    ELEV    DIST    ELEV    DIST    ELEV
                     0       4       0.01    0       12.0    0
                    12.01    4

)UTE MCUNGE         ID=28  HYD=PUNSRT    INFLOW ID=1    DT=0HR  L=210
                    NS=0  SLOPE=.017    MATCODE=0  REGCODE=0  CCODE=0
:INT HYD            ID=28     CODE=10

*S
;**************************************************
;**************************************************
;* SECTION IS COPIED FROM WILSON MODEL FINAL_PU.HMI**
**************************************************
**************************************************
;
 ROUTE DAM DISCHARGE IN UNSER STORM DRAIN TO LAURELWOOD OUTLET
)MPUTE RATING CURVE ID=1    VS NO=1
                    CODE=-1    SLP=.010
                    DIA=72    N=.013
-)UTE MCUNGE        ID=72  HYD=610_4    INFLOW ID=28    DT=0HR  L=3200
                    NS=0  SLOPE=.010    MATCODE=0  REGCODE=0  CCODE=0
:INT HYD            ID=72    CODE=10

*S  COMPUTE OLF ABOVE AP 611A  NORTH SIDE OF I40 AT SPLITTER POND
COMPUTE NM HYD      ID=1  HYDNO=611.1  DA=.0141SQ MI
                    PER A=0    PER B=18     PER C=24     PER D=58
                    TP=-0.134    RAIN=-1
PRINT HYD           ID=1    CODE=10
*S PARKWAY STORM DRAIN
*S ADD BASIN 611 TO PARKWAY SD DISCHARGE
)D HYD              ID=92 HYD=108
                    ID=24 ID=1
PRINT HYD           ID=92 CODE=10

*S ROUTE PARKWAY SD THROUGH PROPOSED LOWER SURGE BASIN
 10 BOTTOM WEIR ELEV 5150-5155

S  ROUTE OLF FROM PARKWAY SD TO 611B USING CHANNEL SECTION
COMPUTE RATING CURVE ID=1    VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005    FP SLP=.005
```

```
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0    0       45      0
                    60      5.0

ROUTE MCUNGE        ID=93  HYD=193  INFLOW ID=92 DT=0HR  L=650
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=93   CODE=10
 ;
*S  COMPUTE HYD FOR BASIN 611B
COMPUTE NM HYD      ID=3  HYDNO=611.2   DA=0.0258 SQ MI
                    PER A=0   PER B=18    PER C=24    PER D=58
                    TP=-0.1409   RAIN=-1
 RINT HYD           ID=3   CODE=10

*S
   ADD BASIN 611B TO ROUTED CHANNEL FLOW
 DD HYD              ID=16 HYD=116
                     ID=93 ID=3
PRINT HYD           ID=16 CODE=10

 ;
 ;  ROUTE FLOW FROM 611B TO 611C
 OMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0    0       45      0
                    60      5.0
ROUTE MCUNGE        ID=93  HYD=193.1  INFLOW ID=16 DT=0HR  L=600
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=93   CODE=10

 S
*S  COMPUTE HYD FOR BASIN 611C
COMPUTE NM HYD      ID=4  HYDNO=611.3   DA=0.0156 SQ MI
                    PER A=0   PER B=18    PER C=24    PER D=58
                    TP=-0.1385    RAIN=-1
RINT HYD            ID=4   CODE=10

*S
 ; ADD 611C TO ROUTED FLOW FROM 611B
 DD HYD             ID=17 HYDNO=117
                    ID=93 ID=4
PRINT HYD           ID=17 CODE=10
*S
 ;  ROUTE FLOW FROM 611C TO 611D
 OMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0    0       45      0
                    60      5.0
ROUTE MCUNGE        ID=93  HYD=193.2  INFLOW ID=17 DT=0HR  L=500
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=93   CODE=10
 ;
 ;  COMPUTE HYD FOR BASIN 611D
COMPUTE NM HYD      ID=5 HYDNO=611.4   DA=0.0114SQ MI
                    PER A=0   PER B=18    PER C=24    PER D=58
                    TP=-0.1300    RAIN=-1
 RINT HYD           ID=5   CODE=10

*S ADD 611D TO ROUTED FLOW FROM 611C
ADD HYD             ID=18 HYDNO=118
                    ID=5  ID=93
 RINT HYD           ID=18 CODE=10

*S  ROUTE FLOW FROM 611D TO 617
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0    0       45      0
                    60      5.0
 UTE MCUNGE         ID=93  HYD=193.3  INFLOW ID=18 DT=0HR  L=550
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=93   CODE=10

*S  COMPUTE HYD FOR BASIN 617A
 MPUTE NM HYD       ID=4  HYD=617  DA=.0082 SQ MI
                    PER A=0  PER B=33  PER C=12  PER D=55
                    TP=-0.1340    RAIN=-1
PRINT HYD           ID=4   CODE=10

 ;
 ; ADD 617A TO ROUTED FLOW FROM 611D
 DD HYD             ID=19 HYDNO=119
                    ID=4  ID=93
PRINT HYD           ID=19 CODE=10
```

```
*S  ROUTE FLOW FROM 617A TO 617B
OMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
OUTE MCUNGE         ID=93  HYD=193.3  INFLOW ID=19 DT=0HR  L=650
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=93   CODE=10
*S  COMPUTE HYD FOR BASIN 617B
OMPUTE NM HYD       ID=14  HYD=617_2  DA=.0031 SQ MI
                    PER A=0  PER B=33  PER C=12  PER D=55
                    TP=-0.1340    RAIN=-1
RINT HYD            ID=14   CODE=10
*S  COMPUTE HYD FOR BASIN 617C - 72ND STREET ROW
COMPUTE NM HYD      ID=24  HYD=617_3  DA=.0032 SQ MI
                    PER A=0  PER B=60  PER C=30  PER D=10
                    TP=-0.1340    RAIN=-1
RINT HYD            ID=24   CODE=10
*S ADD BASIN 617B TO ROUTED FLOW FROM 617A
ADD HYD             ID=21 HYDNO=120
                    ID=14 ID=93
RINT HYD            ID=21 CODE=10
*S ADD BASIN 617C TO ROUTED FLOW FROM 617A
ADD HYD             ID=21 HYDNO=121
                    ID=24 ID=21
RINT HYD            ID=21 CODE=10
*S  ROUTE FLOW FROM 617B TO 619A
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
OUTE MCUNGE         ID=93  HYD=193.4  INFLOW ID=21 DT=0HR  L=1150
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=93   CODE=10

*****************************************************************************
*      CALCULATE RUNOFF FOR BASINS EAST OF UNSER, SOUTH OF LADERA
*                FLOWING TO LAURELWOOD DETENTION POND
*S                          REGION D
*****************************************************************************
*S  COMPUTE HYD ABOVE AP 613   HANOVER RD  825' WEST OF LAURELWOOD PARKWAY
OMPUTE NM HYD       ID=6   HYD=613   DA=.050
                    PER A=0   PER B=19    PER C=20    PER D=61
                    TP=-0.1477    RAIN=-1
RINT HYD            ID=6   CODE=10

*S  COMPUTE OLF ABOVE AP 614  HANOVER ROAD AND CHERRYWOOD LANE
COMPUTE NM HYD      ID=5   HYD=614   DA=.0192 SQ MI
                    PER A=0  PER B=20   PER C=21   PER D=59
                    TP=-0.1740    RAIN=-1
INT HYD             ID=5    CODE=10

*S  SEPARATE BASIN 613 SS FROM OLF
DIVIDE HYD          ID=6     Q=98
                    ID=7     HYD=614_1   SS GOING EAST IN HANOVER
                    ID=8     HYD=614_2  OLF GOING EAST IN HANOVER
INT HYD             ID=7 CODE=10
*****************************************************************************
*****************************************************************************
*****************************************************************************
*S ADD ROUTED SS FLOW FROM BASIN ST.10B TO FLOW IN SS
D HYD               ID=7 HYD=614_1A
                    ID=7  ID=49
PRINT HYD           ID=7 CODE=10

*S  ROUTE SS DOWN HANOVER
MPUTE RATING CURVE ID=1   VS NO=1
                   CODE=-1   SLP=.0127
                   DIA=42   N=.013
OUTE MCUNGE        ID=2  HYD=614_3   INFLOW ID=7   DT=0HR  L=451
                   NS=0  SLOPE=.0127   MATCODE=0  REGCODE=0  CCODE=0
INT HYD            ID=2   CODE=10

*S  ROUTE OLF DOWN HANOVER  MAJOR LOCAL STREET  40' FL-FL  60' ROW
COMPUTE RATING CURVE ID=1  VS NO=1  NO SEGS=3
                   ELMIN=0  ELMAX=1.5
                   CH SLP=.0127  FP SLP=.0127
                   N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                   DIST    ELEV    DIST    ELEV    DIST    ELEV
                   0       1.5     .01     1       10      .67
                   10.01   0       30      .4      49.99   0.0
```

```
                    50      .67     60      1       60.01   1.5
 OUTE MCUNGE        ID=3  HYD=614_4  INFLOW ID=8   DT=0HR  L=451
                    NS=0  SLOPE=.0127  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=3   CODE=10
*
*S  ADD ROUTED HYDS
 DD HYD             ID=4  HYD=614_5
                    ID=2  ID=3
RINT HYD            ID=4  CODE=10
*
*S  ADD ROUTED HYDS TO FLOW ABOVE AP 614
 DD HYD             ID=6  HYD=614_6
                    ID=4  ID=5
.RINT HYD           ID=6  CODE=10
*S
*S  COMPUTE OLF ABOVE AP 615  HANOVER RD AT LAURELWOOD PARKWAY
 OMPUTE NM HYD      ID=7  HYD=615  DA=0.0813
                    PER A=0  PER B=21  PER C=22  PER D=57
                    TP=-0.1903    RAIN=-1
PRINT HYD           ID=7  CODE=10
*
 S  ROUTE SS AND OLF FROM AP 614 DOWN HANOVER RD TO AP 615
 IVIDE HYD          ID=6  Q=100
                    ID=8  HYD=615_1  SS GOING EAST IN HANOVER RD
                    ID=9  HYD=615_2 OLF GOING EAST IN HANOVER RD
*
 S  ROUTE SS DOWN HANOVER
 OMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.0132
                    DIA=42    N=.013
ROUTE MCUNGE        ID=2  HYD=615_3  INFLOW ID=8   DT=0HR  L=379
                    NS=0  SLOPE=.0132  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=2   CODE=10

*S  ROUTE OLF DOWN HANOVER RD
COMPUTE RATING CURVE ID=1    VS NO=1   NO SEGS=3
                    ELMIN=0   ELMAX=1.5
                    CH SLP=.0132  FP SLP=.0132
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0
                    50      .67     60      1       60.01   1.5
 OUTE MCUNGE        ID=3  HYD=615_4  INFLOW ID=9   DT=0HR  L=379
                    NS=0  SLOPE=.0132  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=3    CODE=10
*
 S  ADD OLF & SS
 OD HYD             ID=6   HYD=615_5
                    ID=2   ID=3
PRINT HYD           ID=6   CODE=10
*
 IVIDE HYD          ID=6   Q=139
                    ID=8   HYD=615_6  SS IN HANOVER
                    ID=9   HYD=615_7 OLF IN HANOVER
*S  ROUTE SS IN HANOVER
COMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.0124
                    DIA=48    N=.013
..OUTE MCUNGE       ID=2  HYD=615_8  INFLOW ID=8   DT=0HR  L=380
                    NS=0  SLOPE=.0124  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2   CODE=10
 S  ROUTE OLF DOWN HANOVER
 OMPUTE RATING CURVE ID=1   VS NO=1   NO SEGS=3
                    ELMIN=0   ELMAX=1.5
                    CH SLP=.0124  FP SLP=.0124
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0
                    50      .67     60      1       60.01   1.5
ROUTE MCUNGE        ID=3  HYD=615_9  INFLOW ID=9   DT=0HR  L=380
                    NS=0  SLOPE=.0124  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=3   CODE=10

ADD HYD             ID=6   HYD=615_10
                    ID=2   ID=3
PRINT HYD           ID=6   CODE=10

 IVIDE HYD          ID=6   Q=124
                    ID=8   HYD=615_11   SS GOING E IN HANOVER RD
                    ID=9   HYD=615_12  OLF GOING E IN HANOVER RD
*S  ROUTE SS
 OMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1  SLP=.0099
                    DIA=48   N=.013
ROUTE MCUNGE        ID=2  HYD=615_13  INFLOW ID=8   DT=0HR  L=131
                    NS=0  SLOPE=.0099  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=2   CODE=10
 S  ROUTE OLF
COMPUTE RATING CURVE ID=1 VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=1.5
                    CH SLP=.008   FP SLP=.008
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
```

```
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0
                    50      .67     60      1       60.01   1.5
ROUTE MCUNGE        ID=3  HYD=615_14  INFLOW ID=9   DT=0HR  L=131
                    NS=0  SLOPE=.0099  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=3   CODE=10

ADD HYD             ID=4   HYD=615_15
                    ID=2   ID=3
PRINT HYD           ID=4   CODE=10

 S  ADD ROUTED SS OLF TO OLF ABOVE AP 615
 S  TOTAL HYD AT AP 615   HANOVER RD AND LAURELWOOD PARKWAY
ADD HYD             ID=6   HYD=615_16
                    ID=4   ID=7
 RINT HYD           ID=6   CODE=10

 S  COMPUTE OLF ABOVE AP 616   LAURELWOOD DETENTION AREA
COMPUTE NM HYD      ID=5  HYD=616   DA=.1068 SQ MI
                    PER A=0  PER B=21  PER C=22  PER D=57
                    TP=-0.2659    RAIN=-1
 RINT HYD           ID=5   CODE=10

*S  ROUTE SS AND OLF FROM AP 615 TO AP 616 DOWN HANOVER RD
*S  SEPARATE SS FROM OLF AT AP 615
IVIDE HYD           ID=6   Q=152
                    ID=7   HYD=616_1   SS GOING E TO LAURELWOOD DETENTION
                    ID=8   HYD=616_2  OLF GOING E TO HANOVER RD
*
*S  ROUTE SS FROM LAURELWOOD PARKWAY TO DETENTION AREA
OMPUTE RATING CURVE ID=1  VS NO=1
                    CODE=-1   SLP=.008
                    DIA=54    N=.013
ROUTE MCUNGE        ID=2  HYD=616_3  INFLOW ID=7   DT=0HR  L=299
                    NS=0  SLOPE=.008  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=2   CODE=10

 S  ROUTE OLF FROM AP 615 AT HANOVER AND 72ND STREET
OMPUTE RATING CURVE ID=1   VS NO=1   NO SEGS=3
                    ELMIN=0  ELMAX=1.5
                    CH SLP=.008   FP SLP=.008
                    N=.025  STA=10  N=.017  STA=50  N=.025  STA=60.01
                    DIST    ELEV    DIST    ELEV    DIST    ELEV
                    0       1.5     .01     1       10      .67
                    10.01   0       30      .4      49.99   0
                    50      .67     60      1       60.01   1.5
 OUTE MCUNGE        ID=3  HYD=616_4  INFLOW ID=8   DT=0HR  L=1150
                    NS=0  SLOPE=.008  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=3   CODE=10
**************************************************************
*S* FOR REV_2D.HYM, PUT FLOW THROUGH LAURLWOOD POND INSTEAD OF DIVERT
**************************************************************
 S  ADD ROUTED SS TO OLF ABOVE AP 616
 S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
ADD HYD             ID=5  HYD=TO_LARLPOND
                    ID=2   ID=5
 RINT HYD           ID=5  CODE=10
 S  ADD COMBINED TO ROUTED OLF
 S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
ADD HYD             ID=16  HYD=TO_LARLPOND
                    ID=3   ID=5
 RINT HYD           ID=16  CODE=10

 S ROUTE INFLOW HYD THROUGH LAURELWOOD DETENTION AREA
*S USING THE THE STAGE STORAGE CONTAINED IN THE DMP WHICH
*S EDITED STORAGE FOR POND TO REFLECT LAURELWOOD POND REGRADING
 S CALCS DONE BY F. KALISH 8/94.
 S MODIFIED DISCHARGE TO REFLECT NEW OULET AND PREVENT OVERTOPPING
 S ROUTE THRU 1-30" CULVERT AT BOTTOM AND 20' WEIR SPILLWAY AT ELEVATION 5
ROUTE RESERVOIR     ID=41
                    HYD=LARLPOND_OUT
                    INFLOW ID=16   CODE=10
                    OUTFLOW(CFS)  STORAGE(AC-FT)  ELEV(FT)
                    0               0             0
                    104.34          0.38          1
                    123.00          1.18          2
                    138.63          2.7           3
                    152.67          5.1           4
                    165.31          8.7           5
                    171.21         11.30          5.5
                    220            13.9           6
                    240            16.5           6.5
                    250            20.8           7
                    350            24.1           7.5
                    483            28.2           8
                    790            32.5           8.5
*                       0.00            0.00            0
                        7.50            0.38            1
                        15.00           1.18            2
                        22.50           2.70            3
*                       29.50           5.10            4
*                       37.50           8.70            5
                        100.0           13.9            6
```

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*                    0              0          5118
                     1.0            8.96       5120
                     16.88          17.91      5122
                     29.24          26.87      5124
*                    37.50          35.82      5126
*         ORIGINAL MODEL STAGE STORAGE
 RINT HYD            ID=41      CODE=10
 UNCH HYD            ID=41

*S  ADD OUTFLOW HYD TO OLF GOING DOWN HANOVER RD
*ADD HYD             ID=41   HYD=616_7
                     ID=3   ID=40
 RINT HYD            ID=41  CODE=10
 ;


 ;*************************************************************************
 ;      CALCULATE RUNOFF FOR BASINS SOUTH OF I-40 DRAINING TO WEST BLUFF       *
 ;                              REGION E
*S*************************************************************************
*S REMOVED BASINS 510-516 FROM MODEL PER LATEST WEST MESA DIV (AUG 1996)
 ;
 ;  COMPUTE OLF ABOVE AP 517 WMDC AND BLUEWATER RD
 OMPUTE NM HYD       ID=3     HYD=517  DA=0.0046 SQ MI
                     PER A=0  PER B=12  PER C=13  PER D=75
                     TP=-0.2383    RAIN=-1
 RINT HYD            ID=3     CODE=10


*S  ROUTE FLOW AT AP 517 TO AP 518 DOWN WMDC
*S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
*S                    ELMIN=0    ELMAX=10.0
 ;                    CH SLP=.0012      FP SLP=.0012
 ;                    N=.015  STA=50
*S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
*S                    0       10        20      0           30      0
*S                    50      10
 ; ROUTE MCUNGE        ID=2  HYD=518_1  INFLOW ID=3   DT=0HR  L=1900
 ;                    NS=0  SLOPE=.0012  MATCODE=0  REGCODE=0  CCODE=0
 S PRINT HYD          ID=2       CODE=10
*
*S  ROUTE FLOW FROM AP 517 TO AP 518 VIA 24 INCH PIPE
 OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=24  N=0.013
 UTE MCUNGE          ID=2  HYD=518_1   INFLOW ID=3   DT=0HR  L=1900
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2    CODE=10
*
 ;
 ;  COMPUTE OLF ABOVE AP 518 WMDC AND LOS VOLCANES RD
OMPUTE NM HYD        ID=3     HYD=518  DA=0.1037 SQ MI
                     PER A=0  PER B=10  PER C=15 PER D=75
                     TP=-0.4208    RAIN=-1
 RINT HYD            ID=3     CODE=10

  ADD ROUTED FLOW FROM AP 517 TO OLF ABOVE AP 518
ADD HYD              ID=10      HYD=518_2
                     ID=2       ID=3
 RINT HYD            ID=10      CODE=10

 ;  ROUTE FLOW FROM AP 518 TO AP 522 DOWN WMDC
*S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
*S                    ELMIN=0    ELMAX=7.6
 ;                    CH SLP=.0012      FP SLP=.0012
 ;                    N=.015  STA=50
                      DIST    ELEV      DIST    ELEV        DIST    ELEV
*S                    0       10        20      0           30      0
*S                    50      10
 ; ROUTE MCUNGE       ID=2  HYD=522_1  INFLOW ID=10   DT=0HR  L=1130
 ;                    NS=0  SLOPE=.0012  MATCODE=0  REGCODE=0  CCODE=0
 ; PRINT HYD          ID=2       CODE=10
*
*S  ROUTE FLOW FROM AP 518 TO AP 522 VIA 66 INCH PIPE
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=66  N=0.013
 UTE MCUNGE          ID=2  HYD=522_1   INFLOW ID=10   DT=0HR  L=1130
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2    CODE=10
*
*S
 ;  COMPUTE HYD ABOVE AP 521
 MPUTE NM HYD        ID=6     HYD=521  DA=0.0260 SQ MI
                     PER A=0  PER B=7  PER C=9  PER D=84
                     TP=-0.1632    RAIN=-1
PRINT HYD            ID=6     CODE=10

  ADD ROUTED OLF FROM AP 521 TO WMDC
S  TOTAL FLOW AT AP 521
ADD HYD              ID=10      HYD=521_1
                     ID=2       ID=6
 RINT HYD            ID=10      CODE=10
 ;
 ;  COMPUTE OLF ABOVE AP 522  64TH ST AND FORTUNA RD
COMPUTE NM HYD       ID=4     HYD=522  DA=0.1223 SQ MI
                     PER A=0  PER B=12  PER C=17  PER D=71
                     TP=-0.4569    RAIN=-1
```

```
PRINT HYD            ID=4     CODE=10

  ADD ROUTED OLF FROM AP 522 TO WMDC
ADD HYD              ID=13      HYD=522_2
                     ID=10      ID=4
PRINT HYD            ID=13      CODE=10
 S
 S  COMPUTE OLF ABOVE AP 519 AIRPORT RD AND FORTUNA RD
COMPUTE NM HYD       ID=3     HYD=519  DA=0.0642 SQ MI
                     PER A=0  PER B=10  PER C=15  PER D=75
                     TP=-0.1541    RAIN=-1
PRINT HYD            ID=3     CODE=10

 S  ROUTE OLF FROM AP 519 TO AP 520 DOWN FORTUNA RD  40 FT FL TO FL
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                     ELMIN=0    ELMAX=1.5
                     CH SLP=.01      FP SLP=.01
                     N=.025  STA=10    N=.017  STA=50.01   N=.025  STA=60.01
                     DIST    ELEV      DIST    ELEV        DIST    ELEV
                     0       1.5       .01     1           10      .67
                     10.01   0         30      .4          50      0
                     50.01   .67       60      1           60.01   1.5
ROUTE MCUNGE         ID=2  HYD=520_1  INFLOW ID=3   DT=0HR  L=1780
                     NS=0  SLOPE=.01  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2       CODE=10
*S
*S  COMPUTE OLF ABOVE AP 520 FORTUNA RD W OF HIGH SCHOOL
COMPUTE NM HYD       ID=4     HYD=520  DA=0.0815 SQ MI
                     PER A=0  PER B=23  PER C=19  PER D=58
                     TP=-0.3318    RAIN=-1
PRINT HYD            ID=4     CODE=10
*
  ADD ROUTED OLF FROM AP 519 TO OLF ABOVE AP 520
 S  TOTAL FLOW AT AP 520
ADD HYD              ID=5       HYD=520_2
                     ID=2       ID=4
PRINT HYD            ID=5       CODE=10

 S  ROUTE OLF AT AP 520 TO AP 522 DOWN FORTUNA RD
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                     ELMIN=0    ELMAX=1.5
                     CH SLP=.003      FP SLP=.003
                     N=.025  STA=10    N=.017  STA=50.01   N=.025  STA=60.01
                     DIST    ELEV      DIST    ELEV        DIST    ELEV
                     0       1.5       .01     1           10      .67
                     10.01   0         30      .4          50      0
                     50.01   .67       60      1           60.01   1.5
ROUTE MCUNGE         ID=2  HYD=522_3  INFLOW ID=5   DT=0HR  L=1510
                     NS=0  SLOPE=.003  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2       CODE=10
*
*  ADD ROUTED OLF FROM AP 520 TO  WMDC AT AP522
 S  TOTAL HYD AT AP 522
ADD HYD              ID=13       HYD=522_4
                     ID=2       ID=13
PRINT HYD            ID=13       CODE=10
*

 S  ROUTE FLOW THROUGH PROPOSED DETENTION POND AT FORTUNA
 S   SMITH ENGINEERING STAGE-DISCHARGE DATA, 48" ORIFICE
*ROUTE RESERVOIR     ID=15      HYD=WMD_POND
*                    INFLOW ID=13   CODE=10
                     OUTFLOW(CFS)          STORAGE(AC FT)      ELEV(FT)
                        0                     0                   0
                       10                     1.87                1
*                      24                     3.8                 2
*                      46                     6.2                 3
                       71                     9.04                4
                       85                    11.6                 5
                      115                    14.8                 6
*                     130                    18.0                 7
*                     145                    21.41                8
*S  REVISED SMITH ENGR'S POND TO PRODUCE 790 CFS IN WMD AT I40.
 S   ORIFICE = 2-66" PIPES.  FACTORED POND STORAGE BY 0.35
ROUTE RESERVOIR      ID=15      HYD=WMD_POND
                     INFLOW ID=13   CODE=10
                     OUTFLOW(CFS)          STORAGE(AC FT)      ELEV(FT)
                        0                     0                   0
                       20                     0.78                1
                       60                     1.60                2
                      120                     2.60                3
                      200                     3.79                4
                      280                     4.87                5
                      360                     6.22                6
                      425                     7.56                7
                      490                     9.00                8
PRINT HYD            ID=15      CODE=10
*S
 S  COMPUTE OLF ABOVE AP 524  UNSER DETENTION AREA
COMPUTE NM HYD       ID=3     HYD=524  DA=0.1219 SQ MI
                     PER A=0  PER B=0  PER C=62  PER D=38
                     TP=-0.2322    RAIN=-1
PRINT HYD            ID=3     CODE=10
```

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*S  ROUTE INFLOW THRU UNSER DETENTION AREA, 24" ORIFICE
 OUTE RESERVOIR      ID=20          HYD=UNSER_POND
                     INFLOW ID=3    CODE=10
                     OUTFLOW(CFS)          STORAGE(AC FT)       ELEV(FT)
                         0                     0                   0
                         5                     1.5                 1
                        15                     5.05                2
                        21                     9.45                3
                        88                     14.4                4
                       205                     20.1                5
PRINT HYD            ID=20       CODE=10
 S
 S  COMPUTE OLF ABOVE AP 525
 OMPUTE NM HYD       ID=3      HYD=525  DA=0.0493 SQ MI
                     PER A=0   PER B=0   PER C=61   PER D=39
                     TP=-0.1410     RAIN=-1
 RINT HYD            ID=3      CODE=10

 S  ROUTE OUTFLOW FROM AP 524 TO AP 525
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                     ELMIN=0     ELMAX=4
                     CH SLP=.0076       FP SLP=.0076
                     N=.03    STA=44
                     DIST     ELEV       DIST     ELEV         DIST     ELEV
                     0        4          12       0            32       0
                     44       4
 OUTE MCUNGE         ID=2   HYD=525_1  INFLOW ID=20   DT=0HR   L=2400
                     NS=0   SLOPE=.0076   MATCODE=0   REGCODE=0   CCODE=0
 RINT HYD            ID=2         CODE=10
*
*  ADD ROUTED OLF FROM AP 524 TO OLF ABOVE AP 525
*S  TOTAL OLF AT AP 525
 D HYD               ID=4         HYD=525_2
                     ID=2         ID=3
PRINT HYD            ID=4         CODE=10
*S
*S  COMPUTE OLF ABOVE AP 526 W OF HIGH SCHOOL ON GLENRIO RD
 OMPUTE NM HYD       ID=3      HYD=526  DA=0.0465 SQ MI
                     PER A=0   PER B=12   PER C=17   PER D=71
                     TP=-0.1579     RAIN=-1
PRINT HYD            ID=3      CODE=10
*
 S  ROUTE OLF AT AP 525 TO AP 526 DOWN GLENRIO RD   40 FT FL TO FL 60 FT ROW
 OMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=3
                     ELMIN=0     ELMAX=1.5
                     CH SLP=.0131       FP SLP=.0131
                     N=.025   STA=10     N=.017   STA=50.01    N=.025   STA=60.01
                     DIST     ELEV       DIST     ELEV         DIST     ELEV
                     0        1.5        .01      1            10       .67
                     10.01    0          30       .4           50       0
                     50.01    .67        60       1            60.01    1.5
ROUTE MCUNGE         ID=2   HYD=526_1  INFLOW ID=4    DT=0HR   L=1600
                     NS=0   SLOPE=.0131   MATCODE=0   REGCODE=0   CCODE=0
 RINT HYD            ID=2         CODE=10

*  ADD ROUTED OLF FROM AP 525 TO OLF ABOVE AP 526
ADD HYD              ID=8         HYD=526_2
                     ID=2         ID=3
 RINT HYD            ID=8         CODE=10

*S  ROUTE OLF FROM AP 526 TO AP 528 DOWN GLENRIO RD  40 FT FL TO FL 60 FT ROW
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=3
                     ELMIN=0     ELMAX=1.5
                     CH SLP=.003        FP SLP=.003
                     N=.025   STA=10     N=.017   STA=50.01    N=.025   STA=60.01
                     DIST     ELEV       DIST     ELEV         DIST     ELEV
                     0        1.5        .01      1            10       .67
                     10.01    0          30       .4           50       0
                     50.01    .67        60       1            60.01    1.5
 OUTE MCUNGE         ID=2   HYD=528_1  INFLOW ID=8    DT=0HR   L=1550
                     NS=0   SLOPE=.003   MATCODE=0   REGCODE=0   CCODE=0
PRINT HYD            ID=2         CODE=10
 S
 S  COMPUTE OLF ABOVE AP 528  64TH ST AND GLENRIO RD
 OMPUTE NM HYD       ID=4      HYD=528  DA=0.0344 SQ MI
                     PER A=0   PER B=13   PER C=18   PER D=69
                     TP=-0.3578     RAIN=-1
 RINT HYD            ID=4      CODE=10

  ADD ROUTED OLF FROM AP 526 TO OLF ABOVE AP 528
ADD HYD              ID=6         HYD=528_2
                     ID=2         ID=4
PRINT HYD            ID=6         CODE=10
 S
 S  COMPUTE OLF ABOVE AP 527  WEST MESA HIGH SCHOOL AT 64TH AND GLENRIO
COMPUTE NM HYD       ID=1      HYD=527  DA=0.0531 SQ MI
                     PER A=0   PER B=21   PER C=29   PER D=50
                     TP=-0.6130     RAIN=-1
 RINT HYD            ID=1      CODE=10

  ADD OLF FROM AP 527 TO AP 528
*S  TOTAL FLOW AT AP 528 BEFORE ROUTING FLOW AT AP 522 TO AP 528
ADD HYD              ID=7         HYD=528_3
                     ID=1         ID=6
```

```
PRINT HYD            ID=7       CODE=10

 S  ROUTE FLOW FROM WMD_POND TO AP 528  NORTH IN WMDC
 S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
*S                    ELMIN=0    ELMAX=11.4
*S                    CH SLP=.0015      FP SLP=.0015
 S                    N=.015   STA=14.02
 S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
 S                    0       12        .01     0           14.01   0
*S                    14.02   12
*S ROUTE MCUNGE       ID=2  HYD=528_4  INFLOW ID=15   DT=0HR  L=1100
 S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
 S PRINT HYD          ID=2       CODE=10

*S  ROUTE FLOW FROM WMD_POND TO AP 528 VIA 90 INCH PIPE
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=90  N=0.013
 OUTE MCUNGE         ID=2  HYD=528_4   INFLOW ID=15   DT=0HR  L=1100
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=2    CODE=10
*
*S  TOTAL HYD IN WMDC AT AP 528  WEST MESA DIVERSION AND GLENRIO RD
 DD HYD              ID=10      HYD=528_5
                     ID=7       ID=2
 RINT HYD            ID=10      CODE=10
*S
*S  COMPUTE OLF ABOVE AP 529  YELLOW FREIGHT AT HANOVER RD
*S  REVISED AREA 7/30/96. OLD WAS .0175; NEW=.0264
 OMPUTE NM HYD       ID=9     HYD=529  DA=0.0264 SQ MI
                     PER A=0  PER B=4  PER C=28  PER D=68
                     TP=-0.1830    RAIN=-1
PRINT HYD            ID=9     CODE=10
*S
 S  COMPUTE HYD FOR BASIN 532  I40 BASIN
 OMPUTE NM HYD       ID=4     HYD=532   DA=0.0328 SQ MI
                     PER A=0  PER B=0  PER C=77  PER D=23
                     TP=-0.363    RAIN=-1
PRINT HYD            ID=4     CODE=10
 S
 S  COMPUTE OLF ABOVE AP 530  64TH ST AND HANOVER RD
COMPUTE NM HYD       ID=5     HYD=530  DA=0.0865 SQ MI
                     PER A=0  PER B=5  PER C=5  PER D=90
                     TP=-0.3947    RAIN=-1
 RINT HYD            ID=5     CODE=10

   ADD 532 & 530
ADD HYD              ID=5       HYD=530_1
                     ID=4       ID=5
 RINT HYD            ID=5       CODE=10

 S  ROUTE OLF FROM AP 529 TO AP 530 W IN HANOVER RD ASSUME 42" SS
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                     SLP=.004  DIA=42   N=.013
 OUTE MCUNGE         ID=2  HYD=530_2  INFLOW ID=9   DT=0HR  L=650
                     NS=0  SLOPE=.004  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=2       CODE=10
*
*S  ROUTE OLF FROM AP 530 E IN HANOVER TO 64TH ST ASSUME 48" SS
 OMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                     SLP=.006  DIA=48   N=.013
 OUTE MCUNGE         ID=3  HYD=530_3  INFLOW ID=5   DT=0HR  L=550
                     NS=0  SLOPE=.006  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=3       CODE=10

 S  ADD ROUTED FLOWS FROM AP 529 AND AP 530
 D HYD               ID=4       HYD=530_4
                     ID=2       ID=3
PRINT HYD            ID=4       CODE=10

 S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMDC  ASSUME VERT WALLS  12 FT BOTTOM
 S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
*S                    ELMIN=0    ELMAX=11.4
*S                    CH SLP=.0015      FP SLP=.0015
*S                    N=.015   STA=14.02
 S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
 S                    0       12        .01     0           14.01   0
*S                    14.02   12
*S ROUTE MCUNGE       ID=8  HYD=530_5  INFLOW ID=10   DT=0HR  L=1100
*S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
 S PRINT HYD          ID=8       CODE=10

*S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMD VIA 102 INCH PIPE
COMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=102  N=0.013
ROUTE MCUNGE         ID=8  HYD=530_5   INFLOW ID=10   DT=0HR  L=1100
                     NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=8    CODE=10

*  ADD ROUTED HYDS AT AP 530
ADD HYD              ID=10      HYD=530_6
                     ID=8       ID=4
 RINT HYD            ID=10      CODE=10
 S
*S  COMPUTE OLF ABOVE AP 403 COORS BLVD AND HANOVER RD
*S  REVISED AREA 7/30/96. OLD WAS .0355; NEW=.0100
 OMPUTE NM HYD       ID=5    HYD=403  DA=0.0100 SQ MI
```

```
                    PER A=0  PER B=13  PER C=3  PER D=84
                    TP=-0.1630    RAIN=-1
 RINT HYD           ID=5     CODE=10

*S  TOTAL FLOW IN WMDC AT AP 530  64TH ST AND HANOVER RD
ADD HYD             ID=10      HYD=530_7
                    ID=5       ID=10
 RINT HYD           ID=10      CODE=10
 S
*S  COMPUTE OLF ABOVE AP 531  WMDC AT I-40 CULVERTS
COMPUTE NM HYD      ID=3     HYD=531  DA=0.0181 SQ MI
                    PER A=0  PER B=0  PER C=77  PER D=23
                    TP=-0.1791    RAIN=-1
 RINT HYD           ID=3     CODE=10
*
*S  ROUTE FLOW AT AP 530 TO AP 531  N IN WMDC
 S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
 S                  ELMIN=0    ELMAX=11.4
 S                  CH SLP=.0015      FP SLP=.0015
*S                  N=.015   STA=14.02
*S                  DIST    ELEV      DIST    ELEV        DIST    ELEV
 S                  0       12        .01     0           14.01   0
 S                  14.02   12
 S ROUTE MCUNGE     ID=2  HYD=531_1  INFLOW ID=10   DT=0HR  L=2080
*S                  NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
*S PRINT HYD        ID=2       CODE=10
*
 S  ROUTE FLOW AT AP 530 TO AP 531 N IN WMD VIA 120 INCH PIPE
 OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.003 DIA=120  N=0.013
ROUTE MCUNGE        ID=2  HYD=531_1   INFLOW ID=10   DT=0HR  L=2080
                    NS=0  SLOPE=.003   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=2    CODE=10
 S
 S  COMPUTE OLF ABOVE AP 404 ESTANCIA DR AND ILIFF RD
*S  REVISED AREA 7/30/96. OLD WAS .0538; NEW=.0274
COMPUTE NM HYD      ID=5    HYD=404  DA=0.0274 SQ MI
                    PER A=0  PER B=13  PER C=3  PER D=84
                    TP=-0.5920    RAIN=-1
 RINT HYD           ID=5     CODE=10
*
*  ADD TO ROUTED FLOW
ADD HYD             ID=2      HYD=531_1.5
                    ID=5       ID=2
 RINT HYD           ID=2      CODE=10

*  ADD ROUTED FLOW FROM AP 530 TO OLF ABOVE AP 531
*S  TOTAL FLOW AT AP 531 WMDC ENTERING I-40 CULVERTS
 DD HYD             ID=33      HYD=531_2
                    ID=2       ID=3
. RINT HYD          ID=33      CODE=10
PLOT HYD            ID=33  ID=0   Q SCALE=3000  T SCALE=6
*

 S  ROUTE FLOW THRU I-40 BOX CULVERTS  2-10 BY 12
 S  TOTAL ROUTED OLF FROM WMDC ENTERING I-40 INTERCEPTOR
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
                    ELMIN=0    ELMAX=12
                    CH SLP=.0028      FP SLP=.0028
                    N=.015   STA=20.02
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       12        .01     0           20.01   0
                    20.02   12
 OUTE MCUNGE        ID=42  HYD=531_3  INFLOW ID=33   DT=0HR  L=400
                    NS=0  SLOPE=.0028  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=42      CODE=10
*S
*S

 ********************************************************************
     OMITTED REGION F  WITH BASINS 501 THROUGH 509 BECAUSE          *
* TOTAL FLOW AT 509 GOES TO AMOLE DOES NOT CONTRIBUTE TO WB OUTFALL *
 ********************************************************************
 ********************************************************************
     OMITTED REGION G  WITH BASINS 301 AND 302 BECAUSE              *
       THEIR TOTAL FLOW DOES NOT CONTRIBUTE TO WB OUTFALL           *
 ********************************************************************
 ********************************************************************
*         OMITTED REGION H BASINS 401 & 402 BECAUSE
      THEIR TOTAL FLOW DOES NOT CONTRIBUTE TO WB OUTFALL            *
 ********************************************************************
*
*S
*S*****************************************************************************
 S       CALCULATE RUNOFF FOR BASINS NORTHWEST OF PONDS 13 THROUGH 14          *
 S                              REGION I                                       *
 S*****************************************************************************
* RAINFALL FOR LADERA BASINS NOT INCLUDING ABOVE DAM #12, SAME AS W BLUFF RAIN
*
 S


 S  ROUTE DAM #12 OUTFLOW THRU CHANNEL TO UNSER BOX CULVERTS
COMPUTE RATING CURVE ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104
                    CH SLP=0.0016 FP SLP=0.0016  N=0.030 DIST=144 FT
                    DIST  ELEV     DIST  ELEV
```

```
                    0    106      12    100
                  132    100     144    106
 )UTE MCUNGE      ID=8  HYD=L13.1_1  INFLOW ID=38   DT=0HR  L=1300
                  NS=0  SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=8 CODE =10
*S
 S  COMPUTE HYDROGRAPH FOR BASIN L13.1
 OMPUTE NM HYD    ID=3      HYD=L13.1   DA=0.1313 SQ MI
                  PER A=0  PER B=26  PER C=30  PER D=44
                  TP=-0.222    RAIN=-1
PRINT HYD         ID=3 CODE=10

 S  ADD L13.1 FLOW TO CHANNEL BEFORE UNSER BOX CULVERTS -- TOTAL INTO DAM#13
 DD HYD           ID=13  HYD=TO_DAM13  ID=3 ID=8
PRINT HYD         ID=13 CODE=10
*
 S  ROUTE FLOW THRU DAM #13
   OUTFLOW UPSIZED TO 7- 54" RCP'S
 OUTE RESERVOIR   ID=6 HYD=POND13
                  INFLOW ID=13    CODE=10
                  OUTFLOW (CFS)   STORAGE (AC FT)    ELEVATION (FT)
                       0              0                  5184
                      70.            3.15                5185
                     315.            9.76                5187
                     595            16.79                5189
                     825            24.22                5191
                    1020            32.08                5193
                    1070            34.16                5193.5
                    1340            36.23                5194
                    5272            51.45                5197.5
PRINT HYD         ID=6 CODE=10
*
 S  ROUTE OUTFLOW THRU CHANNEL PART WAY TO DAM #14
    CHANNEL W/GABION DROP STRUCTURES
COMPUTE RATING CURVE ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104
                  CH SLP=0.0016 FP SLP=0.0016  N=0.040  DIST=124
                  DIST   ELEV    DIST   ELEV
                   0     106      12     100
                  112    100     124     106
ROUTE MCUNGE      ID=4  HYD=L14.8_1  INFLOW ID=6   DT=0HR  L=2100
                  NS=0  SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD         ID=4  CODE=10
 S
 S  COMPUTE HYDROGRAPH FOR BASIN L14.8
    WAS BASIN 130 IN DAM15 STUDY
COMPUTE NM HYD    ID=3 HYD=L14.8  DA=0.1906 SQ MI
                  PER A=0  PER B=7  PER C=37  PER D=56
                  TP=-0.208    RAIN=-1
 RINT HYD         ID=3 CODE=10

*S  ADD BASIN L14.8 TO CHANNEL FLOW
ADD HYD           ID=5 HYD=L14.8_2
                  ID=3   ID=4
 RINT HYD         ID=5 CODE=10

*S  ROUTE TOTAL FLOW REST OF WAY THRU CHANNEL TO DAM 14
*    CHANNEL W/GABION DROP STRUCTURES
 OMPUTE RATING CURVE ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104.25
                  CH SLP=0.0016 FP SLP=0.0016  N=0.040  DIST=124
                  DIST   ELEV    DIST   ELEV
                   0     106      12     100
                  112    100     124     106
 OUTE MCUNGE      ID=16  HYD=L14.8_3  INFLOW ID=5   DT=0HR  L=2100
                  NS=0  SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
 :INT HYD         ID=16 CODE=10
*S
*S  FROM ABOVE ESCARPMENT -- L14 BASINS

 SEDIMENT BULK      CODE=1   BULK FACTOR=1.08

*S  COMPUTE HYDROGRAPH FOR BASIN L14.1
COMPUTE NM HYD    ID=1      HYD=L14.1   DA=0.4984 SQ MI
                  PER A=91  PER B=4  PER C=5  PER D=0
                  TP=-0.380    RAIN=-1
 :INT HYD         ID=1       CODE=10
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L14.2
 OMPUTE NM HYD    ID=2      HYD=L14.2   DA=0.3188 SQ MI
                  PER A=79  PER B=8  PER C=13  PER D=0
                  TP=-0.345    RAIN=-1
PRINT HYD         ID=2       CODE=10
*
*S  ADD L14.1 TO L14.2
 )D HYD           ID=3     HYD=L14.3_1
                  ID=1     ID=2
PRINT HYD         ID=3     CODE=10
*S
*S  ROUTE L14.1 & L14.2 HYD THRU L14.3
    FIRST PART OF ROUTE IS IN PETROGLYPH NM.  ASSUME TYPICAL CROSS SECTION D
 OMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                  MIN EL=0    MAX EL=5.0
                  CH SLP=0.0229 FP SLP=0.0229
                  N=0.030       DIST=400
                  DIST    ELEV    DIST    ELEV
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                    0       5       130     2       140     0
                    260     0       270     2       400     5
 )UTE MCUNGE        ID=20  HYD=L14.3_2  INFLOW ID=3  DT=0HR  L=3150
                    NS=0   SLOPE=.0229  MATCODE=0  REGCODE=0  CCODE=0
*   LAST PART OF ROUTE IS IN EXISTING CONC CHANNEL.
COMPUTE RATING CURVE  ID=1    VS NO=1   SEG NO=1
                    MIN EL=0    MAX EL=6
                    CH SLP=0.0229 FP SLP=0.0229
                    N=0.015       DIST=130
                    DIST    ELEV    DIST    ELEV
                    0       6       50      5       60      0
                    70      0       80      5       130     6
 )UTE MCUNGE        ID=4  HYD=L14.3_2  INFLOW ID=20  DT=0HR  L=2050
                    NS=0   SLOPE=.0229  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=4 CODE=10
*
 SEDIMENT BULK        CODE=1   BULK FACTOR=1.058
 ;
 ;  COMPUTE HYDROGRAPH FOR BASIN L14.3
*  WAS BASIN 131 IN DAM15 STUDY
COMPUTE NM HYD      ID=3 HYD=L14.3  DA=0.1813 SQ MI
                    PER A=27  PER B=25  PER C=29  PER D=19
                    TP=-0.199    RAIN=-1
 RINT HYD           ID=3 CODE=10
*
*S  ADD L14.3 TO (L14.1,2)
 )D HYD             ID=5 HYD=L14.3_3  ID=3  ID=4
 RINT HYD           ID=5 CODE=10

* SEDIMENT BULK        CODE=1   BULK FACTOR=1.032
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L14.4
   WAS BASIN 132.1 IN DAM15 STUDY
 )MPUTE NM HYD      ID=3 HYD=L14.4  DA=0.0469 SQ MI
                    PER A=4  PER B=28  PER C=22  PER D=46
                    TP=-0.133    RAIN=-1
PRINT HYD           ID=3 CODE=10

 ;  ADD L14.4 TO (L14.1-3)
ADD HYD             ID=7 HYD=L14.4_1   ID=3  ID=5
PRINT HYD           ID=7 CODE=10
*
 ;  ROUTE FLOW THRU 3-10'x4'x175'  CBC HW/D=1.5
 )MPUTE RATING CURVE ID=1 VS NO=1 NO SEG=1 MIN EL=100 MAX EL=104
                    CH SLP=0.00214 FP SLP=0.00214  N=0.015  DIST= 30.06
                    DIST   ELEV     DIST   ELEV    DIST    ELEV
                    0.00    104     0.01    100    10.01    100
                    10.02   104     10.03   100    20.03    100
                    20.04   104     20.05   100    30.05    100
                    30.06   104
ROUTE MCUNGE        ID=8  HYD=L14.4_2   INFLOW ID=7  DT=0HR  L=175
                    NS=0   SLOPE=.00214  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=8 CODE=10

 SEDIMENT BULK        CODE=1   BULK FACTOR=1.028
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L14.5
    BASIN L14.5 = BASINS 130.2 + 130.3 FROM NW MESA DMP
 )MPUTE NM HYD      ID=1      HYD=L14.5   DA=0.0828 SQ MI
                    PER A=6  PER B=29  PER C=31  PER D=34
                    TP=-0.133    RAIN=-1
PRINT HYD           ID=1       CODE=10

 ;  ROUTE L14.5 THRU BASIN L14.6 VIA 98TH STREET
   USED LADERA DR STREET SECTION
COMPUTE RATING CURVE ID=1   VS NO=1   NO SEGS=3
                    ELMIN=0   EL MAX=1.5
                    CH SLP=.0121   FP SLP=.0121
                    N=.025   STA=10    N=.017   STA=96   N=.025   STA=106.01
                    DIST     ELEV      DIST     ELEV     DIST     ELEV
                    0        1.5       .01      1        10       .67
                    10.01    0         34       .48      34.01    .98
                    53       1.36      72       .98      72.01    .48
                    95.99    0         96       .67      106      1.5
                    106.01   1.5
ROUTE MCUNGE        ID=50  HYD=L14.6_1  INFLOW ID=1   DT=0HR  L=2250
                    NS=0  SLOPE=.0121  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=50   CODE=10

 SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L14.6
*  WAS BASIN 130.1 IN DAM15 STUDY
 )MPUTE NM HYD      ID=6 HYD=L14.6  DA=0.0438 SQ MI
                    PER A=0  PER B=22  PER C=22  PER D=56
                    TP=-0.156    RAIN=-1
PRINT HYD           ID=6  CODE=10
*
 ;  ADD L14.6 & ROUTED L14.5
 )D HYD             ID=3       HYD=L12.6_2
                    ID=50      ID=6
PRINT HYD           ID=3       CODE=10
*S
 ;  ROUTE FLOW THRU INLET TO  48" PIPE
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ROUTE RESERVOIR        ID=2 HYD=L14.4_3  INFLOW ID=3 CODE=10
                       OUTFLOW(CFS)   STORAGE(AC FT)   DEPTH(FT)
                            0              0              0
                          127.8            0.1            0.1
                          127.9           14.9            5.9
                          128.0           15.0            6.0
 S  ROUTE THRU 900' OF 48" RCP PIPE
OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1 SLP=0.00686 DIA=48. N=0.013
OUTE MCUNGE            ID=7  HYD=L14.4_4  INFLOW ID=2  DT=0HR  L=900
                       NS=0   SLOPE=.00686  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=7 CODE=10

 S  TOTAL FLOW FROM L14.1-4,6 INTO LADERA CHANNEL
DD HYD                 ID=4 HYD=L14.7_1   ID=7  ID=8
PRINT HYD              ID=4 CODE=10
*
 S  ROUTE FLOW DOWN LADERA CHANNEL
    CHANNEL W/GABION DROP STRUCTURES
OMPUTE RATING CURVE    ID=1 VS NO=1 SEG=1 MIN EL=100 MAX EL=104.25
                       CH SLP=0.0016 FP SLP=0.0016  N=0.040 DIST=100
                       DIST   ELEV      DIST   ELEV
                        0      110       20     100
                       80      100      100     110
OUTE MCUNGE            ID=5  HYD=L14.7_2  INFLOW ID=4  DT=0HR  L=3000
                       NS=0   SLOPE=.0016  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD              ID=5 CODE=10
*S
 S  COMPUTE HYDROGRAPH FOR BASIN L14.7
   WAS BASIN 132 IN DAM15 STUDY
COMPUTE NM HYD         ID=3 HYD=L14.7  DA=0.0891 SQ MI
                       PER A=0  PER B=8  PER C=20  PER D=72
                       TP=-0.196    RAIN=-1
RINT HYD               ID=3 CODE=10

*S  ADD TO FLOW IN LADERA CHANNEL
ADD HYD                ID=4 HYD=L14.7_3   ID=3  ID=5
PRINT HYD              ID=4 CODE=10

 S  FLOW (FROM BASINS L14.1-4 AND L14.6,7) INTO DAM #14
ADD HYD                ID=20 HYD=L14.7_4    ID=4  ID=16
PRINT HYD              ID=20 CODE=10
*S
S**************************************************************************
 S    CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA PONDS 13 THROUGH 14      *
 S                              REGION J                                        *
*S*************************************************************************
* RAINFALL FOR LADERA BASINS NOT INCLUDING ABOVE DAM #12, SAME AS W BLUFF RAIN

 S
 S  COMPUTE HYD ABOVE AP 201 NORTH OF CL OF LADERA DR
COMPUTE NM HYD         ID=10  HYD=201.3  DA=0.0172 SQ MI
                       PER A=0   PER B=12  PER C=37  PER D=51
                       TP=-0.1333    RAIN=-1
RINT HYD               ID=10      CODE=10
 S
*S  COMPUTE HYD ABOVE AP 201 SOUTH OF CL OF LADERA DR
COMPUTE NM HYD         ID=11  HYD=201.4 DA=0.0032 SQ MI
                       PER A=0   PER B=4   PER C=1  PER D=95
                       TP=-0.1333    RAIN=-1
RINT HYD               ID=11      CODE=10
*S
*S  COMPUTE HYD ABOVE AP 202 NORTH OF CL OF LADERA DR
OMPUTE NM HYD          ID=8   HYD=202.3 DA=0.0257 SQ MI
                       PER A=0  PER B=17  C=29  PER D=54
                       TP=-0.1450    RAIN=-1
PRINT HYD              ID=8       CODE=10
*S
 S  COMPUTE HYD ABOVE AP 202 SOUTH OF CL OF LADERA DR
OMPUTE NM HYD          ID=9  HYD=202.4 DA=0.0031 SQ MI
                       PER A=0  PER B=4  PER C=1  PER D=95
                       TP=-0.1333    RAIN=-1
PRINT HYD              ID=9       CODE=10
*
 S  ROUTE SS AND OLF FROM AP 201 TO AP 202 (THRU 202.3-202.4)
 S  DIVIDE SS FROM HYD AT AP 201 NORTH OF CL OF LADERA DR
DIVIDE HYD             ID=10      Q=26
                       ID=5       HYD=202_6 SS GOING NORTH IN LADERA DR
                       ID=6       HYD=202_7 OLF GOING NORTH IN LADERA DR

 S  ROUTE SS NORTH IN LADERA DR
COMPUTE RATING CURVE ID=1     VS NO=1     CODE=-1
                       SLP=.0172     DIA=24    N=.013
ROUTE MCUNGE           ID=2  HYD=202_8  INFLOW ID=5  DT=0HR  L=1560
                       NS=0   SLOPE=.0172  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD               ID=2       CODE=10

*S  ROUTE OLF FROM AP 201 TO AP 202 NORTH SIDE OF LADERA DR
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=3
                     ELMIN=0     ELMAX=1.5
                     CH SLP=.0169          FP SLP=.0169
                     N=.025  STA=9       N=.017  STA=33.32   N=.025  STA=43.32
                     DIST    ELEV        DIST    ELEV         DIST    ELEV
                     0       1.5         .01     1            9       .67
                     9.01    0           33.31   .5           33.32   1.17
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```
                    43.32   1.5
 )UTE MCUNGE        ID=3  HYD=202_9  INFLOW ID=6  DT=0HR  L=1300
                    NS=0   SLOPE=.0169  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD           ID=3       CODE=10
 *
 *S  ADD OLF ABOVE AP 202 TO ROUTED HYD FROM AP 201 NORTH SIDE LADERA DR
  )D HYD            ID=5       HYD=202_1
                    ID=3       ID=8
 RINT HYD           ID=5       CODE=10
 *
 *
  S  ROUTE HYD FROM AP 201 (SOUTH SIDE) TO AP 202 SOUTH SIDE OF LADERA DR
  )MPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0169        FP SLP=.0169
                    N=.025  STA=9     N=.017  STA=33.32   N=.025  STA=43.32
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           9       .67
                    9.01    0         33.31   .5          33.32   1.17
                    43.32   1.5
 ROUTE MCUNGE       ID=3  HYD=202_2  INFLOW ID=11  DT=0HR  L=1300
                    NS=0   SLOPE=.0169  MATCODE=0  REGCODE=0  CCODE=0
  RINT HYD          ID=3       CODE=10
  S
 ADD HYD            ID=4       HYD=202_3
                    ID=3       ID=9
 RINT HYD           ID=4       CODE=10
  S  TOTAL HYD AT AP 202 NORTH SIDE OF LADERA DR
  )D HYD            ID=6       HYD=202_4
                    ID=2       ID=5
 PRINT HYD          ID=6       CODE=10
 *S
  S  COMPUTE HYD ABOVE AP 203  72ND AT LADERA DR
  )MPUTE NM HYD     ID=1    HYD=203    DA=0.0248 SQ MI
                    PER A=0  PER B=31  PER C=31  PER D=38
                    TP=-0.1333    RAIN=-1
 PRINT HYD          ID=1       CODE=10
  S
  S  COMPUTE HYD ABOVE AP 204 LADERA DR AT 72ND NORTH SIDE
 COMPUTE NM HYD     ID=3   HYD=204.3   DA=0.0152 SQ MI
                    PER A=0  PER B=16  PER C=30   PER D=54
                    TP=-0.1333    RAIN=-1
  RINT HYD          ID=3       CODE=10
  S
  S  COMPUTE HYD ABOVE AP 204 SOUTH SIDE
 COMPUTE NM HYD     ID=5   HYD=204.4   DA=0.0025 SQ MI
                    PER A=0  PER B=4  PER C=1  PER D=95
                    TP=-0.1333   RAIN=-1
  RINT HYD          ID=5       CODE=10

 *S  ROUTE HYDS FROM AP 202 TO AP 204 NORTH SIDE
 * DIVIDE SS FROM OLF AT AP 202
  IVIDE HYD         ID=6       Q=30
                    ID=10      HYD=204_5 SS GOING NORTH IN LADERA DR
                    ID=11      HYD=204_6 OLF GOING NORTH IN LADERA DR N CL
 *
 *S  ROUTE SS FROM AP 202 TO AP 204
  )MPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                    SLP=.0069    DIA=30   N=.013
  )UTE MCUNGE       ID=2  HYD=204_7  INFLOW ID=10  DT=0HR  L=1670
                    NS=0   SLOPE=.0069  MATCODE=0  REGCODE=0  CCODE=0
 PRINT HYD          ID=2       CODE=10

  S  ROUTE OLF FROM AP 202 TO AP 204 NORTH SIDE
  )MPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0115        FP SLP=.0115
                    N=.025  STA=9     N=.017  STA=33.32   N=.025  STA=43.32
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           9       .67
                    9.01    0         33.31   .5          33.32   1.17
                    43.32   1.5
 )UTE MCUNGE        ID=6  HYD=204_8  INFLOW ID=11  DT=0HR  L=1300
                    NS=0   SLOPE=.0115  MATCODE=0  REGCODE=0  CCODE=0
  INT HYD           ID=6       CODE=10
 *
 *S  TOTAL ROUTED OLF ABOVE AP 204 NORTH SIDE
 )D HYD             ID=7       HYD=204_9
                    ID=3       ID=6
  INT HYD           ID=7       CODE=10
 *
 *S  ADD ROUTED SS FLOW TO TOTAL ROUTED OLF AT AP 204
 )D HYD             ID=8       HYD=204_1
                    ID=7       ID=2
  INT HYD           ID=8       CODE=10

 *S  ROUTE SOUTH SIDE OF LADERA FROM AP 202 TO AP 204
 COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0115        FP SLP=.0115
                    N=.025  STA=9     N=.017  STA=33.32   N=.025  STA=43.32
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           9       .67
                    9.01    0         33.31   .5          33.32   1.17
```

```
                    43.32   1.5
  OUTE MCUNGE       ID=2  HYD=204_2  INFLOW ID=4  DT=0HR  L=1300
                    NS=0   SLOPE=.0115  MATCODE=0 REGCODE=0  CCODE=0
 RINT HYD           ID=2       CODE=10
 *
 *S  OLF IN SOUTH SIDE OF LADERA WEST OF 72ND STREET
  DD HYD            ID=6       HYD=204_3
                    ID=2       ID=5
 . RINT HYD         ID=6       CODE=10
 *
 *S  ADD HYD ABOVE AP 203 TO TOTAL FLOW AT AP 204
  S  OLF IN SOUTH SIDE OF LADERA AT 72ND STREET
  DD HYD            ID=7       HYD=204_4
                    ID=1       ID=6
 PRINT HYD          ID=7       CODE=10
 *
  S  ADD TOTAL FLOW AT AP 204 (204 N. SIDE AND 203) TO AP 204 S. SIDE
  S  TOTAL HYD AT AP 204 LADERA DR AT 72ND ST NORTH AND SOUTH SIDES
  DD HYD            ID=9       HYD=204_5
                    ID=7       ID=8
 PRINT HYD          ID=9       CODE=10

  S
  S  SS DISCHARGES TO LADERA DAM NO 14;
 *S  FLOW THAT CAN'T GET INTO SS GOES NORTH ON LADERA, LEAVES WBLUFF WATERSHED
 DIVIDE HYD         ID=9       Q=64
                    ID=43      HYD=204_6 SS DISCHARGING TO DAM
                    ID=19      HYD=204_7 OLF GOING NORTH IN LADERA DR
 RINT HYD           ID=43      CODE=10
PRINT HYD           ID=19      CODE=10
 *
 *S  ADD FLOWS ABOVE POND #14
  S  TOTAL FLOW ENTERING POND #14
  DD HYD            ID=14      HYD=TO_DAM14
                    ID=20      ID=43
PRINT HYD           ID=14      CODE=10
 *S
  S  ROUTE FLOW THRU DAM #14
  >>>>>
 *>>>>>INCLUDE DIVERSION OF 200 CFS TO WEST BLUFF SYSTEM
 *>>>>> USE 1 - 48" RCP FOR MODELING PURPOSES 100-YR = 10.5' APPROX.
 *>>>>>
  OUTE RESERVOIR    ID=8 HYD=POND14
                     INFLOW ID=14 CODE=10
                    OUTFLOW(CFS)   STORAGE(AcFt)   ELEV(FT)
                       0              0             5114
                    144              17.05          5116
                    324              35.10          5118
                    432              53.90          5120
                    522              73.50          5122
                    594              93.65          5124
                    636             107.9           5125.3
                   1481             115.6           5126
                   5514             134.4           5127.5
 .RINT HYD           ID=8       CODE=10
 *S >>>>>
 *S >>>>> DIVIDE 0 CFS FROM LADERA POND #14 AND SEND TO WEST BLUFF
  IVIDE HYD         ID=8       Q=0.1
                    ID=44      HYD=TO_LADOURAY
                    ID=45      HYD=15INFLOW
*>>>>>
*>>>>> ROUTE 0 CFS DOWNSTREAM TO WEST BLUFF OUTFALL IN PROPOSED 60" RCP
 >>>>>
  ROUTE FLOW FROM POND #14 AT WEST BLUFF OUTFALL
 OMPUTE RATING CURVE ID=1 VS NO=1 CODE=-1
                    SLP=0.00686  DIA=60   N=0.013
ROUTE MCUNGE        ID=18   HYD=RTE_TO_WB   INFLOW ID=44  DT=0HR  L=3900
 RINT HYD           ID=18   CODE=10
*S***************************************************************************
*S          CALCULATE RUNOFF FOR SINGLE BASIN JUST SOUTH OF POND 14            *
*S                          REGION K                                           *
*S***************************************************************************
*S  COMPUTE HYD ABOVE AP 205 LADERA DR WEST OF OURAY DR
COMPUTE NM HYD      ID=3   HYD=205   DA=0.0077 SQ MI
                    PER A=0  PER B=0  PER C=75  PER D=25
                    TP=-0.1333    RAIN=-1
 RINT HYD           ID=3       CODE=10
*
*S  ROUTE OLF FROM AP 204 TO AP 205 NORTH IN LADERA DR
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.0131        FP SLP=.0131
                    N=.025  STA=10    N=.017  STA=96.01   N=.025  STA=100.01
                    DIST    ELEV      DIST    ELEV        DIST    ELEV
                    0       1.5       .01     1           10      .67
                    10.01   0         25      .5          25.01   1
                    43      1.2       61      1           61.01   .5
                    96      0         96.01   .67         100     1
                    100.01  1.5
ROUTE MCUNGE        ID=2  HYD=205_1  INFLOW ID=19  DT=0HR  L=1300
                    NS=0   SLOPE=.0131  MATCODE=0  REGCODE=0  CCODE=0
```

```
PRINT HYD          ID=2      CODE=10

S  TOTAL OLF AT AP 205
ADD HYD            ID=4      HYD=205_2
                   ID=2      ID=3
PRINT HYD          ID=4      CODE=10
S
 SS DISCHARGE TO LADERA DETENTION AREA DAM NO 15
 SS IS AT A LOW PT; ID=46 IS 24" RCP & GOES TO DAM 15
DIVIDE HYD         ID=4      Q=32
                   ID=46     HYD=205_3 SS FLOW
                   ID=2      HYD=205_4 REMAINDER
S
S
*S**************************************************************************
*S   CALCULATE RUNOFF FOR BASINS DRAINING TO WEST BLUFF OUTFALL AT COORS ROAD  *
S                              REGION L
S**************************************************************************
S

*S  ADD LAURELWOOD POND TO THE UNSER SPILLWAY STORMDRAIN
DD HYD             ID=4   HYD=617_5
                   ID=72   ID=41
RINT HYD           ID=4   CODE=10
*


S ROUTE UNSER STORM DRAIN FROM LAURELWOOD TO 68TH STREET
OMPUTE RATING CURVE ID=1   VS NO=1
                   CODE=-1   SLP=.005
                   DIA=96    N=.013
OUTE MCUNGE        ID=74  HYD=610_4   INFLOW ID=4   DT=0HR  L=1300
                   NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD           ID=74   CODE=10
*S
*S**************************************************************************
*S*** CONTINUED ROUTING OF SD FROM 68TH STREET TO WB- LEM 1/2/06
S**************************************************************************

S ROUTE UNSER STORM DRAIN FROM 68TH STREET TO WB
COMPUTE RATING CURVE ID=1   VS NO=1
                   CODE=-1   SLP=.005
                   DIA=96    N=.013
UTE MCUNGE         ID=73  HYD=610_4   INFLOW ID=74   DT=0HR  L=1300
                   NS=0  SLOPE=.005   MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD          ID=73   CODE=10

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

S  COMPUTE OLF ABOVE AP 618A   TORATOLLA ACERS
COMPUTE NM HYD     ID=6   HYD=618_1   DA=.0520SQ MI
                   PER A=0  PER B=19  PER C=39  PER D=42
                   TP=-0.2418   RAIN=-1
RINT HYD           ID=6   CODE=10
S
*S  COMPUTE OLF ABOVE AP 618B  SCHOOL AND PART OF LA MESA DEL OESTE
COMPUTE NM HYD     ID=7   HYD=618_2   DA=.0461 SQ MI
                   PER A=0  PER B=19  PER C=39  PER D=42
                   TP=-0.1612   RAIN=-1
RINT HYD           ID=7   CODE=10
*S
*S  ROUTE OLF FROM BASIN 618A THOUGH 618B  ASSUME 32'FL-FL STREET SECTION
OMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                   ELMIN=0  ELMAX=1.5
                   CH SLP=.005   FP SLP=.005
                   N=.025  STA=9  N=.017  STA=41  N=.025  STA=50.01
                   DIST    ELEV   DIST    ELEV    DIST    ELEV
                   0       1.5    .01     1       9       .67
                   9.01    0      25      .32     40.99   0
                   41      .67    50      1       50.01   1.5
ROUTE MCUNGE       ID=3  HYD=618_3  INFLOW ID=6  DT=0HR  L=1100
                   NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD           ID=3   CODE=10
S
S ADD ROUTED FLOW FROM 618A TO FLOW FROM 618B
ADD HYD            ID=5 HYD=618_4
                   ID=7  ID=3
RINT HYD           ID=5 CODE=10
S
S ROUTE COMBINED FLOW FROM BASINS 618A&B VIA SD TO 619B
COMPUTE RATING CURVE ID=1   VS NO=1
                   CODE=-1   SLP=.010
                   DIA=48    N=.013
UTE MCUNGE         ID=86  HYD=618_5   INFLOW ID=5  DT=0HR  L=350
                   NS=0  SLOPE=.010   MATCODE=0  REGCODE=0  CCODE=0
RINT HYD           ID=86   CODE=10
**************************************************************************
*S  COMPUTE OLF ABOVE AP 619A CHAMISA
OMPUTE NM HYD      ID=7   HYD=619   DA=.0220 SQ MI
                   PER A=0  PER B=25  PER C=20  PER D=55
                   TP=-0.1340    RAIN=-1
PRINT HYD          ID=7 CODE=10
```

```
*S  ADD BASIN 619A TO ROUTED FLOW FROM 617B
)D HYD              ID=22 HYD=122
                    ID=7 ID=93
RINT HYD            ID=22 CODE=10
*S
*S ROUTE 619A TO 619B
OMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
OUTE MCUNGE         ID=93  HYD=193.4  INFLOW ID=22 DT=0HR  L=350
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=93   CODE=10
;
;  COMPUTE OLF ABOVE AP 619B CANDLEWOOD
OMPUTE NM HYD       ID=5   HYD=620   DA=.0045SQ MI
                    PER A=0  PER B=25  PER C=20  PER D=55
                    TP=-0.1340    RAIN=-1
RINT HYD            ID=5 CODE=10
;
; ADD BASIN 619B TO ROUTED FLOW FROM 619A
ADD HYD             ID=10 HYD=619_6
                    ID=5  ID=93
RINT HYD            ID=10 CODE=10

; ADD BASINS 618A&B TO ROUTED FLOW AT 619B
ADD HYD             ID=23 HYD=123
                    ID=10 ID=86
RINT HYD            ID=23 CODE=10
;
; ROUTE 619B TO 621A
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
OUTE MCUNGE         ID=93  HYD=193.4  INFLOW ID=23 DT=0HR  L=750
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=93   CODE=10
;
*S  COMPUTE OLF ABOVE AP 621A  EAST PART OF LA MESA DEL OESTE
OMPUTE NM HYD       ID=7   HYD=621_1   DA=.0235SQ MI
                    PER A=0  PER B=19  PER C=39  PER D=42
                    TP=-0.1340    RAIN=-1
RINT HYD            ID=7   CODE=10
*S

; ADD BASINS 621A TO ROUTED FLOW FROM 619B
)D HYD              ID=24 HYD=124
                    ID=7 ID=93
PRINT HYD           ID=24 CODE=10

;
; ASSUME BASIN 619C CONTRIBUTES NO RUNOFF TO THE CHANNEL
; ROUTE 621A TO 621B
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                    ELMIN=0  ELMAX=5.0
                    CH SLP=.005   FP SLP=.005
                    N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                    DIST    ELEV   DIST    ELEV    DIST    ELEV
                    0       5.0    15.0     0       45       0
                    60      5.0
)UTE MCUNGE         ID=93  HYD=193.4  INFLOW ID=24 DT=0HR  L=550
                    NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=93   CODE=10
*S
*S  COMPUTE OLF ABOVE AP 621B  JUNIPER RUN
OMPUTE NM HYD       ID=6   HYD=621_3   DA=.0143SQ MI
                    PER A=0  PER B=19  PER C=39  PER D=42
                    TP=-0.1340    RAIN=-1
PRINT HYD           ID=6   CODE=10
*S
*; ADD BASIN 621B TO ROUTED FLOW FROM 621A
)D HYD              ID=25 HYD=125
                    ID=6 ID=24
PRINT HYD           ID=25 CODE=10
*S
*S  COMPUTE OLF ABOVE AP 621C
OMPUTE NM HYD       ID=6   HYD=621_5   DA=.0320 MI
                    PER A=0  PER B=20  PER C=20  PER D=60
                    TP=-0.1448    RAIN=-1
PRINT HYD           ID=6   CODE=10
*S
; ROUTE FLOW FROM 621C IN STORM DRAIN TO 1-40 CHANNEL
OMPUTE RATING CURVE ID=1   VS NO=1
                    CODE=-1   SLP=.0090
                    DIA=30   N=.013
ROUTE MCUNGE        ID=2  HYD=621_6   INFLOW ID=6   DT=0HR  L=700
                    NS=0  SLOPE=.0090   MATCODE=0  REGCODE=0  CCODE=0
```

```
PRINT HYD            ID=2    CODE=10
*
* COMPUTE HYD FOR BASIN 621D - 64TH STREET FROM JUNIPER TO CHANNEL
COMPUTE NM HYD       ID=6 HYD=627 DA=0.0015
                     PER A=0  PER B=19  PER C=39  PER D=42
                     TP=-0.1448    RAIN=-1
PRINT HYD            ID=6    CODE=10
*
* ADD BASIN 621D TO ROUTED FLOW FROM 621C
ADD HYD              ID=4 HYD=621_8
                     ID=6 ID=2
PRINT HYD            ID=4 CODE=10.0
*
* ADD BASIN 621C TO ROUTED FLOW AT 621B
ADD HYD              ID=26 HYD=126
                     ID=4 ID=25
PRINT HYD            ID=26 CODE=10
*
*  ROUTE  FLOW FROM 621B TO 622A
COMPUTE RATING CURVE ID=1   VS NO=1  NO SEGS=3
                     ELMIN=0  ELMAX=5.0
                     CH SLP=.005   FP SLP=.005
                     N=.030  STA=15  N=.020  STA=45  N=.030  STA=60
                     DIST    ELEV   DIST    ELEV    DIST    ELEV
                     0       5.0    15.0    0       45      0
                     60      5.0
ROUTE MCUNGE         ID=93  HYD=193.4  INFLOW ID=26 DT=0HR  L=550
                     NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=93   CODE=10
*S*****************************************************************************************
*S*              CHANGED WILSON MODEL TO INCLUDE FLOW FROM WMDC                           *
*S*****************************************************************************************

*  ADD ROUTED HYD FROM AP 531 TO ROUTED FLOW FROM 621B
*S  TOTAL HYD AT CONFLUENCE OF I40 CHANNEL AND WMDC
ADD HYD              ID=31  HYD=622_5
                     ID=42  ID=93
PRINT HYD            ID=31  CODE=0

*S  COMPUTE OLF ABOVE AP 622A
COMPUTE NM HYD       ID=6   HYD=622_1   DA=.009 MI
                     PER A=0  PER B=19  PER C=39  PER D=42
                     TP=-0.1340    RAIN=-1
PRINT HYD            ID=6 CODE=10
*S

*S ADD BASIN 622A TO ROUTED FLOW FROM 621B
ADD HYD              ID=27 HYD=127
                     ID=6 ID=31
PRINT HYD            ID=27 CODE=10

*S*****************************************************************************************
*S*              END OF CHANGES TO INCLUDE WMDC                                           *
*S*****************************************************************************************
*S  COMPUTE OLF ABOVE AP 622B
COMPUTE NM HYD       ID=6   HYD=622_2   DA=.006643 MI
                     PER A=0  PER B=30 PER C=35  PER D=35
                     TP=-0.1340    RAIN=-1
PRINT HYD            ID=6 CODE=10
*S
*S ADD BASIN 622B TO ROUTED FLOW FROM 622A
ADD HYD              ID=28 HYD=128
                     ID=6 ID=27
PRINT HYD            ID=28 CODE=10
*S
* ROUTE CHANNEL FLOW THROUGH THE WEST BLUFF OUTFALL DEBRIS BASIN
ROUTE RESERVOIR      ID=93 HYD=621_10
                     INFLOW ID=27 CODE=12.4
*                      OUTFLOW          STORAGE          ELEV
*                      (CFS)            (AC-FT)          (FT)
                         0                0              5087
                         6.0              1.75           5088
                         10.35            3.57           5089
                         13.35            5.45           5090
                         15.80            7.39           5091
                         485.94           9.40           5092
                         1394.25          11.47          5093

                        0.0              0.00           5079
                        0.20             0.01           5080
                        0.40             0.25           5081
                        0.60             0.54           5082
                        0.80             0.86           5083
                         1.0             1.22           5084
                         1.3             1.63           5085
                         1.6             2.36           5086
                         2.0             3.47           5087
                        40.0             4.63           5088
                       351.0             5.84           5089
                       524.0             7.10           5090
                       693.0             8.41           5091
                      1110.0             9.78           5092
                      1254.0            11.19           5093
```

```
*S??????????????????????????????????????????????????
S ADD UNSER SD TO PARKWAY CHANNEL
DD HYD                ID=99 HYD=610_16
                      ID=73 ID=28
PRINT HYD             ID=99 CODE=10
*S??????????????????????????????????????????????????
  ROUTE CHANNEL FLOW THROUGH THE WEST BLUFF OUTFALL DEBRIS BASIN
ROUTE RESERVOIR       ID=93 HYD=621_10
*                     INFLOW ID=99 CODE=12.4
*                       OUTFLOW          STORAGE          ELEV
                        (CFS)            (AC-FT)          (FT)
                          0                0               5087
                          6.0              1.75            5088
*                         10.35            3.57            5089
*                         13.35            5.45            5090
                          15.80            7.39            5091
                          485.94           9.40            5092
                          1394.25          11.47           5093

*S**************************************************************************************************
S*              END OF COPIED SECTION FROM WILSON FINAL_PU.HMI                                     *
S**************************************************************************************************

*S  COMPUTE OLF ABOVE AP 623  68TH ST AND MIAMI RD
OMPUTE NM HYD         ID=7    HYD=623   DA=.0300 SQ MI
                      PER A=0  PER B=13  PER C=19  PER D=68
                      TP=-0.1504    RAIN=-1
PRINT HYD             ID=7    CODE=10
*S
*S  COMPUTE OLF ABOVE AP 624
OMPUTE NM HYD         ID=6    HYD=624   DA=.0465 SQ MI
                      PER A=0  PER B=9  PER C=18  PER D=73
                      TP=-0.2267    RAIN=-1
PRINT HYD             ID=6    CODE=10
*S
S  COMPUTE OLF ABOVE AP 625  64TH ST AND MIAMI RD
OMPUTE NM HYD         ID=5    HYD=625   DA=.0386 SQ MI
                      PER A=0   PER B=9  PER C=17  PER D=74
                      TP=-0.1374    RAIN=-1
PRINT HYD             ID=5    CODE=10

S  ROUTE OLF FROM AP 623 TO AP 625 DOWN MIAMI RD  40 FT FL TO FL  60 FT ROW
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                     ELMIN=0    ELMAX=1.5
                     CH SLP=.0054      FP SLP=.0054
                     N=.025  STA=10    N=.017  STA=50      N=.025  STA=60.01
                     DIST    ELEV      DIST    ELEV        DIST    ELEV
                     0       1.5       .01     1           10      .67
                     10.01   0         30      .4          49.99   0
                     50      .67       60      1           60.01   1.5
OUTE MCUNGE          ID=2  HYD=625_4  INFLOW ID=7  DT=0HR  L=1170
                     NS=0   SLOPE=.0054  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD             ID=2       CODE=10
*
*S  ADD ROUTED FLOW FROM AP 623 TO OLF ABOVE AP 625
D HYD                ID=4       HYD=625_5
                     ID=2       ID=5
RINT HYD             ID=4       CODE=10
*
*S  ROUTE OLF FROM AP 624 TO AP 625 ASSUME 32 FT FL TO FL ST SECTION
OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                    ELMIN=0    ELMAX=1.5
                    CH SLP=.003      FP SLP=.003
                    N=.025  STA=9    N=.017  STA=41      N=.025  STA=50.01
                    DIST    ELEV     DIST    ELEV        DIST    ELEV
                    0       1.5      .01     1           9       .67
                    9.01    0        25      .32         40.99   0
                    41      .67      50      1           50.01   1.5
ROUTE MCUNGE        ID=3  HYD=625_6  INFLOW ID=6  DT=0HR  L=580
                    NS=0   SLOPE=.003  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD            ID=3       CODE=10

  ADD ROUTED OLF FROM AP 624 TO AP 625
ADD HYD             ID=10      HYD=625_7
                    ID=3       ID=4
RINT HYD            ID=10      CODE=10

  COMPUTE OLF ABOVE AP 626  ESTANCIA DR AND MIAMI RD
COMPUTE NM HYD        ID=3    HYD=626   DA=.0744 SQ MI
                      PER A=0  PER B=11  PER C=20  PER D=69
                      TP=-0.1918    RAIN=-1
INT HYD               ID=3    CODE=10

S  ROUTE OLF AT AP 625 TO AP 626 ASSUME 40 FT FL TO FL STREET SECTION
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                     ELMIN=0    ELMAX=1.5
                     CH SLP=.0108      FP SLP=.0108
                     N=.025  STA=10    N=.017  STA=50      N=.025  STA=60.01
                     DIST    ELEV      DIST    ELEV        DIST    ELEV
                     0       1.5       .01     1           10      .67
                     10.01   0         30      .4          49.99   0
                     50      .67       60      1           60.01   1.5
```

```
ROUTE MCUNGE          ID=2  HYD=626_4  INFLOW ID=10  DT=0HR  L=1050
                      NS=0   SLOPE=.0108  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=2       CODE=10

*S  ADD ROUTED HYD FROM AP 625 TO OLF ABOVE AP 626
*S  TOTAL OLF AT AP 626 ESTANCIA AVENUE
DD HYD                ID=20      HYD=626_5
                      ID=2       ID=3
RINT HYD              ID=20      CODE=10
*S
*S  COMPUTE OLF ABOVE AP 627 57TH ST AND QUAIL RD
OMPUTE NM HYD         ID=4   HYD=627   DA=.0861 SQ MI
                      PER A=0  PER B=20  PER C=20  PER D=60
                      TP=-0.2298    RAIN=-1
PRINT HYD             ID=4   CODE=10
*S
S  COMPUTE OLF ABOVE AP 628  OURAY RD EAST OF ESTANCIA RD
OMPUTE NM HYD         ID=10   HYD=628   DA=.0559 SQ MI
                      PER A=0  PER B=22  PER C=22  PER D=56
                      TP=-0.5402    RAIN=-1
PRINT HYD             ID=10   CODE=10
S
S  COMPUTE OLF ABOVE AP 629  57TH ST AND OURAY RD
OMPUTE NM HYD         ID=5    HYD=629   DA=.0581 SQ MI
                      PER A=0   PER B=6  PER C=15  PER D=79
                      TP=-0.2010    RAIN=-1
RINT HYD              ID=5    CODE=10

S  ROUTE OLF FROM AP 627 TO AP 629 DOWN ATRISCO DR (COLLECTOR)  ASSUME 36" SS
DIVIDE HYD            ID=4      Q=37
                      ID=9      HYD=629_4  SS GOING N IN LADERA
                      ID=8      HYD=629_5  OLF GOING N IN LADERA

S  ROUTE SS FROM AP 627 TO AP 629 DOWN ATRISCO DR
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                      SLP=.004  DIA=36   N=.013
ROUTE MCUNGE          ID=2  HYD=629_4  INFLOW ID=9  DT=0HR  L=1100
                      NS=0   SLOPE=.004  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=2       CODE=10

*S  ROUTE OLF FROM AP 627 TO AP 629  DOWN ATRISCO DR
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                      ELMIN=0    ELMAX=1.5
                      CH SLP=.003       FP SLP=.003
                      N=.025  STA=10    N=.017  STA=58      N=.025  STA=68.01
                      DIST    ELEV      DIST    ELEV        DIST    ELEV
                      0       1.5       .01     1           10      .67
                      10.01   0         34      .48         57.99   0
                      58      .67       68      1           68.01   1.5
OUTE MCUNGE           ID=3  HYD=629_7  INFLOW ID=8  DT=0HR  L=1100
                      NS=0   SLOPE=.003  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=3       CODE=10

S  ROUTE OLF FROM AP 628 TO AP 629  DOWN OURAY RD  ASSUME 24" SS
IVIDE HYD             ID=10     Q=12
                      ID=9      HYD=629_8  SS GOING N IN LADERA
                      ID=8      HYD=629_9  OLF GOING N IN LADERA

S  ROUTE SS FROM AP 628 TO AP 629 E IN OURAY RD
OMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                      SLP=.004  DIA=24   N=.013
ROUTE MCUNGE          ID=4  HYD=629_1  INFLOW ID=9  DT=0HR  L=900
                      NS=0   SLOPE=.004  MATCODE=0  REGCODE=0  CCODE=0
RINT HYD              ID=4       CODE=10

*S  ROUTE OLF FROM AP 628 TO AP 629 IN OURAY. ASSUME ALL FLOW IN N HALF OF ST
COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                      ELMIN=0    ELMAX=1.5
                      CH SLP=.003       FP SLP=.003
                      N=.025  STA=10    N=.017  STA=34.01   N=.025  STA=43.01
                      DIST    ELEV      DIST    ELEV        DIST    ELEV
                      0       1.5       .01     1           10      .67
                      10.01   0         34      .48         34.01   .98
                      43      1.16      43.01   1.5
UTE MCUNGE            ID=6  HYD=629_2  INFLOW ID=8  DT=0HR  L=900
                      NS=0   SLOPE=.003  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD             ID=6       CODE=10
*
S  ADD ROUTED OLF FROM AP 628 TO OLF ABOVE AP 629
D HYD                 ID=1       HYD=629_3
                      ID=5       ID=6
PRINT HYD             ID=1       CODE=10
*
   ADD ROUTED OLF FROM AP 627 TO HYD AT AP 629
S  TOTAL OLF HYDS AT AP 629
ADD HYD               ID=7       HYD=629_4
                      ID=3       ID=1
PRINT HYD             ID=7       CODE=10

S  ADD ROUTED SS FROM AP 627 AND AP 628
ADD HYD               ID=8       HYD=629_5
                      ID=2       ID=4
PRINT HYD             ID=8       CODE=10
```

```
*S  ADD SS TO OLF
 S  TOTAL HYD AT AP 629  57TH ST AND OURAY RD
 DD HYD              ID=10      HYD=629_6
                     ID=7       ID=8
PRINT HYD            ID=10      CODE=10
*S
 S  COMPUTE OLF ABOVE AP 630 57TH ST AND MIAMI RD
 OMPUTE NM HYD       ID=5    HYD=630   DA=.0773 SQ MI
                     PER A=0   PER B=4  PER C=12  PER D=84
                     TP=-0.3364    RAIN=-1
PRINT HYD            ID=5    CODE=10

 S  ROUTE FLOW FROM AP 626 TO AP 630  DOWN MIAMI RD ASSUME 54" SS
 S  SEPARATE OLF FROM SS
DIVIDE HYD           ID=20     Q=175
                     ID=9      HYD=630_4  SS GOING N IN LADERA
                     ID=8      HYD=630_5  OLF GOING N IN LADERA

 S  ROUTE SS FROM AP 626 TO I-40 CHANNEL
COMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                     SLP=.0105 DIA=54   N=.013
 OUTE MCUNGE         ID=2  HYD=630_6  INFLOW ID=9  DT=0HR  L=950
                     NS=0   SLOPE=.0105  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=2       CODE=10
*
*S  ROUTE OLF FROM AP 626 TO AP 630 DOWN MIAMI RD  AT I-40 CHANNEL
 OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                     ELMIN=0    ELMAX=1.5
                     CH SLP=.0032       FP SLP=.0032
                     N=.025  STA=10     N=.017  STA=50       N=.025  STA=60.01
                     DIST    ELEV       DIST    ELEV         DIST    ELEV
                     0       1.5        .01     1            10      .67
                     10.01   0          30      .4           49.99   0
                     50      .67        60      1            60.01   1.5
ROUTE MCUNGE         ID=3  HYD=630_7  INFLOW ID=8  DT=0HR  L=950
                     NS=0   SLOPE=.0032  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=3       CODE=10

 S  ADD ROUTED SS AND OLF FROM AP 626 AT I-40 CHANNEL
ADD HYD              ID=4       HYD=630_8
                     ID=2       ID=3
PRINT HYD            ID=4       CODE=10

 S  DIVIDE & ROUTE SS AND OLF FROM AP 629 DOWN OURAY TO COORS
DIVIDE HYD           ID=10     Q=88
                     ID=9      HYD=630_9 SS GOING E
                     ID=8      HYD=630_10 OLF GOING E
 OMPUTE RATING CURVE ID=1     VS NO=1    CODE=-1
                     SLP=.005  DIA=48   N=.013
 OUTE MCUNGE         ID=2  HYD=630_2  INFLOW ID=9  DT=0HR  L=450
                     NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2       CODE=10

 S  ROUTE OLF FROM AP 629 TO COORS
 OMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=3
                     ELMIN=0    ELMAX=1.5
                     CH SLP=.006        FP SLP=.006
                     N=.025  STA=10     N=.017  STA=58       N=.025  STA=68.01
                     DIST    ELEV       DIST    ELEV         DIST    ELEV
                     0       1.5        .01     1            10      .67
                     10.01   0          34      .48          57.99   0
                     58      .67        68      1            68.01   1.5
 OUTE MCUNGE         ID=3  HYD=630_3  INFLOW ID=8  DT=0HR  L=450
                     NS=0   SLOPE=.005  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=3       CODE=10
*
*S  ADD ROUTED SS AND OLF FROM AP 629 AT COORS
 OD HYD              ID=7       HYD=630_4
                     ID=2       ID=3
 RINT HYD            ID=7       CODE=10
*
*S  ROUTE FLOW AT AP 622 TO  MIAMI RD AND I-40 CHANNEL
 OMPUTE RATING CURVE ID=1  VS NO=1   NO SEGS=1
                     ELMIN=0   ELMAX=14
                     CH SLP=.0058   FP SLP=.0058
                     N=.015   STA=210.02
                     DIST   ELEV   DIST   ELEV   DIST   ELEV
                     0      14      100    12   100.01    0
                     110.01  0    110.02   12   210.02   14
 OUTE MCUNGE         ID=2  HYD=630_5  INFLOW ID=99  DT=0HR  L=1500
                     NS=0   SLOPE=.0058  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2       CODE=10
*
 S  ADD ROUTED SS AND OLF FROM AP 626 TO OLF ABOVE AP 630
 OD HYD              ID=3       HYD=630_6
                     ID=4       ID=5
PRINT HYD            ID=3       CODE=10
*
 S  ADD ROUTED FLOW FROM AP 622 TO HYD AT AP 630
 S  TOTAL AT MIAMI RD AND I-40 CHANNEL
ADD HYD              ID=5       HYD=630_7
                     ID=2       ID=3
PRINT HYD            ID=5       CODE=10
```

```
*S  ROUTE FLOW FROM MIAMI RD TO 57TH ST
 S  TOTAL FLOW AT AP 630 I-40 CHANNEL WEST OF COORS BLVD AND SOUTH OF OURAY
 OMPUTE RATING CURVE ID=1     VS NO=1     NO SEGS=1
                     ELMIN=0     ELMAX=12
                     CH SLP=.0058        FP SLP=.0058
                     N=.015  STA=12.02
                     DIST     ELEV       DIST     ELEV         DIST     ELEV
                     0        12         .01      0            12.01    0
                     12.02    12
ROUTE MCUNGE         ID=10  HYD=630_8  INFLOW ID=5  DT=0HR  L=242
                     NS=0    SLOPE=.0058  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=10       CODE=10
 S
 S  COMPUTE OLF ABOVE AP 631
COMPUTE NM HYD       ID=3     HYD=631    DA=.0570 SQ MI
                     PER A=0  PER B=2  PER C=10  PER D=88
                     TP=-0.2507     RAIN=-1
 RINT HYD            ID=3     CODE=10

*S  ROUTE FLOW FROM AP 631 TO AP 630 ASSUME 84" SS
COMPUTE RATING CURVE ID=1      VS NO=1     CODE=-1
                     SLP=.004  DIA=84    N=.013
 OUTE MCUNGE         ID=2  HYD=631_4  INFLOW ID=3  DT=0HR  L=626
                     NS=0    SLOPE=.0034  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD            ID=2        CODE=10
*
*S  ADD ROUTED FLOW FROM AP 631 TO TOTAL FLOW AT AP 630
 DD HYD              ID=6       HYD=630_9
                     ID=2       ID=10
PRINT HYD            ID=6       CODE=10
*S
*S  COMPUTE OLF ABOVE AP 632
 OMPUTE NM HYD       ID=5     HYD=632    DA=.0329 SQ MI
                     PER A=0  PER B=10  PER C=14  PER D=76
                     TP=-0.1458     RAIN=-1
PRINT HYD            ID=5     CODE=10
*S
 S  COMPUTE HYD ABOVE AP 633  CORONA RD AND OURAY RD
 OMPUTE NM HYD       ID=4     HYD=633    DA=.0910 SQ MI
                     PER A=0  PER B=8  PER C=12  PER D=80
                     TP=-0.2712     RAIN=-1
PRINT HYD            ID=4     CODE=10

 S  ROUTE OLF FROM AP 632 TO AP 633 SOUTH IN CORONA DR  ASSUME 54" SS
   ASSUME ALL FLOW INTERCEPTED BY SS
COMPUTE RATING CURVE ID=1      VS NO=1     CODE=-1
                     SLP=.0034 DIA=54    N=.013
 OUTE MCUNGE         ID=2  HYD=633_4  INFLOW ID=5  DT=0HR  L=1600
                     NS=0    SLOPE=.0034  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=2        CODE=10
*
*S  ADD ROUTED FLOW FROM AP 632 TO OLF AT AP 633
 S  TOTAL AT CORONA DR AND OURAY RD
 DD HYD              ID=5        HYD=633_5
                     ID=2        ID=4
PRINT HYD            ID=5        CODE=10
*
 S  ROUTE FLOW FROM CORONA DR AND OURAY RD TO COORS AND OURAY
 OMPUTE RATING CURVE ID=1      VS NO=1     CODE=-1
                     SLP=.00485 DIA=60    N=.013
ROUTE MCUNGE         ID=2  HYD=633_6  INFLOW ID=5  DT=0HR  L=1030
                     NS=0    SLOPE=.00485  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=2        CODE=10

 S  ADD ROUTED FLOW FROM OURAY/CORONA TO ROUTED FLOW FROM AP 629 AT COORS/OURAY
ADD HYD              ID=4        HYD=630_9
                     ID=2        ID=7

 S  ROUTE TOTAL FLOW AT COORS AND OURAY TO AP 630;  ASSUME ALL FLOW IN 72" SS
 OMPUTE RATING CURVE ID=1      VS NO=1     CODE=-1
                     SLP=.0168 DIA=72    N=.013
ROUTE MCUNGE         ID=3  HYD=633_4  INFLOW ID=4  DT=0HR  L=855
                     NS=0    SLOPE=.0168  MATCODE=0  REGCODE=0  CCODE=0
 RINT HYD            ID=3        CODE=10

*S  ADD ROUTED STORM SEWER FLOW FROM COORS AND OURAY TO TOTAL FLOW AT AP 630
*S  TOTAL FLOW FROM WEST BLUFF WATERSHED AT WEST BLUFF DRAINAGE FACILITY
*  (DOES NOT INCLUDE FLOW TO BE ROUTED FROM LADERA PONDS - 200 CFS)
 DD HYD              ID=47       HYD=630_1
                     ID=3        ID=6
PRINT HYD            ID=47       CODE=10
*S
*S  ADD FLOW FROM WEST BLUFF WATERSHED TO FLOW FROM LADERA SYSTEM AT
 S  INLET OF WEST BLUFF FACILITY
 DD HYD              ID=49      HYD=TOWB
                     ID=18      ID=47
PRINT HYD            ID=49      CODE=10
*S
 S  COMPUTE OLF ABOVE AP 702  ALAMOGORDO DR AND BRIDGE AVENUE
 OMPUTE NM HYD       ID=1     HYD=702    DA=.0200 SQ MI
                     PER A=0  PER B=41.50  PER C=10.37  PER D=48.13
                     TP=-0.1897     RAIN=-1
PRINT HYD            ID=1     CODE=10
 S
```

```
*S**************************
*  TOTAL FLOW AT WB OUTFALL
*S**************************
ADD HYD             ID=49     HYD=TOTWB
                    ID=1      ID=49
PRINT HYD           ID=49     CODE=10
*  PLOT12   HYD=TOTWB
PLOT HYD            ID=49  ID=0   Q SCALE=3000  T SCALE=6
FINISH
*
*S
*S*****************************************************************************
*     CALCULATE RUNOFF FOR BASINS DRAINING TO LADERA GOLF COURSE POND #15
*                              REGION M
*S*****************************************************************************
* RAINFALL FOR LADERA BASINS NOT INCLUDING ABOVE DAM #12, SAME AS W BLUFF RAIN

SEDIMENT BULK        CODE=1   BULK FACTOR=1.08

*S  COMPUTE HYDROGRAPH FOR BASIN L15.7
*  WAS BASIN 133.33 IN DAM15 STUDY
COMPUTE NM HYD      ID=4      HYD=15.7   DA=0.0281 SQ MI
                    PER A=41  PER B=22  PER C=32  PER D=5
                    TP=-0.133    RAIN=-1
PRINT HYD           ID=4      CODE=10
*
*S***** ROUTE FLOW THRU INLET TO 36" PIPE
ROUTE RESERVOIR     ID=11     HYD=L15.7_1
                    INFLOW ID=4   CODE=10
                    OUTFLOW          STORAGE       ELEV
                    (CFS)            (AC-FT)       (FT)
                    0.0               0.0          0.0
                    63.8              0.1          0.1
                    63.9              14.9         4.4
                    64.0              15.0         4.5
PRINT HYD           I=11     CODE=10
*
****** ROUTE FLOW THRU 450' OF 36" RCP PIPE
COMPUTE RATING CURVE ID=1   VS NO=1   NO SEGS=-1
                    SLP=0.00796
                    DIA=36 INCHES    N=0.013
ROUTE MCUNGE        ID=5  HYD=L15.7_2   INFLOW ID=11  DT=0HR  L=450
                    NS=0   SLOPE=.00796  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=5    CODE=10

*S  COMPUTE HYDROGRAPH FOR BASIN L15.6
*  WAS BASIN 133.4 IN DAM15 STUDY
COMPUTE NM HYD      ID=3     HYD=L15.6   DA=0.3063 SQ MI
                    PER A=99  PER B=1  PER C=0  PER D=0
                    TP=-0.362    RAIN=-1
PRINT HYD           ID=3     CODE=10
*
***** ADD BASIN L15.6 TO PIPE FLOW
ADD HYD             ID=9     HYD=L15.6_1
                    ID=3     ID=5
PRINT HYD           ID=9     CODE=10
*
***** ROUTE FLOW THRU INLET TO 54" PIPE
ROUTE RESERVOIR     ID=11    HYD=L15.6_2
                    INFLOW ID=9  CODE=10
                    OUTFLOW(CFS)   STORAGE(AC FT)    DEPTH(FT)
                    0              0                 0
                    171.8          0.1               0.1
                    171.9          14.9              6.65
                    172.0          15.0              6.75
PRINT HYD           ID=11          CODE=10
*
***** ROUTE FLOW THRU 450' OF 54" RCP PIPE
COMPUTE RATING CURVE ID=1  VS NO=1   NO SEG=-1
                    SLP=0.00661
                    DIA=54 INCHES   N=0.013
ROUTE MCUNGE        ID=4  HYD=L15.6_3   INFLOW ID=11   DT=0HR  L=450
                    NS=0   SLOPE=.00661  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=4           CODE=10

* SEDIMENT BULK        CODE=1   BULK FACTOR=1.067
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L15.8
  WAS BASIN 133.5 IN DAM15 STUDY
COMPUTE NM HYD      ID=3      HYD=L15.8    DA=0.1750 SQ MI
                    PER A=35  PER B=16  PER C=34  PER D=15
                    TP=-0.187    RAIN=-1
PRINT HYD           ID=3       CODE=10

***** ADD L15.8 TO PIPE FLOW
ADD HYD             ID=5       HYD=L15.8_1
                    ID=3       ID=4
PRINT HYD           ID=5       CODE=10

***** ROUTE FLOW THRU INLET TO 60" PIPE
ROUTE RESERVOIR     ID=11    HYD=L15.8_2
                    INFLOW ID=5  CODE=10
                    OUTFLOW(CFS)   STORAGE(AC FT)    DEPTH(FT)
                    0              0                 0
```

```
                    221.8           0.1             0.1
                    221.9           14.9            7.4
                    222.0           15.0            7.5
PRINT HYD           ID=11           CODE=10
*
*S***** ROUTE FLOW THRU 1200' OF 60" RCP PIPE
COMPUTE RATING CURVE ID=1  VS NO=1   NO SEG=-1
                    SLP=0.00628
                    DIA=60 INCHES   N=0.013
ROUTE MCUNGE        ID=4  HYD=L15.9_1   INFLOW ID=11  DT=0HR  L=1200
                    NS=0   SLOPE=.00628  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=4            CODE=10

*S***** ROUTE THRU NATURAL CHANNEL IN BASIN L15.9
COMPUTE RATING CURVE ID=1         VS NO=1         NO SEG=1
                    MIN ELE=100  MAX ELEV=102   CH SLP=0.023
                    FP SLP=0.023  N=0.04         DIST=200
                    DIST   ELEV      DIST   ELEV
                     0      102       100    100
                    200     102
ROUTE MCUNGE        ID=5  HYD=L15.9_2   INFLOW ID=4  DT=0HR  L=1000
                    NS=0   SLOPE=.023  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=5 CODE=10

* SEDIMENT BULK        CODE=1   BULK FACTOR=1.025
*S
*S  COMPUTE HYDROGRAPH FOR BASIN L15.9
   WAS BASIN 133 IN DAM15 STUDY
COMPUTE NM HYD      ID=3      HYD=L15.9   DA=0.2750 SQ MI
                    PER A=0  PER B=14  PER C=17  PER D=69
                    TP=-0.223    RAIN=-1
PRINT HYD           ID=3       CODE=10

*S***** TOTAL OUTFLOW FROM AND THRU BASIN L15.9
ADD HYD             ID=6       HYD=L15.9_3
                    ID=3       ID=5
PRINT HYD           ID=6       CODE=10


*S  ORO VIEJO CHANNEL
*
*S***** ROUTE FLOW THRU FIRST PART OF CHANNEL BETWEEN L15.10 & L15.11
COMPUTE RATING CURVE ID=1         VS NO=1         NO SEG=1
                    MIN ELE=100  MAX ELEV=104.75   CH SLP=0.0054
                    FP SLP=0.0054    N=0.015        DIST=53.5
                    DIST   ELEV      DIST   ELEV
                     0      104.75   14.25   100
                    39.25   100      53.5    104.75
ROUTE MCUNGE        ID=7  HYD=L15.9_4   INFLOW ID=6  DT=0HR  L=600
                    NS=0   SLOPE=.0054  MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=7           CODE=10
*
*  COMPUTE HYDROGRAPH FOR BASIN L15.10
   WAS BASIN 133.1 IN DAM15 STUDY
COMPUTE NM HYD      ID=3      HYD=L15.10   DA=0.1219 SQ MI
                    PER A=0  PER B=25  PER C=26  PER D=49
                    TP=-0.249    RAIN=-1
PRINT HYD           ID=3       CODE=10

*  COMPUTE HYDROGRAPH FOR BASIN L15.11
*  WAS BASIN 133.2 IN DAM15 STUDY
COMPUTE NM HYD      ID=6      HYD=L15.11   DA=0.0641 SQ MI
                    PER A=0  PER B=23  PER C=24  PER D=53
                    TP=-0.216    RAIN=-1
PRINT HYD           ID=6       CODE=10
*
*S  COMBINE FLOWS FROM L15.10 & L15.11 AND ADD TO FLOW IN CHANNEL
*
ADD HYD             ID=8       HYD=L15.9_5
                    ID=3       ID=6
ADD HYD             ID=6       HYD=L15.9_6
                    ID=7       ID=8
PRINT HYD           ID=6       CODE=10

   ROUTE FLOW THRU LAST PART OF CHAN INTO LADERA GOLF COURSE
COMPUTE RATING CURVE ID=1         VS NO=1         NO SEG=1
                    MIN ELE=100  MAX ELEV=104.75   CH SLP=0.0054
                    FP SLP=0.0054    N=0.015        DIST=53.5
                    DIST   ELEV      DIST   ELEV
                     0      104.75   14.25   100
                    39.25   100      53.5    104.75
ROUTE MCUNGE        ID=11  HYD=L15.9_7   INFLOW ID=6  DT=0HR  L=900
                    NS=0   SLOPE=.0054 MATCODE=0  REGCODE=0  CCODE=0
PRINT HYD           ID=11          CODE=10

*S***** COMPUTE HYDROGRAPHS FROM ESCARPMENT AREA L15
*
* SEDIMENT BULK        CODE=1   BULK FACTOR=1.08

   COMPUTE HYDROGRAPH FOR BASIN L15.1
COMPUTE NM HYD      ID=1      HYD=L15.1   DA=0.6203 SQ MI
                    PER A=86  PER B=9  PER C=5  PER D=0
                    TP=-0.440    RAIN=-1
PRINT HYD           ID=1       CODE=10
```

```
*S
   COMPUTE HYDROGRAPH FOR BASIN L15.2
MPUTE NM HYD       ID=2       HYD=L15.2   DA=0.7453 SQ MI
                   PER A=76  PER B=18  PER C=6  PER D=0
                   TP=-0.375     RAIN=-1
PRINT HYD          ID=2        CODE=10

   ADD L15.1 & L15.2  -- COMBINED NORTH & SOUTH RINCONADA ARROYOS
D HYD              ID=20       HYD=L15.2
                   ID=1        ID=2
PRINT HYD          ID=20        CODE=10

   ROUTE COMBINED THRU L15.3  --  RINCONADA ARROYO
MPUTE RATING CURVE ID=1 VS NO=1 SEG=1
                   MIN EL=100.    MAX EL=109.
                   CH SL=0.024    FP SLOPE=0.024
                   N=0.030        DIST=42.
                   DIST    ELEV    DIST    ELEV
                   0       110     15      100
                   27      100     42      110
ROUTE MCUNGE       ID=7  HYD=L15.3_1   INFLOW ID=20  DT=0HR  L=6750
                   NS=0   SLOPE=.024  MATCODE=0  REGCODE=0  CCODE=0
INT HYD            ID=7   CODE=10

*S  COMPUTE HYDROGRAPH FOR BASIN L15.3
*  WAS BASIN 135 IN DAM15 STUDY
MPUTE NM HYD       ID=3       HYD=L15.3   DA=0.6297 SQ MI
                   PER A=61  PER B=25  PER C=13  PER D=1
                   TP=-0.280     RAIN=-1
PRINT HYD          ID=3        CODE=10
*
*S  ADD L15.1-2 AND L15.3
D HYD              ID=4        HYD=L15.3_2
                   ID=3        ID=7
PRINT HYD          ID=4        CODE=10
*
*S  ROUTE FLOW THRU 2-10'x5' CBC UNDER UNSER
MPUTE RATING CURVE ID=1       VS NO=1      NO SEGS=1
                   MIN EL=0    MAX EL=5
                   CH SLP=0.002     FP SLOPE=0.002
                   N=0.015        DIST=20.03
                   DIST   ELEV   DIST   ELEV    DIST   ELEV
                   0      5      0.01   0       10.01  0
                   10.02  5     10.03   0       20.02  0
                   20.03  5
ROUTE MCUNGE       ID=5  HYD=L15.3_3   INFLOW ID=4  DT=0HR  L=300
                   NS=0   SLOPE=.002  MATCODE=0  REGCODE=0  CCODE=0
INT HYD            ID=5        CODE=10

   ROUTE FLOW INTO RINCONADA CHANNEL
COMPUTE RATING CURVE ID=1     VS NO=1     NO SEG=1
                   MIN EL=100        MAX EL=109
                   CH SLOPE=0.0136  FP SLOPE=0.0136
                   N=0.015           DIST=42
                   DIST   ELEV    DIST   ELEV
                   0      110     15     100
                   27     100     42     110
UTE MCUNGE         ID=6  HYD=L15.4_1   INFLOW ID=5  DT=0HR  L=2200
                   NS=0   SLOPE=.0136  MATCODE=0  REGCODE=0  CCODE=0
INT HYD            ID=6       CODE=10
*
* SEDIMENT BULK         CODE=1   BULK FACTOR=1.025

   COMPUTE HYDROGRAPH FOR BASIN L15.5*  WAS BASIN 136 IN DAM15 STUDY
MPUTE NM HYD         ID=3      HYD=L15.5   DA=0.0703 SQ MI
                     PER A=0 PER B=23.4 PER C=23.4 PER D=53.2
                     TP=-0.283     RAIN=-1
INT HYD              ID=3       CODE=10

   ADD L15.5 TO FLOW IN RINCONADA CHANNEL
ADD HYD              ID=4       HYD=L15.4_2
                     ID=3       ID=6
INT HYD              ID=4       CODE=10

   ROUTE FLOW THRU RINCONADA CHANNEL TO LADERA GOLF COURSE
COMPUTE RATING CURVE  ID=1     VS NO=1    SEG NO=1
                     MIN EL=100     MAX EL=109
                     CH SLP=0.0136 FP SLP=0.0136
                     N=0.015        DIST=42
                     DIST     ELEV     DIST     ELEV
                     0        110      15       100
                     27       100      42       110
ROUTE MCUNGE         ID=7  HYD=L15.4_3   INFLOW ID=4  DT=0HR  L=1000
                     NS=0    SLOPE=.0136  MATCODE=0  REGCODE=0  CCODE=0
INT HYD              ID=7      CODE=10

*S COMPUTE HYDROGRAPH FOR BASIN L15.4
*  WAS BASIN 137 IN DAM15 STUDY
MPUTE NM HYD         ID=3       HYD=L15.4   DA=0.0766 SQ MI
                     PER A=0  PER B=21  PER C=27  PER D=52
                     TP=-0.199     RAIN=-1
PRINT HYD            ID=3      CODE=10
*S
   COMPUTE HYDROGRAPH FOR BASIN L15.12 -- LADERA GOLF COURSE
```

```
*   WAS BASIN 134 IN DAM15 STUDY
)MPUTE NM HYD        ID=4      HYD=L15.12   DA=0.3609 SQ MI
                     PER A=0  PER B=72  PER C=18 PER D=10
                     TP=-1.3877    RAIN=-1
PRINT HYD            ID=4       CODE=10
*
*********************************************************************
 DELETED ADD HYD COMBINING 134 AND 137  C. HOOVER 1/29/91
*********************************************************************
*
*S  ADD FLOW FROM RINCONADA CHANNEL TO FLOW FROM BASIN L15.4
 ;  TOTAL FLOW IN RINCONADA CHANNEL ENTERING LADERA GOLF COURSE DAM
 )D HYD               ID=2       HYD=RINC_TODAM15
                      ID=3       ID=7
PRINT HYD            ID=2       CODE=10
PUNCH HYD            ID=2       CODE=1

*********************************************************************
 DELETED ADD HYD COMBINING FLOWS FROM 134, 137, RINCONDA CHANNEL AND
* FLOWS WEST OF LADERA GOLF COURSE     C. HOOVER 1/29/91
*********************************************************************

 ; TOTAL FLOW FROM QUICK CHANNEL (AREA WEST OF LADERA GOLF COURSE)
 RINT HYD            ID=11      CODE=10
PUNCH HYD            ID=11      CODE=1
*
 ;  TOTAL FLOW FROM WEST BLUFF WATERSHED AP 205 AND DAM NO 14
 )D HYD              ID=47      HYD=DAM14_2DAM15
                     ID=45      ID=46
PRINT HYD            ID=47      CODE=10
PUNCH HYD            ID=47      CODE=1
*
*********************************************************************
 COMBINE FLOWS FROM RINCONDA CHANNEL, QUICK CHANNEL, DAM NO. 14
 AND LADERA GOLF COURSE (BASIN 134)
* TOTAL FLOW THROUGH LADERA GOLF COURSE DAM
 C. HOOVER 1/29/91
*********************************************************************

 ;  ADD FLOW FROM QUICK CHANNEL TO FLOW FROM DAM NO 14
ADD HYD              ID=3       HYD=DAM14_QUICK
                     ID=11      ID=47
 RINT HYD            ID=3       CODE=10

 ;  ADD FLOW FROM RINCONDA CHANNEL
ADD HYD              ID=5       HYD=DAM14_NRINC
                     ID=3       ID=2
 RINT HYD            ID=2       CODE=10
 ;  ADD FLOW FROM BASIN 134
 )D HYD              ID=15      HYD=TO_DAM15
                     ID=5       ID=4
PRINT HYD            ID=15      CODE=10
 ;
 ;   ROUTE FLOW THROUGH LADERA DAM15
 )UTE RESERVOIR     ID=48  HYD=POND15
                    INFLOW ID=15       CODE=10
                    OUTFLOW            STORAGE          ELEV
                    (CFS)              (AC-FT)          (FT)
                      0.0                0.0            5102.0
                     58.00               .07            5102.6
                     66.00               .22            5103.2
                     72.20              0.45            5103.8
                     75.70              1.53            5104.2
                     78.9               8.85            5104.6
                     81.6              23.3             5105.0
                     85.6              56.7             5105.6
                     89.6             102.90            5106.2
                     93.5             105.1             5106.8
                     97.4             230.2             5107.4
                     101.3            314.7             5108.0
                     105.2            412.7             5108.6
                     108.9            522.3             5109.2
                     112.5            644.5             5109.8
                     115.9            776.1             5110.4
                     119.2            906.0             5111.0
                     122.0           1037.0             5111.6
                     125.5           1174.6             5112.2
                    5128.0           1316.8             5112.8
 :INT HYD             ID=48     CODE=10
 :NISH
```

AHYMO Summary – APS Projects

```
   AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -                    - VERSION:  1997.02c      RUN DATE (MON/DAY/YR)
12/06/2011
   INPUT FILE = P:\20110349\WR\AHYMO\Workarea\OPTION~1\OPT4A_~3.TXT                          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   AHYMO FILE FOR WEST I-40 DMP REVISED
   *S   DEVELOPED CONDITIONS, 24HR, 100YR.
   *S   WITH SEDIMENT BULKING & WITHOUT SEDIMENT REDUCTION AT PONDS.
   *S
   *S  FILE: OPT4A_FINAL_10_31_11.TXT
   *S  DATE REVISED: 10/14/11
   *S*************************************************************************
   *S  MODEL REVISED FROM ORIGINAL WI40 REVISED MODEL FOR DESIGN PURPOSES
   *S    CHANGES:
   *S      1.  ALLOWED PORTION OF LOCAL FLOW FROM OS.6 TO FLOW UNDER I40 THOUGH EXI
   *S                  UTED ST.6 TO FLOW UNDER I40 THROUGH EXISTING CULVERT  6/8/06
   *S                  W TO 98TH STREET BOXES OUTFALL EAST OF 98TH STREET IN CHANNE
   *S                  S ALONG I40 TO ACCOUNT FOR STUB-OUT PLACEMENTS  6/13/06 WI40
   *S                  5.  EASP RESIZED FOR SURGE POND CONDITIONS 6/13/06
   *S                  .  ROADWAY FLOW ADDED TO THE I-40 SD AT 8 LOCATIONS. 6/21/06
   *S                  ROM 98TH BOXES AND SD TOGETHER IN ST.8    6/28/06          W
   *S      8.  CHANGED I40 PIPE SIZES TO REFECT CURRENT DESIGN         6/28/06
   *S                  ESS PARK LAYOUT AT DEII TO ACOMODATE FRONTAGE ROAD. 10/13/06
   *S                  7 TO CONTINUE THROUGH EA BOXES FOR 404 REQUIREMENT. 10/13/06
   *S      11. UPDATED MODEL WITH CORRECTED STAGE STORAGE CURVES FOR DAM O, 2, AND
   *S                  ALONG DAM 5 ARRROYO NEAR THE STADUIM SITE THAT WILL CONVEY F
   *S                  ROYO DAM 250 ACRE FEET LARGER TO A TOTAL OF 376 ACRE FEET AN
   *S                      CHANGED THE OUTFLOW PIPE FROM 4.5' TO 3' IN DIAMETER
   *S                  RIFCE PLATE ON DAM5S TO MAXIMIZE STORAGE IN SOCCER FIELD DAM
   *S                  15. ADDED ORIFICE PLATE TO DAM #2
   *S                  16. ADDED ORIFICE PLATE TO DAM #1
   *S                  17. CHANGED OUTLET PIPE IN PROPOSED DAM 5 ARROYO DAM
   *S                  18. REMOVED ORIFICE PLATES ON DAMS 8 AND 9
   *S*************************************************************************
   *S
   *S
   *S _____________________________________________________________
   *S//////////////////////////////////////////////////////////////
   *S
   *S                WEST I-40 DRAINAGE MANAGEMENT PLAN REVISION
   *S
   *S//////////////////////////////////////////////////////////////
   RAINFALL  TYPE= 2                                                                                    RAIN24=
.720
   SEDIMENT BULK                                                                                        PK BF =
 1.02
   *S
   *S      SUB-BASIN WA.1
   COMPUTE NM HYD          WA.1   -     1       1.44625      896.00      57.428      .74454    1.700     .968 PER IMP=
11.33
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.1    1    1       1.08469      672.00      43.071      .74453    1.700     .968
                          SURGE  and   88        .36156      224.00      14.357      .74453    1.700     .968
   *S
   *S      SUB-BASIN WA.2
   COMPUTE NM HYD          WA.2   -     2        .14350       97.28       7.605      .99372    1.750    1.059 PER IMP=
..76
   *S  DIVERT 25% FOR SURGE POND CONDITION

                                  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

   DIVIDE HYD              WA.2    2    2        .10763       72.96       5.704      .99371    1.750    1.059
                          SURGE  and   88        .03587       24.32       1.901      .99371    1.750    1.059
   *S
   *S    COMBINED FLOW FROM WA.1 & WA.2 FLOW INTO SMALL PLAYA THEN ROUTE THROUGH
   *S    WA.3
   ADD HYD               WA.1.2  1& 2   3       1.19231      742.09      48.775      .76703    1.700     .972
   ROUTE RESERVOIR       WA.1.2    3    4       1.19231      139.53      21.176      .33300    2.450     .183 AC-FT=
..630
   *S     ROUTE THRU SUB-BASIN WA.3
   ROUTE MCUNGE          417.20    4    5       1.19231      138.25      21.110      .33197    2.600     .181 CCODE =
  .1
   *S
   *S      SUB-BASIN WA.3
   COMPUTE NM HYD          WA.3   -     1        .19028      149.50      10.036      .98891    1.700    1.228 PER IMP=
21.56
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.3    1    1        .14271      112.13       7.527      .98891    1.700    1.228
                          SURGE  and   88        .04757       37.38       2.509      .98891    1.700    1.228
   *S
   *S      SUB-BASIN WA.4
   COMPUTE NM HYD          WA.4   -     2        .20419       95.25       7.362      .67599    1.800     .729 PER IMP=
```

```
8.41
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.4    2    2        .15314        71.44       5.521       .67599    1.800      .729
                          SURGE  and   88        .05105        23.81       1.840       .67599    1.800      .729
   *S
   *S      ADD SUB-BASINS WA.3 & WA.4 PLUS ROUTED FLOW THRU WA.1
   ADD HYD              WA.3.4  1& 2    3        .29585       180.01      13.048       .82693    1.750      .951
   ADD HYD              420.10  3& 5    4       1.48817       180.01      34.158       .43037    1.750      .189
   *S      ROUTE COMBINED FLOWS THRU SUB-BASIN WA.7
   ROUTE MCUNGE         420.20    4    5       1.48817       172.83      33.978       .42810    2.200      .181 CCODE =
  .1
   *S
   *S      SUB-BASIN WA.5
   COMPUTE NM HYD          WA.5    -    1        .85401       906.51      68.122      1.49564    1.750    1.659 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.5    1    1        .64051       679.88      51.092      1.49564    1.750    1.659
                          SURGE  and   88        .21350       226.63      17.031      1.49564    1.750    1.659
   *S
   *S      ROUTE SUB-BASIN WA.5 THRU SUB-BASIN WA.7
   *S        ADD TO PREVIOUSLY ROUTED FLOWS
   ROUTE MCUNGE         416.10    1    2        .64051       679.97      51.101      1.49592    1.850    1.659 CCODE =
  .2
   ADD HYD              416.20  2& 5    3       2.12867       684.03      85.079       .74940    1.850      .502
   *S
   *S      SUB-BASIN WA.6
   COMPUTE NM HYD          WA.6    -    1        .15907       207.35      12.689      1.49564    1.650    2.037 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.6    1    1        .11930       155.51       9.516      1.49564    1.650    2.037
                          SURGE  and   88        .03977        51.84       3.172      1.49564    1.650    2.037
   *S
   *S     WA.6 ROUTES THROUGH A PLAYA THAT DRAINS TO WA.8
   ROUTE RESERVOIR         WA.6    1    2        .11930          .01         .014       .00216   25.700      .000 AC-FT=
9.505
   *S
   *S
   *S      SUB-BASIN WA.8

                                  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
TATION

   COMPUTE NM HYD          WA.8    -    1        .11164       120.81       8.905      1.49564    1.750    1.691 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.8    1    1        .08373        90.60       6.679      1.49564    1.750    1.691
                          SURGE  and   88        .02791        30.20       2.226      1.49564    1.750    1.691
   *S
   *S      ADD FLOW FROM SUB-BASIN WA.6 To WA.8 AND ROUTE THROUGH
   *S      A PLAYA BEFORE ROUTING THROUGH WA.9
   ADD HYD              WA.8.1  2& 1    4        .20303        90.61       6.693       .61806    1.750      .697
   ROUTE RESERVOIR      WA.8.1    4    2        .20303          .42         .193       .01779   20.800      .003 AC-FT=
6.513
   *S*  ROUTE FLOW THROUGH 24" PIPE --LEM 2/13/06
   ROUTE MCUNGE         414.30    2    1        .20303          .42         .192       .01777   21.100      .003 CCODE =
  .2
   *S
   *S      SUB-BASIN WA.9
   COMPUTE NM HYD          WA.9    -    2        .20075       257.36      16.013      1.49564    1.650    2.003 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.9    2    2        .15056       193.02      12.010      1.49564    1.650    2.003
                          SURGE  and   88        .05019        64.34       4.003      1.49564    1.650    2.003
   *S
   *S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.7
   ADD HYD              WA9.1   1& 2    4        .35360       193.02      12.202       .64705    1.650      .853
   ROUTE MCUNGE         WA9.2     4    1        .35360       191.23      12.203       .64708    1.650      .845 CCODE =
  .2
   *S
   *S      SUB-BASIN WA.7
   COMPUTE NM HYD          WA.7    -    2       1.16328      1196.26      89.249      1.43854    1.750    1.607 PER IMP=
0.01
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.7    2    2        .87246       897.19      66.937      1.43854    1.750    1.607
                          SURGE  and   88        .29082       299.06      22.312      1.43854    1.750    1.607
   *S
   *S      ADD SUB-BASIN WA.7 TO ROUTED FLOWS
   *S        ROUTE THRU SUB-BASIN WA.16
   ADD HYD              WA.7.1  1& 2    4       1.22605      1075.41      79.140      1.21028    1.750    1.371
   ADD HYD              WA.7.2  4& 3    1       3.35473      1698.35     164.219       .91784    1.800      .791
   ROUTE MCUNGE         WA.7.3    1    5       3.35473      1695.42     164.195       .91771    1.900      .790 CCODE =
  .2
   *S
   *S      SUB-BASIN WA.10
   COMPUTE NM HYD          WA.10   -    1        .34125       398.42      27.221      1.49564    1.700    1.824 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.10   1    1        .25594       298.81      20.415      1.49564    1.700    1.824
                          SURGE  and   88        .08531        99.60       6.805      1.49564    1.700    1.824
   *S
   *S      WA.10 FLOWS INTO PLAYA BEFORE ROUTING TO WA.11
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```
   ROUTE RESERVOIR        WA.10    1    2        .25594        49.74       19.379       1.41969     2.450      .304 AC-FT=
1.993
   *S
   *S
   *S      SUB-BASIN WA.11
   COMPUTE NM HYD         WA.11    -    1        .33875       396.28       27.021       1.49564     1.700     1.828 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             WA.11    1    1        .25406       297.21       20.266       1.49564     1.700     1.828
                          SURGE  and   88        .08469        99.07        6.755       1.49564     1.700     1.828
   *S
   *S      ADD FLOWS FROM SUB-BASIN WA.10 AND ROUTE THRU SUB-BASIN WA.12
   ADD HYD                WA11.1 1& 2   3        .51000       323.11       39.645       1.45752     1.700      .990

                                  FROM  TO                      PEAK         RUNOFF                TIME TO     CFS       PAGE =
4
                     HYDROGRAPH    ID    ID        AREA     DISCHARGE       VOLUME       RUNOFF        PEAK      PER
   COMMAND        IDENTIFICATION    NO.   NO.     (SQ MI)      (CFS)       (AC-FT)     (INCHES)     (HOURS)    ACRE
TATION

   ROUTE MCUNGE           WA11.2    3    1        .51000       318.73       39.627       1.45688     1.700      .976 CCODE =
.2
   *S
   *S      SUB-BASIN WA.12
   COMPUTE NM HYD         WA.12    -    2        .13927       154.93       11.109       1.49564     1.700     1.738 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             WA.12    2    1        .10445       116.20        8.332       1.49564     1.700     1.738
                          SURGE  and   88        .03482        38.73        2.777       1.49564     1.700     1.738
   *S
   *S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.14
   ADD HYD                WA12.1 1& 2   3        .24372       271.12       19.441       1.49564     1.700     1.738
   ROUTE MCUNGE           WA12.2    3    1        .24372       230.41       19.115       1.47055     1.750     1.477 CCODE =
.2
   *S
   *S      SUB-BASIN WA.14
   COMPUTE NM HYD         WA.14    -    2        .05985        44.67        4.774       1.49564     2.000     1.166 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             WA.14    2    2        .04489        33.50        3.581       1.49562     2.000     1.166
                          SURGE  and   88        .01496        11.17        1.194       1.49562     2.000     1.166
   *S
   *S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.13
   ADD HYD               WA.14.1 1& 2   3        .28861       256.76       22.696       1.47445     1.800     1.390
   ROUTE MCUNGE           WA14.2    3    1        .28861       255.41       22.702       1.47484     1.900     1.383 CCODE =
.2
   *S
   *S      SUB-BASIN WA.13
   COMPUTE NM HYD         WA.13    -    2        .97385      1068.76       77.682       1.49564     1.700     1.715 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             WA.13    2    2        .73039       801.57       58.261       1.49564     1.700     1.715
                          SURGE  and   88        .24346       267.19       19.420       1.49564     1.700     1.715
   *S
   *S      ADD TO ROUTED FLOWS AND ROUTE THRU SUB-BASIN WA.16
   ADD HYD                WA13.1 1& 2   3       1.01900       977.54       80.963       1.48975     1.800     1.499
   ROUTE MCUNGE           WA13.2    3    1       1.01900       967.85       80.872       1.48808     1.850     1.484 CCODE =
.2
   *S
   *S       SUB-BASIN WA.16
   COMPUTE NM HYD         WA.16    -    2       1.39121      1766.03      110.973       1.49564     1.650     1.983 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             WA.16    2    2       1.04341      1324.52       83.230       1.49564     1.650     1.983
                          SURGE  and   88        .34780       441.51       27.743       1.49564     1.650     1.983
   *S       ADD ALL ROUTED FLOWS
   ADD HYD               WA.16.1 1& 2   3       2.06241      2049.33      164.102       1.49190     1.750     1.553
   ADD HYD               WA.16.2 3& 5   4       5.41713      3543.49      328.297       1.13631     1.850     1.022
   *S      ROUTE THROUGH A PLAYA BEFORE WA.18  THEN
   *S      ROUTE FLOW THRU SUB-BASIN WA.18
   *S                MADE WEIR LARGER TO ACCOMONDATE LARGER FLOWS -LEM 1/25/06
   ROUTE RESERVOIR       WA.16.1    4    1       5.41713      3483.56      319.244       1.10498     1.900     1.005 AC-FT=
29.143
   ROUTE MCUNGE          WA.16.3    1    2       5.41713      3470.17      318.739       1.10323     2.000     1.001 CCODE =
.1
   *S
   *S      SUB-BASIN WA.17
   COMPUTE NM HYD         WA.17    -    1        .31260       407.24       24.935       1.49564     1.650     2.036 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD             WA.17    1    1        .23445       305.43       18.701       1.49564     1.650     2.036
                          SURGE  and   88        .07815       101.81        6.234       1.49564     1.650     2.036
   *S
   *S      ROUTE FLOW FROM SUB-BASIN WA.17 THRU SUB-BASIN WA.18

                                  FROM  TO                      PEAK         RUNOFF                TIME TO     CFS       PAGE =
5
                     HYDROGRAPH    ID    ID        AREA     DISCHARGE       VOLUME       RUNOFF        PEAK      PER
   COMMAND        IDENTIFICATION    NO.   NO.     (SQ MI)      (CFS)       (AC-FT)     (INCHES)     (HOURS)    ACRE
TATION

   ROUTE MCUNGE          WA.17.1    1    3        .23445       304.55       18.706       1.49596     1.800     2.030 CCODE =
.2
   *S
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   *S      SUB-BASIN WA.18
   COMPUTE NM HYD          WA.18   -     1        1.37385      1721.71      109.589      1.49564     1.650     1.958 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              WA.18    1    1        1.03039      1291.28       82.191      1.49564     1.650     1.958
                           SURGE  and   88         .34346       430.43       27.397      1.49564     1.650     1.958
   *S
   *S     ADD TO ALL ROUTED FLOWS
   ADD HYD              WA.18.1  1& 3   4        1.26484      1501.55      100.897      1.49570     1.700     1.855
   ADD HYD              WA.18.2  4& 2  68        6.68197      4284.95      419.636      1.17752     2.000     1.002
   *S
   *S
   *S      COMPUTE SUB-BASIN EA.5
   *S*   BASIN INCLUDES TEMPUR SITE AND CORDERO BUSINESS PARK
   COMPUTE NM HYD           EA.5   -     2         .88823      1066.81       70.852      1.49564     1.700     1.877 PER IMP=
42.30
   *S
   *S* DIVIDE REMINING EA.5 TO ACCOUNT FOR FLOW GOING INTO WEST AMOLE DAM
   DIVIDE HYD          WESTAMOLE     2    4         .44412       533.41       35.426      1.49564     1.700     1.877
                     SHAMRK/TEMP   and    3         .44412       533.41       35.426      1.49564     1.700     1.877
   *S* FLOW TO ADD TO WEST AMOLE DAM
   *S
   *S      DIVIDE REMAINING FLOW TO ACCOUNT FOR TEMPER SD
   DIVIDE HYD             TEMPER     3   63         .41249       387.23       32.903      1.49564     1.550     1.467
                        SHAMROCK   and   62         .03162       146.18        2.523      1.49564     1.700     7.222
   *S* FLOW TO TEMPER SD
   *S*
   *S* FLOW TO SHAMROCK CHANNEL
   *S
   *S
   *S* ADD WEST AMOLE WATERSHED FLOW TO PORTION OF EA.5
   *S* TOTAL FLOW INTO WEST AMOLE DAM
   ADD HYD              WAMOLEIN  4&68   24        7.12609      4584.17      455.062      1.19735     1.950     1.005
   *S*
   *S
   *S      SUB-BASIN EA.3
   COMPUTE NM HYD           EA.3   -     4         .05863        62.03        4.677      1.49564     1.750     1.653 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD               EA.3    4    4         .04397        46.52        3.508      1.49563     1.750     1.653
                           SURGE  and   88         .01466        15.51        1.169      1.49563     1.750     1.653
   *S
   *S       ROUTE OVERFLOW THRU SUB-BASIN EA.2
   *S                    ROUTE WITH A 66 IN PIPE
   ROUTE MCUNGE           EA.3.3    4    1         .04397        46.29        3.507      1.49553     1.800     1.645 CCODE =
.2
   *S
   *S      SUB-BASIN EA.1
   COMPUTE NM HYD           EA.1   -     2         .05853        88.65        4.669      1.49564     1.550     2.366 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD               EA.1    2    2         .04390        66.48        3.502      1.49563     1.550     2.366
                           SURGE  and   88         .01463        22.16        1.167      1.49563     1.550     2.366
   *S
   *S     ROUTE THROUGH PLAYA, AND THEN THROUGH EA.2

                                  FROM  TO                      PEAK         RUNOFF                 TIME TO    CFS       PAGE =
6
                      HYDROGRAPH    ID   ID          AREA     DISCHARGE     VOLUME      RUNOFF       PEAK      PER
   COMMAND         IDENTIFICATION   NO.  NO.       (SQ MI)     (CFS)      (AC-FT)    (INCHES)    (HOURS)    ACRE
NOTATION

   ROUTE RESERVOIR        407.01    2    3         .04390        35.11        2.353      1.00504     1.800     1.250 AC-FT=
511
   ROUTE MCUNGE           EA.1.1    3    2         .04390        33.20        2.302       .98325     2.300     1.182 CCODE =
.1
   *S
   *S      SUB-BASIN EA.2
   COMPUTE NM HYD           EA.2   -     3         .22414       222.59       17.879      1.49564     1.800     1.552 PER IMP=
2.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD               EA.2    3    3         .16811       166.94       13.409      1.49564     1.800     1.552
                           SURGE  and   88         .05603        55.65        4.470      1.49564     1.800     1.552
   *S
   *S      ADD TO PREVIOUSLY ROUTED FLOWS
   ADD HYD               EA.2.1  1& 2   4         .08787        50.55        5.809      1.23960     2.300      .899
   ADD HYD               EA.2.2  3& 4   7         .25598       213.23       19.219      1.40775     1.800     1.302
   *S commented out diversion under I-40 1/23/06 LEM
   *S
   *S      SUB-BASIN EA.4
   COMPUTE NM HYD           EA.4   -     2         .27562       301.01       21.986      1.49564     1.750     1.706 PER IMP=
42.30
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD               EA.4    2    2         .20672       225.76       16.489      1.49564     1.750     1.706
                           SURGE  and   88         .06890        75.25        5.496      1.49564     1.750     1.706
   *S
   *S* ADD ROUTED EA.2 AND BASIN EA.4
   ADD HYD               EA.4.1  2& 7   7         .46269       437.77       35.708      1.44701     1.750     1.478
   *S* ROUTE FLOW THROUGH PASEO DEL VOLCAN POND
   *S* ADDED TO DECREASE SIZE OF DOUBLE EAGLE II POND - AQC 7/11/06
   *S* 36" PIPE OUTFLOW WITH 24" ORIFICE OPENING
   ROUTE RESERVOIR   PASDVOLCAN    7    2         .46269        36.92       34.819      1.41099     3.150      .125 AC-FT=
23.730
   *S      ROUTE THRU SUB-BASIN EA.6 TO WEST AMOLE DAM
```

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   ROUTE MCUNGE          EA.6.1    2    3        .46269        36.92       34.766       1.40884    3.400      .125 CCODE =
 .2
   *S
   *S                  WEST AMOLE DAM
   *S                  36 INCH PIPE PRIMARY SPILLWAY
   ROUTE RESERVOIR    WESTAMOLE   24    4        7.12609       118.41      262.331       .69024    5.500      .026 AC-FT=
17.483
   *S ADD FLOW TO SHAMROCK FLOW
   ADD HYD           WASHAMROCK  4&62  60        7.15771       206.67      264.853       .69380    1.700      .045
   *S     ROUTE THRU PROPOSED SHAMROCK CHANNEL DETENTION POND
   *S                  48 INCH PIPE PRIMARY SPILLWAY w/ ORIFICE PLATE
   ROUTE RESERVOIR     shampond    60    4        7.15771       114.11      250.029       .65496   15.250      .025 AC-FT=
7.906
   *S      ROUTE THRU ALONG EA.16B TO PDV POND ADD-IN
   ROUTE MCUNGE          EA.6.1    4   60        7.15771       114.11      249.856       .65451   15.300      .025 CCODE =
 .2
   *S* ADD ROUTED PDV FLOW TO WEST AMOLE FLOW
   ADD HYD             WAMOLEIN 60& 3    4        7.62040       137.07      284.622       .70031    8.150      .028
   *S
   *S      SUB-BASIN EA.6
   *S                  N EA.6 IS ALLOWED TO CONTINUE UNDER I40 EXCEPT SECTION EA.6B
   *S      SUB-BASIN EA.6B
   COMPUTE NM HYD        EA.6B   -    2        .10340        205.59       12.107       2.19550    1.550     3.107 PER IMP=
).00
   *S ADD COMBINED FLOW TO EA.6B
   ADD HYD           WASHAMROCK  2& 4  72        7.72380       217.00      296.730       .72033    1.600      .044
   *S      ROUTE TO CHANNEL
   *S*     ROUTE WITH A 60" PIPE
   ROUTE MCUNGE          RTWASHAM  72   61        7.72380       213.90      296.379       .71948    1.650      .043 CCODE =
 .2
   *S      SUB-BASIN EA.18

                                  FROM  TO                     PEAK         RUNOFF                TIME TO     CFS       PAGE =
7
                     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        EA.18   -    5        .03494         7.79         .883        .47391    1.950      .348 PER IMP=
.00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S      ASSUME EXISTING PLAYA REMOVED DUE TO DEVELOPMENT.
   *S      ROUTE THRU SUB-BASIN EA.7
   *S*     ROUTE THRU CONCRETE CHANNEL
   ROUTE MCUNGE          EA.7.1    5    4        .03494         7.52         .864        .46348    2.700      .336 CCODE =
 .1
   *S
   *S      SUB-BASIN EA.7
   COMPUTE NM HYD          EA.7    -    5        .07607        11.92        1.923        .47391    2.200      .245 PER IMP=
.00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S      ADD EA.7 TO ROUTED FLOWS
   ADD HYD               EA.7.1  4& 5   6        .11101        17.40        2.786        .47062    2.550      .245
   *S                  cmp to account for increased developed flows - 1/23/06 -LEM
   ROUTE MCUNGE          EA.7.2    6    4        .11101        17.40        2.786        .47062    2.550      .245 CCODE =
 .0
   *S     ROUTE THRU SUB-BASIN EA.11
   *S     ROUTE THRU A CONCRETE CHANNEL
   ROUTE MCUNGE          EA.7.3    4   15        .11101        16.93        2.776        .46888    3.400      .238 CCODE =
 .1
   *S      SUB-BASIN EA.8
   COMPUTE NM HYD          EA.8    -    7        .42610       150.63       10.770        .47391    1.800      .552 PER IMP=
.00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD              EA.8    7    7        .31958       112.97        8.077        .47391    1.800      .552
                          SURGE  and   88        .10652        37.66        2.692        .47391    1.800      .552
   *S
   *S                  cmp to account for increased developed flows - 1/23/06 -LEM
   ROUTE MCUNGE          EA.8.1    7    5        .31958       112.97        8.077        .47391    1.800      .552 CCODE =
 .0
   *S      ROUTE THROUGH EA.11
   ROUTE MCUNGE          EA.8.2    5   16        .31958       112.69        8.082        .47416    1.900      .551 CCODE =
 .2
   *S      SUB-BASIN EA.9
   COMPUTE NM HYD          EA.9    -    6        .25599        90.82        6.470        .47391    1.750      .554 PER IMP=
.00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S
   *S                  cmp to account for increased developed flows - 1/23/06 -LEM
   ROUTE MCUNGE          EA.9.1    6    7        .25599        90.82        6.470        .47391    1.750      .554 CCODE =
 .0
   *S      CROSSES PASEO DEL VOLCAN ROUTE THROUGH EA.11
   ROUTE MCUNGE          EA.9.2    7   18        .25599        90.53        6.454        .47271    1.850      .553 CCODE =
 .1
   *S      SUB-BASIN EA.11
   *S                EVISED DUE TO CHANGES IN PLANNED LAND DEVELOPMENT USE- 8/28/
   COMPUTE NM HYD         EA.11    -    9        .60500       210.52       15.291        .47391    1.800      .544 PER IMP=
.00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S      ADD EA.11 AND BASINS ROUTED THROUGH (EA.7, EA.8, & EA.9)
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   ADD HYD              EA.11.1  9&15   6        .71601       210.52       18.067       .47313    1.800      .459
   ADD HYD              EA.11.2  6&16   9       1.03559       319.72       26.149       .47345    1.850      .482
   ADD HYD              EA.11.3  9&18  10       1.29158       410.26       32.603       .47330    1.850      .496
   *S* ROUTE THROUGH RESERVOIR AT SOUTHERN PART OF EA.11
   *S* OUTFLOW WITH A 60" PIPE - LEM 1/25/06
   ROUTE RESERVOIR      EA.11.4   10   13       1.29158        44.26       27.870       .40459    3.500      .054 AC-FT=
3.050
   *S      ROUTE FLOW ALONG SD ON EAST SIDE OF EA.12
   *S*     ROUTE FLOW THROUGH CONCRETE CHANNEL - LEM 8/22/06
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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
										PAGE = 8
ROUTE MCUNGE	1EA11RT	13	11	1.29158	44.26	27.821	.40388	3.600	.054	CCODE = .2
*S**** COMPUTE BASIN EA.13 ****										
COMPUTE NM HYD	EA.13	-	14	.27470	148.97	6.943	.47391	1.650	.847	PER IMP= .00
*S DIVERT 25% FOR SURGE POND CONDITION										
*S										
S ADD ROUTED FLOW TO EA.13										
ADD HYD	EA.13TOT	14&11	16	1.56628	148.97	34.764	.41616	1.650	.149	
*S FLOW ROUTED TO DAM 0										
S ROUTE FLOW THROUGH 72 IN PIPE TO EDGE OF ESCARPMENT										
ROUTE MCUNGE	2EA11RT	16	13	1.56628	146.08	34.692	.41530	1.750	.146	CCODE = .1
S ROUTE FLOW THROUGH ESCARPMENT TO POND 0										
S ROUTE THROUGH 54 IN PIPE										
ROUTE MCUNGE	2EA11RT	13	11	1.56628	145.68	34.683	.41520	1.800	.145	CCODE = .2
*S SUB-BASIN EA.10										
COMPUTE NM HYD	EA.10	-	8	.30859	297.71	24.685	1.49985	1.800	1.507	PER IMP= 42.50
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.10	8	8	.23144	223.28	18.513	1.49984	1.800	1.507	
	SURGE	and	88	.07715	74.43	6.171	1.49984	1.800	1.507	
*S										
*S ROUTE UNDER DOUBLE EAGLE II (OLD HAUL RD) VIA 24" CMP										
*S cmp to account for increased developed flows - 1/23/06 -LEM										
ROUTE MCUNGE	EA.9.1	8	9	.23144	223.28	18.513	1.49984	1.800	1.507	CCODE = .0
*S ROUTE ALONG EA.12 THROUGH CONCRETE CHANNEL										
ROUTE MCUNGE	RTEA10	9	10	.23144	222.82	18.512	1.49976	1.900	1.504	CCODE = .2
S CHANGED BASINS TO FIT REVISED MASTERPLAN DEVELOPMENT										
S BASINS/LAND PARCELS EAST OF PASEO DEL VOLCAN										
*S**** COMPUTE BASIN EA.12 ****										
S BASIN EA.12 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT										
*S										
*S**** COMPUTE BASIN EA.12A										
COMPUTE NM HYD	EA.12A	-	1	.11200	105.88	10.420	1.74437	1.950	1.477	PER IMP= 3.20
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.12A	1	1	.08400	79.41	7.815	1.74436	1.950	1.477	
	SURGE	and	88	.02800	26.47	2.605	1.74436	1.950	1.477	
*S**** COMPUTE BASIN EA.12B										
COMPUTE NM HYD	EA.12B	-	13	.09260	78.85	8.615	1.74436	2.050	1.331	PER IMP= 53.20
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.12B	13	13	.06945	59.14	6.461	1.74436	2.050	1.331	
	SURGE	and	88	.02315	19.71	2.154	1.74436	2.050	1.331	
*S**** COMBINE EA.12A AND EA.12B ****										
ADD HYD	EA.12TOT	1&13	9	.15345	137.22	14.276	1.74435	1.950	1.397	
*S**** COMBINE ROUTED EA.10 AND EA.12 ****										
ADD HYD	EA.11&12	9&10	8	.38489	357.03	32.788	1.59727	1.900	1.449	
S ROUTE BASIN EA.12 THROUGH BASIN EA.15										
S ROUTE THROUGH CHANNEL										
ROUTE MCUNGE	RTEA.12	8	17	.38489	356.31	32.786	1.59718	1.950	1.446	CCODE = .2
*S										
*S										
*S**** COMPUTE BASIN EA.15 ****										
S BASIN EA.15 WAS DIVIDED ACCORDING TO NEW DEVELOPEMENT LAYOUT										
*S										
*S**** COMPUTE BASIN EA.15A										

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
										PAGE = 9
COMPUTE NM HYD	EA.15A	-	16	.08260	106.99	8.189	1.85883	1.750	2.024	PER IMP= 60.00
*S										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	EA.15A	16	16	.06195	80.24	6.142	1.85882	1.750	2.024	
	SURGE	and	88	.02065	26.75	2.047	1.85882	1.750	2.024	
*S										
*S**** COMPUTE BASIN EA.15B										
COMPUTE NM HYD	EA.15B	-	13	.17370	286.33	21.899	2.36383	1.700	2.576	PER IMP=

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90.00
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD            EA.15B   13   13        .13028       214.74       16.424       2.36383    1.700    2.576
                           SURGE  and   88        .04342        71.58        5.475       2.36383    1.700    2.576
    *S**** COMBINE ROUTED EA.12 WITH EA.15A ****
    ADD HYD            TOTEA.15A 16&17  20        .44684       415.75       38.928       1.63346    1.950    1.454
    *S*
    *S**** ADD TOTAL FLOW TO EA.15B ****
    ADD HYD             TOTEA.15 20&13  22        .57712       570.90       55.352       1.79832    1.900    1.546
    *S*
    *S
    *S
    *S**** ADD IN TEMPER FLOW ****
    ADD HYD               TEMPIN 22&63  21        .98961       956.85       88.255       1.67216    1.850    1.511
    *S**** COMPUTE BASIN EA.14 ****
    *S    LAND TREATMENTS CHANGED TO REFLECT CURRENT DEVELOPMENT SCENARIO- LEM 8/9/0
    COMPUTE NM HYD         EA.14    -    15        .21040       285.96       19.574       1.74437    1.700    2.124 PER IMP=
3.20
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD             EA.14   15   15        .15780       214.47       14.681       1.74436    1.700    2.124
                           SURGE  and   88        .05260        71.49        4.894       1.74436    1.700    2.124
    *S
    *S  ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17A ADD IN
    *S  USE 72" PIPE
    ROUTE MCUNGE         RTEA.14   15   16        .15780       207.74       14.616       1.73670    1.750    2.057 CCODE =
.2
    *S**** COMPUTE BASIN EA.17 ****
    *S  BASIN EA.17 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
    *S  BASINS ALLOWED FREE DISCHARGE TO EXISTING EAST AMOLE BOXES
    *S*
    *S**** COMPUTE BASIN EA.17B
    COMPUTE NM HYD         EA.17B   -    65        .02160        34.83        2.043       1.77331    1.600    2.520 PER IMP=
3.44
    *S  DIVERT 25% FOR SURGE POND CONDITION
    DIVIDE HYD             EA.17B   65   65        .01620        26.12        1.532       1.77329    1.600    2.520
                           SURGE  and   88        .00540         8.71         .511       1.77329    1.600    2.520
    *S
    *S
    *S**** EA.17B TO EA.14 ****
    *S  ROUTE EA.14 THROUGH PIPE ALONG ROAD TO EA.17B ADD IN
    *S  USE 72" PIPE
    ROUTE MCUNGE         RTEA.17B   16   15        .15780       207.63       14.617       1.73684    1.750    2.056 CCODE =
.2
    *S*  ROUTE TEMPER ETC FLOW THROUGH CHANNEL TO EA.17 ADD IN
    *S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
    ROUTE MCUNGE       TOEA.17BIN   21   22        .98961       952.50       88.255       1.67216    1.850    1.504 CCODE =
.2
    *S**** COMPUTE BASIN EA.17A
    COMPUTE NM HYD         EA.17A   -    66        .07340        91.14        7.248       1.85140    1.750    1.940 PER IMP=
2.45
    *S  DIVERT 25% FOR SURGE POND CONDITION

                                    FROM   TO                    PEAK         RUNOFF                 TIME TO    CFS        PAGE =
1.0
                        HYDROGRAPH    ID   ID          AREA     DISCHARGE     VOLUME      RUNOFF       PEAK      PER
    COMMAND         IDENTIFICATION    NO.  NO.       (SQ MI)     (CFS)      (AC-FT)    (INCHES)    (HOURS)    ACRE
NOTATION

    DIVIDE HYD             EA.17A   66   66        .05505        68.36        5.436       1.85138    1.750    1.940
                           SURGE  and   88        .01835        22.79        1.812       1.85138    1.750    1.940
    *S
    *S**** EA.17A TO CHANNEL ****
    *S  BASIN EA.16 WAS DIVIDED INTO TWO BASINS ACCORDING TO DEVELOPEMENT PLANNING
    *S*
    *S**** COMPUTE BASIN EA.16A
    *S*
    COMPUTE NM HYD         EA.16A   -    13        .05330        69.68        4.205       1.47929    1.600    2.043 PER IMP=
3.88
    *S*                 COMBINE EA.16 INTO CHANNEL FLOW
    ADD HYD             EA.16ADD 13&22  16       1.04291       993.87       92.460       1.66231    1.850    1.489
    *S*                 COMBINE PIPE FLOW INTO CHANNEL FLOW
    ADD HYD             EA.14ADD 16&15  21       1.20071      1186.12      107.077       1.67210    1.800    1.544
    *S*  ROUTE FLOW THROUGH CHANNEL TO EA.16B ADD IN
    *S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
    ROUTE MCUNGE       TOEA.16BIN   21   22       1.20071      1185.51      106.999       1.67088    1.850    1.543 CCODE =
.1
    *S**** COMPUTE BASIN EA.16B ****
    *S*
    COMPUTE NM HYD         EA.16B   -    15        .05620        49.91        3.138       1.04685    1.650    1.388 PER IMP=
1.29
    *S*
    *S*                 COMBINE EA.16B INTO CHANNEL FLOW
    ADD HYD             EA.16ADD 15&22  21       1.25691      1223.01      110.137       1.64297    1.850    1.520
    *S
    *S    ADD WEST AMOLE AND SHAMROCK FLOW TO CHANNEL FLOW
    ADD HYD               ADDWAIN 21&61  22       8.98071      1376.90      406.516        .84873    1.850     .240
    *S**** COMPUTE BASIN EA.16c ****
    *S*
    COMPUTE NM HYD         EA.16c   -    15        .02140        34.36        2.698       2.36383    1.700    2.509 PER IMP=
1.00
    *S
    *S*                 COMBINE EA.16C INTO CHANNEL FLOW
    ADD HYD            EA.16CADD 15&22  21       9.00211      1406.56      409.214        .85233    1.850     .244
    *S
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   *S*  ROUTE FLOW THROUGH CHANNEL TO EA.17C ADD IN
   *S   ROUTE TO EXISTING EAST AMOLE BOXES
   *S*  2:1 SIDE SLOPES - 10' BOTTOM WIDTH CONCRETE CHANNEL
   ROUTE MCUNGE      TOEA.17CIN   21   22     9.00211      1401.73     408.728      .85132    1.900     .243 CCODE =
  .1
   *S
   *S**** COMPUTE BASIN EA.17C
   *S*
   COMPUTE NM HYD        EA.17C    -    67       .08300       167.86       9.719     2.19550    1.550    3.160 PER IMP=
80.00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   DIVIDE HYD            EA.17C   67   67       .06225       125.90       7.289     2.19549    1.550    3.160
                          SURGE  and   88       .02075        41.97       2.430     2.19549    1.550    3.160
   *S**** ADD EA.17A TO EA.17B AND EA.17C
   *S
   *S FLOW LEAVES PROJECT AREA THROUGH EXISTING BOX CULVERTS
   ADD HYD             EA.17AB 66&65   68       .07125        88.16       6.968     1.83362    1.700    1.933
   ADD HYD            EA.17ABC 68&67   69       .13350       200.50      14.257     2.00236    1.600    2.347
   *S**** ROUTE FLOW TO EAST AMOLE SURGE POND
   *S  ROUTE TO NEW AMOLE DAM SITE THRU 90" SD
   ROUTE MCUNGE         90"PIPE   22   30     9.00211      1400.60     408.322      .85047    1.950     .243 CCODE =
  .2
   *S

                                FROM  TO                     PEAK         RUNOFF                TIME TO    CFS       PAGE =
11
                    HYDROGRAPH   ID   ID         AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION   NO.  NO.      (SQ MI)     (CFS)        (AC-FT)    (INCHES)   (HOURS)   ACRE
)TATION

   *S*************************************************************************
   *S     CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA DAMS 1 THROUGH 12,
   *S            NORTH OF I-40: (SOUTHERN TERRACE WATERSHED)
   *S
   *S*************************************************************************
   RAINFALL  TYPE= 2                                                                                      RAIN24=
2.630
   *S
   SEDIMENT BULK                                                                                          PK BF =
1.08
   *S**** COMPUTE BASIN OS.6 - REVISED TO INCLUDED WEST PORTION OF ST.2 ****
   *S*
   COMPUTE NM HYD          OS.6    -     2       .32050       435.81      11.155       .65258    1.500    2.125 PER IMP=
 .00
   *S  DIVIDE OS.6 TO ACCOUNT FOR FLOW ALLOWED TO CONTINUE UNDER THE FREEWAY -- LEM
   *S  FLOW LEAVES PROJECT AREA THROUGH EXISTING 36" AND 48" PIPE
   DIVIDE HYD           36"PIPE    2   27       .02147        29.20        .747       .65258    1.500    2.125
                      REMAINDER  and   95       .29903       406.61      10.407       .65258    1.500    2.125
   DIVIDE HYD           42"PIPE   95    1       .02631        35.78        .916       .65258    1.500    2.125
                           EASP  and    2       .27271       370.83       9.492       .65258    1.500    2.125
   *S FLOW LEAVING PROJECT AREA THROUGH EXISTING 36" PIPE
   *S FLOW LEAVING PROJECT AREA THROUGH EXISTING 42" PIPE
   *S REMAINING FLOW INTO EASP
   *S* ROUTE SECTION OF OS.6 THROUGH 36" PIPE
   *S* FLOW LEAVING PROJECT AREA
   ROUTE MCUNGE         36"CULV   27   88       .02147        29.20        .747       .65256    1.500    2.125 CCODE =
  .0
   *S* ROUTE SECTION OF OS.6 THROUGH 42" PIPE
   *S* FLOW LEAVING PROJECT AREA
   ROUTE MCUNGE         42"CULV    1   88       .02631        35.78        .916       .65256    1.500    2.125 CCODE =
  .0
   SEDIMENT BULK                                                                                          PK BF =
1.02
   *S
   *S**** FLOW REACHING IN1 ****
   *S*
   COMPUTE NM HYD           IN1    -    27       .00141         3.18        .128      1.69989    1.500    3.524 PER IMP=
13.98
   *S* ADD FLOW FROM IN1 TO I-40 SD
   ADD HYD                 EATO 30&27    1      9.00352      1401.28     408.450       .85061    1.950     .243
   *S
   *S
   *S  DIVIDE FLOW FROM 90" SD INTO 36" SD CAPACITY
   DIVIDE HYD      maxflow36"SD    1   30       4.34197        83.00     196.976       .85061    1.450     .030
                   36"SDoverflo  and   27       4.66155      1318.28     211.475       .85061    1.950     .442
   *S* ADD I40 FLOW TO OS.6
   *S* TOTAL FLOW INTO EAST AMOLE DAM
   ADD HYD                 EAIN 27& 2    1      4.93427      1350.41     220.966       .83966    1.950     .428
   *S*
   *S* ROUTE I40 CHANNEL FLOW THROUGH EAST AMOLE DAM **
   *S* CHANGED DISCHARGE TO A 36" PIPE - AQC 6/13/06
   *S  SUBTRACTED CAPACITY OF THE PIPE (83 CFS) FROM OUTFLOW TO ACCOUNT FOR SURGE P
   *S* POND STAGE STORAGE CHANGED TO ACCOMODATE 180 AC-FT
   ROUTE RESERVOIR    EASTAMOLE    1   95       4.93427        22.82       45.649       .17346   29.950     .007 AC-FT=
75.314
   *S
   *S  ADD EASP OUTFLOW BACK TO SD FLOW
   ADD HYD              36INTOT 30&95    1      9.27623       105.82     242.625       .49042   29.950     .018
   *S
   *S**** FLOW REACHING IN2 ****

                                FROM  TO                     PEAK         RUNOFF                TIME TO    CFS       PAGE =
12
                    HYDROGRAPH   ID   ID         AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
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COMMAND	IDENTIFICATION	NO.	NO.	(SQ MI)	(CFS)	(AC-FT)	(INCHES)	(HOURS)	ACRE	
)TATION										
S										
COMPUTE NM HYD	IN2	-	30	.00259	5.83	.235	1.69989	1.500	3.516	PER IMP=
48.98										
S ADD FLOW FROM IN2 TO I-40 SD										
ADD HYD	EATO	30& 1	95	9.27882	105.82	242.860	.49075	29.950	.018	
*S										
*S										
S ROUTE DAM FLOW IN WEST I40 DIVERSION TO 2a INTERSECTION										
S USE 36 INCH PIPE										
ROUTE MCUNGE	TOEAMOLE	95	31	9.27882	105.81	242.139	.48930	29.950	.018	CCODE =
.2										
*S**** COMPUTE BASIN ST.1 ****										
S										
COMPUTE NM HYD	ST.1	-	1	.08110	124.22	4.468	1.03302	1.500	2.393	PER IMP=
.00										
S ROUTE ST.1 THROUGH OS.5										
ROUTE MCUNGE	RTST.1	1	5	.08110	123.62	4.458	1.03073	1.750	2.382	CCODE =
.1										
SEDIMENT BULK										PK BF =
.08										
*S**** COMPUTE BASIN OS.5 ****										
COMPUTE NM HYD	OS.5	-	3	.09410	119.82	3.275	.65258	1.500	1.990	PER IMP=
.00										
S ADD ROUTED ST.1 TO OS.5										
ADD HYD	OS.5TOT	5& 3	6	.17520	158.05	7.733	.82762	1.750	1.410	
*S										
S ROUTE FLOW THROUGH SURGE POND ON EDGE OF ESCARPMENT										
S USED 12 IN PIPE OUTFLOW										
ROUTE RESERVOIR	ESCARP.POND	6	24	.17520	5.14	6.822	.73006	2.800	.046	AC-FT=
.755										
SEDIMENT BULK										PK BF =
1.02										
*S										
*S**** COMPUTE BASIN ST.2a ****										
COMPUTE NM HYD	ST.2a	-	71	.04580	99.63	4.182	1.71202	1.500	3.399	PER IMP=
.28										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	ST.2	71	71	.03435	74.72	3.136	1.71201	1.500	3.399	
	SURGE	and	88	.01145	24.91	1.045	1.71201	1.500	3.399	
*S										
*S**** COMPUTE BASIN ST.2b ****										
COMPUTE NM HYD	ST.2b	-	5	.12470	269.45	11.297	1.69867	1.500	3.376	PER IMP=
54.46										
*S DIVERT 25% FOR SURGE POND CONDITION										
DIVIDE HYD	ST.2	5	5	.09353	202.09	8.473	1.69867	1.500	3.376	
	SURGE	and	3	.03117	67.36	2.824	1.69867	1.500	3.376	
*S										
*S										
S ADD OPEN SPACE SURGE POND OUTFLOW TO ST.2b										
ADD HYD	ST2TOT	5&24	6	.26873	203.13	15.295	1.06717	1.500	1.181	
S ADD ST.2a TO I40 FLOW										
ADD HYD	I40ST2a	31&71	76	9.31317	151.93	245.276	.49381	1.500	.025	
*S										
*S										
*S**** FLOW REACHING IN3 ****										
S										
COMPUTE NM HYD	IN3	-	31	.00395	8.88	.358	1.69989	1.500	3.513	PER IMP=
48.98										
S ADD FLOW FROM IN3 TO I-40 SD										
ADD HYD	EATO	31&76	71	9.31712	160.81	245.634	.49432	1.500	.027	
*S										
S ROUTE 2a FLOW IN WEST I40 DIVERSION TO 2b										
S USE 42 INCH PIPE										

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   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S****              ROUTE UD.1C THROUGH OS.1 *****
   ROUTE MCUNGE         RTUD.1C   62   61        .08790        73.53       2.186       .46621    1.600    1.307 CCODE =
  .2
   SEDIMENT BULK                                                                                              PK BF =
 .07
   *S**** COMPUTE BASIN OS.1 ****
   *S*
   COMPUTE NM HYD          OS.1    -    99        .34260       436.37      11.571       .63326    1.500    1.990 PER IMP=
 .00
   *S*** ADD UD.1C AND OS.1 ****
   ADD HYD              OS.1TOT 99&61   99        .43050       468.13      13.756       .59915    1.550    1.699
   SEDIMENT BULK                                                                                              PK BF =
1.23
   *S**** COMPUTE BASIN OS.4 ****
   *S*
   COMPUTE NM HYD          OS.4    -    70        .15900       248.54       6.690       .78892    1.500    2.442 PER IMP=
 .00
   SEDIMENT BULK                                                                                              PK BF =
1.02
   *S*                  ROUTE OS.1 AND UD.1C ALONG WEST SIDE OF UD.1B
   *S****  ROUTE CHANNEL
   ROUTE MCUNGE         RTUD.1A   99   13        .43050       458.47      13.750       .59888    1.600    1.664 CCODE =
  .2
   *S**** ADD FLOW FROM OS.4 TO CHANNEL FLOW
   ADD HYD               DAM0IN 13&70   61        .58950       656.68      20.440       .65013    1.550    1.741
   *S**** ADD FLOW FROM DAM EA.11 TO TOTAL FLOW
   *S* DAM ADDED TO SEE HOW WOULD AFFECT FLOW IN DAM SYSTEM- LEM 2/7/06
   *S**** TOTAL INFLOW TO DAM #0
   *S  ROUTE FLOW THROUGH POND #0.
   *S  OUTFLOW THROUGH 42 IN PIPE
   ROUTE RESERVOIR      PONDZERO   61   87        .58950       615.04      20.440       .65013    1.650    1.630 AC-FT=
 528
   *S**** ROUTE DAM 0 ALONG NORTH SIDE OF ST.2 ***
   *S*************************************************************************
   *S************************** END OF DAM 0 DIVERSION **************************
   *S*************************************************************************
   *S*  ADD ROUTED ST.1 TO DAM 0
   *S
   *S  ROUTE FLOW ALONG I40 TO ST.4 INTERCEPT IN 36" PIPE
   *S  ROUTE FLOW  FROM 118TH STREET TO ST.4a INTERCEPT IN I-40 SYSTEM

                                    FROM  TO                    PEAK         RUNOFF                TIME TO    CFS       PAGE =
 14
                     HYDROGRAPH     ID    ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION    NO.   NO.     (SQ MI)       (CFS)       (AC-FT)    (INCHES)   (HOURS)    ACRE
)TATION

   *S  ROUTED THROUGH 54" PIPE
   ROUTE MCUNGE          40OS.6   76   30       9.59398       370.04      261.276       .51062    1.550     .060 CCODE =
  .2
   *S
   *S**** COMPUTE BASIN ST.4a ****
   *S*
   COMPUTE NM HYD         ST.4a    -   12        .12210       237.46       14.831      2.27745    1.600    3.039 PER IMP=
90.00
   *S
   *S**** FLOW REACHING IN5 ****
   *S*
   COMPUTE NM HYD           IN5    -    6        .00476        10.70         .432      1.69989    1.500    3.512 PER IMP=
48.98
   *S
   *S**** FLOW REACHING IN6 ****
   *S*
   COMPUTE NM HYD           IN6    -   19        .00078         1.76         .071      1.69989    1.500    3.535 PER IMP=
48.98
   *S* ADD FLOW FROM IN5 AND IN6
   ADD HYD                 EATO  6&19   61        .00554        12.46         .502      1.69980    1.500    3.515
   *S
   *S* ADD FLOW FROM IN5 AND IN6 TO FLOW FROM ST.4A
   ADD HYD                 EATO 61&12   76        .12764       245.99       15.333      2.25237    1.600    3.011
   *S
   *S  ADD ST.4a AND ROUTED I-40 DIVERSION (48" PIPE)
   ADD HYD            ST.4&OS.6 76&30   31       9.72162       602.92      276.609       .53349    1.550     .097
   *S
   *S  ROUTE FLOW FROM ST.4a ALONG I40 TO ST.4b
   *S  ROUTED THROUGH 72" PIPE
   ROUTE MCUNGE          40ST.4   31   30       9.72162       592.13      276.313       .53292    1.600     .095 CCODE =
  .2
   *S**** COMPUTE BASIN ST.4b ****
   *S*
   COMPUTE NM HYD         ST.4b    -   12        .05410       138.80        6.571      2.27745    1.500    4.009 PER IMP=
 .00
   *S**** FLOW REACHING IN7 ****
   *S*
   COMPUTE NM HYD           IN7    -   61        .00451        10.14         .409      1.69989    1.500    3.512 PER IMP=
48.98
   *S* ADD FLOW FROM IN7 AND ST.4B
   ADD HYD                 EATO 61&12   76        .05861       148.94        6.980      2.23300    1.500    3.971
   *S  ADD ST.4b AND ROUTED I-40 DIVERSION (48" PIPE)
   ADD HYD            ST.4&OS.6 76&30   31       9.78023       719.77      283.293       .54311    1.550     .115
   *S
   *S  ROUTE FLOW FROM ST.4ab ALONG I40 TO 98TH STREET
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   *S  ROUTED THROUGH 72" PIPE
   ROUTE MCUNGE          40ST.4   31   76       9.78023       679.80      282.822       .54221    1.600      .109 CCODE =
  .2
   *S**** COMPUTE BASIN ST.3 ****
   COMPUTE NM HYD          ST.3   -    15       .08900        148.98       9.264      1.95174    1.600    2.616 PER IMP=
70.00
   *S*                ROUTE ST.3 ALONG STREET TO 98TH STREET STORM DRAIN
   *S*                ROUTE FLOW IN 48" SD PIPE
   ROUTE MCUNGE          RTST.3   15   19       .08900        147.67       9.242      1.94709    1.700    2.592 CCODE =
  .1
   *S******* 98TH STREET **************
   *S*****************************************************************************
   *S*                                COMPUTE FLOW THROUGH LADERA DAMS 1-4                                  *
   *S*****************************************************************************
   RAINFALL  TYPE= 2                                                                                        RAIN24=
2.630
   *S* ROUTE FLOW FROM DAM 0 THROUGH AN EARTHEN CHANNEL
   *S* ROUTE THROUGH UD.1B

                                FROM  TO                    PEAK          RUNOFF                TIME TO     CFS       PAGE =
 15
                  HYDROGRAPH    ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF       PEAK       PER
   COMMAND      IDENTIFICATION   NO.  NO.      (SQ MI)     (CFS)       (AC-FT)    (INCHES)    (HOURS)     ACRE
)TATION

   ROUTE MCUNGE          L0.1_1   87   12       .58950        588.67      20.458       .65070    1.700    1.560 CCODE =
  .2
   *S**** COMPUTE BASIN UD.1B ****
   *S*
   COMPUTE NM HYD          UD.1B   -    15       .12660        256.50      10.169      1.50614    1.500    3.166 PER IMP=
42.93
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S*** ADD DAM 0 TO UD.1B *****
   ADD HYD               DAM1IN 15&12  22       .71610        699.79      30.627       .80193    1.700    1.527
   *S  ROUTE FLOW TO DAM 1
   *S* ROUTE WITH 54" PIPE
   ROUTE MCUNGE          RTUD.1b   22   16       .71610        699.79      30.627       .80193    1.700    1.527 CCODE =
  .0
   *S**** COMPUTE BASIN UD.2 ****
   *S*
   COMPUTE NM HYD          UD.2    -     5       .23080        471.57      18.319      1.48820    1.500    3.192 PER IMP=
).37
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S* DIVIDE BASIN INTO PONDS 1, AND 2-3
   DIVIDE HYD              PD1    5   20       .07616        155.62       6.045      1.48820    1.500    3.192
                          PD2&3  and   21       .15464        315.95      12.274      1.48820    1.500    3.192
   *S*** ADD 25% OF UD.2 TO DAM 1 INLET FLOW ****
   *S*** TOTAL DAM 1 INFLOW *****
   ADD HYD               DAM1IN 20&16  22       .79226        779.40      36.673       .86791    1.650    1.537
   *S  ROUTE FLOW THROUGH POND #1
   *S  OUTLET PIPE CHANGED TO 1 2.5' PIPE
   ROUTE RESERVOIR         POND1   22   27       .79226        173.15      36.672       .86790    2.050     .341 AC-FT=
22.718
   *S* DIVIDE UD.2 REMAINDER FLOW FOR PONDS #2,&3
   DIVIDE HYD              PD2    21   95       .07732        157.97       6.137      1.48820    1.500    3.192
                           PD3  and   24       .07732        157.97       6.137      1.48820    1.500    3.192
   *S*** ADD PART OF BASIN UD.2 TO DAM 1 OUTLET FLOW ****
   *S*** DAM 2 INLET FLOW ***
   ADD HYD               DAM2IN 95&27  26       .86958        216.42      42.809       .92305    1.550     .389
   *S  ROUTE FLOW THROUGH POND #2
   *S* POND CHANGED TO HAVE A 2-1.5' OUTLETS TO REDUCE FLOW TO #3
   ROUTE RESERVOIR         POND2   26   10       .86958         82.12      42.777       .92237    3.850     .148 AC-FT=
19.785
   *S
   *S**** COMPUTE BASIN UD.2A ****
   *S*
   COMPUTE NM HYD          UD.2A   -    22       .03830         64.55       1.827       .89436    1.500    2.633 PER IMP=
  .00
   *S*** ADD PORTION OF BASIN UD.2a TO UD.2  ****
   ADD HYD            UD.2&UD2.A 22&24  32       .11562        222.52       7.964      1.29148    1.500    3.007
   *S*** ADD UD.2 AND UD.2A TO DAM 2 OUTLFLOW ****
   ADD HYD            UD.2&UD.2A 32&10  33       .98520        233.11      50.741       .96569    1.500     .370
   *S**** COMPUTE BASIN UD.3 ****
   *S*
   COMPUTE NM HYD          UD.3    -    34       .03890         95.79       4.391      2.11668    1.500    3.848 PER IMP=
).60
   *S*** ADD UD.3 AND ROUTED UD.2 UD.2A AND DAM 2 OUTFALL ****
   ADD HYD            UD.2&UD.2A 34&33  39      1.02410        328.91      55.132      1.00941    1.500     .502
   *S DAM REMOVED TO SEE AFFECTS ON LADERA SYSTEM- LEM 2/9/06
   *S  ROUTE FLOW THROUGH POND #3
   ROUTE RESERVOIR         POND3   39   10      1.02410         41.65      54.239       .99305    7.500     .064 AC-FT=
).444
   *S**** COMPUTE BASIN UD.4B ****

                                FROM  TO                    PEAK          RUNOFF                TIME TO     CFS       PAGE =
 .6
                  HYDROGRAPH    ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF       PEAK       PER
   COMMAND      IDENTIFICATION   NO.  NO.      (SQ MI)     (CFS)       (AC-FT)    (INCHES)    (HOURS)     ACRE
NOTATION

   *S*
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   COMPUTE NM HYD          UD.4b   -     35        .03400         79.46        3.510        1.93539     1.500     3.652 PER IMP=
3.50
   *S**** COMPUTE BASIN UD.4c ****
   *S*
   COMPUTE NM HYD          UD.3    -     34        .07970         85.70        2.580         .60686     1.500     1.680 PER IMP=
4.50
   *S*** ADD BASIN UD.4B&C  ****
   ADD HYD              UD.4B&C 34&35   41        .11370        165.16        6.089        1.00413     1.500     2.270
   *S*** ADD BASIN UD.4B&C AND POND 3 OUTFLOW  ****
   *S*** TOTAL INFLOW TO POND #4 ****
   ADD HYD              UD.4B&C 41&10   42       1.13780        174.45       60.328         .99416     1.500      .240
   *S   ROUTE FLOW THROUGH POND #4
   ROUTE RESERVOIR         POND4    42   43       1.13780         35.54       58.623         .96605    12.200      .049 AC-FT=
3.479
   *S**** COMPUTE BASIN UD.5d ****
   *S* ASSUME UD.5D FLOWS OUT OF STUDY AREA AND ONTO PETROGLYPHS****
   *S**** COMPUTE BASIN UD.5A ****
   *S*
   COMPUTE NM HYD          UD.5A   -      1        .15300        160.59        4.950         .60662     1.550     1.640 PER IMP=
.00
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S****               ROUTE UD.5A THROUGH OS.5A TO INLET OF DAM 5 ARROYO
   ROUTE MCUNGE          RTUD.5A    1    2        .15300        156.56        4.923         .60326     1.700     1.599 CCODE =
.1
   *S**** COMPUTE BASIN UD.5E ****
   *S*
   COMPUTE NM HYD          UD.5E   -     90        .18710        183.60        6.053         .60662     1.550     1.533 PER IMP=
.00
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S* ASSUME HALF OF BASIN UD.5E FLOWS ONTO OS.5A AND HALF ONTO OS.5B
   DIVIDE HYD              OS.5A   90   51        .09355         91.80        3.027         .60662     1.550     1.533
                           OS.5B  and   52        .09355         91.80        3.027         .60662     1.550     1.533
   *S*
   *S****               ROUTE HALF OF UD.5E THROUGH OS.5A TO INLET OF DAM 5 ARROYO
   ROUTE MCUNGE         ARTUD.5E   51    1        .09355         90.41        3.037         .60878     1.650     1.510 CCODE =
.2
   *S****               ROUTE HALF OF UD.5E THROUGH OS.5B TO INLET OF DAM 5 ARROYO
   ROUTE MCUNGE         BRTUD.5E   52   55        .09355         89.56        3.007         .60265     1.700     1.496 CCODE =
.1
   SEDIMENT BULK                                                                                                      PK BF =
1.12
   *S**** COMPUTE BASIN OS.5A ****
   *S*
   COMPUTE NM HYD          OS.5A   -      3        .10620        121.34        3.754         .66285     1.550     1.785 PER IMP=
.00
   *S**** COMPUTE BASIN OS.5B ****
   *S*
   COMPUTE NM HYD          OS.5B   -      4        .15400        202.65        5.444         .66285     1.500     2.056 PER IMP=
.00
   SEDIMENT BULK                                                                                                      PK BF =
1.02
   *S* ADD ROUTED UD.5E AND OS.5B**
   ADD HYD              OS.5BTOT  4&55   70        .24755        219.13        8.451         .64009     1.550     1.383
   *S* ADD ROUTED UD.5A AND OS.5A**
   ADD HYD            UD.5AOS.5A  2& 3    5        .25920        220.94        8.677         .62767     1.700     1.332
   *S* ADD COMBINED FLOW TO ROUTED UD.5E**
   ADD HYD              OS.5ATOT  5& 1   75        .35275        301.87       11.714         .62266     1.650     1.337
   *S* TOTAL INLET FLOW TO DAM 5 ARROYO DAM
   ADD HYD           DAM5INLET 70&75    6        .60030        499.12       20.165         .62985     1.650     1.299
   *S  ROUTE IN DAM 5 ARROYO TO END OF UD.5C

                                  FROM  TO                    PEAK         RUNOFF                 TIME TO     CFS        PAGE =
17
                     HYDROGRAPH    ID    ID         AREA     DISCHARGE      VOLUME      RUNOFF      PEAK       PER
   COMMAND        IDENTIFICATION   NO.   NO.      (SQ MI)     (CFS)       (AC-FT)    (INCHES)   (HOURS)    ACRE
TATION

   ROUTE MCUNGE         D5ARROYO    6     8        .60030        492.55       20.189         .63058     1.650     1.282 CCODE =
.2
   *S
   *S**** COMPUTE BASIN UD.5C ****
   *S*
   COMPUTE NM HYD          UD.5C   -     11        .08500        182.75        7.608        1.67815     1.500     3.359 PER IMP=
53.20
   *S
   *S  DIVERT 25% FOR SURGE POND CONDITION
   *S
   *S* ADD DAM 5 ARROYO AND UD.5C*
   ADD HYD              RTUD.5C 11& 8   99        .68530        591.14       27.796         .76051     1.650     1.348
   *S  ROUTE IN DAM 5 ARROYO TO END OF UD.5B
   ROUTE MCUNGE         D5ARROYO   99     8        .68530        589.10       27.718         .75837     1.700     1.343 CCODE =
.1
   *S
   *S**** COMPUTE BASIN UD.5B ****
   *S*
   COMPUTE NM HYD          UD.5B   -      9        .09160        165.53        5.948        1.21756     1.500     2.824 PER IMP=
3.54
   *S* ADD DAM 5 ARROYO AND UD.5B*
   ADD HYD              ARYDAM5  9& 8   10        .77690        659.74       33.666         .81251     1.700     1.327
   *S* TEMPORARY POND LOCATED AT THE INTERSECTION OF UD.5C AND UD.5B ****
   *S* OUTLET MODELED AS A 6' PIPE
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   *S ROUTE DAM 5 ARROYO AND UD.5B AND UD.5C IN A 48" STORM DRAIN***
   ROUTE MCUNGE        D5ARROYO   11   10        .77690       658.52       33.673       .81269    1.750    1.324 CCODE =
.2
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.1A*****
   *S  THIS BASIN WILL BE DIVERTED IN TO DAM 5 POND.
   COMPUTE NM HYD         L9.1A   -    9        .11040       167.25        8.527       1.44820   1.600    2.367 PER IMP=
9.08
   *S ROUTE BASIN L9.1A IN THE PROPOSED DIVERSION STRUCTURE TO DAM 5 POND
   ROUTE MCUNGE        D5ARROYO    9    8        .11040       165.36        8.512       1.44561   1.650    2.340 CCODE =
.1
   *S* ADD DAM 5 ARROYO BASIN L9.1A*
   ADD HYD          ARYDAM5&L91. 10& 8   9        .88730       819.96       42.185       .89143    1.650    1.444
   *S* ROUTE FLOW THROUGH DAM 5 POND ON SOCCER FIELDS ****
   *S* OUTLET MODELED AS A 5.5' PIPE
   ROUTE RESERVOIR         POND5    9   10        .88730       238.00       42.171       .89114    2.150     .419 AC-FT=
23.229
   *S  ROUTE COMBINED FLOW IN DAM 5 ARROYO TO end of BASIN UD.4A
   *S  ROUTE WITH 48 INCH PIPE
   ROUTE MCUNGE        D5ARROYO   10    8        .88730       237.99       42.173       .89117    2.150     .419 CCODE =
.2
   *S
   *S**** COMPUTE BASIN UD.4A ****
   *S*
   COMPUTE NM HYD         UD.4A   -    9        .04550        84.97        3.423       1.41041   1.500    2.918 PER IMP=
42.10
   *S*** ADD FLOW FROM DAM 5 ARROYO UD.4A ***
   *S*** TOTAL DAM 5 INFLOW ***
   ADD HYD             PD&4D.4A  8& 9  45        .93280       251.31       45.595       .91650    2.000     .421
   *S*** PROPOSED DIVERSION TO STORM CLOUD SUBDIVISION TO LADERA DAM 9****
   *S*** DIVERT
   DIVIDE HYD           TOPOND5   45   45        .88389       205.00       43.205       .91650    1.800     .362
                         todam9  and   69        .04891        46.31        2.391       .91650    2.000    1.480
   *S ROUTE FLOW FROM DIVERSION TO LADERA DAM 5
   ROUTE MCUNGE       UD.4ADAM5   45    8        .88389       205.00       43.200       .91641    1.850     .362 CCODE =
.1
   *S*** ADD FLOW FROM DAM 5 ARROYO TO ROUTED POND #4 OUTFLOW ***
   *S*** TOTAL DAM 5 INFLOW ***
   ADD HYD                PD5IN  8&43  44       2.02169       223.89      101.823       .94435    2.750     .173
   *S* ROUTE FLOW THROUGH POND 5 ****

                                  FROM  TO                    PEAK        RUNOFF                 TIME TO    CFS       PAGE =
18
                     HYDROGRAPH    ID   ID        AREA      DISCHARGE     VOLUME      RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION   NO.  NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE
NOTATION

   ROUTE RESERVOIR         POND5   44    9       2.02169       156.40      100.022       .92764    3.350     .121 AC-FT=
5.752
   *S  ROUTE OVERLAND FLOW FROM BASINS L0.1-L5.1 THROUGH  BASIN L7.2
   ROUTE MCUNGE          L7.2_1    9   10       2.02169       156.41       99.895       .92647    3.450     .121 CCODE =
.2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L7.1
   COMPUTE NM HYD          L7.1   -    1        .00780        15.57         .603       1.44854   1.500    3.119 PER IMP=
3.00
   *S  ROUTE OVERLAND FLOW FROM BASIN L7.1 THROUGH  BASIN L7.2
   ROUTE MCUNGE          L7.2_2    1   50        .00780        13.04         .598       1.43772   1.800    2.612 CCODE =
.2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L7.2
   COMPUTE NM HYD          L7.2   -    2        .06880       120.16        4.787       1.30469   1.500    2.729 PER IMP=
38.00
   *S  COMBINED FLOW (BASINS L7.1 & L7.2)
   ADD HYD               L7.2_3 50& 2  27        .07660       120.47        5.385       1.31822   1.500    2.457
   *S  DIVIDE ID=27 INTO 3 THIRDS FOR PONDS 6, 7 AND 8
   DIVIDE HYD            L7.2_4   27   1        .02551        40.12        1.793       1.31822   1.500    2.457
                         L7.2_5  and   3        .05109        80.35        3.592       1.31822   1.500    2.457
   *S  ADD 1ST THIRD TO ROUTED FLOW
   ADD HYD               TO_DAM6  1&10  10       2.04720       156.81      101.689       .93135    3.450     .120
   *S  ROUTE FLOW THROUGH POND #6
   ROUTE RESERVOIR         POND6   10    9       2.04720       111.40      100.126       .91704    4.600     .085 AC-FT=
13.761
   *S  ADD 2ND THIRD TO POND OUTFLOW
   ADD HYD               TO_DAM7  1& 9  10       2.07271       111.67      101.920       .92198    4.600     .084
   *S  ROUTE FLOW THROUGH POND #7
   ROUTE RESERVOIR         POND7   10    9       2.07271       100.08      100.553       .90961    5.700     .075 AC-FT=
8.456
   *S  ADD LAST THIRD TO POND OUTFLOW
   ADD HYD               TO_DAM8  1& 9  10       2.09822       100.37      102.346       .91458    5.700     .075
   *S  ROUTE FLOW THROUGH POND #8
   ROUTE RESERVOIR         POND8   10    9       2.09822        61.87       97.193       .86854    9.150     .046 AC-FT=
20.546
   *S  ROUTE OVERLAND FLOW FROM BASINS L0.1-L7.2 THROUGH  BASIN L9.2
   ROUTE MCUNGE          L9.2_1    9   10       2.09822        61.87       97.076       .86749    9.200     .046 CCODE =
.2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.1
   COMPUTE NM HYD          L9.1   -    1        .26560       377.99       15.153       1.06969   1.550    2.224 PER IMP=
1.00
   *S  ROUTE 9.1 THRU 9.2 IN "DAM 9" ARROYO
   ROUTE MCUNGE          L9.2_2    1   50        .26560       371.74       15.126       1.06784   1.650    2.187 CCODE =
.1
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L9.2
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   COMPUTE NM HYD          L9.2    -     2        .13130       214.03       10.808       1.54348    1.550    2.547 PER IMP=
3.00
   *S  COMBINED FLOW L9.1 AND L9.2
   ADD HYD               L9.2_3 50& 2  21        .39690       576.96       25.935       1.22519    1.600    2.271
   *S  COMBINED FLOW (BASINS L0.1-L7.2) AND L9.1-L9.2
   ADD HYD              TO_DAM9 21&10  10       2.49512       578.49      123.011        .92439    1.600     .362
   *S  COMBINED FLOW (BASINS L0.1-L7.2) AND L9.1-L9.2 AND
   *S  DIVERSION FROM STORM CLOUD SUBDIVISION
   ADD HYD              TO_DAM9 69&10  10       2.54402       578.49      125.402        .92424    1.600     .355
   *S  ROUTE FLOW THROUGH POND #9
   ROUTE RESERVOIR        POND9   10    9       2.54402        68.68      119.508        .88080    2.450     .042 AC-FT=
3.955
   *S  ROUTE OUTFLOW OVERLAND THROUGH BASIN L12.20
   ROUTE MCUNGE         TO_DAM10    9   10       2.54402        68.69      119.231        .87876    2.500     .042 CCODE =
 .2
   *S  ROUTE COMBINED THROUGH DAM #10
   ROUTE RESERVOIR       POND10   10    9       2.54402        48.59       93.647        .69020   21.300     .030 AC-FT=
1.476
   *S
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                                FROM  TO                      PEAK         RUNOFF                TIME TO    CFS       PAGE =
19
                    HYDROGRAPH   ID   ID         AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION  NO.  NO.      (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE
NOTATION
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   *S
   *S**************************************************************************
   *S    CALCULATE RUNOFF BEGINNING AT THE TOP OF LADERA L12 WATERSHED.
   *S  UPPER LADERA BASINS START AT DOUBLE EAGLE II AIRPORT & DRAIN TO DAM12
   *S                          REGION B2
   *S**************************************************************************
   RAINFALL  TYPE= 2                                                                                    RAIN24=
.710
   *S*S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.1
   COMPUTE NM HYD          L12.1   -     1        .22190       255.72       18.151       1.53371    1.750    1.801 PER IMP=
5.00
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.2
   COMPUTE NM HYD          L12.2   -     2       1.13590      1718.14       62.261       1.02773    1.500    2.363 PER IMP=
19.00
   *S  COMBINED FLOW FROM BASINS L12.1 AND L12.2 IN DE II AIRPORT AREA.  THERE ARE
   *S  PONDS W/COMBINED VOLUME OF ALMOST 30 ACRE-FT IN THESE BASINS.  THESE
   *S  PONDS ULTIMATELY DISCHARGE TO A 70 ACRE-FT PLAYA THAT IS BISECTED BY
   *S  PASEO DEL VOLCAN.  IF PLAYA DOES NOT OVERFLOW, THEN THE BASINS CAN BE
   *S  CONSIDERED TO BE NON-CONTRIBUTING.  PONDS AND PLAYA NOT IN MODEL.
   ADD HYD               L12.2_1  1& 2   4       1.35780      1819.44       80.412       1.11042    1.500    2.094
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.3
   COMPUTE NM HYD          L12.3   -     1        .33130       427.64       33.348       1.88737    1.750    2.017 PER IMP=
59.00
   *S  ROUTE L12.3 THROUGH L12.6
   ROUTE MCUNGE          L12.3_1    1   49        .33130       388.63       33.419       1.89138    2.500    1.833 CCODE =
 .1
   ROUTE MCUNGE          L12.3_1   49   50        .33130       342.68       32.935       1.86398    2.650    1.616 CCODE =
 .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.5
   COMPUTE NM HYD          L12.5   -     1        .73130       585.09       38.760        .99378    1.750    1.250 PER IMP=
16.00
   *S  ROUTE L12.5 THROUGH L12.4
   ROUTE MCUNGE          L12.4_1    1   51        .73130       543.12       38.974        .99926    2.000    1.160 CCODE =
 .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.4
   COMPUTE NM HYD          L12.4   -     1        .60160       761.33       52.459       1.63498    1.700    1.977 PER IMP=
5.00
   *S  ADD L12.4 AND L12.5
   ADD HYD               L12.4_2  1&51   2       1.33290      1042.46       91.433       1.28619    1.850    1.222
   *S  ROUTE COMBINED (L12.4 AND L12.5) THROUGH L12.6
   ROUTE MCUNGE          L12.6_1    2   51       1.33290      1025.91       91.497       1.28710    2.300    1.203 CCODE =
 .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.6
   COMPUTE NM HYD          L12.6   -     1        .94530      1113.85       98.821       1.96010    1.800    1.841 PER IMP=
65.00
   *S  ADD (L12.4-5) & L12.6
   ADD HYD               L12.6_2  1&51   2       2.27820      1663.54      190.318       1.56635    2.100    1.141
   *S  ADD (L12.4-6) & L12.3
   ADD HYD               L12.6_3  2&50   4       2.60950      1695.77      223.253       1.60414    2.250    1.015
   *S  ROUTE COMBINED (L12.3, L12.4, L12.5, AND L12.6) THROUGH L12.7
   ROUTE MCUNGE          L12.7_1    4   49       2.60950      1552.37      222.733       1.60040    2.350     .930 CCODE =
 .2
   ROUTE MCUNGE          L12.7_1   49   50       2.60950      1551.82      222.703       1.60018    2.350     .929 CCODE =
 .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.7
   COMPUTE NM HYD          L12.7   -     1       1.05630       789.27       57.884       1.02748    1.750    1.168 PER IMP=
1.00
   *S  ADD (L12.3-6) & L12.7
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                                FROM  TO                      PEAK         RUNOFF                TIME TO    CFS       PAGE =
20
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COMMAND	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	PEAK (HOURS)	PER ACRE	NOTATION
ADD HYD	L12.7_2	1&50	3	3.66580	1827.77	280.587	1.43516	2.150	.779	
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.8										
COMPUTE NM HYD	L12.8	-	1	.42190	472.74	43.680	1.94123	1.850	1.751	PER IMP= 3.00
*S ROUTE L12.8 THROUGH L12.7										
ROUTE MCUNGE	L12.7_3	1	50	.42190	472.82	43.680	1.94122	1.850	1.751	CCODE = .2
*S ADD (L12.3-7) & L12.8										
ADD HYD	L12.7_4	3&50	3	4.08770	2170.25	324.267	1.48739	1.850	.830	
*S ROUTE FLOW THROUGH PROPOSED POND AT PASEO DEL VULCAN (PDV)										
*S INCREASE POND SIZE BY 1.5 TIMES. PRINCIPAL SPILLWAY= 60" RCP										
ROUTE RESERVOIR	PDVPOND	3	50	4.08770	313.54	312.127	1.43171	3.700	.120	AC-FT= L2.608
*S										
*S**********										
*S DIVERSION TO DAM 5 ARROYO BEGINS										
*S**********										
*S ROUTE PDV POND OUTFLOW SOUTH IN PROPOSED PETROGLYPH DIVERSION										
ROUTE MCUNGE	DIV1	50	5	4.08770	313.54	311.889	1.43061	3.800	.120	CCODE = .2
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.9W										
COMPUTE NM HYD	L12.9W	-	2	.10160	220.03	9.350	1.72547	1.500	3.384	PER IMP= 3.00
*S FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.9W										
ADD HYD	DIV2	2& 5	4	4.18930	315.27	321.239	1.43776	3.750	.118	
*S ROUTE IN PROPOSED PETROGLYPH DIVERSION										
ROUTE MCUNGE	DIV3	4	5	4.18930	315.27	321.086	1.43708	3.800	.118	CCODE = .2
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.11										
COMPUTE NM HYD	L12.11	-	1	.27340	300.91	28.577	1.95980	1.850	1.720	PER IMP= 7.00
*S ROUTE L12.11 THROUGH L12.12W TO PROPOSED PETROGLYPH DIVERSION										
ROUTE MCUNGE	L12.12_1	1	49	.27340	300.12	28.555	1.95832	1.950	1.715	CCODE = .1
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.12W										
COMPUTE NM HYD	L12.12W	-	2	.14150	187.21	12.764	1.69132	1.650	2.067	PER IMP= 2.00
ADD HYD	DIV4	2& 5	3	4.33080	361.57	333.850	1.44539	1.600	.130	
*S FLOW IN PROPOSED PETROGLYPH DIVERSION AT SOUTH END BASIN L12.12W										
ADD HYD	DIV5	3&49	2	4.60420	544.04	362.404	1.47584	2.000	.185	
*S ROUTE FLOW THROUGH PROPOSED MIREHAVEN A2 DAM										
*S PRINCIPAL SPILLWAY 1-36" RCP										
*S for FINAL2D.HYM increase storage by 3.4x.										
*S PRINCIPAL SPILLWAY 1-54" RCP										
ROUTE RESERVOIR	MA2POND	2	30	4.60420	269.69	361.791	1.47335	7.500	.092	AC-FT= L.873
*S ROUTE IN PROPOSED PETROGLYPH DIVERSION THRU BASIN L12.14 to dike (3c.1)										
ROUTE MCUNGE	DIV6	30	5	4.60420	269.69	361.449	1.47196	7.550	.092	CCODE = .2
*S										
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.14										
COMPUTE NM HYD	L12.14	-	2	.40160	403.53	25.095	1.17165	1.650	1.570	PER IMP= 28.00
*S FLOW IN PROPOSED PETROGLYPH DIVERSION AT confluence of B and C										
ADD HYD	Bconf_C	2& 5	19	5.00580	474.46	386.544	1.44786	1.700	.148	
*S COMPUTE HYDROGRAPH FOR BASIN L12.15										
COMPUTE NM HYD	L12.15	-	1	.43910	452.54	40.618	1.73442	1.850	1.610	PER IMP= 54.00
*S ROUTE L12.15 THRU L12.16W TO PROPOSED PETROGLYPH DIV VIA MIREHAVEN "C"										
ROUTE MCUNGE	L12.16_1	1	50	.43910	451.81	40.620	1.73450	1.850	1.608	CCODE = .2
*S										

COMMAND	HYDROGRAPH IDENTIFICATION	ID NO.	ID NO.	AREA (SQ MI)	DISCHARGE (CFS)	VOLUME (AC-FT)	RUNOFF (INCHES)	PEAK (HOURS)	PER ACRE	NOTATION
*S										
*S COMPUTE HYDROGRAPH FOR BASIN L12.16										
COMPUTE NM HYD	L12.16	-	2	.85470	963.71	67.839	1.48822	1.700	1.762	PER IMP= 43.00
*S NEXT COMPUTE HYDE FOR COMPUTATIONAL ONLY										
COMPUTE NM HYD	L12.16ER	-	47	.09600	135.90	2.444	.47735	1.450	2.212	PER IMP= .00
*S ADD L12.16 TO ROUTED L12.15										
ADD HYD	L12.16W_1	2&50	4	1.29380	1339.22	108.458	1.57180	1.750	1.617	
*S ROUTE FLOW THROUGH PROPOSED C DAM										
*S PRINCIPAL SPILLWAY 54" RCP (ORIGINALLY 42" IN OPTION 2C;										
ROUTE RESERVOIR	CPOND	4	3	1.29380	261.06	108.154	1.56738	2.550	.315	AC-FT= 7.940
*S ROUTE OUTFLOW IN MIREHAVEN C THRU NAT MON TO CONFLUENCE OF MIREHAVEN B & C.										
ROUTE MCUNGE	L12.16E_1.5	3	2	1.29380	261.09	108.131	1.56705	2.600	.315	CCODE = .2

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   *S  COMPUTE HYDROGRAPH FOR BASIN L12.9E
   COMPUTE NM HYD        L12.9E   -    89        .55780       462.07       31.467       1.05775    1.700    1.294 PER IMP=
5.00
   *S  ROUTE L12.9E THROUGH L12.12E
   ROUTE MCUNGE          L12.12_3   89   49        .55780       461.94       31.471       1.05788    1.750    1.294 CCODE =
.2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.12E
   COMPUTE NM HYD       L12.12E   -    92        .21160       236.59       10.438        .92489    1.550    1.747 PER IMP=
20.00
   *S  ADD L12.12E TO ROUTED L12.9E
   ADD HYD               L12.12_4 49&92  93        .76940       606.64       41.909       1.02130    1.700    1.232
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.10
   COMPUTE NM HYD        L12.10   -     4        .22190       134.35        5.925        .50068    1.600     .946 PER IMP=
.00
   *S  ADD L12.10 TO mirehaven
   ADD HYD               L12.10_1 93& 4  96        .99130       733.25       47.834        .90476    1.650    1.156
   *S  ROUTE THROUGH L12.13 --
   ROUTE MCUNGE          L12.13_1   96   49        .99130       729.80       47.726        .90272    1.850    1.150 CCODE =
.1
   ROUTE MCUNGE          L12.13_1   49    4        .99130       729.80       47.726        .90272    1.850    1.150 CCODE =
.0
   ROUTE MCUNGE          L12.13_1    4   50        .99130       729.80       47.726        .90272    1.850    1.150 CCODE =
.0
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.13
   COMPUTE NM HYD        L12.13   -     1        .26090       157.89        6.642        .47735    1.600     .946 PER IMP=
.00
   *S  ADD ROUTED L12.10 & L12.13
   *S  TOTAL MIREHAVEN "A" ARROYO FLOW AT BASE OF ESCARPMENT
   ADD HYD               L12.13_2  1&50   4       1.25220       809.24       54.369        .81410    1.850    1.010
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.17
   COMPUTE NM HYD        L12.17   -     1        .20310       219.54        9.137        .84355    1.550    1.689 PER IMP=
11.00
   *S  ADD  L12.14-16 & L12.17  --  FLOW AT LADERA TRAINING DIKE
   ADD HYD                DIKE0 19& 2  60       6.29960       608.73      494.675       1.47234    1.850     .151
   ADD HYD                 DIKE 60& 1   2       6.50270       691.27      503.812       1.45270    1.850     .166
   *S  ROUTE COMBINED (L12.14-L12.17) IN MIREHAVEN ARROYO DNSTREAM FROM TRNG DIKE
   *S    TO CONFLUENCE WITH MIREHAVEN "A" ARROYO BELOW ESCARPMENT
   ROUTE MCUNGE          L12.18_1    2   50       6.50270       682.82      503.437       1.45162    1.950     .164 CCODE =
.2
   *S  ADD  L12.14-17 & L12.10-13
   *S  TOTAL FLOW MIREHAVEN A, B, C ARROYOS BELOW ESCARPMT, DNSTRM FROM TR DIKE
   ADD HYD               L12.18_2  4&50   3       7.75490      1437.60      557.806       1.34868    1.850     .290
   *S  ROUTE L12.3-17 THROUGH MIREHAVEN ARROYO TO INTERSECTN W/FUTURE 98TH ST
   *S  LTOT=4625 FT.  1ST 1300' IN PETROG NM, NAT CHAN.  LAST PART IS CONC CHAN.
   ROUTE MCUNGE          L12.18_3    3    4       7.75490      1435.35      557.471       1.34787    1.900     .289 CCODE =
.1
   ROUTE MCUNGE          L12.18_3    4   50       7.75490      1435.09      557.158       1.34711    2.000     .289 CCODE =
.1
   *S

                                    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
TATION

   *S  COMPUTE HYDROGRAPH FOR BASIN L12.18
   COMPUTE NM HYD        L12.18   -     1        .51410       512.81       25.300        .92273    1.600    1.559 PER IMP=
16.00
   *S
   *S  ADD  L12.3-17 & L12.18 --  TOTAL FLOW IN MIREHAVEN AT FUTURE 98TH STREET
   ADD HYD               L12.18_4  1&50   2       8.26900      1595.98      582.458       1.32073    1.950     .302
   *S
   RAINFALL  TYPE= 2                                                                                          RAIN24=
 710
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.19
   COMPUTE NM HYD        L12.19   -     1        .18440       346.50       13.718       1.39484    1.500    2.936 PER IMP=
34.00
   *S  ROUTE L12.19 TO MIREHAVEN ARROYO
   ROUTE MCUNGE          L12.19_2    1   50        .18440       340.75       13.719       1.39496    1.550    2.887 CCODE =
.2
   *S  ADD  L12.3-18 & L12.19 --  TOTAL FLOW IN MIREHAVEN AT FUTURE 98TH STREET
   ADD HYD               L12.18_5  2&50   2       8.45340      1669.07      596.177       1.32235    1.950     .309
   *S
   *S  ROUTE COMBINED (L12.13-L12.19) IN MIREHAVEN THRU L12.20 TO DAM#12
   ROUTE MCUNGE          L12.20_1    2   51       8.45340      1666.24      595.894       1.32172    2.050     .308 CCODE =
.1
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L12.20
   COMPUTE NM HYD        L12.20   -     1        .34220       603.49       28.367       1.55431    1.550    2.756 PER IMP=
5.00
   *S  DIVIDE L12.20 HYD
   DIVIDE HYD            L12.20_3    1    4        .17110       301.75       14.184       1.55431    1.550    2.756
                         L12.20_4  and    2        .17110       301.75       14.184       1.55431    1.550    2.756
   *S  ADD TO FLOW FROM DAM #10
   ADD HYD               TO_DAM11  4& 9  10       2.71512       301.79      107.830        .74465    1.550     .174
   *S
   *S  ROUTE FLOW THROUGH DAM #11
   *S  ENLARGE POND STORAGE 1.6 TIMES FOR I-40 DMP OPTIONS   (NM 6/03/96)
   ROUTE RESERVOIR       POND11   10    9       2.71512        41.30       72.381        .49985   29.950     .024 AC-FT=
```

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35.447
   *S  ROUTE OVERLAND FLOW FROM DAM #11 THROUGH  BASIN L12.20
   ROUTE MCUNGE        L12.20_6    9   10       2.71512        41.29       71.961       .49695   29.950      .024 CCODE =
  .2
   *S
   *S  ADD SECOND HALF OF FLOW FROM L12.20 TO MIREHAVEN CHAN
   *S  TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
   ADD HYD             L12.20_7  2&51   3       8.62450      1729.62      610.077       1.32633    2.050      .313
   *S PLOT2  HYD=L12.20_7   TOTAL FLOW IN MIREHAVEN CHANNEL NORTH OF DAM 12
   *S
   *S  COMBINED MIREHAVEN AND DAM #11 OUTFLOW -- TOTAL FLOW INTO DAM #12
   ADD HYD             TO_DAM12  3&10   9      11.33962      1741.09      682.038       1.12775    2.050      .240
   *S PLOT3
   *S
   *S   ROUTE FLOW THROUGH POND #12
   *S*** LADERA POND 12 - EXISTING CHARACTERISTICS
   *S***
   *S MODIFIED TO REMOVE PROPOSED DIVERSION TO I-40
   *S DIVERSION TO I-40 THUR 1 - 66" GROOVE EDGE PIPE
   ROUTE RESERVOIR       POND12    9   10      11.33962      1590.12      674.035       1.11451    2.200      .219 AC-FT=
59.560
   *S PLOT4
   *S
   *S*** DIVERT 120 CFS FROM DAM 12 TO I-40; REST OF DAM 12 OUTFLOW GOES TO DAM 13
   DIVIDE HYD           blufdiv   10   37       4.59198       120.00      272.950       1.11451    1.700      .041
                         ladera  and   38       6.74765      1470.12      401.085       1.11451    2.200      .340
   *S PLOT6 LADERA CHANNEL

                                 FROM  TO                     PEAK          RUNOFF                TIME TO     CFS       PAGE =
23
                     HYDROGRAPH   ID   ID         AREA      DISCHARGE       VOLUME       RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION  NO.  NO.      (SQ MI)      (CFS)        (AC-FT)     (INCHES)   (HOURS)    ACRE
)TATION

   *S*************************************************************************
   *S*                  CALCULATE TOTAL FLOW IN 98TH STREET STORMDRAIN
   *S*************************************************************************
   *S  ADD DAM 5 DIVERSION FLOW AND ROUTED ST.3
   *S*                 ROUTE  98TH STREET FLOW DOWN 98TH STREET TO 98TH STREET POND
   *S*                 ROUTE FLOW IN 72" SD PIPE
   ROUTE MCUNGE            98RT   19   50       5.00580       394.83      384.823       1.44141    1.800      .123 CCODE =
  .2
   *S**** COMPUTE BASIN ST.5 ****
   COMPUTE NM HYD          ST.5   -    16        .04760       122.86       5.971       2.35184    1.500    4.033 PER IMP=
J.00
   *S*                 ROUTE  ST.5 ALONG TOP OF BASIN ST.6 TO 98TH STREET BOXES
   *S*                 ROUTE FLOW IN 36" SD PIPE
   *S**** COMPUTE BASIN ST.6 ****
   *S*
   COMPUTE NM HYD          ST.6   -    21        .05380       138.86       6.748       2.35184    1.500    4.033 PER IMP=
90.00
   *S ADD BASIN ST.5 BEFORE ROUTE THROUGH 98TH STREET SURGE POND
   ADD HYD           98STPONDIN 16&21  18        .10140       261.72      12.719       2.35183    1.500    4.033
   *S*                 UTE ST.6 THROUGH EXISTING CULVERT AT 98TH STREET INTERCHANGE
   *S*                 FLOW CONNECTS INTO I40 SYSTEM
   *S      ROUTE OUTFLOW THRU 1- 4x6 CBC
   ROUTE MCUNGE          ST.6OUT   18   88        .10140       261.72      12.719       2.35183    1.500    4.033 CCODE =
  .0
   *S  DIVIDE FLOW FROM 72" SD INTO 42" SD CAPACITY AND EXCESS TO SURGE POND
   DIVIDE HYD      maxflow42"SD   76   21       9.04771       129.00      261.639        .54221    1.350     .022
                   42"SDoverflo  and   16        .73251       550.80       21.183        .54221    1.600    1.175
   *S ROUTE THROUGH DUMMY POND TO EXTEND OUTPUT TIME
   ROUTE RESERVOIR         TEMP   21   99       9.04771       129.00      261.290        .54148    2.400     .022 AC-FT=
 645
   *S  ADD ST.6 AND I40 POND INFLOW
   ADD HYD               I40ST.6 16&88  30        .83391       741.02       33.901        .76225    1.550    1.388
   *S* ROUTE FLOW THROUGH SURGE POND **
   *S  SUBTRACTED CAPACITY OF THE PIPE (131CFS) FROM OUTFLOW TO ACCOUNT
   *S  FOR SURGE POND CONDITIONS
   *S  USED 42" PIPE
   ROUTE RESERVOIR       98SURGE   30   88        .83391         1.87        3.842        .08638    8.950     .003 AC-FT=
31.220
   *S
   *S  ADD SURGE FLOW OUTFLOW BACK TO SD FLOW
   ADD HYD               48INTOT 99&88  30       9.88163       130.58      264.651        .50217    2.600     .021
   *S**** FLOW REACHING IN8 ****
   *S*
   COMPUTE NM HYD            IN8   -    16        .00126         2.95         .126       1.87520    1.500    3.662 PER IMP=
 .47
   *S* ADD FLOW FROM IN8 AND FLOW LEAVING THE SURGE POND
   ADD HYD                  EATO 16&30  88       9.88289       130.65      264.777        .50234    2.600     .021
   *S
   *S*                 ROUTE FLOW TO WHERE SD EMPTIES INTO CHANNEL
   *S*                 ROUTE FLOW IN 48" SD PIPE
   ROUTE MCUNGE            RT98TH   88   30       9.88289       130.61      264.243        .50133    2.600     .021 CCODE =
  .1
   *S**** COMPUTE BASIN ST.7 ****
   *S*
   COMPUTE NM HYD          ST.7   -    17        .12900       331.09       16.181       2.35184    1.500    4.010 PER IMP=
).00
   *S  ADD ST.7 AND 98TH STREET FLOW
   ADD HYD               ST.7TOT 17&50  20       5.13480       553.45      401.003       1.46428    1.550     .168
   *S  ADD COMBINED FLOW TO ROUTED ST.5
   *S  TOTAL 98TH STREET BOXES INFLOW**
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                                    FROM  TO                    PEAK         RUNOFF                TIME TO    CFS       PAGE =
24
   COMMAND        HYDROGRAPH      ID    ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK       PER
NOTATION          IDENTIFICATION  NO.   NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)     ACRE

   ADD HYD          ST.6TOT 20&18  23       5.23620       781.50      413.722      1.48147     1.550      .233
   *S  ROUTE OUTFLOW THRU 2- 10x8 CBC UNDER 98TH ST
   ROUTE MCUNGE     98THSUM   23    2       5.23620       781.50      413.722      1.48147     1.550      .233 CCODE =
  .0
   *S  ROUTE FLOW FROM 98TH STREET BOXES THROUGH ST.8 TO I40 CHANNEL
   *S  ROUTE FLOW THROUGH CONCRETE CHANNEL
   ROUTE MCUNGE      40BOX    2   20       5.23620       775.92      413.610      1.48107     1.600      .232 CCODE =
  .1
   *S*  ADD I-40 DIVERSION FLOW TO 98TH STREET BOXES OUTFLOW
   ADD HYD          14098TH 20&30  23      15.11909       899.77      677.853       .84064     1.600      .093
   *S
   *S  ROUTE FLOW FROM 98TH STREET POND THROUGH ST.8 THROUGH I40 CHANNEL
   *S  ROUTE FLOW THROUGH CONCRETE CHANNEL
   ROUTE MCUNGE      40POND   23   30      15.11909       892.64      677.368       .84004     1.600      .092 CCODE =
  .1
   *S**** COMPUTE BASIN ST.8 ****
   *S*
   COMPUTE NM HYD      ST.8    -    22        .23400       483.18       19.777      1.58470     1.500     3.226 PER IMP=
45.01
   *S* ADD ST.8 TO I40 CHANNEL**
   ADD HYD          40ST.8RT 22&30  31      15.35309      1229.96      697.145       .85139     1.600      .125
   *S  ROUTE FLOW FROM ST.8 THROUGH ST.10 DOWN I40 CHANNEL TO UNSER BLVD.
   ROUTE MCUNGE      RTST.8   31   30      15.35309      1220.28      696.598       .85072     1.650      .124 CCODE =
  .1
   *S**** COMPUTE BASIN ST.9 ****
   *S*
   COMPUTE NM HYD      ST.9    -    23        .10240       221.72        9.433      1.72722     1.500     3.383 PER IMP=
53.20
   *S**** ROUTE BASIN ST.9 ALONG 60"SD THROUGH ST.12 ALONG LADERA ****
   ROUTE MCUNGE      RTST.9   23   24        .10240       215.75        9.434      1.72733     1.550     3.292 CCODE =
  .2
   *S**** COMPUTE BASIN ST.12 ****
   *S*
   COMPUTE NM HYD     ST.12    -    25        .04830       104.73        4.449      1.72722     1.500     3.388 PER IMP=
53.20
   *S* ADD ROUTED ST.9 AND BASIN ST.12**
   ADD HYD          ST9&12 24&25  26        .15070       317.84       13.883      1.72729     1.500     3.295
   *S* ADD ROUTED ST.9 AND ST.12 FLOW TO POND #12 SPILLWAY**
   ADD HYD          INLADD 26&37  24       4.74268       374.04      286.833      1.13398     1.550      .123
   *S  ROUTE FLOW THROUGH PARKWAY SD TO UNSER
   *S* ROUTE THROUGH CHANNEL
   ROUTE MCUNGE     RTSPILL   24    9       4.74268       367.57      286.505      1.13269     1.600      .121 CCODE =
  .1
   *S**** COMPUTE BASIN ST.10 ****
   *S* BASIN ST.10 WAS DIVIDED INTO THREE PARTS.  ST.10A IS COMBINED WITH THE LADER
   *S* ST.10B IS DIVERTED TO THE HANOVER SD.  ST.10C IS ROUTED TO THE UNSER POND.
   *S*
   *S* COMPUTE BASIN ST.10C
   COMPUTE NM HYD     ST.10    -    29        .27880       542.04       21.559      1.44988     1.500     3.038 PER IMP=
39.64
   *S*  COMPUTE ST.10B
   *S*
   COMPUTE NM HYD     ST.10B   -    67        .05200       112.75        4.790      1.72722     1.500     3.388 PER IMP=
53.20
   *S  DIVIDE BASIN ST.10B
   *S* PUT 82CFS INTO THE HANOVER SD.  REMAINDER GOES TO PARKWAY SD
   DIVIDE HYD       HANOVER   67   49        .04908        82.00        4.521      1.72721     1.450     2.611
                    PARKWAY  and   37        .00292        30.75         .269      1.72721     1.500    16.431
   *S*  COMPUTE BASIN ST.10A
   COMPUTE NM HYD     ST.10A   -     1        .04850       105.16        4.468      1.72722     1.500     3.388 PER IMP=
53.20
   *S* ADD PORTION OF ST.10B AND ST.10A**
   ADD HYD          INLADD  1&37  67        .05142       135.91        4.737      1.72721     1.500     4.130
   *S*  COMBINE ST.10 FLOW WITH PARKWAY FLOW

                                    FROM  TO                    PEAK         RUNOFF                TIME TO    CFS       PAGE =
25
   COMMAND        HYDROGRAPH      ID    ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK       PER
NOTATION          IDENTIFICATION  NO.   NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)     ACRE

   ADD HYD          INLADD  9&67  39       4.79410       477.23      291.242      1.13906     1.550      .156
   *S* ROUTE THROUGH 84" PIPE TO I40 CHANNEL EAST OF UNSER
   ROUTE MCUNGE      RTLAD   39   24       4.79410       476.49      291.044      1.13829     1.550      .155 CCODE =
  .2
   *S* ADD ST.10 TO I40 CHANNEL**
   *S**** UNSER POND INFLOW ****
   ADD HYD          UNSERTOT 29&30  31      15.63189      1592.26      718.156       .86141     1.600      .159
   *S   ROUTE THROUGH UNSER POND FOR 790 CFS WEST MESA DIVERSION
   *S   REVISED POND TO SET SPILLWAY CREST AT 5175.5  CWH 6/15/00
   *S   OUTLET WORKS = 2 - 4' X 6' CBC'S UNDER UNSER BLVD.
   ROUTE RESERVOIR  UNSERPOND   31    1      15.63189       682.50      711.749       .85372     2.200      .068 AC-FT=
.301
   *S  ROUTE FLOW THROUGH  6x4 CBC  2 BARRELS UNDER UNSER BLVD
   ROUTE MCUNGE      PUNSRT    1   28       15.63189       682.50      711.749       .85372     2.200      .068 CCODE =
  .0
   *S
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   *S* SECTION IS COPIED FROM WILSON MODEL FINAL_PU.HMI**
   *S
   ROUTE MCUNGE          610_4   28   72      15.63189       664.18      710.491       .85221    2.450     .066 CCODE =
  .2
   *S  COMPUTE OLF ABOVE AP 611A  NORTH SIDE OF I40 AT SPLITTER POND
   COMPUTE NM HYD        611.10  -     1       .01410        31.47       1.368       1.81862    1.500    3.487 PER IMP=
3.00
   *S PARKWAY STORM DRAIN
   *S ADD BASIN 611 TO PARKWAY SD DISCHARGE
   ADD HYD               108.00 24& 1  92      4.80820       504.35      292.412      1.14028    1.550     .164
   *S ROUTE PARKWAY SD THROUGH PROPOSED LOWER SURGE BASIN
   *S 10 BOTTOM WEIR ELEV 5150-5155
   *S  ROUTE OLF FROM PARKWAY SD TO 611B USING CHANNEL SECTION
   ROUTE MCUNGE          193.00   92   93      4.80820       496.00      292.152      1.13927    1.600     .161 CCODE =
  .2
   *S
   *S  COMPUTE HYD FOR BASIN 611B
   COMPUTE NM HYD        611.20  -     3       .02580        56.19       2.502       1.81862    1.500    3.403 PER IMP=
3.00
   *S
   ADD HYD               116.00 93& 3  16      4.83400       542.65      294.655      1.14290    1.550     .175
   *S
   *S  ROUTE FLOW FROM 611B TO 611C
   ROUTE MCUNGE          193.10   16   93      4.83400       540.32      294.312      1.14157    1.600     .175 CCODE =
  .1
   *S
   *S  COMPUTE HYD FOR BASIN 611C
   COMPUTE NM HYD        611.30  -     4       .01560        34.28       1.513       1.81862    1.500    3.434 PER IMP=
3.00
   *S
   *S ADD 611C TO ROUTED FLOW FROM 611B
   ADD HYD               117.00 93& 4  17      4.84960       564.91      295.825      1.14375    1.600     .182
   *S
   *S  ROUTE FLOW FROM 611C TO 611D
   ROUTE MCUNGE          193.20   17   93      4.84960       560.28      295.616      1.14294    1.600     .181 CCODE =
  .2
   *S
   *S  COMPUTE HYD FOR BASIN 611D
   COMPUTE NM HYD        611.40  -     5       .01140        25.76       1.106       1.81862    1.500    3.530 PER IMP=
3.00
   *S
   *S ADD 611D TO ROUTED FLOW FROM 611C
   ADD HYD               118.00  5&93  18      4.86100       577.55      296.722      1.14453    1.600     .186
   *S
   *S  ROUTE FLOW FROM 611D TO 617
   ROUTE MCUNGE          193.30   18   93      4.86100       571.74      296.495      1.14365    1.650     .184 CCODE =
  .2
   *S  COMPUTE HYD FOR BASIN 617A

                                 FROM  TO                    PEAK         RUNOFF                TIME TO    CFS       PAGE =
26
                      HYDROGRAPH   ID   ID        AREA     DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND         IDENTIFICATION   NO.  NO.     (SQ MI)     (CFS)       (AC-FT)    (INCHES)   (HOURS)   ACRE
TATION

   COMPUTE NM HYD        617.00  -     4       .00820        17.46        .755       1.72573    1.500    3.327 PER IMP=
55.00
   *S
   *S ADD 617A TO ROUTED FLOW FROM 611D
   ADD HYD               119.00  4&93  19      4.86920       581.24      297.250      1.14463    1.650     .187
   *S
   *S  ROUTE FLOW FROM 617A TO 617B
   ROUTE MCUNGE          193.30   19   93      4.86920       578.39      296.894      1.14326    1.650     .186 CCODE =
  .1
   *S
   *S  COMPUTE HYD FOR BASIN 617B
   COMPUTE NM HYD        617_2   -     14      .00310         6.61        .285       1.72573    1.500    3.332 PER IMP=
55.00
   *S
   *S  COMPUTE HYD FOR BASIN 617C - 72ND STREET ROW
   COMPUTE NM HYD        617_3   -     24      .00320         5.13        .162        .94785    1.500    2.504 PER IMP=
10.00
   *S
   *S ADD BASIN 617B TO ROUTED FLOW FROM 617A
   ADD HYD               120.00 14&93  21      4.87230       581.98      297.179      1.14363    1.650     .187
   *S
   *S ADD BASIN 617C TO ROUTED FLOW FROM 617A
   ADD HYD               121.00 24&21  21      4.87550       584.85      297.341      1.14350    1.650     .187
   *S
   *S  ROUTE FLOW FROM 617B TO 619A
   ROUTE MCUNGE          193.40   21   93      4.87550       583.67      296.869      1.14169    1.700     .187 CCODE =
  .2
   *S**************************************************************************
   *S      CALCULATE RUNOFF FOR BASINS EAST OF UNSER, SOUTH OF LADERA
   *S               FLOWING TO LAURELWOOD DETENTION POND
   *S                        REGION D
   *S**************************************************************************
   *S
   *S  COMPUTE HYD ABOVE AP 613   HANOVER RD  825' WEST OF LAURELWOOD PARKWAY
   COMPUTE NM HYD        613.00  -     6       .05000       106.86       4.963       1.86126    1.500    3.339 PER IMP=
00.00
   *S  COMPUTE OLF ABOVE AP 614  HANOVER ROAD AND CHERRYWOOD LANE
   COMPUTE NM HYD        614.00  -     5       .01920        37.46       1.871       1.82731    1.550    3.049 PER IMP=
1.00
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   *S  SEPARATE BASIN 613 SS FROM OLF
   DIVIDE HYD            614_1    6    7        .04950        98.00       4.914      1.86125    1.500     3.093
                         614_2  and    8        .00050         8.86        .049      1.86125    1.500    27.769
   *S ADD ROUTED SS FLOW FROM BASIN ST.10B TO FLOW IN SS
   ADD HYD              614_1A  7&49   7        .09858       180.00       9.435      1.79452    1.500     2.853
   *S  ROUTE SS DOWN HANOVER
   ROUTE MCUNGE          614_3    7    2        .09858       180.00       9.435      1.79452    1.500     2.853 CCODE =
  .0
   *S  ROUTE OLF DOWN HANOVER  MAJOR LOCAL STREET  40' FL-FL  60' ROW
   ROUTE MCUNGE          614_4    8    3        .00050         8.19        .049      1.82718    1.600    25.672 CCODE =
  .1
   *S  ADD ROUTED HYDS
   ADD HYD               614_5  2& 3   4        .09908       180.64       9.483      1.79468    1.550     2.849
   *S  ADD ROUTED HYDS TO FLOW ABOVE AP 614
   ADD HYD               614_6  4& 5   6        .11828       218.10      11.354      1.79997    1.550     2.881
   *S
   *S  COMPUTE OLF ABOVE AP 615  HANOVER RD AT LAURELWOOD PARKWAY
   COMPUTE NM HYD        615.00   -    7        .08130       149.99       7.776      1.79336    1.550     2.883 PER IMP=
 7.00
   *S  ROUTE SS AND OLF FROM AP 614 DOWN HANOVER RD TO AP 615
   DIVIDE HYD            615_1    6    8        .09407       100.00       9.030      1.79997    1.400     1.661
                         615_2  and    9        .02421       118.10       2.324      1.79997    1.550     7.623
   *S  ROUTE SS DOWN HANOVER

                                 FROM  TO                    PEAK         RUNOFF                TIME TO    CFS       PAGE =
 27
                      HYDROGRAPH   ID   ID        AREA      DISCHARGE      VOLUME      RUNOFF      PEAK      PER
   COMMAND         IDENTIFICATION  NO.  NO.     (SQ MI)      (CFS)       (AC-FT)    (INCHES)   (HOURS)    ACRE
 )TATION

   ROUTE MCUNGE          615_3    8    2        .09407       100.00       9.030      1.79997    1.400     1.661 CCODE =
  .0
   *S  ROUTE OLF DOWN HANOVER RD
   ROUTE MCUNGE          615_4    9    3        .02421       116.00       2.304      1.78467    1.550     7.487 CCODE =
  .1
   *S  ADD OLF & SS
   ADD HYD               615_5  2& 3   6        .11828       216.00      11.335      1.79683    1.550     2.853
   DIVIDE HYD            615_6    6    8        .10559       139.00      10.119      1.79683    1.450     2.057
                         615_7  and    9        .01268        77.00       1.215      1.79683    1.550     9.486
   *S  ROUTE SS IN HANOVER
   ROUTE MCUNGE          615_8    8    2        .10559       139.00      10.119      1.79683    1.450     2.057 CCODE =
  .0
   *S  ROUTE OLF DOWN HANOVER
   ROUTE MCUNGE          615_9    9    3        .01268        76.89       1.203      1.77784    1.600     9.474 CCODE =
  .1
   ADD HYD              615_10  2& 3   6        .11828       215.89      11.322      1.79479    1.600     2.852
   DIVIDE HYD           615_11    6    8        .10185       124.00       9.749      1.79479    1.450     1.902
                        615_12  and    9        .01643        91.89       1.572      1.79479    1.600     8.741
   *S  ROUTE SS
   ROUTE MCUNGE          615_13   8    2        .10185       124.00       9.749      1.79479    1.450     1.902 CCODE =
  .0
   *S  ROUTE OLF
   ROUTE MCUNGE          615_14   9    3        .01643        91.89       1.572      1.79479    1.600     8.741 CCODE =
  .0
   ADD HYD              615_15  2& 3   4        .11828       215.89      11.322      1.79479    1.600     2.852
   *S  ADD ROUTED SS OLF TO OLF ABOVE AP 615
   *S  TOTAL HYD AT AP 615   HANOVER RD AND LAURELWOOD PARKWAY
   ADD HYD              615_16  4& 7   6        .19958       357.50      19.098      1.79421    1.600     2.799
   *S  COMPUTE OLF ABOVE AP 616   LAURELWOOD DETENTION AREA
   COMPUTE NM HYD        616.00   -    5        .10680       161.32      10.215      1.79336    1.650     2.360 PER IMP=
57.00
   *S  ROUTE SS AND OLF FROM AP 615 TO AP 616 DOWN HANOVER RD
   *S  SEPARATE SS FROM OLF AT AP 615
   DIVIDE HYD            616_1    6    7        .15470       152.00      14.803      1.79421    1.400     1.535
                         616_2  and    8        .04488       205.50       4.295      1.79421    1.600     7.154
   *S  ROUTE SS FROM LAURELWOOD PARKWAY TO DETENTION AREA
   ROUTE MCUNGE          616_3    7    2        .15470       152.00      14.803      1.79421    1.400     1.535 CCODE =
  .0
   *S  ROUTE OLF FROM AP 615 AT HANOVER AND 72ND STREET
   ROUTE MCUNGE          616_4    8    3        .04488       201.21       4.237      1.77027    1.650     7.005 CCODE =
  .1
   *S* FOR REV_2D.HYM, PUT FLOW THROUGH LAURLWOOD POND INSTEAD OF DIVERT
   *S  ADD ROUTED SS TO OLF ABOVE AP 616
   *S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
   ADD HYD          TO_LARLPOND  2& 5   5        .26150       313.32      25.018      1.79386    1.650     1.872
   *S  ADD COMBINED TO ROUTED OLF
   *S  TOTAL INFLOW HYD TO LAURELWOOD DETENTION AREA
   ADD HYD          TO_LARLPOND  3& 5  16        .30638       514.52      29.255      1.79040    1.650     2.624
   *S ROUTE INFLOW HYD THROUGH LAURELWOOD DETENTION AREA
   *S USING THE THE STAGE STORAGE CONTAINED IN THE DMP WHICH
   *S EDITED STORAGE FOR POND TO REFLECT LAURELWOOD POND REGRADING
   *S CALCS DONE BY F. KALISH 8/94.
   *S MODIFIED DISCHARGE TO REFLECT NEW OULET AND PREVENT OVERTOPPING
   *S ROUTE THRU 1-30" CULVERT AT BOTTOM AND 20' WEIR SPILLWAY AT ELEVATION 5
   ROUTE RESERVOIR LARLPOND_OUT   16   41        .30638       168.45      29.255      1.79040    2.000      .859 AC-FT=
 .083
   *S  ADD OUTFLOW HYD TO OLF GOING DOWN HANOVER RD
   *S
   *S*************************************************************************
   *S      CALCULATE RUNOFF FOR BASINS SOUTH OF I-40 DRAINING TO WEST BLUFF      *
   *S                            REGION E
   *S*************************************************************************
   *S REMOVED BASINS 510-516 FROM MODEL PER LATEST WEST MESA DIV (AUG 1996)
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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 COMPUTE OLF ABOVE AP 517 WMDC AND BLUEWATER RD										
COMPUTE NM HYD	517.00	-	3	.00460	8.35	.515	2.09889	1.600	2.838	PER IMP= 75.00
*S ROUTE FLOW AT AP 517 TO AP 518 DOWN WMDC										
*S COMPUTE RATING CURVE ID=1 VS NO=1 NO SEGS=1										
*S ELMIN=0 ELMAX=10.0										
*S CH SLP=.0012 FP SLP=.0012										
*S N=.015 STA=50										
*S DIST ELEV DIST ELEV DIST ELEV										
*S 0 10 20 0 30 0										
*S 50 10										
*S ROUTE MCUNGE	ID=2 HYD=518_1 INFLOW ID=3 DT=0HR L=1900									
*S NS=0 SLOPE=.0012 MATCODE=0 REGCODE=0 CCODE=0										
*S PRINT HYD	ID=2 CODE=10									
*S ROUTE FLOW FROM AP 517 TO AP 518 VIA 24 INCH PIPE										
ROUTE MCUNGE	518_1	3	2	.00460	8.13	.514	2.09327	1.700	2.761	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 518 WMDC AND LOS VOLCANES RD										
COMPUTE NM HYD	518.00	-	3	.10370	133.19	11.645	2.10552	1.800	2.007	PER IMP= 5.00
ADD HYD	518_2	2& 3	10	.10830	140.28	12.158	2.10499	1.800	2.024	
*S ROUTE FLOW FROM AP 518 TO AP 522 DOWN WMDC										
*S COMPUTE RATING CURVE ID=1 VS NO=1 NO SEGS=1										
*S ELMIN=0 ELMAX=7.6										
*S CH SLP=.0012 FP SLP=.0012										
*S N=.015 STA=50										
*S DIST ELEV DIST ELEV DIST ELEV										
*S 0 10 20 0 30 0										
*S 50 10										
*S ROUTE MCUNGE	ID=2 HYD=522_1 INFLOW ID=10 DT=0HR L=1130									
*S NS=0 SLOPE=.0012 MATCODE=0 REGCODE=0 CCODE=0										
*S PRINT HYD	ID=2 CODE=10									
*S ROUTE FLOW FROM AP 518 TO AP 522 VIA 66 INCH PIPE										
ROUTE MCUNGE	522_1	10	2	.10830	138.99	12.148	2.10324	1.850	2.005	CCODE = .2
*S										
*S COMPUTE HYD ABOVE AP 521										
COMPUTE NM HYD	521.00	-	6	.02600	58.63	3.125	2.25330	1.550	3.524	PER IMP= 84.00
*S TOTAL FLOW AT AP 521										
ADD HYD	521_1	2& 6	10	.13430	162.84	15.273	2.13229	1.800	1.894	
*S										
*S COMPUTE OLF ABOVE AP 522 64TH ST AND FORTUNA RD										
COMPUTE NM HYD	522.00	-	4	.12230	144.69	13.291	2.03762	1.850	1.848	PER IMP= 1.00
ADD HYD	522_2	10& 4	13	.25660	305.55	28.564	2.08717	1.850	1.861	
*S										
*S COMPUTE OLF ABOVE AP 519 AIRPORT RD AND FORTUNA RD										
COMPUTE NM HYD	519.00	-	3	.06420	144.03	7.209	2.10553	1.500	3.505	PER IMP= 77.00
*S ROUTE OLF FROM AP 519 TO AP 520 DOWN FORTUNA RD 40 FT FL TO FL										
ROUTE MCUNGE	520_1	3	2	.06420	143.07	7.214	2.10691	1.600	3.482	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 520 FORTUNA RD W OF HIGH SCHOOL										
COMPUTE NM HYD	520.00	-	4	.08150	107.75	7.834	1.80234	1.700	2.066	PER IMP= 1.00
*S TOTAL FLOW AT AP 520										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	520_2	2& 4	5	.14570	233.83	15.048	1.93653	1.600	2.508	
*S ROUTE OLF AT AP 520 TO AP 522 DOWN FORTUNA RD										
ROUTE MCUNGE	522_3	5	2	.14570	229.98	15.040	1.93551	1.700	2.466	CCODE = .2
*S TOTAL HYD AT AP 522										
ADD HYD	522_4	2&13	13	.40230	505.12	43.604	2.03224	1.750	1.962	
*S ROUTE FLOW THROUGH PROPOSED DETENTION POND AT FORTUNA										
*S REVISED SMITH ENGR'S POND TO PRODUCE 790 CFS IN WMD AT I40.										
*S ORIFICE = 2-66" PIPES. FACTORED POND STORAGE BY 0.35										
ROUTE RESERVOIR	WMD_POND	13	15	.40230	408.86	43.604	2.03224	1.950	1.588	AC-FT= 227
*S										
*S COMPUTE OLF ABOVE AP 524 UNSER DETENTION AREA										
COMPUTE NM HYD	524.00	-	3	.12190	193.32	10.268	1.57930	1.600	2.478	PER IMP= 38.00
*S ROUTE INFLOW THRU UNSER DETENTION AREA, 24" ORIFICE										
ROUTE RESERVOIR	UNSER_POND	3	20	.12190	17.60	10.226	1.57291	2.400	.226	AC-FT= 958
*S										
*S COMPUTE OLF ABOVE AP 525										
COMPUTE NM HYD	525.00	-	3	.04930	104.14	4.192	1.59450	1.500	3.301	PER IMP=

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39.00
    *S  ROUTE OUTFLOW FROM AP 524 TO AP 525
    ROUTE MCUNGE          525_1   20    2        .12190        17.60      10.221      1.57219    2.650     .226 CCODE =
   .2
    *S  TOTAL OLF AT AP 525
    ADD HYD               525_2  2& 3   4        .17120       104.30      14.414      1.57861    1.500     .952
    *S
    *S  COMPUTE OLF ABOVE AP 526 W OF HIGH SCHOOL ON GLENRIO RD
    COMPUTE NM HYD        526.00   -     3        .04650       100.51       5.053      2.03762    1.500    3.377 PER IMP=
71.00
    *S  ROUTE OLF AT AP 525 TO AP 526 DOWN GLENRIO RD   40 FT FL TO FL 60 FT ROW
    ROUTE MCUNGE          526_1    4    2        .17120       102.37      14.422      1.57950    1.550     .934 CCODE =
   .2
    ADD HYD               526_2  2& 3   8        .21770       201.53      19.475      1.67735    1.550    1.446
    *S  ROUTE OLF FROM AP 526 TO AP 528 DOWN GLENRIO RD  40 FT FL TO FL 60 FT ROW
    ROUTE MCUNGE          528_1    8    2        .21770       199.14      19.470      1.67689    1.600    1.429 CCODE =
   .2
    *S
    *S  COMPUTE OLF ABOVE AP 528  64TH ST AND GLENRIO RD
    COMPUTE NM HYD        528.00   -     4        .03440        47.22       3.676      2.00368    1.750    2.145 PER IMP=
69.00
    ADD HYD               528_2  2& 4   6        .25210       237.96      23.146      1.72147    1.650    1.475
    *S
    *S  COMPUTE OLF ABOVE AP 527  WEST MESA HIGH SCHOOL AT 64TH AND GLENRIO
    COMPUTE NM HYD        527.00   -     1        .05310        44.07       4.775      1.68615    2.000    1.297 PER IMP=
50.00
    *S  TOTAL FLOW AT AP 528 BEFORE ROUTING FLOW AT AP 522 TO AP 528
    ADD HYD               528_3  1& 6   7        .30520       256.35      27.921      1.71532    1.650    1.312
    *S  ROUTE FLOW FROM WMD_POND TO AP 528  NORTH IN WMDC
    *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
    *S                    ELMIN=0    ELMAX=11.4
    *S                    CH SLP=.0015      FP SLP=.0015
    *S                    N=.015   STA=14.02
    *S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
    *S                    0       12        .01     0           14.01   0
    *S                    14.02   12
    *S ROUTE MCUNGE       ID=2  HYD=528_4  INFLOW ID=15   DT=0HR  L=1100
    *S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
    *S PRINT HYD          ID=2       CODE=10
    *S  ROUTE FLOW FROM WMD_POND TO AP 528 VIA 90 INCH PIPE
    ROUTE MCUNGE          528_4   15    2        .40230       406.79      43.547      2.02959    2.000    1.580 CCODE =
   .2
    *S  TOTAL HYD IN WMDC AT AP 528  WEST MESA DIVERSION AND GLENRIO RD

                                FROM  TO                    PEAK          RUNOFF                TIME TO    CFS       PAGE =
30
                  HYDROGRAPH    ID    ID         AREA      DISCHARGE      VOLUME      RUNOFF      PEAK       PER
   COMMAND      IDENTIFICATION   NO.   NO.      (SQ MI)      (CFS)        (AC-FT)    (INCHES)   (HOURS)    ACRE
TATION

    ADD HYD               528_5  7& 2  10        .70750       552.69      71.468      1.89403    1.900    1.221
    *S
    *S  COMPUTE OLF ABOVE AP 529  YELLOW FREIGHT AT HANOVER RD
    *S  REVISED AREA 7/30/96. OLD WAS .0175; NEW=.0264
    COMPUTE NM HYD        529.00   -     9        .02640        54.57       2.845      2.02048    1.550    3.230 PER IMP=
68.00
    *S
    *S  COMPUTE HYD FOR BASIN 532  I40 BASIN
    COMPUTE NM HYD        532.00   -     4        .03280        35.58       2.364      1.35133    1.750    1.695 PER IMP=
.00
    *S
    *S  COMPUTE OLF ABOVE AP 530  64TH ST AND HANOVER RD
    COMPUTE NM HYD        530.00   -     5        .08650       125.71      10.850      2.35184    1.750    2.271 PER IMP=
.00
    ADD HYD               530_1  4& 5   5        .11930       161.29      13.214      2.07675    1.750    2.112
    *S  ROUTE OLF FROM AP 529 TO AP 530 W IN HANOVER RD ASSUME 42" SS
    ROUTE MCUNGE          530_2    9    2        .02640        53.24       2.842      2.01836    1.550    3.151 CCODE =
   .2
    *S  ROUTE OLF FROM AP 530 E IN HANOVER TO 64TH ST ASSUME 48" SS
    ROUTE MCUNGE          530_3    5    3        .11930       149.70      13.008      2.04446    1.800    1.961 CCODE =
   .2
    *S  ADD ROUTED FLOWS FROM AP 529 AND AP 530
    ADD HYD               530_4  2& 3   4        .14570       177.41      15.850      2.03972    1.750    1.903
    *S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMDC  ASSUME VERT WALLS  12 FT BOTTOM
    *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
    *S                    ELMIN=0    ELMAX=11.4
    *S                    CH SLP=.0015      FP SLP=.0015
    *S                    N=.015   STA=14.02
    *S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
    *S                    0       12        .01     0           14.01   0
    *S                    14.02   12
    *S ROUTE MCUNGE       ID=8  HYD=530_5  INFLOW ID=10   DT=0HR  L=1100
    *S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
    *S PRINT HYD          ID=8       CODE=10
    *S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMD VIA 102 INCH PIPE
    ROUTE MCUNGE          530_5   10    8        .70750       551.24      71.405      1.89236    1.950    1.217 CCODE =
   .2
    ADD HYD               530_6  8& 4   10       .85320       712.90      87.255      1.91752    1.850    1.306
    *S
    *S  COMPUTE OLF ABOVE AP 403 COORS BLVD AND HANOVER RD
    *S  REVISED AREA 7/30/96. OLD WAS .0355; NEW=.0100
    COMPUTE NM HYD        403.00   -     5        .01000        22.29       1.192      2.23508    1.550    3.482 PER IMP=
84.00
    *S  TOTAL FLOW IN WMDC AT AP 530  64TH ST AND HANOVER RD
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   ADD HYD              530_7  5&10  10        .86320       721.21      88.447      1.92120    1.850    1.305
   *S
   *S  COMPUTE OLF ABOVE AP 531  WMDC AT I-40 CULVERTS
   COMPUTE NM HYD       531.00   -     3        .01810        31.30       1.304      1.35133    1.550    2.702 PER IMP=
23.00
   *S  ROUTE FLOW AT AP 530 TO AP 531  N IN WMDC
   *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
   *S                   ELMIN=0    ELMAX=11.4
   *S                   CH SLP=.0015      FP SLP=.0015
   *S                   N=.015   STA=14.02
   *S                   DIST    ELEV      DIST    ELEV        DIST    ELEV
   *S                   0       12        .01     0           14.01   0
   *S                   14.02   12
   *S ROUTE MCUNGE      ID=2  HYD=531_1  INFLOW ID=10   DT=0HR  L=2080
   *S                   NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
   *S PRINT HYD         ID=2       CODE=10
   *S  ROUTE FLOW AT AP 530 TO AP 531 N IN WMD VIA 120 INCH PIPE

                                FROM  TO                    PEAK         RUNOFF              TIME TO    CFS       PAGE =
31
                    HYDROGRAPH   ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF     PEAK      PER
  COMMAND       IDENTIFICATION   NO.  NO.       (SQ MI)    (CFS)        (AC-FT)    (INCHES)  (HOURS)    ACRE
TATION

   ROUTE MCUNGE          531_1   10    2        .86320       719.18      88.364      1.91940    1.900    1.302 CCODE =
  .2
   *S
   *S  COMPUTE OLF ABOVE AP 404 ESTANCIA DR AND ILIFF RD
   *S  REVISED AREA 7/30/96. OLD WAS .0538; NEW=.0274
   COMPUTE NM HYD       404.00   -     5        .02740        29.60       3.266      2.23507    2.000    1.688 PER IMP=
84.00
   ADD HYD            531_1.5  5& 2   2        .89060       747.31      91.630      1.92912    1.900    1.311
   *S  TOTAL FLOW AT AP 531 WMDC ENTERING I-40 CULVERTS
   ADD HYD              531_2  2& 3  33        .90870       756.56      92.935      1.91761    1.900    1.301
   *S  ROUTE FLOW THRU I-40 BOX CULVERTS  2-10 BY 12
   *S  TOTAL ROUTED OLF FROM WMDC ENTERING I-40 INTERCEPTOR
   ROUTE MCUNGE          531_3   33   42        .90870       756.04      92.927      1.91744    1.900    1.300 CCODE =
  .2
   *S
   *S
   *S
   *S*************************************************************************
   *S       CALCULATE RUNOFF FOR BASINS NORTHWEST OF PONDS 13 THROUGH 14          *
   *S                              REGION I                                       *
   *S*************************************************************************
   *S
   *S  ROUTE DAM #12 OUTFLOW THRU CHANNEL TO UNSER BOX CULVERTS
   ROUTE MCUNGE        L13.1_1   38    8       6.74765      1367.77     400.667      1.11335    2.300     .317 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L13.1
   COMPUTE NM HYD        L13.1   -     3        .13130       204.28      11.048      1.57767    1.600    2.431 PER IMP=
 .00
   *S  ADD L13.1 FLOW TO CHANNEL BEFORE UNSER BOX CULVERTS -- TOTAL INTO DAM#13
   ADD HYD             TO_DAM13  3& 8  13       6.87895      1393.24     411.714      1.12221    2.300     .316
   *S  ROUTE FLOW THRU DAM #13
   ROUTE RESERVOIR       POND13   13    6       6.87895       866.82     411.714      1.12221    2.700     .197 AC-FT=
.906
   *S  ROUTE OUTFLOW THRU CHANNEL PART WAY TO DAM #14
   ROUTE MCUNGE        L14.8_1    6    4       6.87895       855.05     411.310      1.12111    2.850     .194 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.8
   COMPUTE NM HYD        L14.8   -     3        .19060       337.88      18.571      1.82686    1.550    2.770 PER IMP=
.00
   *S  ADD BASIN L14.8 TO CHANNEL FLOW
   ADD HYD             L14.8_2  3& 4   5       7.06955       867.91     429.881      1.14014    2.800     .192
   *S  ROUTE TOTAL FLOW REST OF WAY THRU CHANNEL TO DAM 14
   ROUTE MCUNGE        L14.8_3    5   16       7.06955       854.64     429.240      1.13844    3.000     .189 CCODE =
  .2
   *S
   *S  FROM ABOVE ESCARPMENT -- L14 BASINS
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.1
   COMPUTE NM HYD        L14.1   -     1        .49840       199.53      12.843       .48315    1.750     .626 PER IMP=
.00
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.2
   COMPUTE NM HYD        L14.2   -     2        .31880       153.42       8.901       .52351    1.700     .752 PER IMP=
.00
   *S  ADD L14.1 TO L14.2
   ADD HYD             L14.3_1  1& 2   3       .81720       351.82      21.744       .49889    1.750     .673
   *S
   *S  ROUTE L14.1 & L14.2 HYD THRU L14.3
   ROUTE MCUNGE        L14.3_2    3   20       .81720       348.60      21.683       .49750    2.000     .667 CCODE =
  .1
   ROUTE MCUNGE        L14.3_2   20    4       .81720       347.90      21.649       .49673    2.100     .665 CCODE =
  .1
   *S

                                FROM  TO                    PEAK         RUNOFF              TIME TO    CFS       PAGE =
32
                    HYDROGRAPH   ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF     PEAK      PER
  COMMAND       IDENTIFICATION   NO.  NO.       (SQ MI)    (CFS)        (AC-FT)    (INCHES)  (HOURS)    ACRE
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NOTATION

   *S  COMPUTE HYDROGRAPH FOR BASIN L14.3
   COMPUTE NM HYD         L14.3   -     3        .18130       222.28       10.014       1.03564    1.550     1.916 PER IMP=
19.00
   *S  ADD L14.3 TO (L14.1,2)
   ADD HYD             L14.3_3  3& 4   5        .99850       386.45       31.663        .59458    2.100      .605
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.4
   COMPUTE NM HYD         L14.4   -     3        .04690        95.65        3.945       1.57734    1.500     3.187 PER IMP=
46.00
   *S  ADD L14.4 TO (L14.1-3)
   ADD HYD             L14.4_1  3& 5   7       1.04540       398.92       35.609        .63867    2.100      .596
   *S  ROUTE FLOW THRU 3-10'x4'x175'  CBC HW/D=1.5
   ROUTE MCUNGE        L14.4_2    7    8       1.04540       398.92       35.609        .63867    2.100      .596 CCODE =
  .0
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.5
   COMPUTE NM HYD         L14.5   -     1        .08280       158.13        6.079       1.37656    1.500     2.984 PER IMP=
34.00
   *S  ROUTE L14.5 THRU BASIN L14.6 VIA 98TH STREET
   ROUTE MCUNGE        L14.6_1    1   50        .08280       154.97        6.095       1.38027    1.550     2.924 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.6
   COMPUTE NM HYD         L14.6   -     6        .04380        87.59        4.146       1.77474    1.500     3.125 PER IMP=
55.00
   *S  ADD L14.6 & ROUTED L14.5
   ADD HYD             L12.6_2 50& 6   3        .12660       241.08       10.241       1.51674    1.550     2.975
   *S
   *S  ROUTE FLOW THRU INLET TO  48" PIPE
   ROUTE RESERVOIR     L14.4_3    3    2        .12660       127.81       10.241       1.51674    1.750     1.577 AC-FT=
 570
   *S  ROUTE THRU 900' OF 48" RCP PIPE
   ROUTE MCUNGE        L14.4_4    2    7        .12660       127.76       10.190       1.50925    2.050     1.577 CCODE =
  .2
   *S  TOTAL FLOW FROM L14.1-4,6 INTO LADERA CHANNEL
   ADD HYD             L14.7_1  7& 8   4       1.17200       524.30       45.799        .73271    2.050      .699
   *S  ROUTE FLOW DOWN LADERA CHANNEL
   ROUTE MCUNGE        L14.7_2    4    5       1.17200       453.64       44.997        .71988    2.250      .605 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.7
   COMPUTE NM HYD         L14.7   -     3        .08910       178.00        9.821       2.06662    1.550     3.122 PER IMP=
72.00
   *S  ADD TO FLOW IN LADERA CHANNEL
   ADD HYD             L14.7_3  3& 5   4       1.26110       481.83       54.818        .81503    2.200      .597
   *S  FLOW (FROM BASINS L14.1-4 AND L14.6,7) INTO DAM #14
   ADD HYD             L14.7_4  4&16  20      8.33065      1002.94      484.058       1.08948    2.900      .188
   *S
   *S**************************************************************************
   *S    CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA PONDS 13 THROUGH 14      *
   *S                                REGION J                                     *
   *S**************************************************************************
   *S
   *S  COMPUTE HYD ABOVE AP 201 NORTH OF CL OF LADERA DR
   COMPUTE NM HYD         201.30   -    10        .01720        38.01        1.589       1.73262    1.500     3.453 PER IMP=
 .00
   *S
   *S  COMPUTE HYD ABOVE AP 201 SOUTH OF CL OF LADERA DR
   COMPUTE NM HYD         201.40   -    11        .00320         8.42         .415       2.43221    1.500     4.112 PER IMP=
95.00
   *S
   *S  COMPUTE HYD ABOVE AP 202 NORTH OF CL OF LADERA DR
   COMPUTE NM HYD         202.30   -     8        .02570        54.29        2.413       1.76073    1.500     3.300 PER IMP=
54.00
   *S

                                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
TATION

   *S  COMPUTE HYD ABOVE AP 202 SOUTH OF CL OF LADERA DR
   COMPUTE NM HYD         202.40   -     9        .00310         8.16         .402       2.43221    1.500     4.113 PER IMP=
95.00
   *S  ROUTE SS AND OLF FROM AP 201 TO AP 202 (THRU 202.3-202.4)
   *S  DIVIDE SS FROM HYD AT AP 201 NORTH OF CL OF LADERA DR
   DIVIDE HYD             202_6    10    5        .01599        26.00        1.477       1.73260    1.450     2.541
                          202_7   and    6        .00121        12.01         .112       1.73260    1.500    15.453
   *S  ROUTE SS NORTH IN LADERA DR
   ROUTE MCUNGE           202_8     5    2        .01599        26.00        1.473       1.72778    1.550     2.541 CCODE =
  .1
   *S  ROUTE OLF FROM AP 201 TO AP 202 NORTH SIDE OF LADERA DR
   ROUTE MCUNGE           202_9     6    3        .00121        11.05         .109       1.68883    1.700    14.227 CCODE =
  .1
   *S  ADD OLF ABOVE AP 202 TO ROUTED HYD FROM AP 201 NORTH SIDE LADERA DR
   ADD HYD                202_1  3& 8   5        .02691        54.29        2.523       1.75745    1.500     3.152
   *S  ROUTE HYD FROM AP 201 (SOUTH SIDE) TO AP 202 SOUTH SIDE OF LADERA DR
   ROUTE MCUNGE           202_2    11    3        .00320         8.37         .415       2.43376    1.600     4.088 CCODE =
  .2
   *S
   ADD HYD                202_3  3& 9   4        .00630        14.91         .817       2.43283    1.550     3.698
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   *S  TOTAL HYD AT AP 202 NORTH SIDE OF LADERA DR
   ADD HYD              202_4  2& 5   6        .04290        77.85        3.996      1.74637    1.500    2.835
   *S
   *S  COMPUTE HYD ABOVE AP 203  72ND AT LADERA DR
   COMPUTE NM HYD       203.00   -     1        .02480        49.50        1.943      1.46922    1.500    3.119 PER IMP=
38.00
   *S
   *S  COMPUTE HYD ABOVE AP 204 LADERA DR AT 72ND NORTH SIDE
   COMPUTE NM HYD       204.30   -     3        .01520        33.64        1.430      1.76408    1.500    3.458 PER IMP=
54.00
   *S
   *S  COMPUTE HYD ABOVE AP 204 SOUTH SIDE
   COMPUTE NM HYD       204.40   -     5        .00250         6.58         .324      2.43221    1.500    4.114 PER IMP=
5.00
   *S  ROUTE HYDS FROM AP 202 TO AP 204 NORTH SIDE
   DIVIDE HYD           204_5    6    10        .03132        30.00        2.917      1.74637    1.400    1.496
                        204_6  and    11        .01158        47.85        1.078      1.74637    1.500    6.458
   *S  ROUTE SS FROM AP 202 TO AP 204
   ROUTE MCUNGE         204_7   10     2        .03132        30.00        2.911      1.74258    1.500    1.496 CCODE =
.1
   *S  ROUTE OLF FROM AP 202 TO AP 204 NORTH SIDE
   ROUTE MCUNGE         204_8   11     6        .01158        47.18        1.065      1.72419    1.650    6.367 CCODE =
.1
   *S  TOTAL ROUTED OLF ABOVE AP 204 NORTH SIDE
   ADD HYD              204_9  3& 6    7        .02678        65.31        2.495      1.74680    1.650    3.811
   *S  ADD ROUTED SS FLOW TO TOTAL ROUTED OLF AT AP 204
   ADD HYD              204_1  7& 2    8        .05810        95.31        5.406      1.74451    1.650    2.563
   *S  ROUTE SOUTH SIDE OF LADERA FROM AP 202 TO AP 204
   ROUTE MCUNGE         204_2    4     2        .00630        14.78         .818      2.43378    1.650    3.666 CCODE =
.2
   *S  OLF IN SOUTH SIDE OF LADERA WEST OF 72ND STREET
   ADD HYD              204_3  2& 5    6        .00880        19.03        1.142      2.43322    1.600    3.378
   *S  ADD HYD ABOVE AP 203 TO TOTAL FLOW AT AP 204
   *S  OLF IN SOUTH SIDE OF LADERA AT 72ND STREET
   ADD HYD              204_4  1& 6    7        .03360        62.57        3.085      1.72169    1.500    2.910
   *S  ADD TOTAL FLOW AT AP 204 (204 N. SIDE AND 203) TO AP 204 S. SIDE
   *S  TOTAL HYD AT AP 204 LADERA DR AT 72ND ST NORTH AND SOUTH SIDES
   ADD HYD              204_5  7& 8    9        .09170       141.39        8.491      1.73615    1.600    2.409
   *S
   *S  SS DISCHARGES TO LADERA DAM NO 14;
   *S  FLOW THAT CAN'T GET INTO SS GOES NORTH ON LADERA, LEAVES WBLUFF WATERSHED
```


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
DIVIDE HYD	204_6	9	43	.06896	64.00	6.385	1.73615	1.400	1.450	
	204_7 and	19		.02274	77.39	2.106	1.73615	1.600	5.317	
*S ADD FLOWS ABOVE POND #14										
*S TOTAL FLOW ENTERING POND #14										
ADD HYD	TO_DAM14	20&43	14	8.39961	1006.50	490.444	1.09479	2.900	.187	
*S										
*S ROUTE FLOW THRU DAM #14										
ROUTE RESERVOIR	POND14	14	8	8.39961	542.91	490.329	1.09454	4.150	.101	AC-FT= 79.351
*S >>>>>										
*S >>>>> DIVIDE 0 CFS FROM LADERA POND #14 AND SEND TO WEST BLUFF										
DIVIDE HYD	TO_LADOURAY	8	44	.00413	.10	.241	1.09454	.850	.038	
	15INFLOW and	45		8.39548	542.81	490.088	1.09454	4.150	.101	
ROUTE MCUNGE	RTE_TO_WB	44	18	.00413	.10	.235	1.06675	1.600	.038	CCODE = .1

```
   *S
   *S**************************************************************************
   *S          CALCULATE RUNOFF FOR SINGLE BASIN JUST SOUTH OF POND 14          *
   *S                              REGION K
   *S**************************************************************************
   *S
   *S  COMPUTE HYD ABOVE AP 205 LADERA DR WEST OF OURAY DR
   COMPUTE NM HYD       205.00   -     3        .00770        15.82         .567      1.38173    1.500    3.211 PER IMP=
25.00
   *S  ROUTE OLF FROM AP 204 TO AP 205 NORTH IN LADERA DR
   ROUTE MCUNGE         205_1   19     2        .02274        76.84        2.091      1.72390    1.750    5.280 CCODE =
.1
   *S  TOTAL OLF AT AP 205
   ADD HYD              205_2  2& 3    4        .03044        82.33        2.658      1.63732    1.750    4.226
   *S
   DIVIDE HYD           205_3    4    46        .01824        32.00        1.593      1.63732    1.600    2.741
                        205_4  and    2        .01220        50.33        1.066      1.63732    1.750    6.444
   *S
   *S
   *S**************************************************************************
   *S   CALCULATE RUNOFF FOR BASINS DRAINING TO WEST BLUFF OUTFALL AT COORS ROAD  *
   *S                              REGION L
   *S**************************************************************************
   *S
   *S  ADD LAURELWOOD POND TO THE UNSER SPILLWAY STORMDRAIN
   ADD HYD              617_5 72&41   4      15.93826       825.14       739.747       .87025    2.400      .081
   *S ROUTE UNSER STORM DRAIN FROM LAURELWOOD TO 68TH STREET
   ROUTE MCUNGE         610_4    4    74      15.93826       809.08       738.548       .86884    2.500      .079 CCODE =
.2
   *S
   *S*********************************************************************
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   *S*** CONTINUED ROUTING OF SD FROM 68TH STREET TO WB- LEM 1/2/06
   *S*****************************************************************
   *S ROUTE UNSER STORM DRAIN FROM 68TH STREET TO WB
   ROUTE MCUNGE          610_4   74   73      15.93826       795.66     737.388       .86747    2.600      .078 CCODE =
  .2
   *S*****************************************************************
   *S  COMPUTE OLF ABOVE AP 618A   TORATOLLA ACERS
   COMPUTE NM HYD        618_1   -     6        .05200        77.81       4.355      1.57044    1.600    2.338 PER IMP=
2.00
   *S
   *S  COMPUTE OLF ABOVE AP 618B  SCHOOL AND PART OF LA MESA DEL OESTE
   COMPUTE NM HYD        618_2   -     7        .04610        85.68       3.861      1.57044    1.550    2.904 PER IMP=
2.00
   *S
   *S  ROUTE OLF FROM BASIN 618A THOUGH 618B  ASSUME 32'FL-FL STREET SECTION
```

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
ROUTE MCUNGE	618_3	6	3	.05200	77.53	4.359	1.57180	1.650	2.330	CCODE = .2
*S										
*S ADD ROUTED FLOW FROM 618A TO FLOW FROM 618B										
ADD HYD	618_4	7& 3	5	.09810	145.56	8.220	1.57115	1.600	2.318	
*S										
*S ROUTE COMBINED FLOW FROM BASINS 618A&B VIA SD TO 619B										
ROUTE MCUNGE	618_5	5	86	.09810	145.56	8.220	1.57115	1.600	2.318	CCODE = .0
*S COMPUTE OLF ABOVE AP 619A CHAMISA										
COMPUTE NM HYD	619.00	-	7	.02200	47.71	2.053	1.74987	1.500	3.388	PER IMP= 5.00
*S ADD BASIN 619A TO ROUTED FLOW FROM 617B										
ADD HYD	122.00	7&93	22	4.89750	604.69	298.922	1.14442	1.700	.193	
*S										
*S ROUTE 619A TO 619B										
ROUTE MCUNGE	193.40	22	93	4.89750	595.68	298.621	1.14326	1.700	.190	CCODE = .1
*S										
*S COMPUTE OLF ABOVE AP 619B CANDLEWOOD										
COMPUTE NM HYD	620.00	-	5	.00450	9.77	.420	1.74987	1.500	3.392	PER IMP= 5.00
*S										
*S ADD BASIN 619B TO ROUTED FLOW FROM 619A										
ADD HYD	619_6	5&93	10	4.90200	599.99	299.041	1.14382	1.700	.191	
*S ADD BASINS 618A&B TO ROUTED FLOW AT 619B										
ADD HYD	123.00	10&86	23	5.00010	723.66	307.261	1.15221	1.700	.226	
*S										
*S ROUTE 619B TO 621A										
ROUTE MCUNGE	193.40	23	93	5.00010	716.25	306.970	1.15111	1.700	.224	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 621A EAST PART OF LA MESA DEL OESTE										
COMPUTE NM HYD	621_1	-	7	.02350	49.09	1.968	1.57044	1.500	3.264	PER IMP= 42.00
*S										
*S ADD BASINS 621A TO ROUTED FLOW FROM 619B										
ADD HYD	124.00	7&93	24	5.02360	737.65	308.938	1.15307	1.700	.229	
*S										
*S ASSUME BASIN 619C CONTRIBUTES NO RUNOFF TO THE CHANNEL										
*S ROUTE 621A TO 621B										
ROUTE MCUNGE	193.40	24	93	5.02360	734.51	308.708	1.15222	1.750	.228	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 621B JUNIPER RUN										
COMPUTE NM HYD	621_3	-	6	.01430	29.88	1.198	1.57044	1.500	3.265	PER IMP= 2.00
*S										
*S ADD BASIN 621B TO ROUTED FLOW FROM 621A										
ADD HYD	125.00	6&24	25	5.03790	750.67	310.136	1.15426	1.700	.233	
*S										
*S COMPUTE OLF ABOVE AP 621C										
COMPUTE NM HYD	621_5	-	6	.03200	68.80	3.145	1.84263	1.500	3.359	PER IMP= 60.00
*S										
*S ROUTE FLOW FROM 621C IN STORM DRAIN TO 1-40 CHANNEL										
ROUTE MCUNGE	621_6	6	2	.03200	55.69	3.034	1.77792	1.550	2.719	CCODE = .2
*S										
*S COMPUTE HYD FOR BASIN 621D - 64TH STREET FROM JUNIPER TO CHANNEL										
COMPUTE NM HYD	627.00	-	6	.00150	3.02	.126	1.57044	1.500	3.141	PER IMP= 2.00
*S										
*S ADD BASIN 621D TO ROUTED FLOW FROM 621C										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	621_8	6& 2	4	.03350	58.52	3.160	1.76860	1.550	2.730	

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   *S
   *S ADD BASIN 621C TO ROUTED FLOW AT 621B
   ADD HYD              126.00  4&25  26       5.07140       797.00     313.296      1.15832    1.700     .246
   *S
   *S  ROUTE  FLOW FROM 621B TO 622A
   ROUTE MCUNGE         193.40   26   93       5.07140       787.49     313.067      1.15747    1.700     .243 CCODE =
  .2
   *S*****************************************************************************
   *S*                          CHANGED WILSON MODEL TO INCLUDE FLOW FROM WMDC                          *
   *S*****************************************************************************
   *S  ADD ROUTED HYD FROM AP 531 TO ROUTED FLOW FROM 621B
   *S  TOTAL HYD AT CONFLUENCE OF I40 CHANNEL AND WMDC
   ADD HYD              622_5 42&93  31       5.98010      1462.42     405.994      1.27295    1.750     .382
   *S  COMPUTE OLF ABOVE AP 622A
   COMPUTE NM HYD       622_1   -     6        .00900        18.81        .754      1.57044    1.500    3.266 PER IMP=
42.00
   *S
   *S ADD BASIN 622A TO ROUTED FLOW FROM 621B
   ADD HYD              127.00  6&31  27       5.98910      1469.19     406.747      1.27340    1.750     .383
   *S*****************************************************************************
   *S*                          END OF CHANGES TO INCLUDE WMDC                          *
   *S*****************************************************************************
   *S
   *S  COMPUTE OLF ABOVE AP 622B
   COMPUTE NM HYD       622_2   -     6        .00664        13.10        .505      1.42656    1.500    3.081 PER IMP=
35.00
   *S
   *S ADD BASIN 622B TO ROUTED FLOW FROM 622A
   ADD HYD              128.00  6&27  28       5.99574      1473.82     407.253      1.27357    1.750     .384
   *S
   *S??????????????????????????????????????????????
   *S ADD UNSER SD TO PARKWAY CHANNEL
   ADD HYD              610_16 73&28  99      21.93401      2093.98    1144.641       .97848    1.750     .149
   *S??????????????????????????????????????????????
   *S*****************************************************************************
   *S*                          END OF COPIED SECTION FROM WILSON FINAL_PU.HMI                          *
   *S*****************************************************************************
   *S  COMPUTE OLF ABOVE AP 623  68TH ST AND MIAMI RD
   COMPUTE NM HYD       623.00   -     7        .03000        66.12       3.181      1.98836    1.500    3.444 PER IMP=
68.00
   *S
   *S  COMPUTE OLF ABOVE AP 624
   COMPUTE NM HYD       624.00   -     6        .04650        86.33       5.154      2.07828    1.600    2.901 PER IMP=
3.00
   *S
   *S  COMPUTE OLF ABOVE AP 625  64TH ST AND MIAMI RD
   COMPUTE NM HYD       625.00   -     5        .03860        92.32       4.310      2.09357    1.500    3.737 PER IMP=
4.00
   *S  ROUTE OLF FROM AP 623 TO AP 625 DOWN MIAMI RD  40 FT FL TO FL  60 FT ROW
   ROUTE MCUNGE         625_4    7     2        .03000        65.33       3.187      1.99162    1.600    3.403 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 623 TO OLF ABOVE AP 625
   ADD HYD              625_5  2& 5    4        .06860       146.78       7.497      2.04897    1.550    3.343
   *S  ROUTE OLF FROM AP 624 TO AP 625 ASSUME 32 FT FL TO FL ST SECTION
   ROUTE MCUNGE         625_6    6     3        .04650        85.04       5.154      2.07813    1.650    2.858 CCODE =
  .2
   *S  ADD ROUTED OLF FROM AP 624 TO AP 625
   ADD HYD              625_7  3& 4   10        .11510       219.82      12.650      2.06075    1.550    2.984
   *S
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   *S  COMPUTE OLF ABOVE AP 626  ESTANCIA DR AND MIAMI RD
   COMPUTE NM HYD       626.00   -     3        .07440       147.79       7.977      2.01036    1.550    3.104 PER IMP=
).00
   *S  ROUTE OLF AT AP 625 TO AP 626 ASSUME 40 FT FL TO FL STREET SECTION
   ROUTE MCUNGE         626_4   10     2        .11510       217.65      12.625      2.05667    1.650    2.955 CCODE =
  .1
   *S  ADD ROUTED HYD FROM AP 625 TO OLF ABOVE AP 626
   *S  TOTAL OLF AT AP 626 ESTANCIA AVENUE
   ADD HYD              626_5  2& 3   20        .18950       343.87      20.602      2.03848    1.600    2.835
   *S
   *S  COMPUTE OLF ABOVE AP 627 57TH ST AND QUAIL RD
   COMPUTE NM HYD       627.00   -     4        .08610       145.19       8.461      1.84264    1.600    2.635 PER IMP=
).00
   *S
   *S  COMPUTE OLF ABOVE AP 628  OURAY RD EAST OF ESTANCIA RD
   COMPUTE NM HYD       628.00   -    10        .05590        52.79       5.291      1.77474    1.950    1.476 PER IMP=
56.00
   *S
   *S  COMPUTE OLF ABOVE AP 629  57TH ST AND OURAY RD
   COMPUTE NM HYD       629.00   -     5        .05810       118.43       6.756      2.18036    1.550    3.185 PER IMP=
79.00
   *S  ROUTE OLF FROM AP 627 TO AP 629 DOWN ATRISCO DR (COLLECTOR)  ASSUME 36" SS
   DIVIDE HYD           629_4    4     9        .05471        37.00       5.377      1.84263    1.400    1.057
                        629_5  and     8        .03139       108.19       3.085      1.84263    1.600    5.386
   *S  ROUTE SS FROM AP 627 TO AP 629 DOWN ATRISCO DR
   ROUTE MCUNGE         629_4    9     2        .05471        37.00       5.369      1.83996    1.500    1.057 CCODE =
  .1
   *S  ROUTE OLF FROM AP 627 TO AP 629  DOWN ATRISCO DR
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   ROUTE MCUNGE          629_7    8    3        .03139       104.28       3.099      1.85112    1.700    5.191 CCODE =
  .2
   *S  ROUTE OLF FROM AP 628 TO AP 629  DOWN OURAY RD  ASSUME 24" SS
   DIVIDE HYD            629_8   10    9        .03246        12.00       3.072      1.77472    1.550     .578
                         629_9  and    8        .02344        40.79       2.219      1.77472    1.950    2.719
   *S  ROUTE SS FROM AP 628 TO AP 629 E IN OURAY RD
   ROUTE MCUNGE          629_1    9    4        .03246        12.00       3.070      1.77364    1.650     .578 CCODE =
  .1
   *S  ROUTE OLF FROM AP 628 TO AP 629 IN OURAY. ASSUME ALL FLOW IN N HALF OF ST
   ROUTE MCUNGE          629_2    8    6        .02344        40.76       2.221      1.77598    2.000    2.716 CCODE =
  .2
   *S  ADD ROUTED OLF FROM AP 628 TO OLF ABOVE AP 629
   ADD HYD               629_3  5& 6   1        .08154       118.43       8.977      2.06408    1.550    2.269
   *S  TOTAL OLF HYDS AT AP 629
   ADD HYD               629_4  3& 1   7        .11293       213.53      12.076      2.00488    1.600    2.954
   *S  ADD ROUTED SS FROM AP 627 AND AP 628
   ADD HYD               629_5  2& 4   8        .08717        49.00       8.439      1.81525    1.650     .878
   *S  ADD SS TO OLF
   *S  TOTAL HYD AT AP 629  57TH ST AND OURAY RD
   ADD HYD               629_6  7& 8  10        .20010       261.59      20.515      1.92228    1.600    2.043
   *S
   *S  COMPUTE OLF ABOVE AP 630 57TH ST AND MIAMI RD
   COMPUTE NM HYD        630.00   -    5        .07730       121.38       9.332      2.26366    1.700    2.454 PER IMP=
1.00
   *S  ROUTE FLOW FROM AP 626 TO AP 630  DOWN MIAMI RD ASSUME 54" SS
   *S  SEPARATE OLF FROM SS
   DIVIDE HYD            630_4   20    9        .15904       175.00      17.290      2.03848    1.500    1.719
                         630_5  and    8        .03046       168.87       3.312      2.03848    1.600    8.662
   *S  ROUTE SS FROM AP 626 TO I-40 CHANNEL
   ROUTE MCUNGE          630_6    9    2        .15904       175.00      17.272      2.03638    1.550    1.719 CCODE =
  .1
   *S  ROUTE OLF FROM AP 626 TO AP 630 DOWN MIAMI RD  AT I-40 CHANNEL
   ROUTE MCUNGE          630_7    8    3        .03046       165.90       3.292      2.02637    1.650    8.509 CCODE =
  .2
   *S  ADD ROUTED SS AND OLF FROM AP 626 AT I-40 CHANNEL
```

```
                                 FROM  TO                      PEAK          RUNOFF                TIME TO     CFS       PAGE =
38
                     HYDROGRAPH   ID   ID          AREA      DISCHARGE       VOLUME      RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION  NO.  NO.       (SQ MI)      (CFS)        (AC-FT)    (INCHES)   (HOURS)    ACRE
NOTATION

   ADD HYD               630_8  2& 3   4        .18950       340.90       20.565      2.03476    1.650    2.811
   *S  DIVIDE & ROUTE SS AND OLF FROM AP 629 DOWN OURAY TO COORS
   DIVIDE HYD            630_9   10    9        .14053        88.00       14.407      1.92228    1.450     .978
                        630_10  and    8        .05957       173.59        6.108      1.92228    1.600    4.553
   ROUTE MCUNGE          630_2    9    2        .14053        88.00       14.400      1.92137    1.500     .978 CCODE =
  .1
   *S  ROUTE OLF FROM AP 629 TO COORS
   ROUTE MCUNGE          630_3    8    3        .05957       171.36        6.086      1.91543    1.650    4.495 CCODE =
  .1
   *S  ADD ROUTED SS AND OLF FROM AP 629 AT COORS
   ADD HYD               630_4  2& 3   7        .20010       259.36       20.486      1.91960    1.650    2.025
   *S  ROUTE FLOW AT AP 622 TO  MIAMI RD AND I-40 CHANNEL
   ROUTE MCUNGE          630_5   99    2      21.93401      2091.80     1145.618       .97932    1.800     .149 CCODE =
  .1
   *S  ADD ROUTED SS AND OLF FROM AP 626 TO OLF ABOVE AP 630
   ADD HYD               630_6  4& 5   3        .26680       457.93       29.897      2.10108    1.700    2.682
   *S  ADD ROUTED FLOW FROM AP 622 TO HYD AT AP 630
   *S  TOTAL AT MIAMI RD AND I-40 CHANNEL
   ADD HYD               630_7  2& 3   5      22.20081      2480.03     1175.514       .99280    1.750     .175
   *S  ROUTE FLOW FROM MIAMI RD TO 57TH ST
   *S  TOTAL FLOW AT AP 630 I-40 CHANNEL WEST OF COORS BLVD AND SOUTH OF OURAY
   ROUTE MCUNGE          630_8    5   10      22.20081      2480.03     1175.514       .99280    1.750     .175 CCODE =
  .0
   *S
   *S  COMPUTE OLF ABOVE AP 631
   COMPUTE NM HYD        631.00   -    3        .05700       108.25        7.089      2.33177    1.600    2.967 PER IMP=
3.00
   *S  ROUTE FLOW FROM AP 631 TO AP 630 ASSUME 84" SS
   ROUTE MCUNGE          631_4    3    2        .05700       107.75        7.087      2.33139    1.650    2.954 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 631 TO TOTAL FLOW AT AP 630
   ADD HYD               630_9  2&10   6      22.25780      2567.69     1182.602       .99623    1.750     .180
   *S
   *S  COMPUTE OLF ABOVE AP 632
   COMPUTE NM HYD        632.00   -    5        .03290        76.72        3.721      2.12083    1.500    3.643 PER IMP=
76.00
   *S
   *S  COMPUTE HYD ABOVE AP 633  CORONA RD AND OURAY RD
   COMPUTE NM HYD        633.00   -    4        .09100       157.30       10.623      2.18874    1.650    2.701 PER IMP=
80.00
   *S  ROUTE OLF FROM AP 632 TO AP 633 SOUTH IN CORONA DR  ASSUME 54" SS
   ROUTE MCUNGE          633_4    5    2        .03290        74.53        3.714      2.11652    1.550    3.540 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 632 TO OLF AT AP 633
   *S  TOTAL AT CORONA DR AND OURAY RD
   ADD HYD               633_5  2& 4   5        .12390       223.31       14.336      2.16955    1.600    2.816
   *S  ROUTE FLOW FROM CORONA DR AND OURAY RD TO COORS AND OURAY
   ROUTE MCUNGE          633_6    5    2        .12390       195.14       14.043      2.12516    1.650    2.461 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM OURAY/CORONA TO ROUTED FLOW FROM AP 629 AT COORS/OURAY
   ADD HYD               630_9  2& 7   4        .32400       454.50       34.529      1.99820    1.650    2.192
   *S  ROUTE TOTAL FLOW AT COORS AND OURAY TO AP 630;  ASSUME ALL FLOW IN 72" SS
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   ROUTE MCUNGE          633_4    4    3        .32400       454.26      34.529      1.99820    1.650    2.191 CCODE =
.2
   *S  ADD ROUTED STORM SEWER FLOW FROM COORS AND OURAY TO TOTAL FLOW AT AP 630
   *S  TOTAL FLOW FROM WEST BLUFF WATERSHED AT WEST BLUFF DRAINAGE FACILITY
   ADD HYD               630_1  3& 6  47      22.58180      2992.28    1217.130      1.01060    1.750     .207
   *S
   *S  ADD FLOW FROM WEST BLUFF WATERSHED TO FLOW FROM LADERA SYSTEM AT
   *S  INLET OF WEST BLUFF FACILITY
   ADD HYD                TOWB 18&47  49      22.58593      2992.38    1217.365      1.01061    1.750     .207
   *S
   *S  COMPUTE OLF ABOVE AP 702  ALAMOGORDO DR AND BRIDGE AVENUE

                                  FROM  TO                    PEAK        RUNOFF                TIME TO    CFS       PAGE =
39
                       HYDROGRAPH   ID   ID        AREA     DISCHARGE     VOLUME     RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION    NO.  NO.     (SQ MI)     (CFS)       (AC-FT)   (INCHES)   (HOURS)   ACRE
)TATION

   COMPUTE NM HYD        702.00    -     1        .02000       33.64       1.701     1.59455    1.550    2.628 PER IMP=
48.13
   *S
   *S**************************
   *S  TOTAL FLOW AT WB OUTFALL
   *S**************************
   ADD HYD                TOTWB  1&49  49      22.60593      3011.11    1219.066      1.01113    1.750     .208
   *S  PLOT12    HYD=TOTWB
   FINISH
```

Options Costs

Subject: Summary of Cost Associated with Option 1
Date: 10/30/2011
By: Jonathan Ellison

Facility	Option 1	
Expand Ladera Dam 1	$	119,000
Expand Ladera Dam 3	$	226,000
Pond 5S (49ac-ft)	$	522,000
D5 Dam (320 ac-ft)	$	3,341,000
36" Storm Drain from D5 Dam to 118th Street	$	352,000
42" Storm Drain from 118th Street to Pond 5S	$	249,000
Earthen Channel- Dam 9 Diversion to Pond 5S	$	250,000
36" Storm Drain from Pond 5S to Ladera Dam 5	$	741,000
Total	**$**	**5,800,000**

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 20110349
Date: 10/30/2011

Description: 36" Storm Drain From D5 Dam to 118th Street

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.110	TRCH, BF, 18"-36" SWR, 8'-12'	LF	2250	$ 27.25	$ 61,312.50
910.027	36" RCP, III	LF	2250	$ 76.79	$ 172,777.50
				Construction Cost Subtotal	$ 234,090.00
				25% Contingency	$ 58,522.50
				Construction Total	$ 292,612.50
				Soft Costs (20%)	$ 58,522.50
				Project Costs	**$ 351,135.00**

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 3:1 side slopes to 3 feet in depth includes crossing structure

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
xxxx	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 42" Storm Drain from 118th Street to Dam 5S

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.160	TRCH, BF, 42"-60" SWR, 8'-12'	LF	1400	$ 34.52	$ 48,328.00
910.024	42" RCP, III	LF	1400	$ 83.78	$ 117,292.00
				Construction Cost Subtotal	$ 165,620.00
				25% Contingency	$ 41,405.00
				Construction Total	$ 207,025.00
				Soft Costs (20%)	$ 41,405.00
				Project Costs	**$ 248,430.00**

Description: 36" Stormdrain From Dam 5S to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.110	TRCH, BF, 18"-36" SWR, 8'-12'	LF	3500	$ 27.25	$ 95,375.00
910.024	36" RCP, III	LF	3500	$ 49.72	$ 174,020.00
				Construction Cost Subtotal	$ 269,395.00
				25% Contingency	$ 67,348.75
				Construction Total	$ 336,743.75
				Soft Costs (20%)	$ 67,348.75
				Project Costs	**$ 740,836.25**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 1-- From 29.92 ac-ft to 40.39 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	16892	$ 5.86	$ 98,984.78
				Construction Cost Subtotal	$ 98,984.78
				Soft Costs (20%)	$ 19,796.96
				Project Costs	**$ 118,781.73**

Description: Expand Ladera Dam 3 -- From 29.71 ac-ft to 47.54 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	32089	$ 5.86	$ 188,042.71
				Construction Cost Subtotal	$ 188,042.71
				Soft Costs (20%)	$ 37,608.54
				Project Costs	**$ 225,651.25**

Description: Dam 5s -- 50 Ac-Ft pond w/36"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00
			Construction Cost Subtotal	$ 435,000.00
			Soft Costs (20%)	$ 87,000.00
			Project Costs	**$ 522,000.00**

Description: Arroyo Dam 5 -- 320 Acre Foot Pond Located within basin OS5.B

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	320	$ 8,700.00	$ 2,784,000.00
			Construction Cost Subtotal	$ 2,784,000.00
			Soft Costs (20%)	$ 556,800.00
			Project Costs	**$ 3,340,800.00**

Subject: Summary of Cost Associated with Option 2
Date: 10/30/2011

By: Jonathan Ellison

Facility	Option 2	
Expand Ladera Dam 1	$	228,000
Expand Ladera Dam 2	$	230,000
Expand Ladera Dam 3	$	231,000
Expand Ladera Dam 4	$	352,000
Expand Ladera Dam 5	$	205,000
Pond 5S (49 ac-ft)	$	522,000
D5 Dam (102 ac-ft)	$	1,065,000
48" Storm Drain from D5 Dam 5 to 118th Street	$	494,000
54" Storm Drain From 118th Street to Pond 5S	$	399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$	250,000
54" Storm Drain From Pond 5S to Ladera Dam 5	$	1,013,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$	483,000
***Total**	**$**	**5,472,000**

* Includes Hard and Soft Costs

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 20110349
Date: 9/6/2011

Description: 54" Dam5s outfall to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	3500	$ 34.52	$ 120,820.00
910.024	54" RCP, III	LF	3500	$ 158.41	$ 554,435.00
				Construction Cost Subtotal	$ 675,255.00
				25% Contingency	$ 168,813.75
				Construction Total	$ 844,068.75
				Soft Costs (20%)	$ 168,813.75
				Project Costs	**$ 1,012,882.50**

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 2:1 side slopes to 3 feet in depth

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 48" Dam 5 Diversion Storm Drain to Unser Channel

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2200	$ 34.52	$ 75,944.00
910.024	48" RCP, III	LF	2200	$ 111.70	$ 245,740.00
				Construction Cost Subtotal	$ 321,684.00
				25% Contingency	$ 80,421.00
				Construction Total	$ 402,105.00
				Soft Costs (20%)	$ 80,421.00
				Project Costs	**$ 482,526.00**

Description: 54" Storm Drain from 118th Street to Dam 5s

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"60" SWR, 8'-12'	LF	1378	$ 34.52	$ 47,568.56
910.024	54" RCP, III	LF	1378	$ 158.41	$ 218,288.98
				Construction Cost Subtotal	$ 265,857.54
				25% Contingency	$ 66,464.39
				Construction Total	$ 332,321.93
				Soft Costs (20%)	$ 66,464.39
				Project Costs	**$ 398,786.31**

Description: 48" Storm Drain from D5 Dam to 118th Street

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2250	$ 34.52	$ 77,670.00
910.024	48" RCP, III	LF	2250	$ 111.70	$ 251,325.00
				Construction Cost Subtotal	$ 328,995.00
				25% Contingency	$ 82,248.75
				Construction Total	$ 411,243.75
				Soft Costs (20%)	$ 82,248.75
				Project Costs	**$ 493,492.50**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 1-- From 29.92 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	32396	$ 5.86	$ 189,839.00
				Construction Cost Subtotal	$ 189,839.00
				Soft Costs (20%)	$ 37,967.80
				Project Costs	**$ 227,806.80**

Description: Expand Ladera Dam 2 -- From 29.77 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP; U, >2'	CY	32638	$ 5.86	$ 191,257.12
				Construction Cost Subtotal	$ 191,257.12
				Soft Costs (20%)	$ 38,251.42
				Project Costs	**$ 229,508.54**

Description: Expand Ladera Dam 3 -- From 29.71 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	32735	$ 5.86	$ 191,824.37
				Construction Cost Subtotal	$ 191,824.37
				Soft Costs (20%)	$ 38,364.87
				Project Costs	**$ 230,189.24**

Description:Expand Ladera Dam 4 -- From 19.03 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	49965	$ 5.86	$ 292,794.51
				Construction Cost Subtotal	$ 292,794.51
				Soft Costs (20%)	$ 58,558.90
				Project Costs	**$ 351,353.41**

Description: Expand Ladera Dam 5 -- From 31.9 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	29201	$ 5.86	$ 171,119.81
				Construction Cost Subtotal	$ 171,119.81
				Soft Costs (20%)	$ 34,223.96
				Project Costs	**$ 205,343.78**

Description: Dam 5s -- 50 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
	Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00
				Construction Cost Subtotal	$ 435,000.00
				Soft Costs (20%)	$ 87,000.00
				Project Costs	**$ 522,000.00**

Description: Arroyo Dam 5 -- 102 Ac-Ft pond w/54"outlet (Located within Basin O5S.B)

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
	Dam and Spillway Construction	Ac-Ft	102	$ 8,700.00	$ 887,400.00
				Construction Cost Subtotal	$ 887,400.00
				Soft Costs (20%)	$ 177,480.00
				Project Costs	**$ 1,064,880.00**

Subject: Summary of Cost Associated with Option 3
Date: 9/7/2011
By: Jonathan Ellison

Facility	Option 3	
Expand Ladera Dam 1	$	231,000
Pond 5S (50 ac-ft)	$	522,000
D5 Dam (102 ac-ft)	$	1,065,000
48" Storm Drain from D5 Dam 5 to 118th Street	$	494,000
54" Storm Drain From 118th Street to Pond 5S	$	399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$	250,000
54" Storm Drain From Pond 5S to Ladera Dam 5	$	1,013,000
54" Storm Drain From Ladera Dam 5 to Unser Channel	$	737,000
Total	**$**	**4,711,000**

* Includes Hard and Soft Costs

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 060232
Date: 2/16/2006

Description: 54" Dam5s outfall to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	3400	$ 34.52	$ 117,368.00
910.024	54" RCP, III	LF	3400	$ 158.41	$ 538,594.00
				Construction Cost Subtotal	$ 655,962.00
				25% Contingency	$ 163,990.50
				Construction Total	$ 819,952.50
				Soft Costs (20%)	$ 163,990.50
				Project Costs	**$ 983,943.00**

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 2:1 side slopes to 3 feet in depth

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 54" Dam 5 Diversion Storm Drain to Unser Channel

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2200	$ 34.52	$ 75,944.00
910.024	54" RCP, III	LF	2200	$ 158.41	$ 348,502.00
				Construction Cost Subtotal	$ 424,446.00
				25% Contingency	$ 106,111.50
				Construction Total	$ 530,557.50
				Soft Costs (20%)	$ 106,111.50
				Project Costs	**$ 636,669.00**

Description: 54" Storm Drain from Dam 5 Arroyo to Dam 5s

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"60" SWR, 8'-12'	LF	3700	$ 34.52	$ 127,724.00
910.024	54" RCP, III	LF	3700	$ 158.41	$ 586,117.00
				Construction Cost Subtotal	$ 713,841.00
				25% Contingency	$ 178,460.25
				Construction Total	$ 892,301.25
				Soft Costs (20%)	$ 178,460.25
				Project Costs	**$ 1,070,761.50**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 1 -- From 29.71 ac-ft to 50 ac-ft

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1 FILL, EXCAV, BF & COMP, U, >2'	CY	32735	$ 5.86	$ 191,824.37

Construction Cost Subtotal	$	191,824.37
Soft Costs (20%)	$	38,364.87
Project Costs	**$**	**230,189.24**

Description: Dam 5s -- 50 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00

Construction Cost Subtotal	$	435,000.00
Soft Costs (20%)	$	87,000.00
Project Costs	**$**	**522,000.00**

Description: Arroyo Dam 5 -- 102 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	102	$ 8,700.00	$ 887,400.00

Construction Cost Subtotal	$	887,400.00
Soft Costs (20%)	$	177,480.00
Project Costs	**$**	**1,064,880.00**

Subject: Summary of Cost Associated with Option 4
Date: 9/7/2011
By: Jonathan Ellison

Facility	Option 4
Expand Ladera Dam 1	$ 231,000
Pond 5S (50 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ 1,065,000
48" Storm Drain From D5 Dam to 118th Street	$ 494,000
54" Storm Drain From 118th Street to Pond 5S	$ 399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
48" Storm Drain From Pond 5S to Ladera Dam 5	$ 768,000
36" Storm Drain Diversion to Storm Cloud	$ 156,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$ 583,000
***Total**	**$ 4,468,000**

* Includes Hard and Soft Costs

Subject: Summary of Cost Associated with APS Projects
Date: 9/7/2011
By: Jonathan Ellison

Facility	APS Projects
Expand Ladera Dam 1	$ -
Pond 5S (49 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ -
48" Storm Drain From D5 Dam to 118th Street	$ -
54" Storm Drain From 118th Street to Pond 5S	$ -
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
48" Storm Drain From Pond 5S Ladera Dam 5	$ 768,000
36" Storm Drain Diversion to Storm Cloud	$ 156,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$ -
***Total**	**$ 1,696,000**

* Includes Hard and Soft Costs

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 060232
Date: 2/16/2006

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 2:1 side slopes to 3 feet in depth with a 48" culvert crossing

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 36" Dam 5s Diversion to Storm Cloud

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.110	TRCH, BF, 18"-36" SWR, 8'-12'	LF	1000	$ 27.25	$ 27,250.00
910.024	36" RCP, III	LF	1000	$ 76.79	$ 76,790.00
				Construction Cost Subtotal	$ 104,040.00
				25% Contingency	$ 26,010.00
				Construction Total	$ 130,050.00
				Soft Costs (20%)	$ 26,010.00
				Project Costs	**$ 156,060.00**

Description: 48" Storm Drain from D5 Dam to 118th Street

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2250	$ 34.52	$ 77,670.00
910.024	48" RCP, III	LF	2250	$ 111.70	$ 251,325.00
				Construction Cost Subtotal	$ 328,995.00
				25% Contingency	$ 82,248.75
				Construction Total	$ 411,243.75
				Soft Costs (20%)	$ 82,248.75
				Project Costs	**$ 493,492.50**

Description: 48" Storm Drain from Dam 5S to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	3500	$ 34.52	$ 120,820.00
910.024	48" RCP, III	LF	3500	$ 111.70	$ 390,950.00
				Construction Cost Subtotal	$ 511,770.00
				25% Contingency	$ 127,942.50
				Construction Total	$ 639,712.50
				Soft Costs (20%)	$ 127,942.50
				Project Costs	**$ 767,655.00**

Description: 48" Dam 5 Diversion Storm Drain to Unser Channel

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2200	$ 34.52	$ 75,944.00
910.024	48" RCP, III	LF	2200	$ 111.70	$ 245,740.00
				Construction Cost Subtotal	$ 321,684.00
				25% Contingency	$ 80,421.00
				Construction Total	$ 402,105.00
				Soft Costs (20%)	$ 80,421.00
				Project Costs	**$ 482,526.00**

Description: 54" Storm Drain from 118th Street to Dam 5s

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"60" SWR, 8'-12'	LF	1378	$ 34.52	$ 47,568.56
910.024	54" RCP, III	LF	1378	$ 158.41	$ 218,288.98
				Construction Cost Subtotal	$ 265,857.54
				25% Contingency	$ 66,464.39
				Construction Total	$ 332,321.93
				Soft Costs (20%)	$ 66,464.39
				Project Costs	**$ 398,786.31**

Total **$ 2,298,519.81**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 3 -- From 29.71 ac-ft to 50.00 ac-ft

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1 FILL, EXCAV, BF & COMP, U, >2'	CY	32735	$ 5.86	$ 191,824.37

Construction Cost Subtotal	$	191,824.37
Soft Costs (20%)	$	38,364.87
Project Costs	**$**	**230,189.24**

Description: Dam 5s -- 50 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00

Construction Cost Subtotal	$	435,000.00
Soft Costs (20%)	$	87,000.00
Project Costs	**$**	**522,000.00**

Description: Arroyo Dam 5 -- 102 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	102	$ 8,700.00	$ 887,400.00

Construction Cost Subtotal	$	887,400.00
Soft Costs (20%)	$	177,480.00
Project Costs	**$**	**1,064,880.00**

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 COMPUTE OLF ABOVE AP 517 WMDC AND BLUEWATER RD										
COMPUTE NM HYD	517.00	-	3	.00460	8.35	.515	2.09889	1.600	2.838	PER IMP= 75.00
*S ROUTE FLOW AT AP 517 TO AP 518 DOWN WMDC										
*S COMPUTE RATING CURVE ID=1 VS NO=1 NO SEGS=1										
*S ELMIN=0 ELMAX=10.0										
*S CH SLP=.0012 FP SLP=.0012										
*S N=.015 STA=50										
*S DIST ELEV DIST ELEV DIST ELEV										
*S 0 10 20 0 30 0										
*S 50 10										
*S ROUTE MCUNGE	ID=2 HYD=518_1 INFLOW ID=3 DT=0HR L=1900									
*S NS=0 SLOPE=.0012 MATCODE=0 REGCODE=0 CCODE=0										
*S PRINT HYD	ID=2 CODE=10									
*S ROUTE FLOW FROM AP 517 TO AP 518 VIA 24 INCH PIPE										
ROUTE MCUNGE	518_1	3	2	.00460	8.13	.514	2.09327	1.700	2.761	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 518 WMDC AND LOS VOLCANES RD										
COMPUTE NM HYD	518.00	-	3	.10370	133.19	11.645	2.10552	1.800	2.007	PER IMP= 5.00
ADD HYD	518_2	2& 3	10	.10830	140.28	12.158	2.10499	1.800	2.024	
*S ROUTE FLOW FROM AP 518 TO AP 522 DOWN WMDC										
*S COMPUTE RATING CURVE ID=1 VS NO=1 NO SEGS=1										
*S ELMIN=0 ELMAX=7.6										
*S CH SLP=.0012 FP SLP=.0012										
*S N=.015 STA=50										
*S DIST ELEV DIST ELEV DIST ELEV										
*S 0 10 20 0 30 0										
*S 50 10										
*S ROUTE MCUNGE	ID=2 HYD=522_1 INFLOW ID=10 DT=0HR L=1130									
*S NS=0 SLOPE=.0012 MATCODE=0 REGCODE=0 CCODE=0										
*S PRINT HYD	ID=2 CODE=10									
*S ROUTE FLOW FROM AP 518 TO AP 522 VIA 66 INCH PIPE										
ROUTE MCUNGE	522_1	10	2	.10830	138.99	12.148	2.10324	1.850	2.005	CCODE = .2
*S										
*S COMPUTE HYD ABOVE AP 521										
COMPUTE NM HYD	521.00	-	6	.02600	58.63	3.125	2.25330	1.550	3.524	PER IMP= 84.00
*S TOTAL FLOW AT AP 521										
ADD HYD	521_1	2& 6	10	.13430	162.84	15.273	2.13229	1.800	1.894	
*S										
*S COMPUTE OLF ABOVE AP 522 64TH ST AND FORTUNA RD										
COMPUTE NM HYD	522.00	-	4	.12230	144.69	13.291	2.03762	1.850	1.848	PER IMP= 1.00
ADD HYD	522_2	10& 4	13	.25660	305.55	28.564	2.08717	1.850	1.861	
*S										
*S COMPUTE OLF ABOVE AP 519 AIRPORT RD AND FORTUNA RD										
COMPUTE NM HYD	519.00	-	3	.06420	144.03	7.209	2.10553	1.500	3.505	PER IMP= 77.00
*S ROUTE OLF FROM AP 519 TO AP 520 DOWN FORTUNA RD 40 FT FL TO FL										
ROUTE MCUNGE	520_1	3	2	.06420	143.07	7.214	2.10691	1.600	3.482	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 520 FORTUNA RD W OF HIGH SCHOOL										
COMPUTE NM HYD	520.00	-	4	.08150	107.75	7.834	1.80234	1.700	2.066	PER IMP= 1.00
*S TOTAL FLOW AT AP 520										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	520_2	2& 4	5	.14570	233.83	15.048	1.93653	1.600	2.508	
*S ROUTE OLF AT AP 520 TO AP 522 DOWN FORTUNA RD										
ROUTE MCUNGE	522_3	5	2	.14570	229.98	15.040	1.93551	1.700	2.466	CCODE = .2
*S TOTAL HYD AT AP 522										
ADD HYD	522_4	2&13	13	.40230	505.12	43.604	2.03224	1.750	1.962	
*S ROUTE FLOW THROUGH PROPOSED DETENTION POND AT FORTUNA										
*S REVISED SMITH ENGR'S POND TO PRODUCE 790 CFS IN WMD AT I40.										
*S ORIFICE = 2-66" PIPES. FACTORED POND STORAGE BY 0.35										
ROUTE RESERVOIR	WMD_POND	13	15	.40230	408.86	43.604	2.03224	1.950	1.588	AC-FT= 227
*S										
*S COMPUTE OLF ABOVE AP 524 UNSER DETENTION AREA										
COMPUTE NM HYD	524.00	-	3	.12190	193.32	10.268	1.57930	1.600	2.478	PER IMP= 38.00
*S ROUTE INFLOW THRU UNSER DETENTION AREA, 24" ORIFICE										
ROUTE RESERVOIR	UNSER_POND	3	20	.12190	17.60	10.226	1.57291	2.400	.226	AC-FT= 958
*S										
*S COMPUTE OLF ABOVE AP 525										
COMPUTE NM HYD	525.00	-	3	.04930	104.14	4.192	1.59450	1.500	3.301	PER IMP=

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39.00
    *S  ROUTE OUTFLOW FROM AP 524 TO AP 525
    ROUTE MCUNGE          525_1   20    2        .12190        17.60      10.221      1.57219    2.650     .226 CCODE =
   .2
    *S  TOTAL OLF AT AP 525
    ADD HYD               525_2  2& 3   4        .17120       104.30      14.414      1.57861    1.500     .952
    *S
    *S  COMPUTE OLF ABOVE AP 526 W OF HIGH SCHOOL ON GLENRIO RD
    COMPUTE NM HYD        526.00   -     3        .04650       100.51       5.053      2.03762    1.500    3.377 PER IMP=
71.00
    *S  ROUTE OLF AT AP 525 TO AP 526 DOWN GLENRIO RD   40 FT FL TO FL 60 FT ROW
    ROUTE MCUNGE          526_1    4    2        .17120       102.37      14.422      1.57950    1.550     .934 CCODE =
   .2
    ADD HYD               526_2  2& 3   8        .21770       201.53      19.475      1.67735    1.550    1.446
    *S  ROUTE OLF FROM AP 526 TO AP 528 DOWN GLENRIO RD  40 FT FL TO FL 60 FT ROW
    ROUTE MCUNGE          528_1    8    2        .21770       199.14      19.470      1.67689    1.600    1.429 CCODE =
   .2
    *S
    *S  COMPUTE OLF ABOVE AP 528  64TH ST AND GLENRIO RD
    COMPUTE NM HYD        528.00   -     4        .03440        47.22       3.676      2.00368    1.750    2.145 PER IMP=
69.00
    ADD HYD               528_2  2& 4   6        .25210       237.96      23.146      1.72147    1.650    1.475
    *S
    *S  COMPUTE OLF ABOVE AP 527  WEST MESA HIGH SCHOOL AT 64TH AND GLENRIO
    COMPUTE NM HYD        527.00   -     1        .05310        44.07       4.775      1.68615    2.000    1.297 PER IMP=
50.00
    *S  TOTAL FLOW AT AP 528 BEFORE ROUTING FLOW AT AP 522 TO AP 528
    ADD HYD               528_3  1& 6   7        .30520       256.35      27.921      1.71532    1.650    1.312
    *S  ROUTE FLOW FROM WMD_POND TO AP 528  NORTH IN WMDC
    *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
    *S                    ELMIN=0    ELMAX=11.4
    *S                    CH SLP=.0015      FP SLP=.0015
    *S                    N=.015   STA=14.02
    *S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
    *S                    0       12        .01     0           14.01   0
    *S                    14.02   12
    *S ROUTE MCUNGE       ID=2  HYD=528_4  INFLOW ID=15   DT=0HR  L=1100
    *S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
    *S PRINT HYD          ID=2       CODE=10
    *S  ROUTE FLOW FROM WMD_POND TO AP 528 VIA 90 INCH PIPE
    ROUTE MCUNGE          528_4   15    2        .40230       406.79      43.547      2.02959    2.000    1.580 CCODE =
   .2
    *S  TOTAL HYD IN WMDC AT AP 528  WEST MESA DIVERSION AND GLENRIO RD

                                FROM  TO                    PEAK          RUNOFF                TIME TO    CFS       PAGE =
30
                  HYDROGRAPH    ID    ID         AREA      DISCHARGE      VOLUME      RUNOFF      PEAK       PER
   COMMAND      IDENTIFICATION   NO.   NO.      (SQ MI)      (CFS)        (AC-FT)    (INCHES)   (HOURS)    ACRE
TATION

    ADD HYD               528_5  7& 2  10        .70750       552.69      71.468      1.89403    1.900    1.221
    *S
    *S  COMPUTE OLF ABOVE AP 529  YELLOW FREIGHT AT HANOVER RD
    *S  REVISED AREA 7/30/96. OLD WAS .0175; NEW=.0264
    COMPUTE NM HYD        529.00   -     9        .02640        54.57       2.845      2.02048    1.550    3.230 PER IMP=
68.00
    *S
    *S  COMPUTE HYD FOR BASIN 532  I40 BASIN
    COMPUTE NM HYD        532.00   -     4        .03280        35.58       2.364      1.35133    1.750    1.695 PER IMP=
.00
    *S
    *S  COMPUTE OLF ABOVE AP 530  64TH ST AND HANOVER RD
    COMPUTE NM HYD        530.00   -     5        .08650       125.71      10.850      2.35184    1.750    2.271 PER IMP=
.00
    ADD HYD               530_1  4& 5   5        .11930       161.29      13.214      2.07675    1.750    2.112
    *S  ROUTE OLF FROM AP 529 TO AP 530 W IN HANOVER RD ASSUME 42" SS
    ROUTE MCUNGE          530_2    9    2        .02640        53.24       2.842      2.01836    1.550    3.151 CCODE =
   .2
    *S  ROUTE OLF FROM AP 530 E IN HANOVER TO 64TH ST ASSUME 48" SS
    ROUTE MCUNGE          530_3    5    3        .11930       149.70      13.008      2.04446    1.800    1.961 CCODE =
   .2
    *S  ADD ROUTED FLOWS FROM AP 529 AND AP 530
    ADD HYD               530_4  2& 3   4        .14570       177.41      15.850      2.03972    1.750    1.903
    *S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMDC  ASSUME VERT WALLS  12 FT BOTTOM
    *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
    *S                    ELMIN=0    ELMAX=11.4
    *S                    CH SLP=.0015      FP SLP=.0015
    *S                    N=.015   STA=14.02
    *S                    DIST    ELEV      DIST    ELEV        DIST    ELEV
    *S                    0       12        .01     0           14.01   0
    *S                    14.02   12
    *S ROUTE MCUNGE       ID=8  HYD=530_5  INFLOW ID=10   DT=0HR  L=1100
    *S                    NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
    *S PRINT HYD          ID=8       CODE=10
    *S  ROUTE FLOW AT AP 528 TO AP 530 N IN WMD VIA 102 INCH PIPE
    ROUTE MCUNGE          530_5   10    8        .70750       551.24      71.405      1.89236    1.950    1.217 CCODE =
   .2
    ADD HYD               530_6  8& 4   10       .85320       712.90      87.255      1.91752    1.850    1.306
    *S
    *S  COMPUTE OLF ABOVE AP 403 COORS BLVD AND HANOVER RD
    *S  REVISED AREA 7/30/96. OLD WAS .0355; NEW=.0100
    COMPUTE NM HYD        403.00   -     5        .01000        22.29       1.192      2.23508    1.550    3.482 PER IMP=
84.00
    *S  TOTAL FLOW IN WMDC AT AP 530  64TH ST AND HANOVER RD
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   ADD HYD              530_7  5&10  10        .86320       721.21      88.447      1.92120    1.850    1.305
   *S
   *S  COMPUTE OLF ABOVE AP 531  WMDC AT I-40 CULVERTS
   COMPUTE NM HYD       531.00   -     3        .01810        31.30       1.304      1.35133    1.550    2.702 PER IMP=
23.00
   *S  ROUTE FLOW AT AP 530 TO AP 531  N IN WMDC
   *S COMPUTE RATING CURVE ID=1    VS NO=1    NO SEGS=1
   *S                   ELMIN=0    ELMAX=11.4
   *S                   CH SLP=.0015      FP SLP=.0015
   *S                   N=.015   STA=14.02
   *S                   DIST    ELEV      DIST    ELEV        DIST    ELEV
   *S                   0       12        .01     0           14.01   0
   *S                   14.02   12
   *S ROUTE MCUNGE      ID=2  HYD=531_1  INFLOW ID=10   DT=0HR  L=2080
   *S                   NS=0  SLOPE=.0015  MATCODE=0  REGCODE=0  CCODE=0
   *S PRINT HYD         ID=2       CODE=10
   *S  ROUTE FLOW AT AP 530 TO AP 531 N IN WMD VIA 120 INCH PIPE

                                FROM  TO                    PEAK         RUNOFF              TIME TO    CFS       PAGE =
31
                    HYDROGRAPH   ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF     PEAK      PER
  COMMAND       IDENTIFICATION   NO.  NO.       (SQ MI)    (CFS)        (AC-FT)    (INCHES)  (HOURS)    ACRE
TATION

   ROUTE MCUNGE          531_1   10    2        .86320       719.18      88.364      1.91940    1.900    1.302 CCODE =
  .2
   *S
   *S  COMPUTE OLF ABOVE AP 404 ESTANCIA DR AND ILIFF RD
   *S  REVISED AREA 7/30/96. OLD WAS .0538; NEW=.0274
   COMPUTE NM HYD       404.00   -     5        .02740        29.60       3.266      2.23507    2.000    1.688 PER IMP=
84.00
   ADD HYD            531_1.5  5& 2   2        .89060       747.31      91.630      1.92912    1.900    1.311
   *S  TOTAL FLOW AT AP 531 WMDC ENTERING I-40 CULVERTS
   ADD HYD              531_2  2& 3  33        .90870       756.56      92.935      1.91761    1.900    1.301
   *S  ROUTE FLOW THRU I-40 BOX CULVERTS  2-10 BY 12
   *S  TOTAL ROUTED OLF FROM WMDC ENTERING I-40 INTERCEPTOR
   ROUTE MCUNGE          531_3   33   42        .90870       756.04      92.927      1.91744    1.900    1.300 CCODE =
  .2
   *S
   *S
   *S
   *S*************************************************************************
   *S       CALCULATE RUNOFF FOR BASINS NORTHWEST OF PONDS 13 THROUGH 14          *
   *S                              REGION I                                       *
   *S*************************************************************************
   *S
   *S  ROUTE DAM #12 OUTFLOW THRU CHANNEL TO UNSER BOX CULVERTS
   ROUTE MCUNGE        L13.1_1   38    8       6.74765      1367.77     400.667      1.11335    2.300     .317 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L13.1
   COMPUTE NM HYD        L13.1   -     3        .13130       204.28      11.048      1.57767    1.600    2.431 PER IMP=
 .00
   *S  ADD L13.1 FLOW TO CHANNEL BEFORE UNSER BOX CULVERTS -- TOTAL INTO DAM#13
   ADD HYD             TO_DAM13  3& 8  13       6.87895      1393.24     411.714      1.12221    2.300     .316
   *S  ROUTE FLOW THRU DAM #13
   ROUTE RESERVOIR       POND13   13    6       6.87895       866.82     411.714      1.12221    2.700     .197 AC-FT=
.906
   *S  ROUTE OUTFLOW THRU CHANNEL PART WAY TO DAM #14
   ROUTE MCUNGE        L14.8_1    6    4       6.87895       855.05     411.310      1.12111    2.850     .194 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.8
   COMPUTE NM HYD        L14.8   -     3        .19060       337.88      18.571      1.82686    1.550    2.770 PER IMP=
.00
   *S  ADD BASIN L14.8 TO CHANNEL FLOW
   ADD HYD             L14.8_2  3& 4   5       7.06955       867.91     429.881      1.14014    2.800     .192
   *S  ROUTE TOTAL FLOW REST OF WAY THRU CHANNEL TO DAM 14
   ROUTE MCUNGE        L14.8_3    5   16       7.06955       854.64     429.240      1.13844    3.000     .189 CCODE =
  .2
   *S
   *S  FROM ABOVE ESCARPMENT -- L14 BASINS
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.1
   COMPUTE NM HYD        L14.1   -     1        .49840       199.53      12.843       .48315    1.750     .626 PER IMP=
.00
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.2
   COMPUTE NM HYD        L14.2   -     2        .31880       153.42       8.901       .52351    1.700     .752 PER IMP=
.00
   *S  ADD L14.1 TO L14.2
   ADD HYD             L14.3_1  1& 2   3       .81720       351.82      21.744       .49889    1.750     .673
   *S
   *S  ROUTE L14.1 & L14.2 HYD THRU L14.3
   ROUTE MCUNGE        L14.3_2    3   20       .81720       348.60      21.683       .49750    2.000     .667 CCODE =
  .1
   ROUTE MCUNGE        L14.3_2   20    4       .81720       347.90      21.649       .49673    2.100     .665 CCODE =
  .1
   *S

                                FROM  TO                    PEAK         RUNOFF              TIME TO    CFS       PAGE =
32
                    HYDROGRAPH   ID   ID         AREA     DISCHARGE      VOLUME      RUNOFF     PEAK      PER
  COMMAND       IDENTIFICATION   NO.  NO.       (SQ MI)    (CFS)        (AC-FT)    (INCHES)  (HOURS)    ACRE
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NOTATION

   *S  COMPUTE HYDROGRAPH FOR BASIN L14.3
   COMPUTE NM HYD         L14.3   -     3        .18130       222.28       10.014       1.03564    1.550     1.916 PER IMP=
19.00
   *S  ADD L14.3 TO (L14.1,2)
   ADD HYD             L14.3_3  3& 4   5        .99850       386.45       31.663        .59458    2.100      .605
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.4
   COMPUTE NM HYD         L14.4   -     3        .04690        95.65        3.945       1.57734    1.500     3.187 PER IMP=
46.00
   *S  ADD L14.4 TO (L14.1-3)
   ADD HYD             L14.4_1  3& 5   7       1.04540       398.92       35.609        .63867    2.100      .596
   *S  ROUTE FLOW THRU 3-10'x4'x175'  CBC HW/D=1.5
   ROUTE MCUNGE        L14.4_2    7    8       1.04540       398.92       35.609        .63867    2.100      .596 CCODE =
  .0
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.5
   COMPUTE NM HYD         L14.5   -     1        .08280       158.13        6.079       1.37656    1.500     2.984 PER IMP=
34.00
   *S  ROUTE L14.5 THRU BASIN L14.6 VIA 98TH STREET
   ROUTE MCUNGE        L14.6_1    1   50        .08280       154.97        6.095       1.38027    1.550     2.924 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.6
   COMPUTE NM HYD         L14.6   -     6        .04380        87.59        4.146       1.77474    1.500     3.125 PER IMP=
55.00
   *S  ADD L14.6 & ROUTED L14.5
   ADD HYD             L12.6_2 50& 6   3        .12660       241.08       10.241       1.51674    1.550     2.975
   *S
   *S  ROUTE FLOW THRU INLET TO  48" PIPE
   ROUTE RESERVOIR     L14.4_3    3    2        .12660       127.81       10.241       1.51674    1.750     1.577 AC-FT=
 570
   *S  ROUTE THRU 900' OF 48" RCP PIPE
   ROUTE MCUNGE        L14.4_4    2    7        .12660       127.76       10.190       1.50925    2.050     1.577 CCODE =
  .2
   *S  TOTAL FLOW FROM L14.1-4,6 INTO LADERA CHANNEL
   ADD HYD             L14.7_1  7& 8   4       1.17200       524.30       45.799        .73271    2.050      .699
   *S  ROUTE FLOW DOWN LADERA CHANNEL
   ROUTE MCUNGE        L14.7_2    4    5       1.17200       453.64       44.997        .71988    2.250      .605 CCODE =
  .2
   *S
   *S  COMPUTE HYDROGRAPH FOR BASIN L14.7
   COMPUTE NM HYD         L14.7   -     3        .08910       178.00        9.821       2.06662    1.550     3.122 PER IMP=
72.00
   *S  ADD TO FLOW IN LADERA CHANNEL
   ADD HYD             L14.7_3  3& 5   4       1.26110       481.83       54.818        .81503    2.200      .597
   *S  FLOW (FROM BASINS L14.1-4 AND L14.6,7) INTO DAM #14
   ADD HYD             L14.7_4  4&16  20      8.33065      1002.94      484.058       1.08948    2.900      .188
   *S
   *S**************************************************************************
   *S    CALCULATE RUNOFF FOR BASINS JUST SOUTH OF LADERA PONDS 13 THROUGH 14      *
   *S                                REGION J                                     *
   *S**************************************************************************
   *S
   *S  COMPUTE HYD ABOVE AP 201 NORTH OF CL OF LADERA DR
   COMPUTE NM HYD         201.30   -    10        .01720        38.01        1.589       1.73262    1.500     3.453 PER IMP=
 .00
   *S
   *S  COMPUTE HYD ABOVE AP 201 SOUTH OF CL OF LADERA DR
   COMPUTE NM HYD         201.40   -    11        .00320         8.42         .415       2.43221    1.500     4.112 PER IMP=
95.00
   *S
   *S  COMPUTE HYD ABOVE AP 202 NORTH OF CL OF LADERA DR
   COMPUTE NM HYD         202.30   -     8        .02570        54.29        2.413       1.76073    1.500     3.300 PER IMP=
54.00
   *S

                                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
TATION

   *S  COMPUTE HYD ABOVE AP 202 SOUTH OF CL OF LADERA DR
   COMPUTE NM HYD         202.40   -     9        .00310         8.16         .402       2.43221    1.500     4.113 PER IMP=
95.00
   *S  ROUTE SS AND OLF FROM AP 201 TO AP 202 (THRU 202.3-202.4)
   *S  DIVIDE SS FROM HYD AT AP 201 NORTH OF CL OF LADERA DR
   DIVIDE HYD             202_6    10    5        .01599        26.00        1.477       1.73260    1.450     2.541
                          202_7   and    6        .00121        12.01         .112       1.73260    1.500    15.453
   *S  ROUTE SS NORTH IN LADERA DR
   ROUTE MCUNGE           202_8     5    2        .01599        26.00        1.473       1.72778    1.550     2.541 CCODE =
  .1
   *S  ROUTE OLF FROM AP 201 TO AP 202 NORTH SIDE OF LADERA DR
   ROUTE MCUNGE           202_9     6    3        .00121        11.05         .109       1.68883    1.700    14.227 CCODE =
  .1
   *S  ADD OLF ABOVE AP 202 TO ROUTED HYD FROM AP 201 NORTH SIDE LADERA DR
   ADD HYD                202_1  3& 8   5        .02691        54.29        2.523       1.75745    1.500     3.152
   *S  ROUTE HYD FROM AP 201 (SOUTH SIDE) TO AP 202 SOUTH SIDE OF LADERA DR
   ROUTE MCUNGE           202_2    11    3        .00320         8.37         .415       2.43376    1.600     4.088 CCODE =
  .2
   *S
   ADD HYD                202_3  3& 9   4        .00630        14.91         .817       2.43283    1.550     3.698
```

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   *S  TOTAL HYD AT AP 202 NORTH SIDE OF LADERA DR
   ADD HYD              202_4  2& 5   6        .04290        77.85        3.996      1.74637    1.500    2.835
   *S
   *S  COMPUTE HYD ABOVE AP 203  72ND AT LADERA DR
   COMPUTE NM HYD       203.00   -     1        .02480        49.50        1.943      1.46922    1.500    3.119 PER IMP=
38.00
   *S
   *S  COMPUTE HYD ABOVE AP 204 LADERA DR AT 72ND NORTH SIDE
   COMPUTE NM HYD       204.30   -     3        .01520        33.64        1.430      1.76408    1.500    3.458 PER IMP=
54.00
   *S
   *S  COMPUTE HYD ABOVE AP 204 SOUTH SIDE
   COMPUTE NM HYD       204.40   -     5        .00250         6.58         .324      2.43221    1.500    4.114 PER IMP=
5.00
   *S  ROUTE HYDS FROM AP 202 TO AP 204 NORTH SIDE
   DIVIDE HYD           204_5    6    10        .03132        30.00        2.917      1.74637    1.400    1.496
                        204_6  and    11        .01158        47.85        1.078      1.74637    1.500    6.458
   *S  ROUTE SS FROM AP 202 TO AP 204
   ROUTE MCUNGE         204_7   10     2        .03132        30.00        2.911      1.74258    1.500    1.496 CCODE =
.1
   *S  ROUTE OLF FROM AP 202 TO AP 204 NORTH SIDE
   ROUTE MCUNGE         204_8   11     6        .01158        47.18        1.065      1.72419    1.650    6.367 CCODE =
.1
   *S  TOTAL ROUTED OLF ABOVE AP 204 NORTH SIDE
   ADD HYD              204_9  3& 6    7        .02678        65.31        2.495      1.74680    1.650    3.811
   *S  ADD ROUTED SS FLOW TO TOTAL ROUTED OLF AT AP 204
   ADD HYD              204_1  7& 2    8        .05810        95.31        5.406      1.74451    1.650    2.563
   *S  ROUTE SOUTH SIDE OF LADERA FROM AP 202 TO AP 204
   ROUTE MCUNGE         204_2    4     2        .00630        14.78         .818      2.43378    1.650    3.666 CCODE =
.2
   *S  OLF IN SOUTH SIDE OF LADERA WEST OF 72ND STREET
   ADD HYD              204_3  2& 5    6        .00880        19.03        1.142      2.43322    1.600    3.378
   *S  ADD HYD ABOVE AP 203 TO TOTAL FLOW AT AP 204
   *S  OLF IN SOUTH SIDE OF LADERA AT 72ND STREET
   ADD HYD              204_4  1& 6    7        .03360        62.57        3.085      1.72169    1.500    2.910
   *S  ADD TOTAL FLOW AT AP 204 (204 N. SIDE AND 203) TO AP 204 S. SIDE
   *S  TOTAL HYD AT AP 204 LADERA DR AT 72ND ST NORTH AND SOUTH SIDES
   ADD HYD              204_5  7& 8    9        .09170       141.39        8.491      1.73615    1.600    2.409
   *S
   *S  SS DISCHARGES TO LADERA DAM NO 14;
   *S  FLOW THAT CAN'T GET INTO SS GOES NORTH ON LADERA, LEAVES WBLUFF WATERSHED
```


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
DIVIDE HYD	204_6	9	43	.06896	64.00	6.385	1.73615	1.400	1.450	
	204_7 and	19		.02274	77.39	2.106	1.73615	1.600	5.317	
*S ADD FLOWS ABOVE POND #14										
*S TOTAL FLOW ENTERING POND #14										
ADD HYD	TO_DAM14	20&43	14	8.39961	1006.50	490.444	1.09479	2.900	.187	
*S										
*S ROUTE FLOW THRU DAM #14										
ROUTE RESERVOIR	POND14	14	8	8.39961	542.91	490.329	1.09454	4.150	.101	AC-FT= 79.351
*S >>>>>										
*S >>>>> DIVIDE 0 CFS FROM LADERA POND #14 AND SEND TO WEST BLUFF										
DIVIDE HYD	TO_LADOURAY	8	44	.00413	.10	.241	1.09454	.850	.038	
	15INFLOW and	45		8.39548	542.81	490.088	1.09454	4.150	.101	
ROUTE MCUNGE	RTE_TO_WB	44	18	.00413	.10	.235	1.06675	1.600	.038	CCODE = .1

```
   *S
   *S**************************************************************************
   *S          CALCULATE RUNOFF FOR SINGLE BASIN JUST SOUTH OF POND 14          *
   *S                              REGION K
   *S**************************************************************************
   *S
   *S  COMPUTE HYD ABOVE AP 205 LADERA DR WEST OF OURAY DR
   COMPUTE NM HYD       205.00   -     3        .00770        15.82         .567      1.38173    1.500    3.211 PER IMP=
25.00
   *S  ROUTE OLF FROM AP 204 TO AP 205 NORTH IN LADERA DR
   ROUTE MCUNGE         205_1   19     2        .02274        76.84        2.091      1.72390    1.750    5.280 CCODE =
.1
   *S  TOTAL OLF AT AP 205
   ADD HYD              205_2  2& 3    4        .03044        82.33        2.658      1.63732    1.750    4.226
   *S
   DIVIDE HYD           205_3    4    46        .01824        32.00        1.593      1.63732    1.600    2.741
                        205_4  and    2        .01220        50.33        1.066      1.63732    1.750    6.444
   *S
   *S
   *S**************************************************************************
   *S   CALCULATE RUNOFF FOR BASINS DRAINING TO WEST BLUFF OUTFALL AT COORS ROAD  *
   *S                              REGION L
   *S**************************************************************************
   *S
   *S  ADD LAURELWOOD POND TO THE UNSER SPILLWAY STORMDRAIN
   ADD HYD              617_5 72&41   4      15.93826       825.14       739.747       .87025    2.400      .081
   *S ROUTE UNSER STORM DRAIN FROM LAURELWOOD TO 68TH STREET
   ROUTE MCUNGE         610_4    4    74      15.93826       809.08       738.548       .86884    2.500      .079 CCODE =
.2
   *S
   *S*********************************************************************
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   *S*** CONTINUED ROUTING OF SD FROM 68TH STREET TO WB- LEM 1/2/06
   *S*****************************************************************
   *S ROUTE UNSER STORM DRAIN FROM 68TH STREET TO WB
   ROUTE MCUNGE          610_4   74   73      15.93826       795.66     737.388       .86747    2.600      .078 CCODE =
  .2
   *S*****************************************************************
   *S  COMPUTE OLF ABOVE AP 618A   TORATOLLA ACERS
   COMPUTE NM HYD        618_1   -     6        .05200        77.81       4.355      1.57044    1.600    2.338 PER IMP=
2.00
   *S
   *S  COMPUTE OLF ABOVE AP 618B  SCHOOL AND PART OF LA MESA DEL OESTE
   COMPUTE NM HYD        618_2   -     7        .04610        85.68       3.861      1.57044    1.550    2.904 PER IMP=
2.00
   *S
   *S  ROUTE OLF FROM BASIN 618A THOUGH 618B  ASSUME 32'FL-FL STREET SECTION
```

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
ROUTE MCUNGE	618_3	6	3	.05200	77.53	4.359	1.57180	1.650	2.330	CCODE = .2
*S										
*S ADD ROUTED FLOW FROM 618A TO FLOW FROM 618B										
ADD HYD	618_4	7& 3	5	.09810	145.56	8.220	1.57115	1.600	2.318	
*S										
*S ROUTE COMBINED FLOW FROM BASINS 618A&B VIA SD TO 619B										
ROUTE MCUNGE	618_5	5	86	.09810	145.56	8.220	1.57115	1.600	2.318	CCODE = .0
*S COMPUTE OLF ABOVE AP 619A CHAMISA										
COMPUTE NM HYD	619.00	-	7	.02200	47.71	2.053	1.74987	1.500	3.388	PER IMP= 5.00
*S ADD BASIN 619A TO ROUTED FLOW FROM 617B										
ADD HYD	122.00	7&93	22	4.89750	604.69	298.922	1.14442	1.700	.193	
*S										
*S ROUTE 619A TO 619B										
ROUTE MCUNGE	193.40	22	93	4.89750	595.68	298.621	1.14326	1.700	.190	CCODE = .1
*S										
*S COMPUTE OLF ABOVE AP 619B CANDLEWOOD										
COMPUTE NM HYD	620.00	-	5	.00450	9.77	.420	1.74987	1.500	3.392	PER IMP= 5.00
*S										
*S ADD BASIN 619B TO ROUTED FLOW FROM 619A										
ADD HYD	619_6	5&93	10	4.90200	599.99	299.041	1.14382	1.700	.191	
*S ADD BASINS 618A&B TO ROUTED FLOW AT 619B										
ADD HYD	123.00	10&86	23	5.00010	723.66	307.261	1.15221	1.700	.226	
*S										
*S ROUTE 619B TO 621A										
ROUTE MCUNGE	193.40	23	93	5.00010	716.25	306.970	1.15111	1.700	.224	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 621A EAST PART OF LA MESA DEL OESTE										
COMPUTE NM HYD	621_1	-	7	.02350	49.09	1.968	1.57044	1.500	3.264	PER IMP= 42.00
*S										
*S ADD BASINS 621A TO ROUTED FLOW FROM 619B										
ADD HYD	124.00	7&93	24	5.02360	737.65	308.938	1.15307	1.700	.229	
*S										
*S ASSUME BASIN 619C CONTRIBUTES NO RUNOFF TO THE CHANNEL										
*S ROUTE 621A TO 621B										
ROUTE MCUNGE	193.40	24	93	5.02360	734.51	308.708	1.15222	1.750	.228	CCODE = .2
*S										
*S COMPUTE OLF ABOVE AP 621B JUNIPER RUN										
COMPUTE NM HYD	621_3	-	6	.01430	29.88	1.198	1.57044	1.500	3.265	PER IMP= 2.00
*S										
*S ADD BASIN 621B TO ROUTED FLOW FROM 621A										
ADD HYD	125.00	6&24	25	5.03790	750.67	310.136	1.15426	1.700	.233	
*S										
*S COMPUTE OLF ABOVE AP 621C										
COMPUTE NM HYD	621_5	-	6	.03200	68.80	3.145	1.84263	1.500	3.359	PER IMP= 60.00
*S										
*S ROUTE FLOW FROM 621C IN STORM DRAIN TO 1-40 CHANNEL										
ROUTE MCUNGE	621_6	6	2	.03200	55.69	3.034	1.77792	1.550	2.719	CCODE = .2
*S										
*S COMPUTE HYD FOR BASIN 621D - 64TH STREET FROM JUNIPER TO CHANNEL										
COMPUTE NM HYD	627.00	-	6	.00150	3.02	.126	1.57044	1.500	3.141	PER IMP= 2.00
*S										
*S ADD BASIN 621D TO ROUTED FLOW FROM 621C										

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	NOTATION
ADD HYD	621_8	6& 2	4	.03350	58.52	3.160	1.76860	1.550	2.730	

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   *S
   *S ADD BASIN 621C TO ROUTED FLOW AT 621B
   ADD HYD              126.00  4&25  26       5.07140       797.00     313.296      1.15832    1.700     .246
   *S
   *S  ROUTE  FLOW FROM 621B TO 622A
   ROUTE MCUNGE         193.40   26   93       5.07140       787.49     313.067      1.15747    1.700     .243 CCODE =
  .2
   *S*****************************************************************************
   *S*                          CHANGED WILSON MODEL TO INCLUDE FLOW FROM WMDC                          *
   *S*****************************************************************************
   *S  ADD ROUTED HYD FROM AP 531 TO ROUTED FLOW FROM 621B
   *S  TOTAL HYD AT CONFLUENCE OF I40 CHANNEL AND WMDC
   ADD HYD              622_5 42&93  31       5.98010      1462.42     405.994      1.27295    1.750     .382
   *S  COMPUTE OLF ABOVE AP 622A
   COMPUTE NM HYD       622_1   -     6        .00900        18.81        .754      1.57044    1.500    3.266 PER IMP=
42.00
   *S
   *S ADD BASIN 622A TO ROUTED FLOW FROM 621B
   ADD HYD              127.00  6&31  27       5.98910      1469.19     406.747      1.27340    1.750     .383
   *S*****************************************************************************
   *S*                          END OF CHANGES TO INCLUDE WMDC                          *
   *S*****************************************************************************
   *S
   *S  COMPUTE OLF ABOVE AP 622B
   COMPUTE NM HYD       622_2   -     6        .00664        13.10        .505      1.42656    1.500    3.081 PER IMP=
35.00
   *S
   *S ADD BASIN 622B TO ROUTED FLOW FROM 622A
   ADD HYD              128.00  6&27  28       5.99574      1473.82     407.253      1.27357    1.750     .384
   *S
   *S??????????????????????????????????????????????
   *S ADD UNSER SD TO PARKWAY CHANNEL
   ADD HYD              610_16 73&28  99      21.93401      2093.98    1144.641       .97848    1.750     .149
   *S??????????????????????????????????????????????
   *S*****************************************************************************
   *S*                          END OF COPIED SECTION FROM WILSON FINAL_PU.HMI                          *
   *S*****************************************************************************
   *S  COMPUTE OLF ABOVE AP 623  68TH ST AND MIAMI RD
   COMPUTE NM HYD       623.00   -     7        .03000        66.12       3.181      1.98836    1.500    3.444 PER IMP=
68.00
   *S
   *S  COMPUTE OLF ABOVE AP 624
   COMPUTE NM HYD       624.00   -     6        .04650        86.33       5.154      2.07828    1.600    2.901 PER IMP=
3.00
   *S
   *S  COMPUTE OLF ABOVE AP 625  64TH ST AND MIAMI RD
   COMPUTE NM HYD       625.00   -     5        .03860        92.32       4.310      2.09357    1.500    3.737 PER IMP=
4.00
   *S  ROUTE OLF FROM AP 623 TO AP 625 DOWN MIAMI RD  40 FT FL TO FL  60 FT ROW
   ROUTE MCUNGE         625_4    7     2        .03000        65.33       3.187      1.99162    1.600    3.403 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 623 TO OLF ABOVE AP 625
   ADD HYD              625_5  2& 5    4        .06860       146.78       7.497      2.04897    1.550    3.343
   *S  ROUTE OLF FROM AP 624 TO AP 625 ASSUME 32 FT FL TO FL ST SECTION
   ROUTE MCUNGE         625_6    6     3        .04650        85.04       5.154      2.07813    1.650    2.858 CCODE =
  .2
   *S  ADD ROUTED OLF FROM AP 624 TO AP 625
   ADD HYD              625_7  3& 4   10        .11510       219.82      12.650      2.06075    1.550    2.984
   *S
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   *S  COMPUTE OLF ABOVE AP 626  ESTANCIA DR AND MIAMI RD
   COMPUTE NM HYD       626.00   -     3        .07440       147.79       7.977      2.01036    1.550    3.104 PER IMP=
).00
   *S  ROUTE OLF AT AP 625 TO AP 626 ASSUME 40 FT FL TO FL STREET SECTION
   ROUTE MCUNGE         626_4   10     2        .11510       217.65      12.625      2.05667    1.650    2.955 CCODE =
  .1
   *S  ADD ROUTED HYD FROM AP 625 TO OLF ABOVE AP 626
   *S  TOTAL OLF AT AP 626 ESTANCIA AVENUE
   ADD HYD              626_5  2& 3   20        .18950       343.87      20.602      2.03848    1.600    2.835
   *S
   *S  COMPUTE OLF ABOVE AP 627 57TH ST AND QUAIL RD
   COMPUTE NM HYD       627.00   -     4        .08610       145.19       8.461      1.84264    1.600    2.635 PER IMP=
).00
   *S
   *S  COMPUTE OLF ABOVE AP 628  OURAY RD EAST OF ESTANCIA RD
   COMPUTE NM HYD       628.00   -    10        .05590        52.79       5.291      1.77474    1.950    1.476 PER IMP=
56.00
   *S
   *S  COMPUTE OLF ABOVE AP 629  57TH ST AND OURAY RD
   COMPUTE NM HYD       629.00   -     5        .05810       118.43       6.756      2.18036    1.550    3.185 PER IMP=
79.00
   *S  ROUTE OLF FROM AP 627 TO AP 629 DOWN ATRISCO DR (COLLECTOR)  ASSUME 36" SS
   DIVIDE HYD           629_4    4     9        .05471        37.00       5.377      1.84263    1.400    1.057
                        629_5  and     8        .03139       108.19       3.085      1.84263    1.600    5.386
   *S  ROUTE SS FROM AP 627 TO AP 629 DOWN ATRISCO DR
   ROUTE MCUNGE         629_4    9     2        .05471        37.00       5.369      1.83996    1.500    1.057 CCODE =
  .1
   *S  ROUTE OLF FROM AP 627 TO AP 629  DOWN ATRISCO DR
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   ROUTE MCUNGE          629_7    8    3        .03139       104.28       3.099      1.85112    1.700    5.191 CCODE =
  .2
   *S  ROUTE OLF FROM AP 628 TO AP 629  DOWN OURAY RD  ASSUME 24" SS
   DIVIDE HYD            629_8   10    9        .03246        12.00       3.072      1.77472    1.550     .578
                         629_9  and    8        .02344        40.79       2.219      1.77472    1.950    2.719
   *S  ROUTE SS FROM AP 628 TO AP 629 E IN OURAY RD
   ROUTE MCUNGE          629_1    9    4        .03246        12.00       3.070      1.77364    1.650     .578 CCODE =
  .1
   *S  ROUTE OLF FROM AP 628 TO AP 629 IN OURAY. ASSUME ALL FLOW IN N HALF OF ST
   ROUTE MCUNGE          629_2    8    6        .02344        40.76       2.221      1.77598    2.000    2.716 CCODE =
  .2
   *S  ADD ROUTED OLF FROM AP 628 TO OLF ABOVE AP 629
   ADD HYD               629_3  5& 6   1        .08154       118.43       8.977      2.06408    1.550    2.269
   *S  TOTAL OLF HYDS AT AP 629
   ADD HYD               629_4  3& 1   7        .11293       213.53      12.076      2.00488    1.600    2.954
   *S  ADD ROUTED SS FROM AP 627 AND AP 628
   ADD HYD               629_5  2& 4   8        .08717        49.00       8.439      1.81525    1.650     .878
   *S  ADD SS TO OLF
   *S  TOTAL HYD AT AP 629  57TH ST AND OURAY RD
   ADD HYD               629_6  7& 8  10        .20010       261.59      20.515      1.92228    1.600    2.043
   *S
   *S  COMPUTE OLF ABOVE AP 630 57TH ST AND MIAMI RD
   COMPUTE NM HYD        630.00   -    5        .07730       121.38       9.332      2.26366    1.700    2.454 PER IMP=
1.00
   *S  ROUTE FLOW FROM AP 626 TO AP 630  DOWN MIAMI RD ASSUME 54" SS
   *S  SEPARATE OLF FROM SS
   DIVIDE HYD            630_4   20    9        .15904       175.00      17.290      2.03848    1.500    1.719
                         630_5  and    8        .03046       168.87       3.312      2.03848    1.600    8.662
   *S  ROUTE SS FROM AP 626 TO I-40 CHANNEL
   ROUTE MCUNGE          630_6    9    2        .15904       175.00      17.272      2.03638    1.550    1.719 CCODE =
  .1
   *S  ROUTE OLF FROM AP 626 TO AP 630 DOWN MIAMI RD  AT I-40 CHANNEL
   ROUTE MCUNGE          630_7    8    3        .03046       165.90       3.292      2.02637    1.650    8.509 CCODE =
  .2
   *S  ADD ROUTED SS AND OLF FROM AP 626 AT I-40 CHANNEL
```

```
                                 FROM  TO                      PEAK          RUNOFF                TIME TO     CFS       PAGE =
38
                     HYDROGRAPH   ID   ID          AREA      DISCHARGE       VOLUME      RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION  NO.  NO.       (SQ MI)      (CFS)        (AC-FT)    (INCHES)   (HOURS)    ACRE
NOTATION

   ADD HYD               630_8  2& 3   4        .18950       340.90       20.565      2.03476    1.650    2.811
   *S  DIVIDE & ROUTE SS AND OLF FROM AP 629 DOWN OURAY TO COORS
   DIVIDE HYD            630_9   10    9        .14053        88.00       14.407      1.92228    1.450     .978
                        630_10  and    8        .05957       173.59        6.108      1.92228    1.600    4.553
   ROUTE MCUNGE          630_2    9    2        .14053        88.00       14.400      1.92137    1.500     .978 CCODE =
  .1
   *S  ROUTE OLF FROM AP 629 TO COORS
   ROUTE MCUNGE          630_3    8    3        .05957       171.36        6.086      1.91543    1.650    4.495 CCODE =
  .1
   *S  ADD ROUTED SS AND OLF FROM AP 629 AT COORS
   ADD HYD               630_4  2& 3   7        .20010       259.36       20.486      1.91960    1.650    2.025
   *S  ROUTE FLOW AT AP 622 TO  MIAMI RD AND I-40 CHANNEL
   ROUTE MCUNGE          630_5   99    2      21.93401      2091.80     1145.618       .97932    1.800     .149 CCODE =
  .1
   *S  ADD ROUTED SS AND OLF FROM AP 626 TO OLF ABOVE AP 630
   ADD HYD               630_6  4& 5   3        .26680       457.93       29.897      2.10108    1.700    2.682
   *S  ADD ROUTED FLOW FROM AP 622 TO HYD AT AP 630
   *S  TOTAL AT MIAMI RD AND I-40 CHANNEL
   ADD HYD               630_7  2& 3   5      22.20081      2480.03     1175.514       .99280    1.750     .175
   *S  ROUTE FLOW FROM MIAMI RD TO 57TH ST
   *S  TOTAL FLOW AT AP 630 I-40 CHANNEL WEST OF COORS BLVD AND SOUTH OF OURAY
   ROUTE MCUNGE          630_8    5   10      22.20081      2480.03     1175.514       .99280    1.750     .175 CCODE =
  .0
   *S
   *S  COMPUTE OLF ABOVE AP 631
   COMPUTE NM HYD        631.00   -    3        .05700       108.25        7.089      2.33177    1.600    2.967 PER IMP=
3.00
   *S  ROUTE FLOW FROM AP 631 TO AP 630 ASSUME 84" SS
   ROUTE MCUNGE          631_4    3    2        .05700       107.75        7.087      2.33139    1.650    2.954 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 631 TO TOTAL FLOW AT AP 630
   ADD HYD               630_9  2&10   6      22.25780      2567.69     1182.602       .99623    1.750     .180
   *S
   *S  COMPUTE OLF ABOVE AP 632
   COMPUTE NM HYD        632.00   -    5        .03290        76.72        3.721      2.12083    1.500    3.643 PER IMP=
76.00
   *S
   *S  COMPUTE HYD ABOVE AP 633  CORONA RD AND OURAY RD
   COMPUTE NM HYD        633.00   -    4        .09100       157.30       10.623      2.18874    1.650    2.701 PER IMP=
80.00
   *S  ROUTE OLF FROM AP 632 TO AP 633 SOUTH IN CORONA DR  ASSUME 54" SS
   ROUTE MCUNGE          633_4    5    2        .03290        74.53        3.714      2.11652    1.550    3.540 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM AP 632 TO OLF AT AP 633
   *S  TOTAL AT CORONA DR AND OURAY RD
   ADD HYD               633_5  2& 4   5        .12390       223.31       14.336      2.16955    1.600    2.816
   *S  ROUTE FLOW FROM CORONA DR AND OURAY RD TO COORS AND OURAY
   ROUTE MCUNGE          633_6    5    2        .12390       195.14       14.043      2.12516    1.650    2.461 CCODE =
  .2
   *S  ADD ROUTED FLOW FROM OURAY/CORONA TO ROUTED FLOW FROM AP 629 AT COORS/OURAY
   ADD HYD               630_9  2& 7   4        .32400       454.50       34.529      1.99820    1.650    2.192
   *S  ROUTE TOTAL FLOW AT COORS AND OURAY TO AP 630;  ASSUME ALL FLOW IN 72" SS
```

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   ROUTE MCUNGE          633_4    4    3        .32400       454.26      34.529      1.99820    1.650    2.191 CCODE =
.2
   *S  ADD ROUTED STORM SEWER FLOW FROM COORS AND OURAY TO TOTAL FLOW AT AP 630
   *S  TOTAL FLOW FROM WEST BLUFF WATERSHED AT WEST BLUFF DRAINAGE FACILITY
   ADD HYD               630_1  3& 6  47      22.58180      2992.28    1217.130      1.01060    1.750     .207
   *S
   *S  ADD FLOW FROM WEST BLUFF WATERSHED TO FLOW FROM LADERA SYSTEM AT
   *S  INLET OF WEST BLUFF FACILITY
   ADD HYD                TOWB 18&47  49      22.58593      2992.38    1217.365      1.01061    1.750     .207
   *S
   *S  COMPUTE OLF ABOVE AP 702  ALAMOGORDO DR AND BRIDGE AVENUE

                                  FROM  TO                    PEAK        RUNOFF                TIME TO    CFS       PAGE =
39
                       HYDROGRAPH   ID   ID        AREA     DISCHARGE     VOLUME     RUNOFF      PEAK      PER
   COMMAND        IDENTIFICATION    NO.  NO.     (SQ MI)     (CFS)       (AC-FT)   (INCHES)   (HOURS)   ACRE
)TATION

   COMPUTE NM HYD        702.00    -     1        .02000       33.64       1.701     1.59455    1.550    2.628 PER IMP=
48.13
   *S
   *S**************************
   *S  TOTAL FLOW AT WB OUTFALL
   *S**************************
   ADD HYD                TOTWB  1&49  49      22.60593      3011.11    1219.066      1.01113    1.750     .208
   *S  PLOT12    HYD=TOTWB
   FINISH
```

Options Costs

Subject: Summary of Cost Associated with Option 1
Date: 10/30/2011
By: Jonathan Ellison

Facility	Option 1	
Expand Ladera Dam 1	$	119,000
Expand Ladera Dam 3	$	226,000
Pond 5S (49ac-ft)	$	522,000
D5 Dam (320 ac-ft)	$	3,341,000
36" Storm Drain from D5 Dam to 118th Street	$	352,000
42" Storm Drain from 118th Street to Pond 5S	$	249,000
Earthen Channel- Dam 9 Diversion to Pond 5S	$	250,000
36" Storm Drain from Pond 5S to Ladera Dam 5	$	741,000
Total	**$**	**5,800,000**

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 20110349
Date: 10/30/2011

Description: 36" Storm Drain From D5 Dam to 118th Street

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.110	TRCH, BF, 18"-36" SWR, 8'-12'	LF	2250	$ 27.25	$ 61,312.50
910.027	36" RCP, III	LF	2250	$ 76.79	$ 172,777.50
				Construction Cost Subtotal	$ 234,090.00
				25% Contingency	$ 58,522.50
				Construction Total	$ 292,612.50
				Soft Costs (20%)	$ 58,522.50
				Project Costs	**$ 351,135.00**

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 3:1 side slopes to 3 feet in depth includes crossing structure

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
xxxx	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 42" Storm Drain from 118th Street to Dam 5S

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.160	TRCH, BF, 42"-60" SWR, 8'-12'	LF	1400	$ 34.52	$ 48,328.00
910.024	42" RCP, III	LF	1400	$ 83.78	$ 117,292.00
				Construction Cost Subtotal	$ 165,620.00
				25% Contingency	$ 41,405.00
				Construction Total	$ 207,025.00
				Soft Costs (20%)	$ 41,405.00
				Project Costs	**$ 248,430.00**

Description: 36" Stormdrain From Dam 5S to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.110	TRCH, BF, 18"-36" SWR, 8'-12'	LF	3500	$ 27.25	$ 95,375.00
910.024	36" RCP, III	LF	3500	$ 49.72	$ 174,020.00
				Construction Cost Subtotal	$ 269,395.00
				25% Contingency	$ 67,348.75
				Construction Total	$ 336,743.75
				Soft Costs (20%)	$ 67,348.75
				Project Costs	**$ 740,836.25**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 1-- From 29.92 ac-ft to 40.39 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	16892	$ 5.86	$ 98,984.78
				Construction Cost Subtotal	$ 98,984.78
				Soft Costs (20%)	$ 19,796.96
				Project Costs	**$ 118,781.73**

Description: Expand Ladera Dam 3 -- From 29.71 ac-ft to 47.54 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	32089	$ 5.86	$ 188,042.71
				Construction Cost Subtotal	$ 188,042.71
				Soft Costs (20%)	$ 37,608.54
				Project Costs	**$ 225,651.25**

Description: Dam 5s -- 50 Ac-Ft pond w/36"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00
			Construction Cost Subtotal	$ 435,000.00
			Soft Costs (20%)	$ 87,000.00
			Project Costs	**$ 522,000.00**

Description: Arroyo Dam 5 -- 320 Acre Foot Pond Located within basin OS5.B

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	320	$ 8,700.00	$ 2,784,000.00
			Construction Cost Subtotal	$ 2,784,000.00
			Soft Costs (20%)	$ 556,800.00
			Project Costs	**$ 3,340,800.00**

Subject: Summary of Cost Associated with Option 2
Date: 10/30/2011

By: Jonathan Ellison

Facility	Option 2	
Expand Ladera Dam 1	$	228,000
Expand Ladera Dam 2	$	230,000
Expand Ladera Dam 3	$	231,000
Expand Ladera Dam 4	$	352,000
Expand Ladera Dam 5	$	205,000
Pond 5S (49 ac-ft)	$	522,000
D5 Dam (102 ac-ft)	$	1,065,000
48" Storm Drain from D5 Dam 5 to 118th Street	$	494,000
54" Storm Drain From 118th Street to Pond 5S	$	399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$	250,000
54" Storm Drain From Pond 5S to Ladera Dam 5	$	1,013,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$	483,000
***Total**	**$**	**5,472,000**

* Includes Hard and Soft Costs

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 20110349
Date: 9/6/2011

Description: 54" Dam5s outfall to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	3500	$ 34.52	$ 120,820.00
910.024	54" RCP, III	LF	3500	$ 158.41	$ 554,435.00
				Construction Cost Subtotal	$ 675,255.00
				25% Contingency	$ 168,813.75
				Construction Total	$ 844,068.75
				Soft Costs (20%)	$ 168,813.75
				Project Costs	**$ 1,012,882.50**

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 2:1 side slopes to 3 feet in depth

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 48" Dam 5 Diversion Storm Drain to Unser Channel

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2200	$ 34.52	$ 75,944.00
910.024	48" RCP, III	LF	2200	$ 111.70	$ 245,740.00
				Construction Cost Subtotal	$ 321,684.00
				25% Contingency	$ 80,421.00
				Construction Total	$ 402,105.00
				Soft Costs (20%)	$ 80,421.00
				Project Costs	**$ 482,526.00**

Description: 54" Storm Drain from 118th Street to Dam 5s

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"60" SWR, 8'-12'	LF	1378	$ 34.52	$ 47,568.56
910.024	54" RCP, III	LF	1378	$ 158.41	$ 218,288.98
				Construction Cost Subtotal	$ 265,857.54
				25% Contingency	$ 66,464.39
				Construction Total	$ 332,321.93
				Soft Costs (20%)	$ 66,464.39
				Project Costs	**$ 398,786.31**

Description: 48" Storm Drain from D5 Dam to 118th Street

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2250	$ 34.52	$ 77,670.00
910.024	48" RCP, III	LF	2250	$ 111.70	$ 251,325.00
				Construction Cost Subtotal	$ 328,995.00
				25% Contingency	$ 82,248.75
				Construction Total	$ 411,243.75
				Soft Costs (20%)	$ 82,248.75
				Project Costs	**$ 493,492.50**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 1-- From 29.92 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	32396	$ 5.86	$ 189,839.00
				Construction Cost Subtotal	$ 189,839.00
				Soft Costs (20%)	$ 37,967.80
				Project Costs	**$ 227,806.80**

Description: Expand Ladera Dam 2 -- From 29.77 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP; U, >2'	CY	32638	$ 5.86	$ 191,257.12
				Construction Cost Subtotal	$ 191,257.12
				Soft Costs (20%)	$ 38,251.42
				Project Costs	**$ 229,508.54**

Description: Expand Ladera Dam 3 -- From 29.71 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	32735	$ 5.86	$ 191,824.37
				Construction Cost Subtotal	$ 191,824.37
				Soft Costs (20%)	$ 38,364.87
				Project Costs	**$ 230,189.24**

Description:Expand Ladera Dam 4 -- From 19.03 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	49965	$ 5.86	$ 292,794.51
				Construction Cost Subtotal	$ 292,794.51
				Soft Costs (20%)	$ 58,558.90
				Project Costs	**$ 351,353.41**

Description: Expand Ladera Dam 5 -- From 31.9 ac-ft to 50 ac-ft

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1	FILL, EXCAV, BF & COMP, U, >2'	CY	29201	$ 5.86	$ 171,119.81
				Construction Cost Subtotal	$ 171,119.81
				Soft Costs (20%)	$ 34,223.96
				Project Costs	**$ 205,343.78**

Description: Dam 5s -- 50 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
	Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00
				Construction Cost Subtotal	$ 435,000.00
				Soft Costs (20%)	$ 87,000.00
				Project Costs	**$ 522,000.00**

Description: Arroyo Dam 5 -- 102 Ac-Ft pond w/54"outlet (Located within Basin O5S.B)

	Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
	Dam and Spillway Construction	Ac-Ft	102	$ 8,700.00	$ 887,400.00
				Construction Cost Subtotal	$ 887,400.00
				Soft Costs (20%)	$ 177,480.00
				Project Costs	**$ 1,064,880.00**

Subject: Summary of Cost Associated with Option 3
Date: 9/7/2011
By: Jonathan Ellison

Facility	Option 3	
Expand Ladera Dam 1	$	231,000
Pond 5S (50 ac-ft)	$	522,000
D5 Dam (102 ac-ft)	$	1,065,000
48" Storm Drain from D5 Dam 5 to 118th Street	$	494,000
54" Storm Drain From 118th Street to Pond 5S	$	399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$	250,000
54" Storm Drain From Pond 5S to Ladera Dam 5	$	1,013,000
54" Storm Drain From Ladera Dam 5 to Unser Channel	$	737,000
Total	**$**	**4,711,000**

* Includes Hard and Soft Costs

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 060232
Date: 2/16/2006

Description: 54" Dam5s outfall to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	3400	$ 34.52	$ 117,368.00
910.024	54" RCP, III	LF	3400	$ 158.41	$ 538,594.00
				Construction Cost Subtotal	$ 655,962.00
				25% Contingency	$ 163,990.50
				Construction Total	$ 819,952.50
				Soft Costs (20%)	$ 163,990.50
				Project Costs	**$ 983,943.00**

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 2:1 side slopes to 3 feet in depth

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 54" Dam 5 Diversion Storm Drain to Unser Channel

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2200	$ 34.52	$ 75,944.00
910.024	54" RCP, III	LF	2200	$ 158.41	$ 348,502.00
				Construction Cost Subtotal	$ 424,446.00
				25% Contingency	$ 106,111.50
				Construction Total	$ 530,557.50
				Soft Costs (20%)	$ 106,111.50
				Project Costs	**$ 636,669.00**

Description: 54" Storm Drain from Dam 5 Arroyo to Dam 5s

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"60" SWR, 8'-12'	LF	3700	$ 34.52	$ 127,724.00
910.024	54" RCP, III	LF	3700	$ 158.41	$ 586,117.00
				Construction Cost Subtotal	$ 713,841.00
				25% Contingency	$ 178,460.25
				Construction Total	$ 892,301.25
				Soft Costs (20%)	$ 178,460.25
				Project Costs	**$ 1,070,761.50**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 1 -- From 29.71 ac-ft to 50 ac-ft

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1 FILL, EXCAV, BF & COMP, U, >2'	CY	32735	$ 5.86	$ 191,824.37

Construction Cost Subtotal	$	191,824.37
Soft Costs (20%)	$	38,364.87
Project Costs	**$**	**230,189.24**

Description: Dam 5s -- 50 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00

Construction Cost Subtotal	$	435,000.00
Soft Costs (20%)	$	87,000.00
Project Costs	**$**	**522,000.00**

Description: Arroyo Dam 5 -- 102 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	102	$ 8,700.00	$ 887,400.00

Construction Cost Subtotal	$	887,400.00
Soft Costs (20%)	$	177,480.00
Project Costs	**$**	**1,064,880.00**

Subject: Summary of Cost Associated with Option 4
Date: 9/7/2011
By: Jonathan Ellison

Facility	Option 4
Expand Ladera Dam 1	$ 231,000
Pond 5S (50 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ 1,065,000
48" Storm Drain From D5 Dam to 118th Street	$ 494,000
54" Storm Drain From 118th Street to Pond 5S	$ 399,000
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
48" Storm Drain From Pond 5S to Ladera Dam 5	$ 768,000
36" Storm Drain Diversion to Storm Cloud	$ 156,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$ 583,000
***Total**	**$ 4,468,000**

* Includes Hard and Soft Costs

Subject: Summary of Cost Associated with APS Projects
Date: 9/7/2011
By: Jonathan Ellison

Facility	APS Projects
Expand Ladera Dam 1	$ -
Pond 5S (49 ac-ft)	$ 522,000
D5 Dam (102 ac-ft)	$ -
48" Storm Drain From D5 Dam to 118th Street	$ -
54" Storm Drain From 118th Street to Pond 5S	$ -
Earthen Channel - Dam 9 Diversion to Pond 5S	$ 250,000
48" Storm Drain From Pond 5S Ladera Dam 5	$ 768,000
36" Storm Drain Diversion to Storm Cloud	$ 156,000
48" Storm Drain From Ladera Dam 5 to Unser Channel	$ -
***Total**	**$ 1,696,000**

* Includes Hard and Soft Costs

Cost Estimates
Project Name: West I-40 DMP Update
By: Jonathan Ellison
Project: 060232
Date: 2/16/2006

Description: Dam 9 Diversion to Dam 5s Earthen Channel bottom width of 5ft with 2:1 side slopes to 3 feet in depth with a 48" culvert crossing

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
	EXCAV/BF/COMP/	LF	1900	$ 87.71	$ 166,649.00
				Construction Cost Subtotal	$ 166,649.00
				25% Contingency	$ 41,662.25
				Construction Total	$ 208,311.25
				Soft Costs (20%)	$ 41,662.25
				Project Costs	**$ 249,973.50**

Description: 36" Dam 5s Diversion to Storm Cloud

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.110	TRCH, BF, 18"-36" SWR, 8'-12'	LF	1000	$ 27.25	$ 27,250.00
910.024	36" RCP, III	LF	1000	$ 76.79	$ 76,790.00
				Construction Cost Subtotal	$ 104,040.00
				25% Contingency	$ 26,010.00
				Construction Total	$ 130,050.00
				Soft Costs (20%)	$ 26,010.00
				Project Costs	**$ 156,060.00**

Description: 48" Storm Drain from D5 Dam to 118th Street

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2250	$ 34.52	$ 77,670.00
910.024	48" RCP, III	LF	2250	$ 111.70	$ 251,325.00
				Construction Cost Subtotal	$ 328,995.00
				25% Contingency	$ 82,248.75
				Construction Total	$ 411,243.75
				Soft Costs (20%)	$ 82,248.75
				Project Costs	**$ 493,492.50**

Description: 48" Storm Drain from Dam 5S to Ladera Dam 5

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	3500	$ 34.52	$ 120,820.00
910.024	48" RCP, III	LF	3500	$ 111.70	$ 390,950.00
				Construction Cost Subtotal	$ 511,770.00
				25% Contingency	$ 127,942.50
				Construction Total	$ 639,712.50
				Soft Costs (20%)	$ 127,942.50
				Project Costs	**$ 767,655.00**

Description: 48" Dam 5 Diversion Storm Drain to Unser Channel

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"-60" SWR, 8'-12'	LF	2200	$ 34.52	$ 75,944.00
910.024	48" RCP, III	LF	2200	$ 111.70	$ 245,740.00
				Construction Cost Subtotal	$ 321,684.00
				25% Contingency	$ 80,421.00
				Construction Total	$ 402,105.00
				Soft Costs (20%)	$ 80,421.00
				Project Costs	**$ 482,526.00**

Description: 54" Storm Drain from 118th Street to Dam 5s

Item #	Item	Units	Quantity	Estimated Cost/unit	Estimated Cost
701.170	TRCH, BF, 42"60" SWR, 8'-12'	LF	1378	$ 34.52	$ 47,568.56
910.024	54" RCP, III	LF	1378	$ 158.41	$ 218,288.98
				Construction Cost Subtotal	$ 265,857.54
				25% Contingency	$ 66,464.39
				Construction Total	$ 332,321.93
				Soft Costs (20%)	$ 66,464.39
				Project Costs	**$ 398,786.31**

Total **$ 2,298,519.81**

Cost Estimates
Project Name: West I-40
By: Jonathan Ellison
Project 20110349
Date 9/6/2011

Description: Expand Ladera Dam 3 -- From 29.71 ac-ft to 50.00 ac-ft

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
204.1 FILL, EXCAV, BF & COMP, U, >2'	CY	32735	$ 5.86	$ 191,824.37

Construction Cost Subtotal	$	191,824.37
Soft Costs (20%)	$	38,364.87
Project Costs	**$**	**230,189.24**

Description: Dam 5s -- 50 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	50	$ 8,700.00	$ 435,000.00

Construction Cost Subtotal	$	435,000.00
Soft Costs (20%)	$	87,000.00
Project Costs	**$**	**522,000.00**

Description: Arroyo Dam 5 -- 102 Ac-Ft pond w/66"outlet (Located within the soccer fields within the Stadium Site

Item	Unit	Quantity	Estimated Cost/Unit	Estimated Cost
Dam and Spillway Construction	Ac-Ft	102	$ 8,700.00	$ 887,400.00

Construction Cost Subtotal	$	887,400.00
Soft Costs (20%)	$	177,480.00
Project Costs	**$**	**1,064,880.00**